

Welcome

to

A different life is possible.
But how?

Planet B

Jeff and Elon
just left the
planet



ARS ELECTRONICA 2022

Festival for Art, Technology & Society

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Welcome

to A different life is possible.
But how?

Planet B

Ars Electronica 2022
Festival for Art, Technology, and Society

September 7 – 11, 2022
Ars Electronica, Linz

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Editing: Mihaela Kavdanska, Julia Blaas, Nur Selin Gunes, Maria Koller, Veronika Liebl

Copyediting: Laura Freeburn, Andrew Horsfield, Ingrid Fischer-Schreiber

Graphic design and production:

Main layout: Cornelia Prokop, Lunart Werbeagentur

Cover: Gerhard Kirchschräger

Typeface: IBM Plex Sans

Printed by: Gutenberg-Werbering Gesellschaft m.b.H., Linz

Paper: Arctic Volume white 1,12 vol., cover – 300g/m², book core – 115g/m²

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Distribution worldwide by
Hatje Cantz Verlag GmbH
Mommsenstr. 27
10629 Berlin
Germany
www.hatjecantz.com
A Ganske Publishing Group Company

ISBN 978-3-7757-5363-0

Printed in Austria

Cover:

Photomontage: *Moynaq, Aral Sea* by Arian Zwegers is licensed under CC-BY-2.0.

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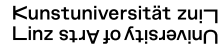
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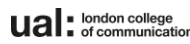
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Gerfried Stocker (AT)

Welcome

to A different life is possible.
But how?

Planet B

A festival takes on the challenging search for answers to the contradictions of our time.

Neither naive escapism into virtual worlds, nor the technological ultra-topia of space colonization will save us from facing the big, uncomfortable questions. How will our life on this planet have to look to prevent ecological super disaster? What actions must we take and what consequences must we accept? How much persuasion, how much effort, how much pressure, how much coercion will be necessary, and what “collateral damage” will be involved?

The United Nations has declared the current decade the “Decade of Restoration” of our ecosystems.

How can we make such a fundamental and far-reaching change? After all, it is not enough to reduce CO₂ emissions. We now have robust data on what our world will look like if we don’t make the change, from New York being flooded by rising sea levels to Central Europe being a new Sahara.

But what will our world look like if we do make the change? What technologies will we still have to develop for it, and what economic, social and democratic changes will accompany them?

Planet B is not the second chance for another place where we can continue as before, it is the cipher for the indispensable, new and in many forms completely different life and action on this only planet that exists for us. It is the chance for coexistence with the unique ecosystems of this planet, a chance for a new and fair coexistence of humans on this planet.

“Blah, Blah, Blah”—Greta Thunberg on the results of the current last global climate conference COP26.

After all, more than 30 years have passed since the IPCC’s first warnings. And that is how long it has taken for there to be an agreement under international law between 193 countries to limit



global warming to 2° by 2050. The limit of 1.5° that is actually necessary is, however, no more than a wishful goal, and no sanctions have been agreed, but even if development is very slow to get underway, we have at least resolved to tackle the biggest social and economic transformation project in known history:

By 2050 at the latest, the use of coal worldwide must be reduced by 95 percent, and the consumption of oil and gas must be reduced by 60 percent and 45 percent, respectively — and we must create the framework conditions for this.

From today's perspective, with the dislocations of the Corona pandemic and the monstrosities of the war against Ukraine before our eyes, this is a completely hopeless undertaking that we can only achieve if we change as individuals, as a society, as humanity, if we agree on a different way of living on this planet.

We know what to do with crystal clarity, but not how to do it; we are afraid of the consequences

of climate change, but even more, of the many imponderables and unknowns of the necessary change.

So can we change not only the world we live in, but also ourselves?

If our idea of innovation has been primarily associated with technology, with systems and processes, with optimization, streamlining, and increasing profits, in the next ten years we will have to give ourselves an enormous innovation push.

We will need every bit of technology, every organizational, logistical optimization that can help us reduce emissions and filter them back out of the atmosphere.

But the biggest innovation project in human history this time has to be ourselves, our ability to rise to the challenge as a global community — a reinvention of humanity!

WED 7.9.2022: Opening Day

The first day of this year's Ars Electronica Festival is all about the openings. Let's start in *Kepler's Garden* on the campus of Johannes Kepler University Linz, the central venue of the 2022 Ars Electronica Festival: the doors in the campus dining hall will open for the *CyberArts* exhibition, which will once again bring together the best Prix Ars Electronica award-winning art projects in one place — including Golden Nica laureates like the *Avatar Robot Café* by Ory Yoshifuji and Ory Lab (JP), the interactive character *Being* by Rashaad Newsome (US), and with *Biøfilm.net: Resist like bacteria* by Jung Hsu (TW) and Natalia Rivera (CO) a network of umbrellas for civil resistance. The exhibition of the *Linz Institute of Technology (LIT)* in the Learning Center celebrates the creative encounter between research and art at the Linz location. *STUDIO(dys)TOPIA — at the Peak of Humankind* is the title of this year's theme exhibition at Science Park 4, which focuses on the clash of two disciplines — art and science — whose core mission is to arrive at possible answers and solutions despite contradictions. Another highlight of the exhibitions will also take place in Science Park 4, the *Garden Partner Exhibition*. In the two pandemic years, we stayed connected online, now we meet in person again, highlighting the various perspectives from the countries of this world on this year's festival topic. Between all these exhibitions in *Kepler's Garden* is the *Sound Park*. An ideal setting for the sound artist Bill Fontana (US), who plays with the sound worlds and resonances of the time-honored bells of Notre Dame in his project *Silent Echoes_ Notre Dame*. Straight on to a festival within the festival. Our youth perspective *create your world* brings together the young, critical, curious and future-oriented next generations and presents their ideas and projects for tomorrow. Ultimately, in the *Transformation Lounge*, together with our partners such as Hakuhodo, BMW, Brantner Green Solutions, AfB and LINZ AG we reflect on a strategy to make festivals like ours sustainable. A few tram stops away, in Linz's city center, the Lentos Kunstmuseum gives an insight into the

young media art scene of Latin and South America presented in cooperation with the Cisneros Fontanals Art Foundation (CIFO). The University of Art and Design Linz and the Atelierhaus Salzamt bundle perspectives from more than 20 universities from all over the world, whose students are participating in this year's *Ars Electronica Campus* — including HTW Berlin, CINETIC Bucharest, SAIC Chicago, London College of Communication, K'ARTS Seoul, ArTeC Paris and University of Wellington, to name just a few. The Interface Cultures master's program, based in Linz, will be spotlighting the artists studying at the local art university in its tried-and-tested exhibition *Von schwarzen Schwänen* ("Of Black Swans"). Uwe Rieger (DE/NZ) and Yinan Liu (NZ) experiment with light and shadow at the southernmost point of the festival area in the Mariendom in Linz with *LightSense*, a spectacular journey of holographic 3D animation. A special show on the life's work of Christa Sommerer and Laurent Mignonneau will take place at OK Center for Contemporary Art.

The Ars Electronica Center will once again feature exciting new content for its all-new *Deep Space 8K*. The immersive projection room, recently equipped with new laser projectors and the most powerful graphics cards, will set the stage for a packed program every half hour from the very first day of the festival. The first, intensive day ends with the official opening of the festival and especially welcomes the students of the *Festival University*.

THU 8.9.2022: Futurelab Day

This day is characterized by activities from the Ars Electronica Futurelab. With the conference *Ars Electronica Futurelab x Club of Rome: Creative Resilience for Planet B*, the Futurelab Day offers a variety of opportunities to gain insights into current topics and build up a tool to forge "Plan B" together.

FRI 9.9.2022: S+T+ARTS Day

As part of the festival, the STARTS Prize exhibition is not only a major show. It will be the thematic starting point of a whole day full of lectures, conferences, workshops and performances on innovation for the 21st century. The high-profile STARTS 2022 lineup and part one of the themed symposium at *Kepler's Gardens* include names of two STARTS Prize winners Giulia Foscari (IT) and Holly Herndon (US). The Ars Electronica Center shows the potential of mixing technology such as Deep Space 8K and digital versions of masterpieces from the Vatican Museums and the Louvre. After two years of virtual events, the *Expanded Animation Symposium* of the Hagenberg Campus of the University of Applied Sciences Upper Austria (AT) will also take place at the Ars Electronica Center. Over three days, several international artists, researchers and developers will come together in Linz to discuss current processes of change in the extended field of animation. The program will be accompanied by screenings of the *Ars Electronica Animation Festival*.

Kepler's Gardens are transformed into a very special venue on Friday afternoon, when the ensembles of the *Bruckner Orchestra* (AT) are spread out at several locations in the festival area. The concerts of small groups interweave into a tapestry of sound that every visitor can enjoy on the way from A to B.

The *Ars Electronica Award Ceremony* at *Kepler's Gardens* not only brings together the winners of the Prix Ars Electronica 2022, including the winner of the *Visionary Pioneer Award* Laurie Anderson, and the STARTS Prize 2022. On this evening, the *Ars Electronica Award for Digital Humanity* (Sarah Newman (US), Kasia Chmielinski (US), Matthew Taylor (US)) as well as the *State of the ART(ist) Initiative* will also be presented in cooperation with the Austrian Foreign Ministry.

SAT, 10.9.2022: Plan B Day

Even before the festival began, 200 students from over 70 countries spent four weeks at the *Festival University* of Ars Electronica with JKU scientists,

artists, and many other high-ranking experts from all areas of art, technology, science, and society. They present their ideas and insights as an "International Constitution for Climate Protection," in a realistic simulation of an International Court of Justice. Furthermore, the second part of the Theme Symposium, the *STUDIOTOPIA Day*, will investigate the cultural world itself and question what role it would play on Planet B, as well as how the cultural world itself deals with the dramatic transformations. „STUDIOTOPIA — Art meets science in the Anthropocene“ is an initiative that aims to promote cooperation between cultural and research institutions, universities, innovation centers, creatives and citizens. Another highlight will be the *create your world ceremony* in which young award winners are honored. This day is also dedicated to generating an intensive exchange with the local population. From speed dating for employees to the organic farmers' market of Bio Austria. The musical highlight and generally a highlight of the entire festival will be *Laurie Anderson in Concert*. As Visionary Pioneer of Media Art 2022, she will make this day a very special one, together with Filharmonie Brno (CZ) under the direction of Dennis Russell Davies (US).

SUN, 11.9.2022: Prix Day

The final day is entirely dedicated to art. In the *Prix Forums*, the winners of the Prix Ars Electronica will talk about their projects; the winners of the *State of the ART(ist) initiative* will be presented in the virtual Kunsthalle and on this year's streaming channel unfolding artistic freedom within a secure framework. The crowning finale of the festival will be on Sunday by the pianist Maki Namekawa (JP) with a piano concerto that provides an almost traditional closure for the circle of the festival.

Once again, „Planet B“ is not an endeavor confined to the city or people of Linz. Longtime international partners, who have become part of the Ars Electronica Gardens over the past two years, present their ideas and methods for ways to create a sustainable world.

Enough is Enough for Everyone? Enough.

Very few people have changed the way we look at our planet as much as astronomer, physicist, and mathematician, Johannes Kepler. Our university's namesake, however, had more of a holistic view of the world, extending far beyond his core area of expertise and coming quite close in spirit to the idea of a *universitas* in a Humboldtian sense. Not surprisingly, he believed to have discovered a harmonic principle of construction ("Harmonices Mundi") behind his discoveries of celestial orbits:

"I feel myself taken in an unspeakable rapture by the divine spectacle of heavenly harmony. For we see here how God, like a human architect, has approached the foundation of the world according to order and rule."

This sense of world harmony ought to naturally reflect nature and the social conditions shaped therein. Governments, academia, and science should be in alignment. After all, in a Keplerian context, the goal is living on a planet in tune with its occupants, embodying peace and distributing prosperity equally.

In stark contrast, we face an alarming and distressing reality: This past decade ushered in the warmest temperatures since record-keeping began, with the average global temperature today 0.95 to 1.2 degrees Celsius higher than at the end of the 19th century. The ramifications and fallout from climate change have quickly escalated to one of the greatest challenges of our time, perhaps of all time! The multifaceted consequences of our actions have resulted in countless problems that impact all of us as individuals, as nations, and as a global community. Climate change knows no borders. What can we — as a society — do about it? Do we still have time to save our planet? Or is it an impossible mission? Greta Thunberg, climate activist and a pioneer behind the "Fridays for Future" movement, inspires us with a little hope: "I want you to panic. I want you to feel the fear that I feel every day. [...] I want you to act like your house is on fire. Because it is burning." While scientific findings may be more sobering, they are no less serious in essence. So, if the earth is literally burning, do we still have enough time to shift it into reverse?

Just what would this entail and, above all, how will it affect all of the different areas of our lives? This year's Ars Electronica Festival aims to address this and more. Under the motto *Welcome to Planet B! Another Life is Possible, But How?*, this year's festival raises the question as to how we — as a global community — can tackle, confront, and manage the effects of climate change in an effort to ultimately create our "Planet B".

What would Kepler have done? Even during his lifetime in the 17th century, people faced complicated conflicts and correlated crises, such as the plague and religious wars, just to name a few. Kepler's response was conciliatory and courageous, as he understood there is no one answer and dialogue is a crucial part of the solution. Indeed, it is high time that we return to Kepler's stance because if we aim to effectively address climate change, we have to take different approaches that ultimately focus on humans as social beings, including all of the warranted diversity. And we ourselves are the very key to change. Kepler's ideals are being continually tested. Even though we long accept his worldview, we continue to act as if we are the very center of the solar system. The idea of growth and unconditional prosperity is something we subjugate everything to, at least in the Western world. Fossil fuels continue to fuel our desires and ambitions, and the price we ultimately pay still does not justify the ecological impact and ramifications. The true price of our prosperity is outsourced by destroying living environments that we perceive to be a world away. Sociologist Stephan Lessenich quite rightly speaks of an externalized society.

Our way of life has long since become unsustainable, driven by advertising and large corporations constantly urging us to do more, buy more, and want more. McDonald's, H&M, and Ikea are discovering sustainability for themselves and their PR and advertising campaigns drive their story home. "Green washing" strategies make us consumers feel like our purchases are helping

(or at least not harming) the planet. Nevertheless, consumerism remains the cornerstone, resulting in a sense of dependency and becoming a continually perpetuated cycle (be it production sites located in low-wage countries to cheap, unrecyclable products...). It is a contradiction that only we ourselves can address and break. We could start by introducing more in-depth discourse, debate, and dialog about what prosperity really means.

As we shift toward not only finding a way to redefine terms, but also beyond emphasizing austerity and a loss of affluence, we need a heightened awareness on how to meet human needs with a more sustainable approach that does not come "at the cost" of our ecosystem, or parts of it. Exploitation, along with repression, are becoming the most prominent form of structural violence, as illustrated by our "carbon democracy" (Timothy Mitchell) based on exploiting cheap fossil fuels — it is the tyranny of the present and scourge of the future. We continue to legitimize exploiting our ecosystem, "Earth", over and over again, becoming experts in cultural violence, the very form of violence that justifies and explains structural and direct violence. When we talk about peace, we must always understand that it is really more about the absence of war.

Greta Thunberg's emotional plea is: "I want you to act like your house is on fire! Enough is enough!", and many others agree, albeit in somewhat simpler terms. Given the motto of this year's Ars Electronica Festival, "Another Life is Possible, But How?", we should be able to successfully transform "enough is enough" to "enough for everyone!". We need to look at the abundance of resources around us and not only reflect on how to redefine what we need, but also determine what we really need; we do not have to plunder scarce resources in order to meet our needs. What kind of planet do we want to welcome guests to? What is our vision for the future this planet?

When it comes to shaping our planet's future, science plays a pivotal role. Science, after all, not only paves the way for new technologies and progressive innovation, science could also aid in our efforts to tackle climate change or, at the very least, give us more room to maneuver. The university is where students, faculty members, and researchers are driven by scientific curiosity; they look at the richness and abundance around us, take what is possible into consideration, and apply innovation to accomplish that which seemed impossible before. Yet, scientific debate should never focus just on technical innovation, but rather on its parameters and consequences. Society and innovation interact constantly with one another, requiring both technical expertise and interdisciplinary collaboration.

I would like the Ars Electronic Festival to embrace this interdisciplinary spirit of research and foster more awareness about our ecosystem's abundance, including us and the role we play. Our house may be burning, but it is still standing. The desire to save our planet and create a wonderful home for me and our global community is what drives me more than a sense of panic; panic often gives rise to an urge to run away. We need a shared vision of our planet's future, reimagined by young and old alike, for past, present, future

generations; visions that give us the courage and confidence to act and take action, while simultaneously drawing on the wealth of human potential.

One truly remarkable example is the Festival University. The second annual Festival University is a unique summer university program organized jointly by the JKU and Ars Electronica in association with the Ars Electronica Festival. Two hundred young people from all over the world will travel to Linz to work on ideas and strategies as to how we as a society can respond to climate change and its ongoing impact. The participants' cultural and professional diversity is a representative microcosm reflecting our global community. This diverse pool will build bridges between cultures, between disciplines, and ultimately between people.

If all of us – as individuals and as a global community – could adopt this as a model and not only structure our “Planet B” based on cooperation and dialogue, but also apply new technologies in the interest of our community, then we would be in a position to effectively respond to multicausal challenges and cope successfully with the effects of climate change. In this respect, the mindset of polymath Johannes Kepler can potentially serve us as a model.



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CONFERENCES
LECTURES
WORKSHOPS

Welcome Day

Upper Austria Teacher-Training College x
Upper Austria Chamber of Labor and Ars Electronica

Symposium Perspektiven Politischer Bildung: Parallel worlds and their impact on Political Education

The title *Welcome to Planet B* allows for many interpretations on alternative forms of coexistence. Are we perhaps already living in different parallel worlds? For decades we have been talking about a First, Second or Third World, distinguishing between a global North and South. In globalized contexts, people are constantly shifting between these worlds. Wars and climate change additionally accelerate migration movements that impact political decisions on a national and global level. Since before the pandemic people have sought refuge in fictitious parallel worlds, where they

have constructed their own reality beyond any rationality. In a (dis)informed society driven by social media, “alternative facts” are deliberately instrumentalized politically in order to call democratic elections into question. On the other hand, independent and grassroots initiatives make texts by critics of authoritarian regimes accessible to the world public and thus keep them at a distance from censorship. Political education is challenged to deal with these parallel world constructions in an effort to counteract a destabilization of our democratic society.

Futurelab Day

Ars Electronica Futurelab
Creative Resilience for Planet B

The Ars Electronica Futurelab is the think-and-do tank of the Ars Electronica, developing new concepts for an autonomous future society in an inspiring field of tension between disciplines and transnational cooperation, all the while placing humans at the center of its research.

Thursday’s extensive all-day program, based on the Ars Electronica Futurelab’s work, is aimed at people who want to explore and actively shape the future. With many crises at hand, Futurelab Day explores how creativity, art and technology support society to through crises and aid in overcoming challenges in order to actively create a positive future together. Futurelab Day starts off with *Morning Inspirations*: Friends, partners and members of the Ars Electronica Futurelab share

an open discussion with the public about *Creative Resilience for a Planet B*. Club of Rome starts the Afternoon Experiences off, inviting the audience to symposia and open discussions with representatives from BMW, Cisco, Nikkei, as well as artists, scientists and activists on topics such as “Work of the Future”, “Media of the Future” and “Humanity of the Future”.

The Afternoon Experiences also include unique workshops on creativity and the future as well as Guided Tours by lab members. At the Night Performances, Futurelab Day ends with unique performances, highlighting the latest productions of the Ars Electronica Futurelab by its members and guests in the Deep Space 8K.

S+T+ARTS Day

Repairing the Present

S+T+ARTS is an initiative of the European Commission that fosters synergies between Science+Technology+Arts. Guided by the belief that artistic perspectives can contribute to innovation beyond the arts and culture realm, the initiative strives to give artists a leading role in research and innovation activities with an impact on industry and society. This year's S+T+ARTS Day gathers artists, industry and research leaders under the banner of *Repairing the Present*.

Through a series of talks, discussions, and networking events the conference addresses the ways in which innovation through art-driven interdisciplinary collaborations can contribute to mapping responsibilities as well as solutions for challenges posed in both the digital and the analogue world, making powerful contributions to achieving the UN Sustainable Development Goals as well as aiding in the aims of the European Green Deal. The discursive formats of S+T+ARTS Day also address the importance of environmental awareness in the context of our fast-changing

ecosphere and the ways in which research results can be presented in false contexts and with different meaning. Speakers share insights on how to tackle misinformation in digital media as well as shed light on new ways to reinvent notions of intellectual property and identity in the context of machine generated artistic content.

The joint mission of twelve Regional S+T+ARTS Centers from across Europe, *Repairing the Present* has been the overarching focus of 21 S+T+ARTS Residencies and numerous S+T+ARTS Academy events over the past year. The S+T+ARTS Day is the chance for actors from different disciplines to come together, reflect on past and future collaborations, weigh their impact, and map out ways forward.

The S+T+ARTS Day has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No LC01641664. The Opening Keynote and Panel Discussion "Network Ecologies" held in the framework of S+T+ARTS Day, are sponsored by Greiner AG.

STUDIOTOPIA Day

Co-creating Sustainable Futures through Culture

STUDIOTOPIA – Art meets science in the Anthropocene is an initiative that aims to increase collaborations between cultural and research institutions, academia, innovation centers, creatives and citizens.

In keeping with the festival theme, both speakers and audiences of the STUDIOTOPIA Day conference program are challenged to reflect creatively and critically about ecological and sociopolitical implications of the Anthropocene.

Following representatives of current best practice projects on stage are key figures of cultural institutions; initiatives debate designing novel interfaces for gathering and disseminating knowledge as well as their roles in reframing (creative) commons and bringing together stakeholders under

the umbrella of nurturing coexistence. A panel by guest curators and 2021 Ars Electronica Award for Digital Humanity winners Branch Magazine will focus on how the open movement, craft technology and a sustainable and just internet for all supports communities and action in the creation of alternative climate futures.

Finally, discussions turn to exploring how STEAM activates the collaborative and interdisciplinary potential between science, technology, engineering arts and mathematics that is required to navigate the challenges and environmental crises that our society is currently facing.

Studiotopia – Art meets science in the Anthropocene and is co-funded by the Creative Europe Program of the European Union.

Prix Day

Transformation to Radical Consciousness

The Prix Ars Electronica is the world's most time-honored media arts competition since 1987, and from its inception, it has kept working as a trend barometer that continues to change with the times. Along with the *CyberArts* exhibition, the *Prix Forum* is always one of highlights of the Ars Electronica Festival and a great opportunity to get to know the Prix Ars Electronica winning artists. Audiences can expect to learn more about what piques the artists' curiosity, what issues or technologies they explore, and what creative processes shape their projects.

As indicated by the title of the Jury Statement of Interactive Art + "Radical Consciousness," many of the works in each category encourage the transformation of our consciousness through

their social actions. We are used to ignoring or not paying much attention to matters such as sleep, bodily senses, ancestral knowledge, bacterial behavior, viewpoints of minorities, and government injustice — elements highlighted by the artists to build a new, radical consciousness. The Prix Forum will feature artist talks by this year's top three Prix Ars Electronica winners as well as open discussions chaired by the category jury. The Visionary Pioneer of Media Art category will feature talks by Charles Armikhanian and by award winner Laurie Anderson. Panels featuring the categories Computer Animation, Interactive Art + and Digital Communities will be chaired by Isabelle Arvers, José-Carlos Mariátegui and Thomas Gegenhuber respectively.

Workshops

Now more than ever before, we rely on the creative potential of the younger generations to find new ways of dealing with the consequences of our longstanding actions. Art and culture play an important role in bridging the gap between technology and society and contributing to technological innovation. The intercultural and intergenerational workshop program, a think-and-do-tank during the Ars Electronica Festival, invites students from the *Festival University*, artists, scientists, activists and festival audiences to meet with experienced professionals for mutual inspiration and exchange of ideas and know-how. The line-up includes opportunities for participants to engage in dialogue both with each other and the public. The workshops offer time and space to think about creative questions that generate ideas about missions and actions, rather than trying to find solutions for the commonly known prob-

lems. The workshops take place not in a closed space, but on the marketplace, the center of the festival with the *Transformation Lounge* and the *Festival University Stage*. The workshop program focuses on the challenges posed to humankind by the climate crisis, energy transition, inequitably distributed water resources and dwindling biodiversity. What is possible and how can we deal with consequences? These are the questions posed in every session. The enormous complexity of these issues and their inherent contradictions form an ideal basis for exploring the potential of digital technologies for knowledge acquisition, strategy formation, communication and consensus building on an international and highly interdisciplinary level. At the same time, participants are encouraged to push professional boundaries and think outside the box. A selection of the workshops on offer includes: *Tools for a*

Warming Planet — we live on a planet in flux — warming waters and land, chaotic weather, and unknown futures. Our adaptability and ingenuity are crucial to our survival, and our planet's. In response to this condition, this workshop explores new tools for sensing, mapping, engaging, and responding to our current and future environment. Participants learn about the *Tools for a Warming Planet* — a crowd-sourced collection on display at Ars Electronica that ranges from recipes to farm your own edible bugs, a climate compass to understand sea level rise, and methods to build community solar mobility stations. The workshop is hosted by Sara Dean (US), Beth Ferguson (US) and Marina Monsonís (ES). *Data Nutrition Project Building* — artificial intelligence is as much about learning as it is about technical implementation. This workshop is a brief, non-technical overview of how Artificial Intelligence (AI) algorithms work. Participants move through an experiential activity in which one gets to “be the algorithm,” and subsequently reflect on how bias is perpetuated in that process. This experience is tied to current industry themes and discussion of the complexities of building tools that mitigate the issue. The workshop is hosted by Sarah Newman (US), Matthew Taylor (US) and Kasia Szeto Chmielinski (US). *Feminist Futures* — developing collective agency and activism. How can we re-imagine the internet from a feminist perspective? And how can we translate our vision into practice? *Feminist Futures* is an ongoing participatory art project that initiates, creates and archives science fiction stories of a feminist internet. Together with the Branch Magazine, we stimulate new approaches and awareness of how online power structures can be dismantled that delay climate action. Focus is also on how the internet may become a sustainable and positive force for climate justice. *Dunch at the Holy Crab* — the premiere realization of this performative workshop will be dedicated to rethinking

food waste, focusing on polymers obtained from shrimp shells. Participants will learn through narration about the positive properties of chitosan, and how to treat the material. The workshop hosts are Marko Vivoda (SI) and Gjorgji Despodov (MX). The main aspiration of *Artistic Journalism — Contextualizing Complex News* is to work out more effective ways to contextualize complex news for people who do not regularly follow the news.

These audiences often report that they get lost in complex, long-running stories and, seeing no connection to their lives or communities, disengage. We have focused on climate, conflict and elections as three kinds of stories where this often occurs.

In order to help people to really understand what is going on with issues such as climate change, we need to support them in getting the information they require in ways that respond to their needs and contexts. This is the start of an exploration of work that helps people understand what climate change means for them, their communities, and the wider world. We have developed a set of prototypes to address the issue using both internal systems and the OpenAI models. These enable automated/personalized story timelines and explainers and are currently being tested with audiences. Workshop by Miranda Marcus (GB), Head of BBC News Labs.



TRANSFORMATION LOUNGE

The *Transformation Lounge* deals with the phenomenon of change and transformation. As a space for thinking and action within the *Festival University*, it focuses on the “But how?”. Even before the festival opening, it defines itself as a place where two specific groups will meet and exchange ideas: on the one hand, industry, which has a crucial influence on the situation to be addressed and must also be a participant in the discussion. It must be an integral part of a culture of change, because without it, change in the required dimensions and urgency would simply not be possible. On the other hand, we have our 200 young citizens and students from all over the world, whose future is being negotiated and whose critical list of demands and questions regarding the future must be brought into the discussion. The *Transformation Lounge* represents an effort to create a space in which these two supposedly independent worlds can be represented, and despite their opposing views and objectives, can identify a middle ground to their mutual benefit. At the festival itself, the *Transformation Lounge* constitutes a place where the discussion, previously outlined by the *Festival University*, is actively continued in public. The *Transformation Lounge* deals both practically and theoretically with processes of transformation, making them tangible in a variety of prototypes and methods. It is characterized by actors and personalities who could not be more different and yet are bound by a sense of responsibility, awareness and the will to change. Within this framework, we also examine the question the festival is posing: Is it still responsible to host an international event of this dimension at all? Does a festival with such a large footprint even belong in today’s world? And what would a climate-neutral festival on “Planet B” look like?

The process that led to this question started back in 2010 at the festival titled *REPAIR – ready to pull the lifeline*. The festival’s dimensions at the time gave rise to the issue of sustainability

for the first time and was specifically reflected in the festival’s production. This aspect of sustainability then intensified during the reflection phase for *Ars Electronica 2021*. It was the festival team members themselves who tackled the topic in working groups, not as an assignment, but of their own volition. These working groups critically examined all aspects of festival production for their sustainability. The result of this intensive process was a list of factors that had the potential for lasting improvement. This led to decisions being reconsidered or revised in many areas of the production, ranging from how people travelled to the festival, to fair pay, reusable exhibition architecture, slow, organic food versus international approaches. This thinking culminated in the attempt to place the economic processes of the festival itself in the context of circular economy, together with partners from business, science, and industry.

In the *Transformation Lounge*, together with our partners and visitors, we discuss transformation and examine how far the will to change could take us. It is about making transparent what does not seem achievable and where the obstacles lie along the way. Above all, however, it concerns what kind of new cross-disciplinary partnerships between industry, science and culture are needed, to overcome these obstacles.

In this specific case, a constellation of partners has been found which already represents the prototype of a consortium for “Planet B,” in which change and transformation can be thought of and executed differently, and collaboration is an integral part of its concept of culture.

At the *Festival University*, 200 young citizens from more than 70 countries meet to investigate how change can take place in the first place and how it can be adjusted to specific areas. They focus on recognizing the global challenges and asking which educational scenarios live up to future expectations in a changed, “new” world. In the microcosm of the *Transformation Lounge*, the

Ars Electronica Futurelab assumes precisely the role that has made it a key success factor within the Ars Electronica ecosystem in recent years — that of a catalyst. It contributes its expertise in working at the junctures of society and applies prototypical methods and tools that enable visitors, but above all those actively involved, to engage in a high-quality, mutually appreciative exchange of ideas. In the *Transformation Lounge*, the Ars Electronica Futurelab thus becomes a bridge builder between worlds, disciplines, the university and the festival.

The *Transformation Lounge* is designed by Ars Electronica and Hakuhodo, one of the largest, most prominent advertising and public relations agencies in Japan, which has set up a “social thinking space” around the topic of change. Using a variety of methods and techniques, the agency established direct contact with the audience. Hakuhodo’s intention is to work with Ars Electronica to simulate a look into the future so we can identify what new values are needed to meet that future, and how these can be communicated. Hakuhodo however, is also asking these questions to critically examine itself as a representative of an entire industry and to identify those challenges facing this industry in future if it wants to assume its social responsibility and help bring about fundamental changes. The result is an experiment in how communication and marketing can be used to proactively spread change and transformation, and what form of communication and interaction strategies are needed to trigger change in people themselves. Hakuhodo is developing a new concept and a task manual for an entire industry to adapt to the complexity of the future and to recognize wherein the new values of the future lie. Hakuhodo is thus redefining marketing and communication per se.

With the *Experience Lab Project*, the automobile manufacturer BMW is actively involved as a partner in the current discussions of the *Festival University* and is therefore an integral part of the

festival itself. Together with Supersense, the Viennese experimental laboratory for sensory perception and the exploration of the interface between analog and digital, a space for different experiences has been created in which these two worlds enter into open dialogue. At the center is the question of the mobility experience on “Planet B.” The students, equipped with their questions, demands and visions, are confronted with the world of the automotive industry with its global dimensions, challenges and complexity. The *Experience Lab Project* represents an open invitation for participants to learn from each other, but also ultimately to be able to reflect and position themselves.

Together with Ars Electronica, Brantner Green Solutions is launching an attempt to collect, recycle and utilize the waste generated over the course of the festival in the spirit of circular economy. As an Austrian waste management company, Brantner represents a global best practice paragon: a traditional company from the recycling and waste industry that has met the challenges of the future and transformed itself into a high-tech company. How is it possible to motivate citizens and influence their behavior, shifting their perception of waste, to seeing it as a raw material, a resource? How can modern technologies help us to better recognize our behavior and correct human errors? To what extent can artificial intelligence help us distinguish organic waste from inorganic? How and where can we optimize autonomous recycling processes — from waste separation to logistics? What cycles are needed to produce sustainable and beneficial byproducts from our waste? What does tomorrow’s waste recycling look like? Brantner will present several pioneering prototypes that allow a glimpse of the future.

AfB — social and green IT is another prototype that stands for living and rethinking economics and commerce in an alternative and successful way. AfB focuses on the question of how people and things outside the norm and the “normal” can

be integrated into new, sustainable value chains. And in doing so, creates an eco-social project – “social & green” – with a commercial focus, as an equipment partner for the entire festival (and more) supplying computers and screens. In collaboration with people with special needs, AfB transforms, used IT hardware into reusable, high-quality products.

The festival itself, with its great need for hardware in production and presentation, has been using these products for years with complete satisfaction. What Hakuodo brings to the festival’s circular economy in terms of possibilities and potential as an international partner, Linz AG contributes with its services and quality at the local

level. Linz AG which is responsible for the quality of life in the City of Linz, is a long-standing partner of the Ars Electronica Festival, and provides for its sustainable foundation: it manages many things that seem to be taken for granted and run unnoticed in the background. Among other things, it provides the modern and eco-friendly public transportation network for the entire city, including our employees and visitors – a holistic alternative in terms of mobility. As energy and water supplier and waste recycler, they are responsible for an entire city and its future. Linz AG has been a long-term partner and sponsor of Ars Electronica and is an existential element of the Ars Electronica Festival process.

SOCIAL RESPONSIBILITY – A New Protocol of Encounter

The existential drama of climate change, the consequences of social distancing during the Corona pandemic, and the terrible war in Ukraine with its complex consequences and perils, are among the significant factors fueling the dynamics of change at present. It is one thing to recognize the great challenges of our time by their origins, but quite another to grasp the multiple consequences these have on our individual daily lives, in order to make improvements and corrections, or to realign ourselves altogether. The condition arising when “things” are set in motion for many kinds of reasons could probably be best described with the broad term of “inconsistency.” It is precisely this contradictoriness that the festival addresses, as an offer to all participants and visitors, because the role of art is to deal with the contradictory and, above all, to be contradictory itself.

AMS

In cooperation with the AMS – Arbeitsmarktservice (Public Employment Service), we are addressing a paradox in European labor markets

that affects virtually every industry: while jobs are available, the standards and demands of employees have reconfigured and changed. In partnership with AMS, the Ars Electronica Festival explores the circumstances in which employees and employers meet. Together, we are working on a new protocol of encountering each other and are testing out turning the festival, as a cultural event, into a laboratory for alternative forms of encounter. We use the contradictoriness of the festival and the programs presented here to let people approach and experience each other differently. The festival at “Planet B” is therefore home to a temporary application agency, where local companies can offer their vacant positions to job seekers. The AMS encourages people in search for work to visit and use the festival. On Saturday of the festival there will be a “speed dating for employers and employees.” For those who make good connections, the festival offers special meeting zones for going into more depth. Afterwards, those who previously sat examining each other, are invited to explore new horizons together, using one of the multitudes of special places or artworks the festival has to offer.

TEUFELBERGER Group

Probably one of the most spectacular domains for encounter at the festival is the treetop talk developed jointly with the Teufelberger Group. Teufelberger, a family-owned company, is an open-minded, regionally based, internationally active company that specializes in rope technology – from ropes for professional tree climbing, to plastic strapping, to ultra-strong steel ropes for bridge construction. On the JKU campus, a mighty plane tree, some 250 years old and 40 meters high, takes center stage. Thanks to special equipment and expert supervision by Teufelberger, including professional arborists, two people at a time can climb to the treetop and stay there without damaging the tree. This tree thus becomes

the most spectacular and exclusive location of the entire festival. Not only is climbing it an extraordinary experience, but the wonderful view from the crown of the plane tree over the JKU festival site is unforgettable – *Off to new encounters*. This place should above all contribute to promoting commonality and closer relations. It emphasizes the quality connected with those products, because it enables an encounter at eye level, but from a different perspective. In the context of the search for work or employment, this place is particularly promising. Teufelberger itself tries to get to know characters in this way, throughout keeping in mind one or other open position at the company.

SUSTAINABLE FOOD

BIO AUSTRIA

Organic – good for us, good for the climate

Another important aspect of the festival's sustainability concept is the culinary supply including the food on offer. The festival is supplied by small, regional companies, which all offer regional organic products. Many art projects deal critically with the global situation in food supply and food industry, and we as a festival also want to take practical action and develop an alternative concept by way of example.

As in previous years, one highlight will be the organic farmers' market organized by BIO AUSTRIA on the Saturday of the festival. Regional producers offer their sustainable, home-grown delicacies – first-class food without unnecessary additives, pesticides or fertilizers, seasonal and regional. The festival is truly enriched by this local produce. The BIO AUSTRIA network of Austrian organic farmers means enhanced enjoyment of food, but more besides.

Organic farming also means better animal welfare, more water, soil and climate protection and greater biodiversity. To choose organic food is not only about quality of produce; it is also an ethical decision with long-term implications, ensuring healthier living conditions for generations to come.



Change Is Needed When There Is No Way Out

The Ars Electronica Festival will once again be a “Green Event,” certified by the Climate Alliance of Upper Austria. We are guided by the 17 sustainability goals set forth in the 2030 Agenda for Sustainable Development. To keep the CO2 footprint of the festival as low as possible, we have reflected on our internal processes, procedures and actions. Certain fields of action require particular thought, such as mobility, catering & food and event location (which includes energy, water, sanitation, technology and equipment, procurement & waste, social responsibility and communication).

In this way, we not only seek to provide food for thought and raise awareness of sustainability, but to create incentives for our visitors, artists and partners, which they may adopt independently in their actions; after all, only together can we bring about meaningful change.

This year, we aim to analyze the Ars Electronica Festival’s individual fields of action in order to create a good data basis for reducing the festival’s carbon footprint in subsequent years. In the long term, we aim continually to optimize all major organizational processes beyond the festival itself in terms of their climate and resource compatibility. In addition to ecological aspects, intensive contact with our partners and service providers are also important in promoting sustainable behavior through long-term cooperation.

The following measures and policies are implemented in the respective fields of action:

Mobility

- Use of electric vehicles in production, for passenger and material transport, in partnership with Höglinger Denzel GmbH and Graf Carello.
- New clause in the contracts: No short-haul flights of less than 1,500 km or up to 10 hours travel time by train; travel on the public rail network within Europe; use of a CO2 compensation calculator for long-haul flights in collaboration with Climate Austria.
- Free use of public transportation within Linz for artists and employees in cooperation with Linz AG.
- Green Mobility infrastructure for visitors at JKU, as well as protected parking spaces for bicycles.
- Bike repair stations and bike repair workshops offered by *Bikekitchen* Linz.

Event Location, Event Equipment and Technology

- The main festival location, the JKU is also a Climate Alliance partner and a Green Campus.
- Protection of green areas and plants at the festival locations. Precautions are taken in advance, such as a walk-through with arborists and green space caretakers.
- Barrier-free accessibility to the festival area and to all events.
- Concerning accommodation, we make sure that hotels are within walking distance of the festival site or well connected by public transport.
- Technical devices and equipment are rented from local companies, such as our long-term partner AfB. The company has been committed to ecological action in the IT industry and inclusion in the labor market for more than 15 years.

Energy, Water & Sanitation

- Drinking water in the form of water dispensers will be offered around the festival area and bringing refill bottles will be communicated.
- The aim is to use as little water as possible in production, including raising awareness through campaigns and information on site.
- Use of green electricity at the JKU festival location and conversion of the Ars Electronica server to green electricity.
- In the exhibition area, the event technology and lighting will be switched off outside of exhibition operation.

Food & Catering

- Culinary offerings during the festival will be mostly meat-free; vegetarian and vegan options will be available. The partners commit themselves to use mainly seasonal and regional food from organic cultivation farming.
- In cooperation with local producers, we offer an open kitchen at the festival, where visitors can enjoy organic fruits and vegetables for free.
- In cooperation with Bio Austria, we organize an organic market during the festival.
- Non-regional food like coffee, tea etc. will be sourced from fair trade.
- Catering for employees during the festival will take the form of distributing food vouchers and providing snacks and fruit at the workplace.

Procurement & Waste

- Existing waste separation systems will be used at the festival locations. Additional temporary waste containers will be sorted and recycled by Linz AG after collection, based on the festival's waste concept.
- Compostable tableware from catering outlets will be turned into compost by Brantner Green Solutions.
- Disposable tableware is not used at the festival unless it can be recycled directly.
- Exhibition materials are largely borrowed from cooperation partners and returned in full after the festival.
- Architectural elements will be built from reusable systems; cooperation with Ringer Scaffolding, as well as the use of IBC, a waste product from industry, which will be used temporarily at the festival and subsequently given away to local farms for further use.
- Development of a modular exhibition architecture system that can be stored in a space-saving manner. Thanks to a concept without drilling, the elements can be reused unchanged in the years to come.
- Long-term cooperation with the Linz City Gardens for the greening of the exhibitions and the festival architecture.
- All printed materials will be reduced as much as possible and no giveaways or scattered advertising will be used.
- The festival catalog will be produced in small print runs on eco-certified paper and will not be individually packaged.
- Project lettering and prints are standardized and changed to eco-friendly materials (indoor/outdoor).

Social Responsibility

- A sustainability code of conduct for employees and partners has been developed and is applied.
- Fair Pay is anchored in the corporate structure and is considered in the fees paid to invited protagonists.
- *The Transformation Lounge* as a physical representation at the center of the Ars Electronica Festival. The sustainability strategy will be communicated on site and sustainability partners will present their solutions. The Lounge will invite discussion and debate on the subject through lectures, workshops and interactive installations.
- Awarding of the education prize *Klasse!Lernen* in cooperation with the OeAD Digital Learning and the Federal Ministry of Education, Science and Research. The awarded projects were jointly developed by teachers and students to promote the digital transformation in schools.
- Contribution to an open, democratic, and inclusive society through collaboration with FAB. FAB is a non-profit association that creates the conditions for successful and lasting professional integration for people seeking work through qualification, employment, advice, and support.
- The festival website was redesigned to be more sustainable and accessible by reducing the amount of data (volume), taking into account the guidelines of WACA – Web Accessibility Certificate.
- *We Guide You* offers multilingual tours of the festival exhibitions, for all ages, and special tours on sustainability are offered.
- The opening and award ceremony is simultaneously translated and can be followed bilingually (EN/DE).
- Festival ticket discounts for a wide range of people, as well as free admission up to the age of 19 and for holders of the cultural pass “Hunger auf Kunst und Kultur.” All publicly accessible festival areas and several locations can be experienced without a ticket.
- Designating a contact person for sustainability on the website, so that suggestions and comments can be submitted.
- Employment of a staff member for the further development and evaluation of the sustainability strategy.
- Further projects on the topic of social responsibility can be found in the festival program on the website as well as in the catalog.

Communication

- Partners have been informed and involved; the individual measures are specified in contractual agreements. Guests and visitors are notified in the invitation about the environmentally friendly orientation of the event and are actively involved.
- Inclusion of sustainability in the employee handbook and team-internal communication and integration in the further development of the fields of action.
- The festival’s sustainability policy communicated and specified in press conferences as well as in several blog articles, press announcements and social media contributions.
- Presentation of the topic “sustainability” as a separate item on the festival website, including an explanation of the measures within the Green Event fields of action.
- After the festival, the findings and results will be summarized in an implementation report and communicated externally. The evaluation will be published in the form of a survey.



Bio Austria Farmers Market © Theurl Bio Austria



Impressions from JKU © Ars Electronica / Martin Hieslmair



Fridays for Future Shutdown © Tom Mestic



Impressions from JKU © vog.photo



Living Dead © DebbieJewitt



Taking a break in Kepler's Gardens © vog.photo

KEPLER'S
GARDEN
Exhibitions

Theme Exhibition STUDIO(dys)TOPIA — at the Peak of Humankind

The play on words in the exhibition title does not describe the cynical view of human action but refers to human evolution in order to contrast it directly with technical development. The artistic projects presented in the exhibition refer to the countless advances in the development of humanity itself, which in our self-perception have made us the dominant and sole force on this planet. The exhibition directly juxtaposes this development and its implications in order to deal with the shadow of our fame rather than with our achievements per se. On display are artistic positions that examine human actions and, first and foremost, its resulting dramatic consequences. Consequences that are unsurpassed in their dimension and drama, yet directly and indirectly related to human activity and design. We are talking about effects whose repercussions have profoundly changed our planet; about a "new world" that no longer permits a departure for new shores, whose resources no longer seem infinite but are increasingly depleted. Art-driven collaboration has the power to create real awareness that only the radical transformation of ourselves and our actions can lead to the preservation of our planet. *Welcome to Planet B* describes the need for a Plan B — to recognize but rather to respond to the changes that are increasing within our environment. How can we respond properly, adapt and coexist in the best possible way? The addition "But How?" is not meant as a cynical

question in an overall hopeless situation, but as a concrete invitation to responsible action.

It is the crucial question about the foundations on which we want to base our future activities, about the economic and ecological values we want to pursue in the process and means of ensuring that they constitute an integral part of our cultural self-image, our cultural identity.

STUDIO(dys)TOPIA explores how humankind can transform sustainable practices into action and serves as a metaphor for our present, in which the concepts of dystopias and utopias find themselves in a changed reality. The exhibition aims to investigate possible outcomes when, through a collaborative process of recalibration between art and science, we approach the essence of the challenges we face by recognizing our own nature, existence, and actions in an effort to render them manageable. The selected works focus on the reality of change and the inherent contradictions, highlighting the convergence of two disciplines — art and science — the character of which is to be contradictory as a means of arriving at possible answers and solutions. *STUDIO(dys)TOPIA* offers a space where antithetical states can be experienced, tested and recognized as a virtue and an opportunity, asking what role art should assume in this crucial endeavor.

This exhibition is part of the STUDIOTOPIA project and co-funded by the Creative Europe Programme of the European Union.

Maja Smrekar (SI), Jonas Jørgensen (DK)

!brute_force

Soft Resilience

!brute_force is an umbrella title for an ongoing research platform interrogating the premise that humans and nonhumans are no longer embedded in a dualist frame, but are instead levelled within the global infrastructure of the market economy and the techno-capitalist commodification of life. The work is set up as a grid where a human and a dog climb through a landscape of tiles, while their physiological data is captured and classified by an AI.

By means of a generative procedure, gathered data has been translated into structural mesh patterns embedded in soft robotic morphologies. The robots enact the performativity of an evolutionary algorithm that transduces data into vectors and generates new deviations by applying a method for continually introducing as much difference into the system as possible. Through an extension of mutant values, the data eventually becomes an independent entity, pushing the soft robots towards the transformative potential of the algorithmic unknown.

Installation:

Design: Maja Smrekar (SI)

Design process research: Dongwook Jang (KR/NL)

Planning and technical solutions: Miloš Vujković (RS/DE)

Architecture: Aljaž Rudolf (SI)

Soft Robotics:

Design: Jonas Jørgensen (DK), Mads Bering Christiansen (DK)

Soft robotics fabrication: Mads Bering Christiansen (DK)

Microcontroller programming: Daniel Mauricio Fernandez Gonzalez (CO/ES), Jonas Jørgensen (DK)

Algorithm programming: Daniel Mauricio Fernandez Gonzalez (CO/ES)

Mechanical parts design and fabrication: Cao Danh Do (DK)

Electronics: Jeppe Rahbæk Mosgaard (DK)

Tile design and production: Miloš Vujković (RS/DE)

AI Team: Alen Balja (SI), Miran Lončarič (SI), Naveen

Agula (IN), dr. Primož Ravbar (US)



@ Hana Jošić

Interface design: Dongwook Jang (KR/NL)

K-9 Team: Mia Zahariaš (SI), Tina Šolar (SI)

Dogs: Boogie (SI), Ada (SI)

Thanks to: RPS Company, Ljubljana (SI)

The first in the series of projects (2019–2020) under the title *!brute_force: Feeding the Algorithm* was executed by Maja Smrekar and produced by Quo Artis Foundation (ES), co-produced by Kapelica Gallery/Kersnikova Institute (SI), The Culture Yard/CLICK Festival (DK). The project was part of the European ARTificial Intelligence Lab and was supported by the Creative Europe Program of the European Union, Ministry of Culture of the Republic of Slovenia (SI), Municipality of Ljubljana — Department for Culture (SI) and Danish Art Council (DK).

The soft robotic tile prototype (2020–2021) was realized in co-authorship between Maja Smrekar and Jonas Jørgensen within the framework of the STUDIOTOPIA program at Ars Electronica Linz GmbH & Co KG (AT) with the support of the Creative Europe Culture Program of the European Union in collaboration with Center for Soft Robotics, SDU Biorobotics, The Maersk Mc-Kinney Moller Institute, University of Southern Denmark (DK).

The final robotic performance installation (2022) was realized in co-authorship between Maja Smrekar and Jonas Jørgensen and produced by PiNA Association (SI); co-produced by TROP — Institute for artistic research (SI) in collaboration with Center for Soft Robotics, SDU Biorobotics, The Maersk Mc-Kinney Moller Institute, University of Southern Denmark (DK) and RPS Company (SI). Funded by the Ministry of Culture of the Republic of Slovenia (SI).

Domestic Data Streamers Studio (ES)

730 Hours of Violence

An exhibition on new paradigms of violence

While we were creating this exhibition, in September 2021, 230 people were killed in the conflict between Gaza and Israel, 2 people died in a driverless Tesla car crash and almost 11,000 people were evicted in Spain. Violence has always been a part of human history, but today it presents itself in ways we never could have

imagined. Technology, capitalism, new urban lifestyles and the commodification of security have provided violence with a solid ground from which to flourish. It evolves with us, taking up new spaces wherever we go.

If we want to tackle the challenges these new violence present, we first need to understand how they have come to be normalized.

730 Hours of Violence is an exhibition that aims to shed light on such complex realities while holding critical discussions with citizens about how we collectively see and relate to new paradigms of violence.



© Domestic Data Streamers

730 Hours of Violence is the first of a series of experimental projects by Domestic Data Streamers. *730 Hours of Violence* is part of the MediaFutures project. This project received funding for research and innovation from the European Union's framework Horizon 2020, under grant agreement No 951962.

The information reflects the author's views. The European Commission is not liable for any use that may be made of the information contained therein.

Conceptual Advisors: Sara Torres, Maria Fabuel, David Fernández / Collaborators: Productions: Marta Velasco y Oscar Pérez / Architecture: Jennifer Méndez / Translations and Corrections: Alex Johnstone, Anna Mas Llopart / Special Thanks: Ricardo Camilleri, Leva Jakuša, Alex Johnstone, Iasa Monique, Ben Olsen, Pau Horta

Manthia Diawara (ML/US)

A Letter from Yene

Manthia Diawara's latest documentary unfolds as if it were a letter written to the viewer. In *A Letter from Yene* the filmmaker is not only the storyteller, but also the owner of one of the houses along the beach of Yene. Following encounters between fishermen, pebble collectors and himself, Diawara explores how their intersecting lives collectively and unknowingly contribute to the undermining of their shared environment.

Produced by: Maumaus / Lumiar Cité

Director: Manthia Diawara

Commissioned by Serpentine, MUBI and PCAI Polygreen Culture & Art Initiative

as part of Serpentine's Back to Earth project.

With additional support from Portuguese Ministry of Culture / Directorate General of the Arts;

Heinrich-Böll-Stiftung, Dakar

This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



Manthia Diawara, *A Letter from Yene* (still), 2022. Film. Commissioned by Serpentine, MUBI and PCAI Polygreen Culture & Art Initiative, as part of Serpentine's Back to Earth project. Courtesy of the artist and Maumaus / Lumiar Cité, Lisbon.



Irakli Sabekia (GE/NL)

Archive of Spatial Knowledge

Archive of Spatial Knowledge is a curated collection of spatial memories hosted on an experimental digital platform. It gathers idiosyncratic spatial and social memory of individuals and groups who were forcefully displaced from the geographies of their origin or are denied representation and the possibility to build historical and cultural continuity in the locations of their current residence. The archive uses a mobile software application, as a tool to allow its contributors to attach their stories to geographic locations, creating a protected pool of knowledge overlaid on the physical landscape. At the same time, the archive functions as

a spatial intervention. Using the same digital tool, the viewer of the archive can access the erased knowledge on location, to juxtapose invisible stories and the reality of physical spaces.

The archive's first edition addresses the issues of spatial justice in and around the Russian occupied regions of Georgia.

spatial-knowledge.org

This artwork was created with the support of the Creative Industries Fund (NL) in 2021, and during the ArtScience Residency, enabled by the partnership of Ars Electronica and Deutsche Telekom and the Sustainable AI Lab at the University of Bonn in 2022.

Zoran Srdić Janežič (SI)

Biobot: AI ARThropods

The project is focused on tissue engineering and the harvesting of an electric signal from neurons which influences the movement and shape of a biobot. The artistic and expert team grows neurons on an array with electrodes that conduct the electric signal. Through a complex sensing and programming system, the signal is converted from analogue to digital, amplified and used to move the biobot. Artificial intelligence compares the input from neurons with the movements of different arthropods and selects the appropriate number of legs and joints. The result is an unpredictable zoomorphic form. *Biobot* brings new biotechnological and algorithmic processes to artistic practices. It uses biotech and software developments to create an artistic narrative about the

bio-technological body and its representation. The algorithmic search for the shape in relation to biological data becomes an evolutionary process. The biobot aspires to be a living entity with its own intelligence and movement.

Concept, development: Zoran Srdić Janežič / AI programming: Benjamin Fele, Ana Smerdu / Biosensing electronics, programming: Erik Krkač Electronics, PCB / Design: Gregor Krpič, Jakob Grčman / Bioengineering: Kristijan Tkalec, BioTehna Lab, Dr. Helena H. Chowdhury, Laboratory of neuroendocrinology-Molecular Cell Physiology, Ljubljana / Curatorial guidance: Jurij Krpan / Production: Kersnikova Institute, Kapelica Gallery. Supported by Ministry of Culture of the Republic of Slovenia, City of Ljubljana (SI)

This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



© Zoran Srdić Janežič, Biobot: AI ARThropod

Kuang-Yi Ku (TW/NL)

Calico Human

Calico Human is a collaboration with Prof. Chris Marine at the VIB Center for Cancer Biology. It examines the plausibility and desirability of manipulating skin color through the use of new biomedical technologies. This is done by inducing “safe” tanning (by activating the melanin-producing ability of specialized cells — known as melanocytes — without causing skin damage) with the primary goal of decreasing the risk of melanoma, an aggressive form of skin cancer which is induced by exposure to UV of sunlight. The incidence of melanoma is 10 times higher in Australia and New Zealand. This is because the skin of most Australians and New Zealanders, whose ancestors come from the UK, is not adapted to the “sunny” environment. In order to reduce the risk of melanoma, changing skin color could be one of the crucial roles within this problem. This project aims to explore the complex relationships between race, migration, health, fashion and the future of biomedical services.

Scientist: Chris Marine / Cell cultivation: Ewout Landeloos
3D design: Suzanne Bongers / Introductory video: Berend van Rossum / Graphic design: Yu-Tzu Huang / Concept video: Jian-Da Huang / Costume design: Chia-Wei Tien
Prop design: Hung Lu Chan, Hsin Min Chan / Make-up artist: Leanne van Niekerk / Model: Anna de Charentenay / Supported by Creative Europe, Gluon, VIB, National Culture and Arts Foundation

Calico Human is part of the STUDIOTOPIA project supported by the Creative Europe Programme of the European Union.



© Yu-Tzu Huang

Kat Austen (GB/DE)

Carbon Echoes

Entanglement with carbon is an essential component of the extreme influence of humans on the planet. This trilogy of works introduces three artistic responses to this problem space from Kat Austen's practice that address positions on aspects of anthropic entanglement with carbon at a more-than-human timescale. Presented together for the first time, the three works interrogate carbon and the impact of humans on its distribution around the planet and through time. The impact of fossil fuel extraction on landscapes, society and ecosystems, the impact of the spread of microplastic — the starting material for which is

predominantly fossil fuels — on trees and forests and the reconfiguration of enduring carbon-based materials in a speculative past. These positions reflect not only on the climate crisis but also on quality of life for humans and for the plants, animals and ecosystems with which humans share the planet.

These artworks were realized as part of the STUDIOTOPIA program at Ars Electronica and the European Media Art Platform's EMARE program at WRO Art Center, supported by the Creative Europe Culture Program of the European Union and as part of an Artist Fellowship at the Institute for Advanced Sustainability Studies Potsdam.

Kat Austen (GB/DE)

Palaeoplasticene

Palaeoplasticene addresses the breakdown of plastic in the environment by engaging with a speculative past where plastic-based fungi evolved naturally, introducing plastic to the ecosystem in pre-human history. This fictional past invites visitors to realize the longevity of the material and to engage with the implications for our current and future ecosystems. Designed to be durable and unreactive, plastic outlasts its surrounding flora and fauna. Yet ecosystems are already adapting to this new materiality with microorganisms evolving to feed on plastic, and plants being shown to take microplastics into tissue. Based on a series of artistic research experiments to encounter the enduring nature of plastic, which are documented online, the *Palaeoplasticene* sculpture invites visitors to engage with the longevity of plastic and the implications for our current and future ecosystems by reconfiguring our understanding of its presence over time.



© Kat Austen

Palaeoplasticene was realised within the framework of the Studiotopia program at Ars Electronica with support of the Creative Europe Culture Programme of the European Union.

Concept developed in collaboration with Indrė Žliobaitė and Laurence Gill. Production: Andrew Newman. Metalwork: Keep Away From Fire.

Palaeoplasticene was realised with support of the Creative Europe Culture Programme of the European Union.



© Andreas Baudisch

Kat Austen (GB/DE)

Stranger to the Trees

Microplastic particles have been found at the farthest reaches of the planet and within human bodies. But what does the presence of this anthropogenic new material mean for other entities with which humans share the planet? *Stranger to the Trees* is a new media project exploring the complementary coexistence of microplastics and trees as carbon sinks.

How do trees and microplastics coexist in forests, capturing carbon in the time of the climate crisis? Combining video, interactive sound and sculpture, *Stranger to the Trees* queries the response of forest ecosystems to the ubiquitous and irrevocable dispersal of microplastics around the world. The extensive transdisciplinary research behind *Stranger to the Trees* has also given rise

to a scientific paper showing the first evidence of microplastic inclusion in tree roots.

Stranger to the Trees was realised within the framework of the European Media Art Platforms EMARE program at WRO Art Center with support of the Creative Europe Culture Programme of the European Union.

Experts: Joana McLean, Section 3.7 – Geomicrobiology, German Centre for Geoscience. Franz Hölker, Ecohydrology, Leibniz Institute for Freshwater Ecology and Inland Fisheries. Daniel Balanzategui, Natural Science Unit, German Archaeological Institute and Section 4.3 – Climate Dynamics and Landscape Evolution, German Centre for Geoscience, Simon Barraclough, Pawel Janicki, Kamila Mróz, The Eugeniusz Geppert Academy of Art and Design, Michal Adamski, Keep Away From Fire. Special thanks to: Matthias Strauß, Bernhard Bosecker, Kristen Råstas, Kelli Gedvil, Andreas Baudisch, post-gallery.online

Kat Austen (GB/DE)

This Land is Not Mine

This Land is Not Mine focuses on the region of Lusatia, where Germany, Poland and the Czech Republic meet and the Sorbian minority group has its home. Over the last century, the region has also become known as a site of extraction, with open cast brown coal (lignite) mines and power stations transforming the landscape, society and environment. *This Land is Not Mine* explores the changing identity of the ecosystem, land and peoples in a region of co-existing cultures that is undergoing fundamental changes as mining is phased out. What can be learned from this transition to a post-extractive landscape and what are its implications for living within the climate crisis and moving beyond the Anthropocene? Including contributions of sounds from residents of Lusatia, the work is realized as a 7-track experimental music album and as a 20-channel video installation with soundscape, providing vignettes of this beautiful, historical, epic and changing region.

This Land is not Mine was realised within the framework of an Artist Fellowship at the Institute for Advanced Sustainability Studies Potsdam.

Programming and tech consultancy: Kazik Pagoda, aBe Pazos. Carpentry: Will Greensmith. Field recording contributors: Ili Os, Christina Kliem, Johannes Staemmler, John Grznicz, Erik Lemke. Lausitzklang platform web development: Andreas Baudisch.

Special thanks to: Maze Tools, the Kliem family, the Serbski Institut, Am Lichtbaum Festival, Wilde Moehre Festival, Der Gelbe Wahnfried, Wendisch Museum Cottbus, Brandenburg Museum of Modern Art and DomPro

This project was realised with support of the Creative Europe Culture Programme of the European Union.

This project is presented in the STUDIO(dys)TOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



© Kat Austen



CR project intro @ Fara Peluso

Kat Austen (GB/DE), Fara Peluso (IT/DE)

Ouroboros

Ouroboros speaks to the cyclical nature of material and of human relationships with the environment. The ouroboros is a symbol of renewal and rebirth, the emblem of chaos around a world of imposed order. As industrialized activity exerts order on the planet, the impulse of the changing climate will impose a global supra-human chaos on human existence. In developing a bioplastic material grown from algae, fulfilling not only the circular aim of leaving no trace but also of fostering abundance through its production, *Ouroboros* is an emblem of the process of renewal and rebirth. *Ouroboros* juxtaposes new material with bodies of human and algae, framed in a landscape-transitioning from extraction.

The sculpture showcases the material properties developed through the *Circular Records* project alongside a prototype bioplastic LP record. *Circular Records* and *Ouroboros* are realized through the STARTS Repairing the Present Residency at Ars Electronica.

This artwork is realized by Kat Austen and Fara Peluso and co-commissioned by Ars Electronica within the framework of STARTS Residency Repairing the Present with the support of Johannes Kepler University Linz, Innovationshauptplatz of the City of Linz, Greiner Innoventures GmbH, co-funded by the STARTS initiative of the European Union.

Videography by Falko Seidel, metalwork by Keep Away From Fire.

Kuang-Yi Ku (TW/NL)

Center for Plant Immigrant Integration

Center for Plant Immigrant Integration explores the relationship between plants and bacteria as a metaphor for human migration to Europe. The project builds upon the research of Prof. Sofie Goormachtig (VIB–UGent Center for Plant Systems Biology) exploring soybean cultivation in Flanders, aims at providing a high-protein crop and an eco-friendly meat alternative for the future. Her research especially focuses on the interactions of soybeans with nitrogen-fixing bacteria in the soil. As an Asian artist who works and lives in Europe, Kuang-Yi Ku thinks the soybean (an Asian plant) significantly resonates with his own racial

identity. This inspired him to explore the similarities between the plant-microbe research and the integration of immigrants in European societies.

Scientist: Sofie Goormachtig / Scientific assistance: Lena Vlamincx, Judith van Dingenen / Introductory video: Berend van Rossum / Graphic design: Yu-Tzu Huang / Research assistance: Yu-Chun Lo / Concept video: Jian-Da Huang / Performer: Sean Fisher / Costume design: Chia-Wei Tien / Prop design: Hung Lu Chan, Hsin Min Chan/ Supported by Creative Europe, Gluon, VIB, National Culture and Arts Foundation.

Center for Plant Immigrant Integration is part of the STUDIOTOPIA project supported by the Creative Europe Programme of the European Union.



© Philippe de Gobert / Bozar



© Robertina Šebjanič

Robertina Šebjanič (SI)

Echinoidea Future – Adriatic Sensing

The project *Echinoidea Future – Adriatic Sensing* addresses the current biogeological and morphological conditions in the sea urchin environment, which is aqua-formed by anthropogenic liquid waste, resulting in low oxygen levels in the water. Exploring the stressors of the local/global human footprint, the project demonstrates the resilience of the aquatic species. *Echinoidea Future – Adriatic Sensing* acts as an activation of (sy)(e)mpathia. The main research was carried out within The Zero Pollution Adriatic residency initiated by the UR Institute as part of STARTS4Water and took place in the coastal region of the southern

Adriatic. The project includes the art installation *Echinoidea Future – Adriatic Sensing* by Robertina Šebjanič, workshops, technological innovation S.M.A.R.T Urchin by Marjan Žitnik and a ZPA Social Innovation initiative.

Artist: Robertina Šebjanič / Video support A.I.: Tanja Minarik / Scientific advisory: Dr. Alenka Malej, UR Institute, Gjino Šutić, Filip Grgurević / Production support: Zavod Sektor, PiNA, Miha Godec / Special thanks: Martina Gluhan, Marjan Žitnik / The Zero Pollution Adriatic was commissioned by UR Institute within the framework of STARTS4Water and is co-funded by the STARTS program of the European Union.

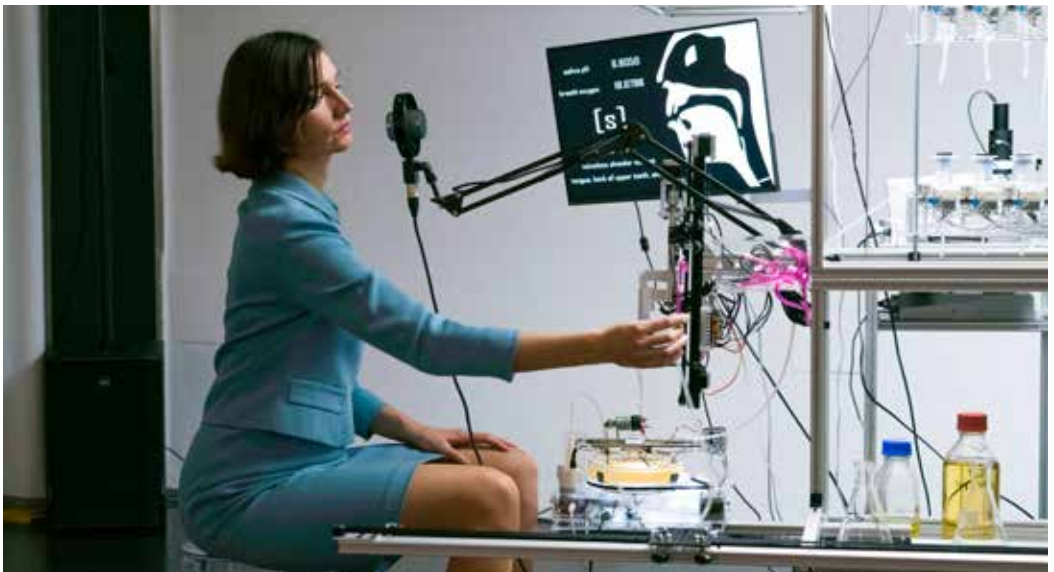
Klaus Spiess (AT), Ulla Rauter (AT), Emanuel Gollob (AT), Rotraud Kern (AT)

ECOLALIA

By 2100, one third of biological species and nine tenths of languages will have disappeared. Under the impression of this simultaneous decline in diversity, we designed *ECOLALIA*, a poetry of extinction and disappearance as a deep learning process that starts from a real-time chemo-vibrational conditioning of oral microbes. *ECOLALIA* takes its starting point in the history of poetry: while the poets of the classical age brought their words to life, we – as literati of the post-anthropocene – discover in microbial reproduction and death as such a source of poetry. To sensitize the audience’s oral microbiota to interact

with phonemes, we “skeletonize” the repetitive speech sounds (of a performer and the audience) down to their phonetic structure, sonic materiality, tonal vibration and noisiness. The audience visually and acoustically attunes their speech sounds to the life and death of their fragile oral flora, becoming bilingual co-authors of the post-anthropocene.

Dept Digital Arts, Performance Laboratory, Medical University of Vienna, ArtScience Group, University of Applied Arts, Vienna, Austrian Science Fund PEEK AR 687, Jens Hauser, Lucie Strecker, Bozhidar Baltov, Boris Vitazek, Christoph Freidhöfer, Ula Reutina



© Klaus Spiess



© Yasunari Kikuma

Yuima Nakazato (JP), Ruya Honda (JP), Takahito Iguchi (JP), Yukari Wada (JP)

FASHION FRONTIER PROGRAM

The human imagination is powerful. What kind of reality can we create with this power? Can it be used for doing good or bad? What is fashion able to do in the face of climate crisis, pandemics, and war? The *Fashion Frontier Program* was established in 2021 by fashion designer Yuima Nakazato (JP), under the belief that to seek fame and educate future fashion designers, who have the courage and ambition to overcome these

situations will lead us to a better society. Age, gender, race ... Anyone can apply to this program. *Fashion Frontier Program* is an opportunity not only for the participants but for all of us to learn and think about garment, to raise our social awareness, and to encourage us to move into a new era.

Presented with support from the Agency for Cultural Affairs, Government of Japan.

Posthuman Studies Lab (RU)

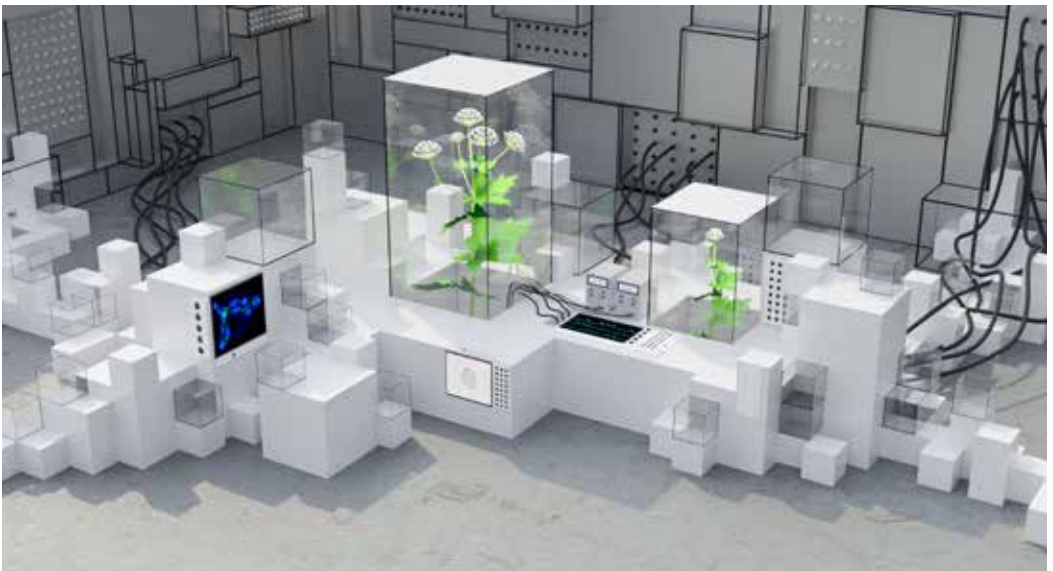
Feral Automated System: ULTB-1

Feral Automated System: ULTB-1 is a living research project, creating a new vision of automated systems: it re-enacts a networked body of Communism composed from different vegetal, digital and engineering layers. Plants here are a pure “hyle”, a scaffold of the project – in the material of the network, its exchanging information (vegetal cryptocurrency) and its very protocols of exchange (derived from the real mechanisms of vegetal communication). The network rethinks the ecological status of vegetal biodiversity as a legacy of the agrobiological experiments: plants created in the Soviet laboratories and communal households (Heracleum, Lupinus, Populus) still do their labor as green proletarians and accumulate toxic resources on the edge of abandoned industries.

By collecting the products of their labor into the power source (flow battery), we are using it for starting and maintaining the network. Toxins accumulated within feral plants help to reconstruct the idea of a commons of – always unstable – interspecies connections.

N.Sazonov, E.Nikitina, I.Markelov, M.Molokova, S.Karavaeva, I. Petrova, D.Lobanov, M.Petrov, A.Yashina, A.Adamatzky, Y.Filatova, S.Pavlov, N.Alatortseva, D.Okhrimenko, R.Solodkov, D.Trubarova, A.Brovina, E.Bezginova, K.Ruban, E.Khlopotov, I.Gulyakina, A.Kraftsky, M.Alexandrova, N.Alatortseva, N.Kuzmina, V.Vishnevaya, T.Nosov, A.Mustafina, B.Shershenkov, V.Shakhnovich, D.Olgin, Quo Artis, EMCPS Lab, Sreda Obuchenia, SDVIG.

Creative Europe Project 616712 Roots & Seeds consortium: University of Barcelona, Quo Artis, Ars Electronica, Leonardo/OLATS.



© Roman Solodkov

Ralf Baecker (DE)

Floating Codes

Floating Codes is a site-specific light and sound installation that performs the inner workings and hidden aesthetics of artificial neural networks, the fundamental building blocks of machine learning systems. The exhibition space itself becomes an open neural network that processes information, its constant alternating environment (for example, the day-night cycle) including the presence of the visitors. The network consists of 250 custom artificial neurons (perceptrons) arranged in a hexagonal topological grid. These neurons are able to register light stimuli and react by sending out light pulses to communicate with

other neurons in the space. Signals are looping, mutating, feedbacking, and canceling themselves, resulting in a complex and continuous altering of visual and acoustic movements. The installation places the visitors in the center of the computational dialog of the neural network.

Production Studio Ralf Baecker, production assistants Timo Johannes, Juan Luque Valbuena and Felix Fiskus

With support of the Embassy of Germany in Austria. This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



© Floating Codes, Ralf Baecker 2021/22



© Michael Karibian. Images from early live performances/
performer Charles Amirkhanian

Charles Amirkhanian (US), Carol Law (US)

Hypothetical Moments

In the early 1970s, artist Carol Law and composer Charles Amirkhanian joined forces in creating theater-scale media performance works in California. These early works were produced before the personal computer or digital arts were introduced. Using the basic tools of high-quality 35mm Kodachrome slides, hand-built slide dimmers, ambient sound recordings and early radio studio technology, their work represents a transition to the more sophisticated computer arts soon to arrive. The result is a complex and dense sound/image reminiscent of 20th century Dada, Surrealism, Pop Art and Fluxus. The non-syntactic language in Charles's music is reflected

in Carol's use of selected words to trigger visual reference images or themes. Thus, two interlocking non-linear strains evolve—one sonic, one visual.

The artists both use montage and scale as methods of composing. Each short piece has a story to tell. This historical retrospective has been made possible by contemporary digital technology.

Video Production & Preservation by David Taylor (US) / Carol Law and Charles Amirkhanian, Photo: Arts Plural, 2021, B & W photo: Hal Baker, 1982, (taken during the period when these works were created. We have worked together for over 40 years.)

Siobhán McDonald (IE)

INVISIBLE SEAM

Siobhán McDonald examines the particles floating in the air and matter buried underground from past worlds. In an exploration of Arctic permafrost and plants preserved in this depository, the project traces histories of generations of underground systems. Starting with boglands

as its protagonist – their ecosystem, history and mythologies – the project considers ideas around time and the preservation of collective memory in that thin layer between soil and rocks where some of the most important changes in contemporary times are taking place.



Cosmic Gas

© Siobhan McDonald



Listening to Soil

© CEAMC

Siobhán McDonald (IE)

Cosmic Gas

Cosmic Gas is a series of works on paper that fuses materials devised from poisonous invisible methane gas and explores ideas of what manages to live in the ruins we have made. Consisting of both drawing and lithographic prints, they bear the direct imprint of plant fragments collected from bog sites, what used to be living organisms, which over time have become gaseous. The drawings appear delicate and complex, conveying the light and dark histories from which they emerge — recounting stories of life and decay — from remedy/medicine to the poisoning of an ecosystem. The work is rooted in the medieval mythology of boglands as a cultural preserver offering an insight into ancient pagan times. The strange landscape of boglands with many rare geographical features and occurrences explains the mythology surrounding it. Tim Robinson, the celebrated writer and cartographer remarked of an Irish bog “Mind is being reabsorbed into matter; humanity’s imposition of languages, order, meaning, is being sucked down and choked off by nature.” Maybe it is this mysterious timelessness

that placed the bogs as reminders that we are not mortal. That we are made of the same material. The dimensions of the entire installation adapt to the exhibition space. Each individual drawing is 78x55cm on German etching. The prints painted with an ink of methane pollution extracted from the bogs, reproduce images of solar eclipses from a 1905 Sonnenfinsternis-Expedition.

This project was created within the framework of Studiotopia in association with GLUON: Arts Meets Science in the Anthropocene (2019–2022), an initiative funded by the Creative Europe program of the European Commission. Supported by the Dublin Institute for Advanced Studies, JRC and the Brussels Capital-Region. The project is also courtesy of Arts Council of Ireland Project Award, Trinity College Dublin, Monaghan County Council and the Creative Ireland Award.

Collaborators: Arwyn Jones (IT), European Commission, Joint Research Centre, Italy, European Commission, Joint Research Centre Soil Series.

Professor Jennifer Mc Elwain (IR), Professor of Botany (1711), Botany, Trinity College Dublin. Collaborator: Robert Russell, Graphic Studio Dublin.

Matthew Saunders (IR), Professor in Plant Ecophysiology at Trinity College Dublin.

Siobhán McDonald (IE)

Listening to Soil

Interaction between materials, technology and culture

The project started with me collecting soil samples, organizing them by location, thus creating a roadmap to the journey soil has taken, the trail along which civilization travels. As the trail progresses across timescales, the PH content changes and the tonality of the soil shifts. The installation is one result of my ongoing dialogue with Arwyn Jones (EU — JRC) and archaeologist Dr Brendan O’Neill (IRL) to chart processes and rituals circa 1500 BC.

By constructing a traditional lime kiln to mix lime with clay and soil, I am producing a series of urns, mimicking the shape of Bronze Age burial vases historically meant to enclose cremation ashes.

The vessels aim to reveal forgotten histories when ecological practices and gathering food

were based on the necessity of survival and the cycle of life. The artwork rewinds to a time when people did not exhaust nature because they knew that they could be harming themselves.

Special thanks to: DR Brendan O’Neill, UCD School of Archaeology and CEAMC.

Arwyn Jones from the European Commission’s Joint Research Centre (JRC) Land Resources Unit

This project was created within the framework of Studiotopia in association with GLUON. Supported by the Dublin Institute for Advanced Studies, and the Brussels Capital-Region and The Joint Research Centre (JRC) of the European Commission, Arwyn Jones from the Soil Project of the JRC Land Resources Unit, Ispra, with the support of the JRC SciArt project. The project is also supported by Arts Council of Ireland Project Award, Trinity College Dublin, Monaghan County Council and the Creative Ireland Award.

Siobhán McDonald (IE)

Methane Lake

In the video installation *Methane Lake*, the artist paints methane ink on ancient ice which melts away. The act presents itself as a ritual or a time capsule of the frequency of the Earth 20,000 years ago, representing the imagined notion of a time we cannot go back to.

The film explores the slow workings of geological processes found deep in permafrost, meditating on the sentience of ice. The artist embarked on an expedition to explore this beautiful and vital Arctic ice which holds a memory that extends for millions of years into the past. By painting on transient matter such as mycelium and ice from different moments in history and letting them melt, the artist wishes to express the infinite concept of *Ensō*. *Ensō* is rooted in Japanese calligraphy and closely related to the concept of *wabi-sabi* — the Japanese idea of the transience of all things.

Siobhán McDonald (IE)

Tipping Point water to air

A slow distillation of deep time, temperature, atmosphere, and biosphere

A hand-blown glass vessel filled with 20,000-year-old glacial water (from the Dryas period) and 2.00 ml of future air that maps the story of the last major tipping point in the earth to the present day. It is a slow distillation of deep time, temperature, atmosphere and biosphere that points to a methane unsustainable future.

Tipping Point – Water to Air is inspired by the oldest plant ever to be regenerated and grown from 32,000-year-old seeds — the artist explored this age-old plant to determine how the seeds were able to survive for so long.

A time capsule of the frequency of the Earth 32,000 years ago. The seeds were found covered in ice 124 feet below the permafrost and regenerated in glass vials.

The artist's process of painting the circle evokes ideas of imperfection, transience, frequency and the void; it can also symbolize hope as a symbol for the world.

In Zen, *Ensō* is a circle that has since ancient times been written with canes or sticks in mid-air.

Special thanks to: Christopher Ash (USA), Film maker / Atlay Film / Dr Robert Mulvaney, Glaciologist, British Antarctic Survey.

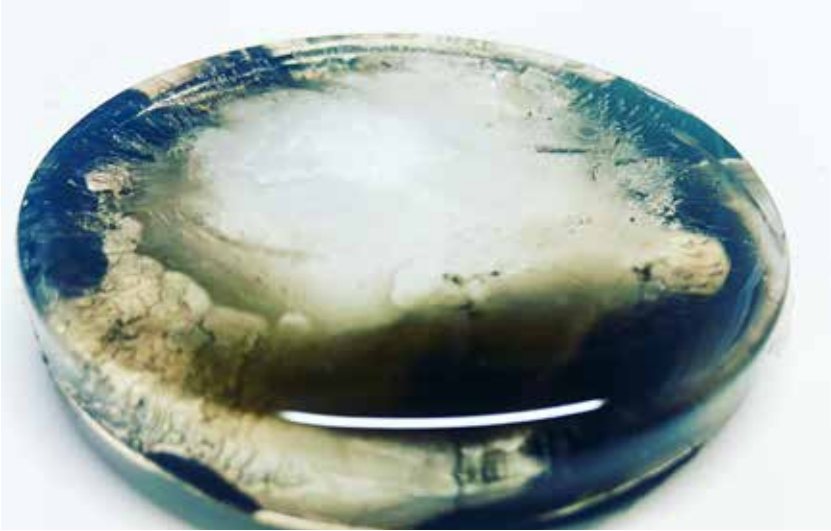
This project was created within the framework of Studiotopia in association with GLUON and co-funded by the Creative Europe Programme of the European Union. Supported by the Dublin Institute for Advanced Studies, and the Brussels Capital-Region and The Joint Research Centre (JRC) of the European Commission, Arwyn Jones from the Soil Project of the JRC Land Resources Unit, Ispra, with the support of the JRC SciArt project. The project is also supported by Arts Council of Ireland Project Award, Trinity College Dublin, Monaghan County Council and the Creative Ireland Award.

Dr Robert Mulvaney (GB), glaciologist and Science Leader of the Ice Dynamics and Palaeoclimate team at British Antarctic Survey.

Professor Jennifer McElwain (IE) holds the 1711 Chair of Botany at Trinity College Dublin's School of Natural Sciences.

Professor Margit Laimer (AT), Department of Biotechnology, University of Natural Resources and Life Sciences, Vienna.

This project was created within the framework of Studiotopia in association with GLUON and co-funded by the Creative Europe Programme of the European Union. Supported by the Dublin Institute for Advanced Studies, and the Brussels Capital-Region and The Joint Research Centre (JRC) of the European Commission, Arwyn Jones from the Soil Project of the JRC Land Resources Unit, Ispra, with the support of the JRC SciArt project. The project is also supported by Arts Council of Ireland Project Award, Trinity College Dublin, Monaghan County Council and the Creative Ireland Award.



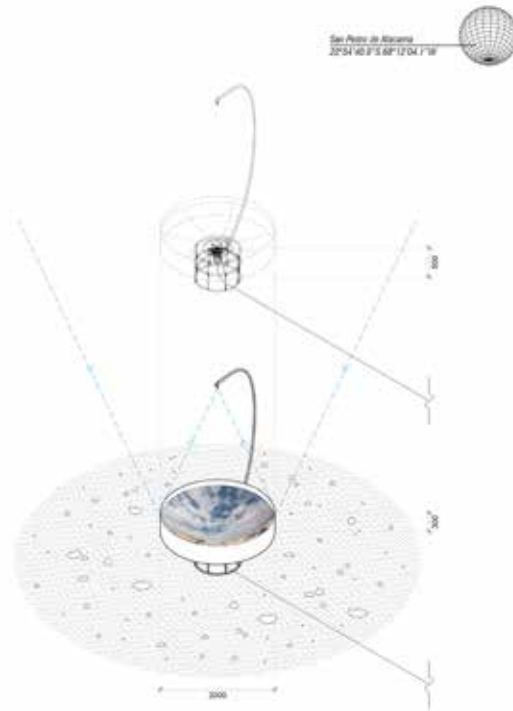
© Siobhan McDonald

Methane Lake



© Siobhan McDonald

Tipping Point water to air



© Mauricio Lacrampette

Mauricio Lacrampette (CL), Santiago Valdivieso (CL), Diego Gajardo (CL), Lucas Margotta (CL)

LIQUID SKY

In the Atacama desert, a camera captures on video the image of the sky reflected by a rotating water mirror and transmits it live to Linz during the festival, taking as a reference the ancient Inca technique of contemplating the sky through its reflection in water poured over flat sculpted stones. In Linz, the image is projected and the presence and movement of those who contemplate it are captured by sensors and processed live. A variability pattern is generated from this data and is sent back to affect the water mirror's rotation speed in real time, causing distortions in the projected image of the Atacama sky. A space-time portal opens between two points on the planet. *Liquid Sky* is a ritual in which the

interaction between the live image of the Atacama sky, the Ars Electronica attendees in Linz and a series of machines, mechanical gestures and data flows are assembled in a rhizome of trans-local feedback, causing the observer and the observed to merge.

Authors: Mauricio Lacrampette, Santiago Valdivieso, Diego Gajardo, Lucas Margotta Collaborators: Sebastián De Andraca, David Ramirez, Lucas Riveros, La Wayaka Current (residency program)

The participation is the result of a collaboration between Ars Electronica and the Ministerio de las Culturas, las Artes y el Patrimonio and the Ministerio de Relaciones Exteriores | Gobierno de Chile.

Laura Deborah Cinti (IT/ZA)

Living Dead — On the Trail of a Female

No longer existing in the wild, *Encephalartos woodii* is one of the rarest plants on Earth. One male specimen was found in 1895 in the Ngoye Forest, South Africa. It was removed from the wild and its offsets have been propagated in botanical gardens worldwide. However, these specimens are all clones of the original male. Numerous expeditions have sought to find another specimen, specifically a female, to bring *Encephalartos woodii* back from the brink of extinction but so far without success. The Ngoye Forest has not been fully surveyed and there is a possibility that a female may exist.

This project partakes in the search for the elusive female using manned aircraft surveys and drone technologies with expert guidance. Its story illustrates just how easy it is to lose a species and biodiversity — the search continues ...

Dr. Howard Boland (NO), Video & Software, C-LAB.
Dr Debbie Jewitt (ZA), Conservation Scientist & Drone Pilot, Ezemvelo KZN Wildlife. This project is a recipient of the Roots and Seeds XXI Biodiversity Crisis and Plant Resistance Production Award and is co-funded by the Programme of the European Union.

Roots & Seeds consortium: University of Barcelona, Quo Artis, Ars Electronica, Leonardo/OLATS.



© Debbie Jewitt, Ezemvelo KZN Wildlife, Laura Cinti, C-LAB

Christian Kosmas Mayer (AT/DE)

Maa Kheru

Egyptian mummies are physical relics of a highly advanced ancient civilization for which the search for immortality was a defining cultural impetus. In his performative approach to an approximately 2000-year-old male mummy, Christian Kosmas Mayer draws on the ancient Egyptian belief that the dead can only attain eternal life if their voices are revived. Using data from computed tomography (CT) scans, the artist and his scientific advisors were able to create an exact replica of the mummy's vocal tract, which they then fitted with a movable silicone tongue. Mayer played this

artificial vocal organ as though it were an instrument and produced a range of vocal sounds from which he then composed a multi-channel sound piece. Falling somewhere between science and poetic speculation, the resulting sounds take us into the depths of time and combine the archaic with the hypermodern.

Christian Kosmas Mayer and Schauffler Lab@TU Dresden
Maa Kheru (2021); 8-channel sound installation, speakers, golden tongues; Installation view: A&I, Altana Galerie, Dresden, 2021; Courtesy Christian Kosmas Mayer and Schauffler Lab@TU Dresden.



© Adrian Sauer



Marine Caves and Benthic Terrazzo Film Still (2021),
Photo: Ioullos Giabedakis

Hypercomf (GR), Markos Digenis (GR)

Marine Caves and Benthic Terrazzo

Marine Caves and Benthic Terrazzo investigates the practical and perceptual problems concerning marine ecosystem preservation with a focus on marine caves and plastic waste. The project artistically explores the present and future links between the isolated cave ecosystems and the terrestrial human home. Markos Digenis and fellow HCMR scientists performed a holistic study of marine caves in Crete including documenting micro and macro plastic pollution. Hypercomf used photoquadrats of these marine cave walls to inspire a series of floor tile prototypes, *Benthic Terrazzo*. They are produced using the traditional Venetian terrazzo flooring technique modified

to incorporate, macro and micro plastics, ropes and so on, collected on the Tinos coastline and all over Greece through the Blue Cycle network. *Fish Kissed* looks at the often distant but intimate relationship between the human home and the sea, all occurring over a kitchen sink, featuring a traditional island song by the Domna Samiou Choir.

Produced within the framework of the STUDIOTOPIA program, organized by Onassis Cultural Foundation and co-funded by the Creative Europe Program of the European Union, with production support by the Blue Cycle lab.

PDNB (AT/DE/GB/IT)

Postdigital Natures of Planet B

The commitment to finding inspiration from nature is a disciplinary stance with a rich heritage and one of the most conflicted metaphors in the history of architecture. *Postdigital Natures of Planet B* questions this approach by exploring ambiguous overlaps and interfaces between the natural, the virtual, and the built environments. Through a series of reconfigurable architectural components, the project explores a variety of interfaces between the aforementioned domains. Paired with virtual overlays, various 3D-printed structures highlight contemporary potentials of novel, renewable, recyclable and regrowable materials in conjunction with robotic fabrication. In the project, organic shapes and metabolic

ambience interact with each other. The integration of non-human agents – both flora and fauna – further questions the role of spacemaking in the Anthropocene. Together the proliferation of all those components establishes a positive, colorful, postdigital vision of Planet B.

Postdigital Natures of Planet B, by PDNB: Marjan Colletti, Peter Massin, Theresa Uitz, Andreas Körner, Georg Grasser, Philipp Schwaderer, Jan Contala, Mümün Keser. Student collaborators: Catalina Tripolt, Kilian Bauer, Julian Edelman, Mehmet Cakir

This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



© PDNB



© FAB DAO

Yi-Wen Lin (TW), Lien-Cheng Wang (TW), Aluan Wang (TW),
Jinyao Lin (TW), Che-Yu Wu (TW), Newyellow (TW)

Project Percentage

One hundred mountains rise, then one island is built. *Project Percentage* is a nonprofit social innovation experiment based in Taiwan, combining digital art and social action, as well as making an impact on the NFT market. With the total number of 10,000 generative art NFTs, % takes the number of the creations as a symbol of the landscapes of "the top 100 peaks" in Taiwan. Collectors are invited to form a DAO, and all donations will be pooled with cryptocurrency public funds. As NFTs, *Project Percentage* is a generative artwork and a proof of donation to public fundraising.

There will be an exhibition of generative art from *Project Percentage* and an audiovisual performance. The exhibition features works by five Taiwanese Artists, LienCheng Wang, Aluan Wang, YiWen Lin, JinYao Lin, and CheYu Wu. Are art and society two separate halves? No, maybe they were destined to be one.

Co-organized by Taiwan Creative Content Agency (TAICCA) and National Taiwan Science Education Center (NTSEC). This project is a co-commission by TAICCA and Ars Electronica.



© Courtesy of the artists

Tega Brain (AU), Sam Lavigne (US)

Synthetic Messenger

Synthetic Messenger is a botnet that artificially inflates the value of climate news. Every day it searches the internet for news articles covering climate change, then 100 bots visit each article and click on every ad they can find. In an algorithmic media landscape, the value of news is determined by engagement statistics. Media outlets rely on advertising revenue earned through page visits and ad clicks, and these engagement signals produce patterns of value that influence what stories and topics get future coverage. Public narratives about climate change are shaped by these interwoven algorithmic

and economic logics, logics that are presently leveraged by the fossil fuel industry. *Synthetic Messenger* is a climate engineering scheme to manipulate the algorithmic systems that shape these narratives. What if media itself were seen as a form of climate engineering, a space where narrative becomes ecology?

This project has been supported by the Goethe-Institut's New Nature Program, the STRP Festival and the Sonar Festival. This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.

Dorotea Dolinšek (SI)

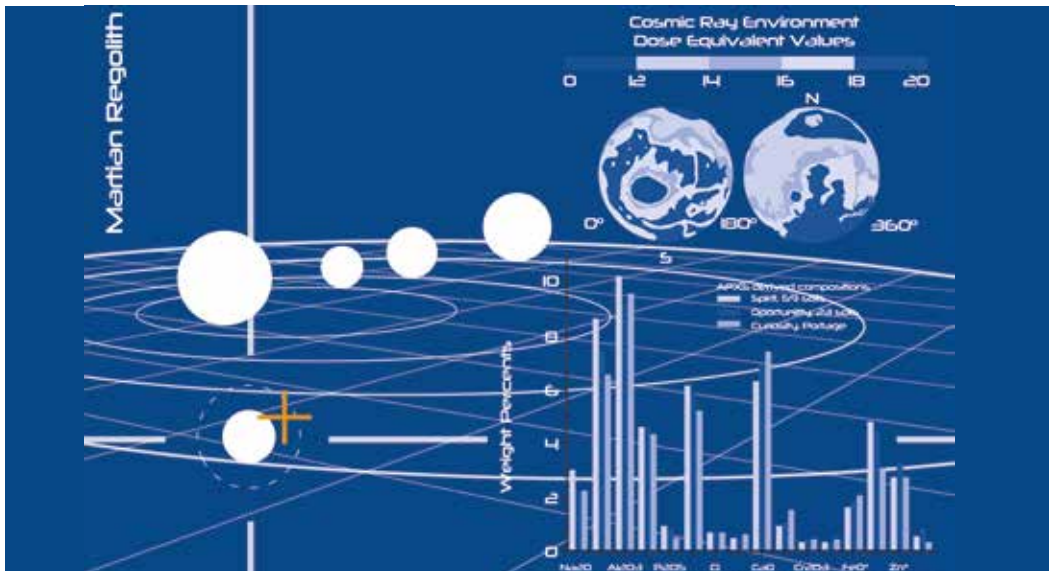
TerraPort

Advances in space technology rest on the premises informing our understanding of both interstellar space and life on Earth. Inspired by the latest efforts in astrobiology and by the prototypes for terraforming the planets envisaged for future human settlement, the artist developed a machine for automated Martian regolith enrichment. Soybean (*Glycine max*) as a model organism is planted in the regolith and watered with an organic mix of processed human urine, dried menstrual blood, and chopped hair. Inside the regolith, travelling on a conveyor belt, the organic and mineral substances gradually decompose, transforming it into a substrate that can sustain microorganisms and plant life. *TerraPort* is the first in a series of projects driven by experiencing the

fragility of a planet in a deep ecological crisis. In it, the artist uses her entire female body to contribute to fertility initiatives for future interplanetary civilizations.

Biotech support: Kristijan Tkalec | Construction: Jože Zajc | Technical support: Simon Gmajner, Jure Sajovic | Thanks to: Robert Černelč, Sašo Sedlaček – University of Ljubljana, Academy of Fine Arts and Design, Marko Flajšman, PhD – University of Ljubljana, Biotechnical Faculty (SI) Produced by: Kersnikova Institute / Kapelica Gallery (SI) Supported by: Ministry of Culture of the Republic of Slovenia, City of Ljubljana (SI)

This project is presented in the STUDIOTOPIA exhibition with the support of the Creative Europe Culture Programme of the European Union.



Graphics: Barbara Sušnik, Photo: Katja Gojlat

Josefina Buschmann (CL) in collaboration with Daniela Camino (CL), Nicole L’Huillier (CL), Francisca Sáez (CL), Poli Mujica (CL)

The Fallen Clouds

Selfies, memes, tweets; they all live in the “cloud,” an opaque metaphor of our times. Where are those “clouds”? What footprints do they leave on the ground? How can we make their materialities and geographies visible?

The Fallen Clouds is a speculative research-based installation that delves into the socio-environmental resonances of digital infrastructures in Chile to break the great myth of cloud computing. The narrative follows a digital cloud searching for its body and origin extended from submarine cables in the Pacific Ocean, data centers in Santiago, to lithium extraction in the Atacama Desert. On the journey it becomes entangled with

human and more-than-human beings; past, present and future myths. This exploration takes the form of an atmospheric installation composed of floating sonic sculptures and a film projection to create an immersive experience, opening a portal to a deep time temporality where future remediation lies in the past.

Produced by Mimbres Films. Partially funded by CreaTures – Creative Practices for Transformational Futures

The participation is the result of a collaboration between Ars Electronica and the Ministerio de las Culturas, las Artes y el Patrimonio and the Ministerio de Relaciones Exteriores | Gobierno de Chile.



© Josefina Buschmann



© Superflux

Superflux (GB)

the Intersection

the Intersection explores a bold and hopeful vision of the future. Set in the near future, Superflux's film journeys from a violent present to a cooperative future. It tells stories of active hope from those who have fought to reimagine extractive technology, serve community, support nature, and value planetary relationships. Influenced by Ken Burns' documentary *The Dust Bowl*, the film is situated within a possible future, several years after modern technology brought growing racial, social and economic inequality to a critical mass. The story features diverse protagonists individually recounting past experiences with modern technology and

exploring their place in the future they now live in. We hope this film makes the future of ambient technology more tangible, prompts us to investigate our relationship with technology, and encourages us to build toward a more just, pluralistic world that centers the experiences of those most marginalized among us.

Commissioned by Eshanthi Ranasinghe, Julia Solano, Nicola Allred (Omidyar Network) / Strategy & Creative Direction: Jon Ardern, Anab Jain / Film Direction: Anab Jain, Matthew Edgson, Jon Ardern / Production: Matthew Edgson, Lizzie Crouch, Nicola Ferrao, Ed Lewis, Nicò Fioritti, Leanne Fischer, Natalia Dovhalionok / Research: Aarathi Krishnan, Yuebai Liu, Jay Owens, Justin Pickard, Ronda Zelezny-Green

CyberArts Exhibition

The *CyberArts* exhibition has always been one of the most outstanding parts of the festival's program. The exhibition presents the works of the Prix Ars Electronica winners, who were selected by experts from all over the world.

They come from various fields of digital art and culture and their work is evaluated in intensive jury sessions in different categories. At this major media art event, the best works are selected from more than 2,338 submissions from over 88 countries.

The Prix Ars Electronica is one of the most important platforms for media artists to get in touch with the broader public. But it also acts as a looking glass for society, giving us an alternative view each year of the relationship between society and technology, and even of the world in general. The exhibition *CyberArts*, appearing in *Kepler's Gardens* in the heart of the JKU campus for the first time this year, presents the best works of media art. That alone would justify its presence, but coincidentally it also offers critical reflections on the festival theme *Welcome to Planet B – A Different Life Is Possible! But How?*.



Viophonograph, playing disc containing "For Instants" (1975)
Laurie Anderson, Golden Nica in the Visionary Pioneers of Media Art Category

The *CyberArts* exhibition takes place in the building of the campus dining hall of the JKU, right next to the STARTS exhibition, and is considered one of the most important program points of the festival. The ceremonial presentation of the Golden Nicas to the Prix Ars Electronica winners will take place on the Friday of the festival during the Award Ceremony in the immediate vicinity of the exhibition. The following morning the young winners of the Austrian based u19-create your world category gather on that very same stage to accept their awards.



Being, © Rashaad Newsome,
Golden Nica Computer Animation



Bi@film.net: Resist (like bacteria) / Jung Hsu,
Natalia Rivera, © Jung Hsu,
Golden Nica Interactive Art +



Avatar Robot Cafe DAWN ver.β / Ory Yoshitui /
Ory Lab, © MIYOGRAPHY,
Golden Nica Digital Communities



Die Schwarze Decke, © Mary Mayrhofer
Golden Nica u1.9 – create your world

Winners of the Prix Ars Electronica 2022

Computer Animation

GOLDEN NICA

Being — Rashaad Newsome (US)

AWARDS OF DISTINCTION

Absence — Marc Hericher (FR)

Anxious Body — Yoriko Mizushiri (JP)

HONORARY MENTIONS

Ad Hominem — Alex Verhaest (BE)

Cangjie's Poetry — Donghao Ren (CN),
Weidi Zhang (CN)

*It was a Roadside Picnic / Beyond
Black Orientalism* — Salma Noor (SO),
Megan Broadmeadow (GB), Brandon
Covington Sam Sumana (US), Nicholas
Delap (GB), Ben Hall (GB), Nayu Kim (KR),
Kinnari Saraiya (IN)

Promesa — Julian Palacios (IT)

Radicalization Pipeline —
Theoklitos Triantafyllidis (GR)

Samsara — Hsin-Chien Huang (TW)

Tartarus — Mariano Fernández Russo (AR)

The Crow — Glenn Marshall (GB)

Unless — Deborah Joyce Holman (CH/GB),
Yara Dulac Gisler (CH)

Very, Very, Tremendously — Guangli Liu (CN)

When fox and rabbit say goodnight —
Finn Stevenhagen (NL/GB)

Wisdoms for Love 3.0 — Keiken w/Obso1337,
Ryan Vautier, Sakeema Crook (GB)

Digital Communities

GOLDEN NICA

Avatar Robot Cafe DAWN ver.β —
Ory Yoshifuji / Ory Lab (JP)

AWARDS OF DISTINCTION

Families For Freedom — Amina Khouhani (SY)

STRONG HAIR — Yatreda (ET)

HONORARY MENTIONS

All the Stars We Cannot See — Yujie Gao (CN),
Megan Smith (CA)

Alsaha Archive — Akhbar ElSaha (INT)

Atomfa (and other stories) — Johanna Wright (GB)

Blank Noise — Jasmeen Patheja (IN)

Center for Political Beauty

Commons Cargobikes — Commons Cargobike
Initiatives (DE), wlebebenwir e.V. (INT)

FragDenStaat

Internet Freedom Foundation —

Ashlesh Balaji Biradar (IN)

SalvageGarden: Computers Against Covid

Sisyphus — Kachi Chan (HK)

*Total Refusal — pseudo-marxist media
guerrilla* — Total Refusal (AT) and ZKM
Karlsruhe (DE)

Twisted Gravity — Inspired By A Sustainable
Future For Clean Water — Lynn Hershman
Leeson (US) in collaboration with Dr. Thomas
Huber and Richard Novak/The Weiss Institute
Harvard

Interactive Art +

GOLDEN NICA

Bi0film.net: Resist like bacteria —
Jung Hsu (TW), Natalia Rivera (CO)

AWARD OF DISTINCTION

*The Eternal Return, pre-Hispanic
Interactions* — Cristhian Avila (PE)

Perfect Sleep — Tega Brain (AU),
Sam Lavigne (US)

HONORARY MENTIONS

Another Moon — Kimchi and Chips (KR)

Behind Shirley — Ibiye Camp (GB)

*BLACKTRANSARCHIVE.COM/ WE ARE HERE
BECAUSE OF THOSE THAT ARE NOT* —
Danielle Brathwaite-Shirley (GB)

Brave New Commons — Masaki Fujihata (JP)

Chroma — Yunchul Kim (KR)
How to Make and Ocean — Kasia Molga (GB)
morphchore — Daito Manabe, Shingo Oono, MIKIKO (JP)
NoSearchBar — Erik Anton Reinhardt (DE)
Siempre se tienen 19 años en un rincón del corazón — Gabriela Munguía (MX), Germán Pérez (AR)
Technologies of Hope & Fear: 100 Pandemic Technologies — Marek Tuszynski (PL), Stephanie Hankey (GB)
The Zizi Show — Jake Elwes (GB)
Voz Pública — Dora Bartilotti (MX)

Visionary Pioneers of Media Art

GOLDEN NICA

Laurie Anderson (US)

Ars Electronica Award for Digital Humanity

The Data Nutrition Project — Kasia Chmielinski (US), Sarah Newman (US), Matthew Taylor (US)

HONORARY MENTION

Digital Research Travelogues through European Archives — Marina Gržinić, Jovita Pristovšek, Sophie Uitz (INT)

u19—create your world

GOLDEN NICA

Die schwarze Decke — Mary Mayrhofer (AT)

Young Professionals AWARD OF DISTINCTION

/_ holofear — Jolanda Abasolo (AT), Julian Köppl (AT), Xaver Haiden (AT), Leonhard Schönstein (AT)
171 — Fabian Wenzelhumer (AT)

Young Professionals HONORARY MENTIONS

BONGOS — Sabrina Koller (AT), Martina Janjic (AT), Barbara Mendez Mendez (AT), Johanna Stefanic (AT)
Cyberfish — Mika Weinmayr (AT), Felix Mrak (AT)
Humanity = Nature — Frida Tabi Tataw (AT), Frederik Lorenzoni (AT), Harald Müller (AT), Lino Müller (AT)

LOST Kurzfilmproduktion — Workshop participants of the Medien Kultur Haus Wels (AT)
not in public — Emil Klostermann (AT)
Radikalisierung im Netz — Johanna Westreicher (AT), Magdalena Juen (AT), Sophie Juen (AT), Anna Zangerl (AT), Leonie Jäger (AT)
Reinigung — Barbara Nina Rettig (AT)
Saudade — Jasmin Pemmer (AT)
Unity — Michael Zamminer (AT)
Waste-Bin-GO — Maximilian Zaglmayr (AT), Manuel Obermayr (AT)

Young Creatives u14 Prize

Orpheus und Eurydike — Elena Schöppl (AT), Carla Schöppl (AT), Rosina Umgeher (AT)

Young Creatives u14 AWARDS OF DISTINCTION

Chaos in Wien — Pupils of RGORG 23 antonkriegergasse (AT)
Driving into the Future — Pupils of the 3rd class MS Frohnleiten (AT)

Young Creatives u12 Prize

Druzeiplo — Benjamin Hölzl (AT)

Young Creatives u12 AWARD OF DISTINCTION

SNELL — Die Wahrheit kommt heraus — Gloria Riedmann (AT), Viktor Flatz (AT), Matteo Di Cesare (AT)

Young Creatives u12 HONORARY MENTION

ISS MIR RIM SSI — Dominik Pichler (AT), Immanuel Fröhlich (AT), Lennard Fellner (AT)

Young Creatives u10 Prize

Leuchtende Zukunft — Emilio Deutsch (AT)

Young Creatives u10 AWARD OF DISTINCTION

Save the monkeys, save the rainforest — Sarah Hölzl (AT)

Young Creatives u10 HONORARY MENTIONS

Bärlauch — Levi Pittermann (AT), Arthur Fortin (AT), Thabo Juric-Grubner (AT), Jakob Daburon (AT), Kaan Colak (AT)
Ferngesteuerter Roboter — Leopold Kastler (AT)

JKU LIT @ ARS ELECTRONICA

Linz Institute of Technology,
Johannes Kepler University

Christopher Lindinger (AT)

What If We Embrace Uncertainty?

Unknown, diverse and blurred, it lies before us, our future. Even if many attempts, in foreseeing developments and interpreting their effects, appear to come slightly closer to it, the future still remains a great unknown, concealing an opaque mesh of possible ramifications and options. The climate catastrophe, the war in Ukraine, or the (seemingly) never-ending Corona pandemic: all these amplified by the media, can feed a demoralizing, fearful, or despondent view of the new times. Yet we must not ignore one crucial unknown in the equation for measuring our future: ourselves. After all, we are the X that makes any prediction, however precise, merely an approximation, a probability. Our attitude towards what is to come, our decisions and actions have an impact on where we are heading in the future, which developments are pushed or prevented, whether the equation works out in the end or not. As a university, it is in our DNA not to shy away

from the unknown, but boldly and courageously engage with it and to penetrate its depths. The complexity of the current challenges calls for a creative combination of different perspectives and approaches. Connections must be made between scientific disciplines, between science and art, and between society. A transdisciplinary methodology in research and teaching must be the credo of a modern university. Only together can effective changes be initiated and implemented. For this reason, it is natural for us to forge partnerships, find partners, and build a strong network.

A vibrant collaboration between JKU and Ars Electronica was established three years ago. The close cooperation is based on the common goal of interweaving art and science more closely in the long term, working toward an open transfer of knowledge with society and promoting a concept of technology that puts people at the center.

The projects of the Institute of Technology (LIT) and Ars Electronica interweave science, art and society in an impressive way, forming the visible level of a common, creative striving for innovation. The Festival University, which is taking place for the second time, the Campus as a festival location and theme-specific art and science residencies all pursue the same goal.

Another strong line of connection leads further East, to the University of Applied Arts Vienna and the former Wiener Postsparkasse, where shared space has been rented. The manifesto “Innovation through Universitas,” written in 2019, defines the substance of the cooperation. Words have since been followed by actions and a variety of joint projects. In the winter semester of 2023, a joint bachelor’s degree program will start, focusing on transformation processes and seeking answers as well as approaches in both the sciences and the arts. A prototype for this is the course “What if ... Shaping our future,” which took place in the summer semester of 2022 in Linz, Vienna and at the International Academy Traunkirchen. 25 students from both universities from 19 different fields of study were invited to participate in the course, with the goal of developing speculative future scenarios and prototypes based on scientific facts. Through curiosity and a desire to engage in the creative process, five remarkable interdisciplinary group works emerged in a very short time, addressing topics as diverse as artificial intelligence, empathy and human communication, nutrition and sustainability, and educational equity. Alternative solutions were then formulated.

At the European level, we are delighted to be the Johannes Kepler University lead partner in

the winning consortium for the new and ninth Knowledge and Innovation Community (KIC) on the topic of culture and creativity. Together with more than 50 institutions and partners from science, society, industry and business – including Fraunhofer, Goethe-Institut, City of Amsterdam or Industry Commons Foundation – effective changes for a sustainable and habitable Europe can be brought about on the continental level. Austria has a strong voice in the consortium with JKU, Kreativwirtschaft Austria, Ars Electronica and the University of Applied Arts. As JKU, our focus is clearly on higher education, innovation and research. Together with the European network, our goal is to promote the interweaving of different disciplines and sectors, shifting the bridge to society and art to the center of future higher education.

A mapping study was conducted a year ago aimed at identifying European universities, research and cultural institutions dedicated to this interweaving of art and science. In order to reinforce the topic as a whole and to do justice to the dynamics of constant change, and to raise the institutions’ visibility and promote networking among them, the research was transferred to the digital platform *artsciencemap.org*. The result is an exemplary atlas that reflects the diversity of European art and science impulses, in which agglomerations connections are depicted. In collaboration with art, science and society and together with a multitude of fellow campaigners, our wish is to continue to venture optimistically and full of curiosity beyond the confines of own discipline. In this spirit, we look toward the unknown, toward new times, ceaselessly building on the foundation of a livable and sustainable future.

Lea Luka Sikau (DE), Denisa Pubalova (CZ), Michael Artner (AT), Julia Wurm (AT)

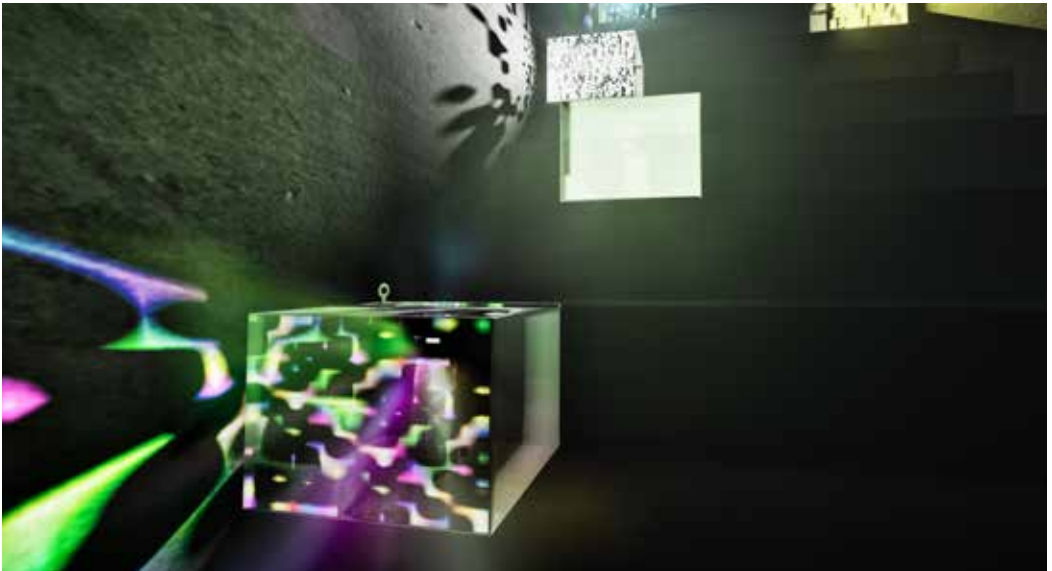
Ars for Nons

The Ars Electronica Festival combines art, technology, and society. For 43 years, the festival has nurtured the creation of art for society with technology.

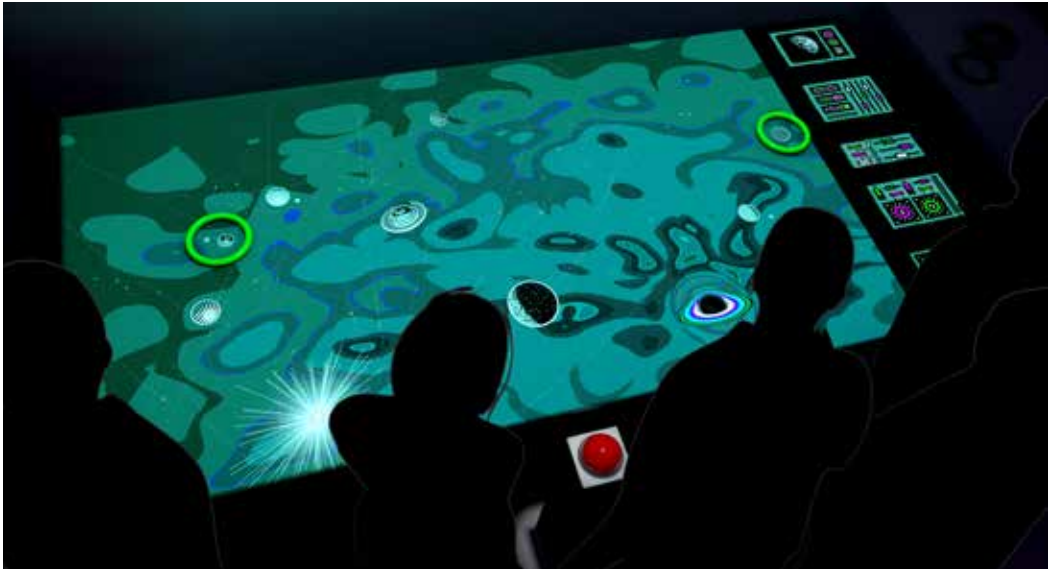
The installation *Ars for Nons* deconstructs this equation: it creates art for technology, which essentially is a part of society already.

Art is not made by nonhuman technology for humans, but with technology for nonhumans. It asks why and how to create art for other-than-human beings. *Ars for Nons* creates a space for

nonhumans, “Nons”, to be immersed in *Ars*, an interactive art piece. The installation is conceptualized for the group of Nons that are most likely to be present at the Ars Electronica Festival: smartphones. Every phone inhabits its own white cube to perceive and contribute to an art installation, consisting of sound, vibration, and imagery. In the meantime, the accompanying human waits. Ultimately, the installation stretches the human perspective, deconstructing and rethinking our relationship with art.



© Art for Nons Collective



© Franz Schubert

A.B.Melchiorre (IT), O.Lesota (RU), M.Schedl (AT), F.Schubert (AT), M.Moscato (IT), D.Penz (AT), E. Dobetsberger (AT), J.Usorac (BA), A.Hausberger (AT), S.Pile (RU), A.Ebner (AT)

Black Holes of Popularity

Black Holes of Popularity (BHP) is a gamified art exhibit that exposes the imbalance of music popularity on online music consumption platforms. Popular tracks not only enjoy vast public attention but, as algorithms recommend them to millions of listeners, their popularity increases more and more. In this "rich-get-richer" cycle, the few very popular tracks effectively overshadow the many more niche and lesser-known tracks and artists who struggle to reach an audience. In *BHP*'s allegorical music universe, planets, stars, and comets

represent existing music tracks of various genres. The most popular tracks, however, appear as black holes that threaten to swallow the other cosmic bodies, leaving nothing behind. Only the visitor's intervention can change the fate of the doomed cosmic bodies and save them from disappearing into the black holes.

BHP received financial support from the Linz Institute of Technology, the State of Upper Austria, and the Federal Ministry of Education, Science, and Research.



© Johannes Traun

Lisa Caligagan (AT), Paracetamol Collective (AT)

BODIE:S

Signage on public toilets reflects our social ideals. *BODIE:S* addresses the underrepresentation of different body shapes and identities. Initiated by human interaction, the installation uses an algorithm to generate unique pictograms consisting of simple basic geometric shapes. The animation is displayed on a tripartite screen and printed on sticker paper. In doing so, the installation actively invites visitors to claim and re-label public spaces. The artist also consciously uses physical space to outline the missing space for

diverse body shapes and identities. She forces people to cross paths with it by positioning the installation in highly frequented spots. Visually, *BODIE:S* draws parallels to a one-armed bandit wrapped in handmade ceramic tiles that represent exemplary pictograms and turns them into a tangible experience. The installation actively invites visitors to enter new perspectives and create space for critical discourse.

Johannes Traun, Claudio Farkasch

Nives Meloni (CH), Julian Pixel Schmiederer (AT)

I Hear Future Voices

I Hear Future Voices is here to question the power and influence of AI-based voice assistant systems (VAs) on human life, both in the present and in the near future. Backed by scientific research in the field, the installation proposes an artistic insight into the everyday use of voice assistants. Coupled with a distinctive intimate, play-like aesthetic, the three constitutive parts of this visual project catapult viewers into disparate realities located between utopia and dystopia. During the Ars Electronica Festival, *I Hear Future Voices* will

be presented on three contiguous screens and accompanied by an informative, research-based installation. The aim is to view voice assistant technologies through a critical lens, reflect on what human-centered AI means, and highlight challenges, problems, and consequences coming with the usage of VAs. *I Hear Future Voices* is part of the LIT Special Call and arose out of the cooperation between Nives Meloni, the JKU Psychology student (MA) and Julian Schmiederer, the film director.



© Laurenz Hintermayer

Mark Hlawitschka (DE), Moritz Simon Geist (DE)

Transforming Sound and Material

The last escape for mankind was Planet B. The first trees were planted: water is still scarce. To generate raw materials, necessary reaction processes are carried out in bubble columns. Instead of the old steel world on Earth, it was possible to integrate production into nature and generate a resting zone with an extraordinary soundscape similar to an underwater world. The changing boundary conditions, for example the availability of sunlight, require a flexibilization of the facilities by means of adaptive geometries. In addition, the change of transmission paths plays an important role. New transmission paths often lead to delays

in signal processing, for musical transmission as well. Dive into the future and play!

We thank the state of Upper Austria for the financial support (LIT Call Ars Electronica Lit-ARS-2022-001).



© Benno Brucksch B.A. Industrial Design

Santa Pile (AT), Martin Gasser (AT), Christina Humer (AT), Silvan David Peter (AT), Andreas Ney (AT), Verena Ney (AT)

Spin-Wave Voices

Spin waves are one of the options to replace the transfer of electronic charges in logic devices to make information processing faster and more efficient. The *Spin Wave Voices* installation allows us to explore, sense, and interact with this emerging technology. With a simple pedal activation, it is possible to start an excitation of spin waves in one of various microstructures of different shapes. As the pedal is pressed, micromagnetic simulations of the real structure, which were confirmed by synchrotron measurements, are visualized and sonified. Although they are extremely fast and small in real life, the waves are slowed down and magnified billions of times at the installation in order to make them accessible to human perception. Altogether, that allows us to see and to hear the *Spin Wave Voices* as they appear, evolve, and differ depending on the shape. The posters explaining the scientific

background and a microscope showing how small the real structures are will allow visitors to explore the concept in more depth.

SWV would like to acknowledge funding by Johannes Kepler University Linz, Linz Institute of Technology (LIT), the State of Upper Austria, and the Federal Ministry of Education, Science, and Research (LIT-2019-7-SEE-117), the FWF Austrian Science Fund (DFH 23–N and ESP 4), and the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program (101019375).



© Santa Pile

Gregor Pechmann (AT), Floria Rothkegel (AT), Markus Schedl (AT), Alexander Wallner (AT), Emilia Parada-Cabaleiro (ES), Vasco Fragoso (PT)

Melody of Crisis/Joy

Melody of Crisis/Joy is an interdisciplinary project aiming to benefit from Artificial Intelligence within an artistic setting. In order to promote awareness of how globally occurring crisis events are communicated online, emotions conveyed by spoken statements are identified through sentiment analysis and speech emotion recognition, then sonified into musical melodies. For the transformation, recordings by several musicians expressing positive and negative emotions are used to train two machine learning models able to sonify positive/negative statements into crisis/joy melodies, respectively. When entering the installation, an interactive audiovisual world map

where countries can be selected to listen to their corresponding melodies is presented and the visitor is invited to guess the type of melody (Crisis/Joy); subsequently, the real statement is played back with subtitles. Visitors are also invited to interact with intelligent musical sculpture able to sonify their voices in real-time.

Johannes Kepler University Linz (Antonia Ebner, Vasco Fragoso, Emilia Parada-Cabaleiro, Gregor Pechmann, Martin Reiter, Florian Rothkegel, Theresa Rubenzucker, Markus Schedl, Alexander Wallner); Musicians from the Anton Bruckner Private University (Ivan Bykov, Johanna Dömötör, Anna Maria Dörfler, Bernhard Hadriga, Matthias Kronsteiner); Land Oberösterreich



© Gregor Pechmann, Alexander Wallner



© Myungin Lee, Sabina Hyoju Ahn, Yoojin Oh

Yoojin Oh (AT/KR), Sabina Hyoju Ahn (US/DE/KR), Myungin Lee (US/KR)

Coexistence with the SARS-CoV-2 virus

This project aims to transform the nano-scale of a striking biological phenomenon, the relationship between SARS-CoV-2 coronavirus and human molecules, into an interactive audiovisual simulation. In this work, the interaction data between the spike protein of SARS-CoV-2 and human cellular proteins is measured by Atomic Force Microscopy, which can touch and image a single molecule. We are creating an interactive audiovisual installation and performance from a set of interaction data. The audience is invited to an immersive space where they can control the biomolecules' behavior so that they can intuitively

recognize the biological characteristics. This project is not only a demonstration of scientific data but also tries to look at the interspecies relationship in parasitism.

This project particularly deals with our current and future life with coronavirus and demonstrates how we might control our coexistence in virtual space.

We acknowledge support from LIT-ARS-2022-005. We appreciate data from H.Seferovic, R.Zhu, L.Hain (Institute of Biophysics, JKU), G.Kada(10-9), C.Rankl(RECENDT), and advice from J.Kuchera-Morin, A.Cabrera (UCSB), H.S.Lee(KR).

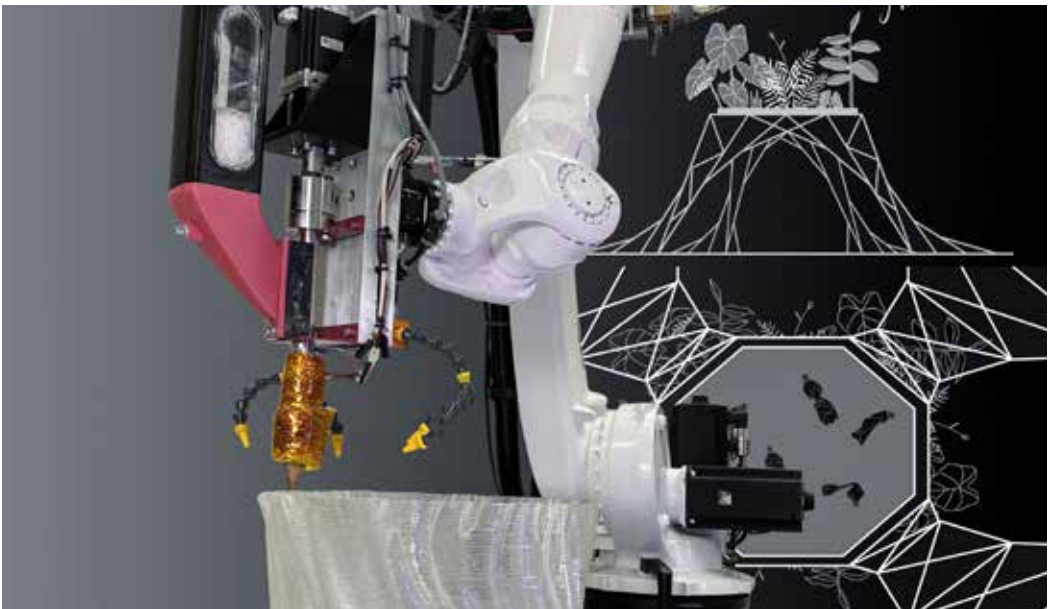
Martin Reiter (AT), Jörg Fischer (AT), Johannes Braumann (AT), Florian Nimmervoll (AT)

Re-wasted

The omnipresence of plastics has already become invisible to us because we are so used to it. By placing artifacts into an ever growing artificial/natural environment, recipients may look at the circular economy from different angles. Plastic passes through several stages in its life cycle, a process that can be experienced first-hand in this exhibition. Our recycling journey begins at the “wasteyard,” where the different types of plastics are explained and selected for recycling.

After passing through a shredder, a mixer and an extruder, the recycled items are now ready for further processing.

Using manual injection molding machines, small practical components can be made by the visitors themselves. Small 3D printers produce unique components from recycled materials with the help of filament. A 3D printing robot will directly recycle the shredded waste and transform it into large components.



© Martin Reiter, Florian Nimmervoll

State of the ART(ist)

The war in Ukraine brings with it devastating consequences. It is destroying livelihoods and setting out to eliminate the cultural identity of Ukraine and its citizens. These dramatic and frightening developments in Eastern Europe compel us to examine the situation of the cultural sector there and of Ukrainian artists in particular. Together with the Austrian Ministry of Foreign Affairs and in the spirit of the well-established Prize for Digital Humanism, we intend to offer a digital, virtual space that, whether anonymized or personalized, should enable the expression and documentation of free artistic thought and creativity.

This digital space is to be understood as a platform for action and exchange between all those artists whose current situation does not permit them to express themselves freely. It should also be a permanent documentation space, a memorial to what moves artists in such drastic circumstances – a space that should symbolize that no external force, even massive political or military influence, can and may hinder the critical reflective power of artists. It should enable artists suffering from censorship or prohibition

to continue their careers and professions. The initiative is aimed at all those working in the creative and cultural sector from Ukraine and beyond, in order to provide both concrete financial support to Ukrainian artists, and artistic support. The drastic Ukrainian situation provides a starting point for the coming years, too, a warning to us to keep calling out those cases worldwide where political influence and aggression prevent artists from playing their special role in society.

In addition, an international jury from the art and culture sectors selected the works which they will draw upon to curate a virtual exhibition relating to this year's festival motto.

The jury consists of Björn Geldhof, artistic director of PinchukArtCentre in Kyiv, Ukraine, Boris Magrini, curator at HeK Basel, Switzerland, and Marita Muukkonen, co-founder and co-director of Artists at Risk from Finland. All selected *State of the ART(ist)* projects will be presented at the 2022 Ars Electronica Festival *Welcome to Planet B: A Different Life Is Possible. But How?* onsite and online, and thus, made accessible to a worldwide audience.

Boris Magrini (CH), Björn Geldhof (UA), Marita Muukkonen (FI)

The Jury Statement for the State of the ART(ist)

The jury reflected on what it means to be an artist at risk and considered this situation as one of the main criteria for the selection of works. There are clearly very different situations and contexts. The State of the ART(ist) call was motivated by the desire to stand in solidarity with Ukrainian artists, but it was extended to all silenced and threatened artists worldwide. Currently, being at risk in Ukraine means life-threatening danger due to the war, but it is not a situation of persecution, violation of artistic freedom, or political repression, as is the case in other countries for dissident artists / artists at risk. This is why we adopted different criteria for different situations and countries.

A second important criterion concerns the work of the artists; we prioritized works that strengthen democratic values, human rights including environmental rights, and are close to activist methods. Collaborative approaches similar to tactical media and strategies of resistance were also favored. As few such works were submitted, we have included works that are more traditional, such as video essays and

installations, but include a critical discourse. The jury recognized the urgent need to stand in solidarity with Ukraine and its artists in the time of brutal Russian invasion.

Also, the majority of the submissions were from artists from Ukraine. The jury wished to have had more submissions from persecuted and silenced artists from around the globe, who are often more difficult to reach. Among the selected artists, there are a few collectives and artists from Burma, Hong Kong and Syria, who fit the criteria described above and demonstrate a variety of resistance strategies.

These just give a tiny glimpse of ongoing persecution and violations of artistic freedom, as well as forced displacement of artists worldwide. We want to express the deepest respect for all artists who risk their lives to stand up for artistic freedom, basic human rights, totalitarian governments, and continue to create art in the middle of the war, and other unimaginable hardships.

The jury recognized the urgent need to support Ukraine and its artists.

Andriy Rachinskiy (UA), Daniil Revkovskiy (UA)

Clanking, Hammering, Dispute and Gurgling

This video is one of the parts of the exhibition *Tailings Dam*. The exposition was presented in the form of the Museum of Human Civilization, created in the future, already after the death of mankind. The museum is dedicated to the future archeology of the tailings repository in Kryvyi Rih. A tailings repository is a complex of special facilities designed for the storage of radioactive, toxic and other mineral enrichment waste. The video features two main characters heading for the tailings dam and climbing it.

In four parts parodies other parts of this project:

1. The clanking of the Scythian pommel.
2. Hammering on the pipes of the director of Kryvorizhstal, who was sitting in the bomb shelter.
3. Dispute, as a reflection of all the disputes and misunderstandings of our time, between countries and individual people.
4. Gurgling of the water extraction station.



© Rachinskiy, Revkovskiy

Floating Projects Collective (HK), Linda CH Lai (HK)

D-Normal/V-Essay, online video zine, issues 1–4 (2020–2022)

D-Normal/V-Essay (DnVe) was launched in the autumn of 2020 in response to strict social-distancing and crowd-restriction measures in Hong Kong. DnVe was proposed to answer the call for a sustainable “digital normal” of: (1) virtual togetherness, (2) open and free expression via the re-invention of the video essay; and (3) encouraging artists and non-artists to articulate their conditions of existence by maximizing the imaging tools they have.

Multiple rounds of open call brought in over 200 submissions from around the world, including Latin America and the Middle East. A total of 90 videos have been selected for four editions (Dec 2020, Mar 2021, Jun 2021, Apr 2022), each with a theme and sub-themes based on the unique ideas articulated by the submitted works in a particular round.

Re-inventing the digital essay, on the one hand, highlights the relevance of the video essay, especially in Hong Kong at a time when the range of free speech and free ideas is narrowing, but also for the rest of the world which is dealing with effects of the pandemic. On the other hand, considering the ease of virtual transportability, our curiosity drove us to find out what it was that an ordinary citizen has in mind to articulate. This bottom-up approach purposefully subverts the tendency to take certain issues for granted.

What did they want to express? The daily routine of a Turkish immigrant in Germany, the gender-based architectural structure of a house in Iran, different ways to speak of one’s feelings about Hong Kong, where to “glean” the neglected history of Taiwan, virtual presence and digital beings performing in front of the camera, a focus on the momentary (being in time) and the search for liminal space, documentary impulses, quarantine experiences, isolation, and what goes into one’s mind during a full year of online schooling ... About 60% of the final published works are by Hong Kong people.



© Floating Projects Collective

A Floating Projects initiative.

All staff members are members and friends of the Floating Projects Collective, who contributed to the online zine outside their full-time work.

General Editor/Project Initiator/Grant recipient:

Dr. Linda C.H. Lai

Digital platform maintenance and on-line editing:

Chun-hoi Wong, Hugo Yeung, John Chow, Winnie Yan, Jess Lau (graphic design)

Extended educational workshop coordinators: Andy Li, Kel Lok

Jury: Fei-pang Wong, Dr. Hector Rodriguez,

Prof. Tamas Waliczky and the entire editorial team

Digital platform development: XCEPT (an IT company formed by young HK artists)

The project is supported by a one-off initiative of the Hong Kong Jockey Club administered by Hong Kong Arts Development — awarded to Linda Lai through a competitive open call, to be executed by the Floating Projects Collective.

The Floating Projects was initiated by members of the Floating Projects Collective to experiment with art associations, sustainability, economics of contribution and participatory art.



© Ivan Svitlychnyi

Ivan Svitlychnyi (UA)

Donate

Today we see that there are no local epidemics or wars, no isolated environment, but we have a common home, one planet, and its wellbeing depends on everyone's efforts.

In this context, perhaps awareness of the environmental consequences of our actions must become a fundamental principle in art, an author's filter for endorsing artistic ideas. In the project *Donate*, the viewer is an active participant, who provides the life of an art object (and forms it) by donating electricity.

Donate consists of a site (donate-wh.com) and a light installation that is powered by donating electricity. How do you donate electricity? Donors look for ways to conserve electricity in their everyday lives, such as using fewer light sources, optimizing washing machine cycles, etc. The donor then enters the information about the donation (the power of the electrical equipment and the time it was not used) on the project site. The collected energy is the only resource that powers the installation.

Amir Almuarri (SY)

Hip-hop Music to Honor the Syrian Memory

Resisting dictatorship, sectarianism and war through music in Syria

I was very young when the uprising started in my hometown, Idlib. I had to adjust to living in a war-torn territory and face countless losses of family and friends. To channel all this and manage to stay sane and hopeful in this context, I focus on creating songs that give voice to a population under siege, men and women who were resisting bombardment and attacks on different fronts from armies and geopolitical interests. My most popular song, which was widely covered by international media, is “On All Fronts.”

In my work, I like to particularly focus on Syrian youth, on how they interact with their war-torn

territories and where they find hope, including through training disciplines such as parkour. I am also very invested in exploring how technology and digital platforms allow populations under siege to be present and connect with international audiences. And most of all, I am dedicated to honoring the Syrian memory, including the detainees and disappeared, sharing a tribute to all those who sacrificed so much for freedom, justice and dignity.

Director: Yaman Antabli

Composer: Fares Dannan

Lyrics and singing: Amir Almuarri



© Amir Almuarri



Still from the video by Ivan Nikolov

Daria Pugachova (UA)

I Will Close the Sky So You Could Breathe

Daria Pugachova came to Bulgaria due to the war. She participated in Radar Sofia residency developing her performance dedicated to the war in Ukraine. *I Will Close the Sky So You Could Breathe* took place at Brotherly Mound Monument in June 2022. She visualized this piece as an act of unity, where Ukraine finds protection and support. The artist lies on the ground; the net is stretched over her naked body. She asks the audience to ‘cover the sky’ – this is what Ukrainians request to have protection from Russian rockets falling from the sky. Together, participants weave a camouflage net over the body of the artist to metaphorically

protect her. This collective action shows that peace could be achieved if only humanity unites.” However, it happened as a solitary action with no support from others – only as an expression of the artist’s own will. The decision that the artist had to take reflected both the political situation in the world and the unbroken spirit of Ukrainians.

Artist: Daria Pugachova
Operator: Ivan Nikolov
Drone: Svetlin Marionv
Editing: Ivan Nikolov, Daria Pugachova
Support received from Radar Sofia, Goethe-Institut Bulgarien, Swimming Pool

Karl Ingar Røys (NO) & Peacock Generation (MM)

Peacock Generation

Thangyat is one of the oldest examples of Burmese song culture. It is performed with a lead singer who has a dancing chorus behind him, which responds to the main singer. Thangyat can be funny and satirical, combining politics, poetry, dance and music.

Traditionally, troupes of Thangyat singers celebrate the yearly Burmese water-festival with songs, chants, dances and plays. The performances were banned for decades because they often have an anti-authoritarian slant.

Thangyat groups are required to send their chants to the regional government's Information and Public Relation Department for approval. According to government rules, chants cannot feature "one-sided accusations and criticisms that could affect the dignity of the Union of Republic

of Myanmar and the government" and must not "lead to the disintegration of national solidarity." The student movement in Burma has been a very important political force in the most pivotal events in the country's brutal history and young people are at the forefront again today during the current uprising against the Junta takeover. Many of the singers in the *Peacock Generation* have been arrested for their performances, some have also had to leave the country and go into exile.

Han Htoo Khant Paing, Nan Lin, Paing Phyto Min, Tint Tint Su, Aung Lay, Soe Htet Oo, Paing Ye Thu, Min Thu Kyaw & Zay Yar Lwin

Translation: Nilar Kyaw

Video/sound: Karl Ingar Røys

Support received from: Office for Contemporary Art Norway, The Fritt Ord Foundation Norway



fantastic little splash (UA)

Similar Image

On the beach or in the forest, when you close your eyes, you hear the sound of water, wind, rustling leaves, insects. You can still hear the motorboat, ringtone, highway, buzzing drone, industrial plant. When you close your eyes and just listen, the sounds mix; gradually you realize that all this nature is not the first or the second, it is the canvas, including you. But as soon as you open

your eyes, you notice order everywhere. Humans ordered the world more and more rapidly, until they found themselves in the forest – unpredictable and magical. It seems if you go deeper, you will have to expose yourself to danger and disappear. It also seems that this disappearance is not about absence, but about another form of presence.



© fantastic little splash



The exhibition „Control Freak“ curator Ksenia Malych, artist Oleksiy Sai, 2020, screen shot

SVITER art group (UA), Ivan Svitlychnyi (UA)

Shukhliada Exposition Environment

Shukhliada Exposition Environment is a website (shukhliada.com), and its main mission is to be a platform for independent curators and artists. The idea of the project arose in 2013 from the artists Liera Polianskova, Max Robotov, Ivan Svitlychnyi (at that time living in Kharkiv, UA), one year after a very traumatic event – the illegal seizure of the building where Liera, Max and Ivan founded the artist-run space.

After analyzing the situation, the artists decided that they wanted to create their own space,

independent of political or financial aspects, and realized that the Internet platform could become such a space.

The artists were able to launch a site only in 2017, and that is when the first exhibition took place – White Triptych, consisting of works with different media.

At the moment, *Shukhliada Exposition Environment* works as an environment for addressing a variety of artistic and social tasks, from institutionality to inclusivity.



The Big Wild Field Draft © Oksana Chepelyk

Oleksandr Burlaka (UA)

The Big Wild Field Draft

The rise of the heavy industry in the southeast of Ukraine started when a Welsh businessman, John Hughes, founded the plants for coal, iron and rail production in 1870s. Later, this economic region became the heart of the Soviet state's economy. Before industrialization, these northern areas of the Black and Azov Seas were known as the Wild Field. The Wild Field was traversed by important trade and warpaths. The first map of it was commissioned by the Tsar of Moskovia, Ivan IV the

Terrible, in the mid 16th century. “The Book of the Great Drawing” is a later textual description of this lost map. The book contains descriptions of various reference points of the ways which still exist. The historical stratification of the paths, rivers, and villages later became the core of urbanization of the region and the scheme for the coal mining industry. The ongoing Russian invasions of 2014–2022 returned the paths back to their war destination.

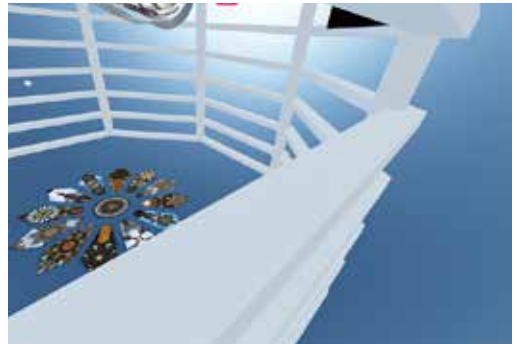
Oksana Chepelyk (UA)

VR Collider

VR Collider works with time, public space and history. It examines the iconic places of the political history of the 20th and 21st century through the idea of collisions. It deals with events in public spaces that influenced a subsequent historical development. A virtual environment built as a platform that flies over planet Earth and captures the vibrations of time-space, presented by fragmented video panoramas that are revolved with acceleration in an art collider, activating a mechanism of audio-visual jumps, where some fragments can be substituted by archival videos followed by visual transmutations. It is a visual narration of political flashpoints. The *VR Collider* project is dealing with the events that have formed the world and raises the question: is a person a particle in the system of accelerators of global forces, or the energy of interaction investigating new values, new forms of thought and new ways of existence in the world — insinuating that another world is possible?

VR Collider by Oksana Chepelyk with the participation of Glib Chuliuk-Zagrai, Sensorama and “Genesis” part with the participation of Denis Gumynyuk Mult VR. Sound “Stamina” fragment by KOTRA, “Innocence Lost” fragment by Lee Alverson, Dakha Brakha, Sergiy Bedusenko, fragments from “Playing Together” Central Asia, recorded at The Ilkhom Theater (Tashkent, Uzbekistan) October 11, 2016, “Pulsar” by Anna Korsun.

With the support of the UCF — Ukrainian Cultural Foundation and Culture in Motion: Regional Mobility Fund of the Goethe-Institut Eastern Europe/Central Asia



© Oksana Chepelyk

DE NE DE (UA)

Yellow Line

DE NE DE promotes recognition of the Ukrainian cultural heritage of the Soviet period and emphasizes its value. Soviet art and architecture in Ukraine have always been stigmatized and not recognized as important historical and cultural artifacts of the past era. Since 2015, so-called “decommunization laws” have been in force in Ukraine, designed to condemn totalitarian ideology. And since ideology cannot be separated from the works of art of that period, many of them were destroyed.

The *Yellow Line* project is a documentation about objects of architectural and monumental art heritage of the 20th century from the Donbass region. In 2018, the *Yellow Line* project revealed the value and uniqueness of certain inconspicuous

objects of cultural heritage, which were not recognized in the same way. Today, most of these cities have been destroyed and occupied by the Russian army.

For this reason, the documentation of the *Yellow Line* project remains almost the only preserved evidence of these unique sights from the past.



S+T+ARTS EXHIBITION

STARTS is an initiative of the European Commission to foster alliances of technology and artistic practice that effectively implement European policymaking to nurture innovation and that benefit the art world as well. The focus is on people and projects that contribute to mastering the social, ecological and economic challenges this continent faces. The STARTS Prize is awarded annually to innovative projects at the interface of art, technology and science that have the potential to contribute to sustainable economic and social innovation. This year's exhibition of selected winner and STARTS projects showcases current best practice approaches for responsible innovation in the fields of environmental commons, ecology,

artificial intelligence, digital ownership, policy-making as well as communication and media technologies. The projects shed light on these impressive, wide-ranging roles of the artistic and creative communities and their potential to act as guides through the digital transformation. The exhibition displays stunning artistic-driven innovation in the form of large-scale transnational and multidisciplinary collaborations, community-led digital investigations, artist-tech partnerships and grassroots initiatives.

The STARTS Prize has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 956603.

Featured Artists:

Antarctic Resolution — Giulia Foscari (IT), UNLESS (INT)

Holly+ — Holly Herndon (UM), Matthew Dryhurst, Herndon Dryhurst Studio

Digital Violence: How the NSO Group Enables State Terror —
Forensic Architecture (GB) in collaboration with Laura Poitras/Praxis Films

Avatar Robot Cafe DAWN ver.β — Ory Lab Inc., OYAMATSU Design Studio, TASUKI Inc.

UITSLOOT — Gijs Schalkx (NL)

Cleaning Emotional Data — Elisa Giardina Papa (IT)

The Plant Intelligence Plan — Zhang Tianyi (CN)

Quorum Sensing: Skin Flora Signal System — Helena Nikonole (RU/TR), Lucy Ojomoko (RU)

Ent- — Libby Heaney (GB)

Ambient Weaving — Hosoo Co., Ltd., Yasuaki Kakehi Lab,
The University of Tokyo, ZOZO NEXT, Inc.

The Glass Room: Misinformation Community Edition — Tactical Tech (INT)



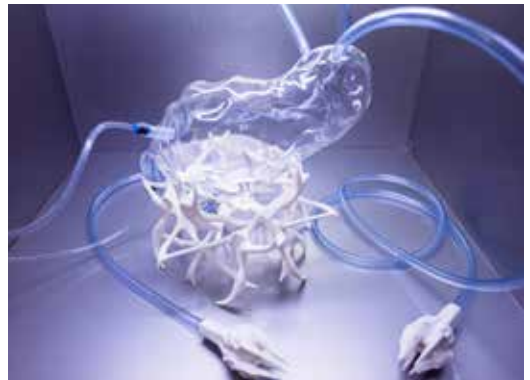
Antarctic Resolution, Giulia Foscari UNLESS



Holly+, © Andres-Manon



Digital Violence, © Forensic Architecture, Laura Poitras/Praxis Films



Quorum Sensing: Skin Flora Signal System, © Hana Jošić



Slootmotor & Prof. Eet, © Nadine Pijnacker



The Plant Intelligence Plan, © Zhang Tianyi

ARS ELECTRONICA GARDENS

Welcome to Planet B. A Plan B for humankind on this planet can certainly not be developed only from the perspective of a few, for which reason we welcome the views of our Garden Partners and their communities. The diversity of individual themes, positions and perspectives that underpin our partners' Festival Gardens is accounted for by the multitude of individual artistic positions that form an intersection and image of the whole festival. The curatorial approach of our partners engages directly with the festival topic and the question "But How?", integrated in the title, runs like a thread through the program. The Garden Partners exhibition is directly connected to this year's themed exhibition, showcasing perspectives from Auckland, Barcelona and Bologna, as well as the Bahamas, New York, Taipei, Seoul, Tokyo and Utrecht.

Despite our focus on the festival event in Linz and the transformation of the decentralized Ars Electronica Gardens to onsite partners, dedicated parts and carefully curated programs will be accessible online to partners and audiences unable to join us in Linz.

ARS ELECTRONICA GARDEN AUCKLAND / WELLINGTON

arc/sec Lab the University of Auckland, DARA Victoria University of Wellington (NZ)
Garden Aotearoa

Since 2020, the *Ars Electronica Garden Aotearoa* has been New Zealand's contribution to the International Ars Electronica Festival. It is a bi-directional portal to visit the creative and emerging technology scene of the South Pacific, assembling selected projects from New Zealand's technologists, artists and university researchers. The arc/sec Lab at the University of Auckland (UoA)

and the Digital Architecture Research Alliance (DARA) at the Victoria University of Wellington (VUW) are proud to organize a selection of four projects from the New Zealand exhibition to be showcased at this year's Ars Electronica Festival.

Organization: Assoc. Professor Uwe Rieger, arc/sec Lab, UoA Professor Marc Aurel Schnabel, DARA, VUW Yinan Liu, arc/sec Lab, UoA Tane Moleta, DARA, VUW



Tide Sketch, KTA_XRTEM, LightSense

Mizuho Nishioka (JP/NZ) and Tane Moleta (NZ) Tide Sketch

Tide Sketch explores the natural environment and its representation, questioning human-centric visualization in an age of climate change by allowing natural processes to alter the recording process. Responding to the relationship between two overlapping but decoupled systems, the natural environmental processes of the sea and the legislative boundaries found in maps and charts, this project employs a process-based practice that centers on traversing a set route within a landscape. Upon being physically touched by a

branch, rock, wave or gust of wind, equipment is placed, and the natural environment is invited to take part in generating work.

Through the design and implementation of electro-photomechanical devices, wind, temperature and other natural elements impart their presence in the capture. Through this process of creating, an index of co-creative work is produced. The outcome is made in fellowship, a political re-statement, a collaboration.

Project acknowledges support for Wellington Faculty of Architecture and Design Innovation Visual Research Fund (2020) and Victoria University of Wellington, University Research Fund (2021).

B. Lawrence (NZ), T. Robb (NZ), B. Woodhouse (NZ), D. Hurley (NZ), M. Davis (NZ), U. Rieger (NZ), Y. Liu (NZ), R. McColl (NZ), S. Masoud-Ansari (NZ), J. Reeve (NZ)

XR Tumor Evolution Project

XR Tumor Evolution Project (XRTEP) is an immersive “arena” that combines physical architecture with digital clinical information. XRTEP is a hybrid environment that seeks social interaction between participants – experts and otherwise – and furnishes them with tools and data in space to enable real-time collaboration around how and why cancer spreads in the human body. An interactive holographic model of a single cancer patient and their many tumors is located at the center of a curated physical and digital space. Participants watch tumors grow, shrink, and spread over time; discern patterns in the data, and connect them to their spatial origins. Combining human-computer interaction with traditional spatial-material practice, XRTEP provokes discussion and anticipates disagreement. Hypotheses form and reform, through new connections being drawn by and between people, artefacts and data – in time and space.

The patient, and her supportive whānau, who made this research possible through her generous donation; Cristin Print (FMHS), Kate Parker (Waitematā District Health Board), Cherie Blenkiron (FMHS), Peter Tsai (FMHS), Yvette / Wharton (CeR), Jenny Lee Roper (CeR), Bianca Haux (CeR), Nick Young (CeR), Denice Belsten (School of Architecture and Planning), Jack Guo (School of Architecture and Planning)

Uwe Rieger (DE/NZ), Yinan Liu (NZ), Tharindu Kaluarachchi (LK), Amit Barde (IN)
LightSense

LightSense introduces a new generation of responsive architecture. It invites the audience to engage in intimate and meaningful interaction with a living architectural body. The kinetic construction combines a lightweight structure with 3D holographic animations. An integrated AI system, which has been trained on sixty thousand poems, allows the structure to engage, lead and sustain conversations with the visitor.

LightSense inspires the audience to engage in direct communication about topics we care about. Its responses are truly associative, unpredictable, meaningful, magical and deeply emotional. *LightSense* listens with interest and curiosity before responding from a personal viewpoint. Analyzing the emotional tenor of this conversation, the system is able to transform into a series of hybrid architectural volumes, immersing the visitors in Pavilions of Love, Anger, Curiosity and Joy.

arc/sec Lab, University of Auckland: Uwe Rieger & Yinan Liu / Augmented Human Lab, UoA: Tharindu Kaluarachchi, Suranga Nanayakkara / Empathic Computing Lab, UoA: Amit Barde / New Dexterity Group, UoA: JunBang Liang, Gaogeng Gao, Minas Liarokapis / Support: Jacky Zheng, Yan Li, Kenny Chau, Nicolas Fuentes Wilson
The project was funded by the University of Auckland

ARS ELECTRONICA GARDEN BARCELONA

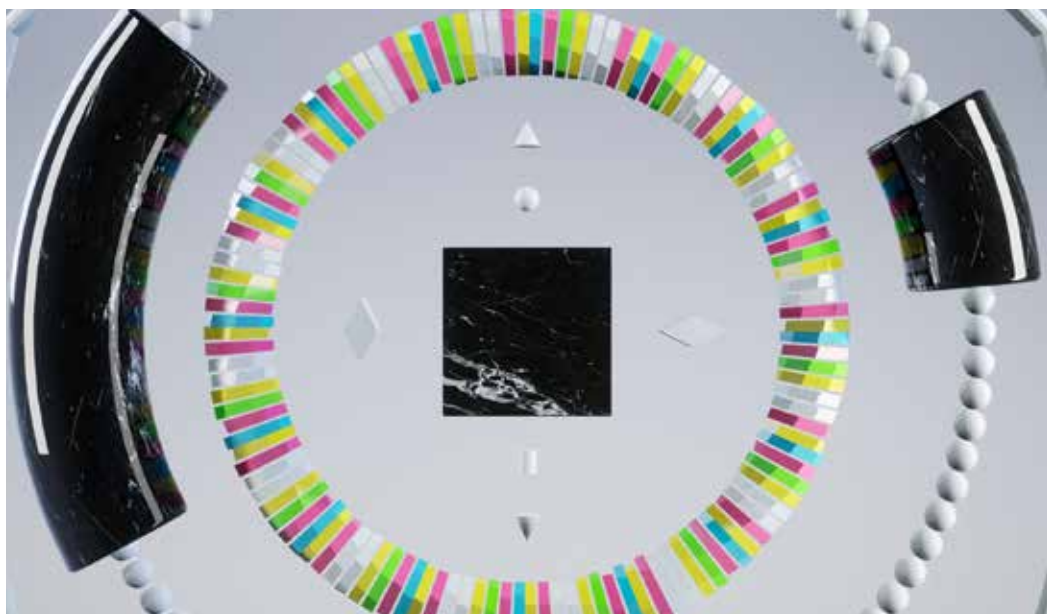
ESPRONCEDA — Institute of Art and Culture (ES), Solimán López (ES)

NUBIA — Metaverse Platform / INTRONS

We are pleased to present *INTRONS*, developed by Solimán López in the context of our Metaverse platform *NUBIA*. *INTRONS* is a proposal to solve the human and natural presence in virtual spaces or metaverses. It starts with a genesis collection of 1,500 dynamic, generative NFTs that contain the ability to store and represent 15 traits from their owner's genome.

The project represents an evolution in the representation of reality, in which biotechnology is put at the service of the artist's gaze. All this results in creating a new digital identity extracted from various scientific data of the human genome obtained from genetic tests inhabiting the digital space. For it to be carried out, a saliva test

of the holder and the use of the DNA serum are necessary. After that, the magic begins: said serum is injected into the INTRON, and its shape begins to mutate until it adapts to the result, thus giving birth to the owner's digital identity, with the ability to be used in the metaverse. This collection has a peculiarity that makes it unique: among its NFTs, there are some with a higher rarity than the rest; their appearance is less frequent. This depends on the individual variation that the URI creates in the NFT metadata and DNA values. The Rarities Laboratory collects variations of both materials, from plastic to metallic effects, colors, backgrounds, and textures. www.nubia.world; www.introns.org



© Introns Rarity Marble. Harddisks2dio

ARS ELECTRONICA GARDEN BARCELONA

Institut Ramon Llull (ES), New Art Foundation (ES), Hac Te (ES)

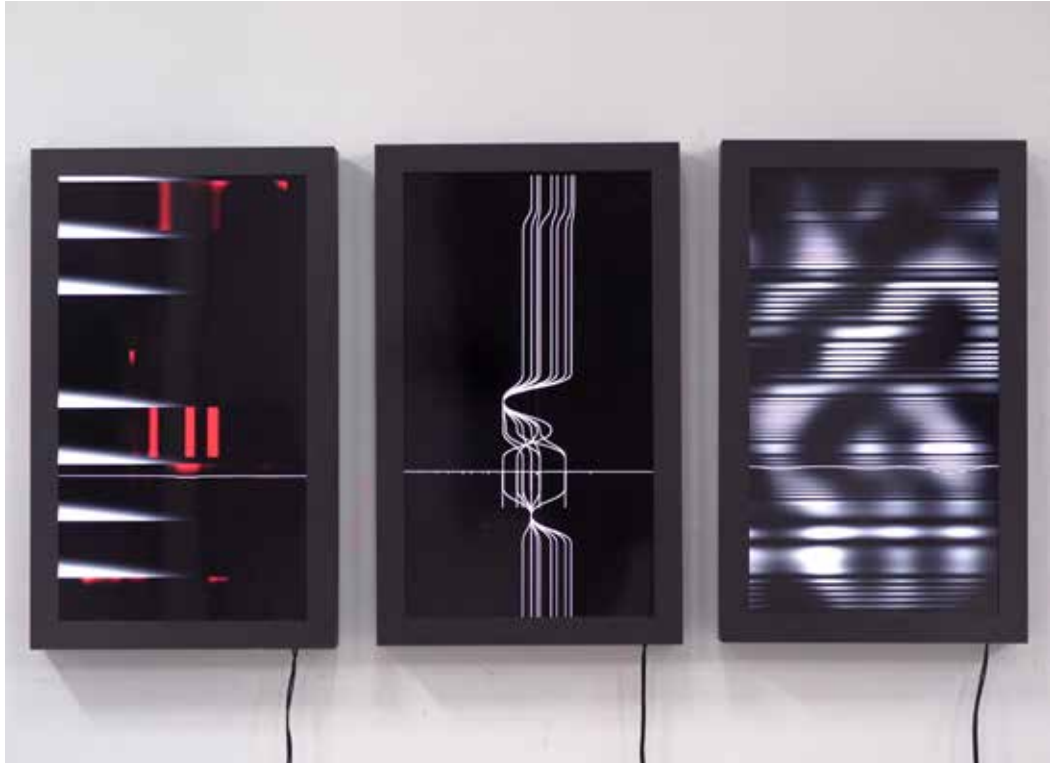
Collaborative Ecosystems for a Sustainable World

Seeds from Barcelona's Gardens for a Planet B

Only collaborative practices, based on the transversal sharing of knowledge and efforts, can allow us to generate proposals that lead to a project for a sustainable world.

As a result of the collaborative practices that characterize Catalan innovation, the Institut Ramon Llull, in collaboration with the .NewArt { foundation; } and Hac Te, presents a survey of the current state of creativity in Catalonia

linked to Art at its intersection with Science and Technology. The six artworks in this exhibition are the outcome of different initiatives such as the 2020 and 2021 Ars Electronica Garden Barcelona, the grant programs convened by ISEA2022 Barcelona and the .NewArt { foundation; }, as well as interdisciplinary research projects developed by Hac Te, the new hub of Art, Science and Technology in Barcelona.



Yolanda Uriz Elizalde (ES)

Chemical Ecosystem

Chemical Ecosystem reflects on the function of smell today, inviting the public to observe how its presence influences the environment and affects the beings that inhabit it, listening to the olfactory messages that these inhabitants emit.

Ten synthetic organisms hang from a circular cover with fans to diffuse odors, speakers and gas sensors to capture the composition of the surrounding air. The sounds vary dynamically according to the data of the air content, affected by the human presence.



© Dani Cantó

This project is the result of the ISEA2022 Barcelona Grants promoted by ISEA, the .NewArt { foundation;}, Hac Te and Fundació Ernesto Ventós — Nasevo, presented at La Capella as part of the “What is Possible and What is Not” exhibition in the context of ISEA2022 Barcelona.

Mónica Rikić (ES)

Species I, II and III

Species I, II and III focuses on imagining alternative evolutions for artificial cognitive systems. It argues that the possibilities for existence of artificial consciousness are a matter of philosophical attribution and not only of technical developments. The project presents a set of robotic devices, built from algorithmic structures inspired by philosophical principles, which represent a small inorganic ecosystem. They are dramaturgical devices staging a possible evolution of AI, imagining a possible integration of these systems in the future. This project is the result



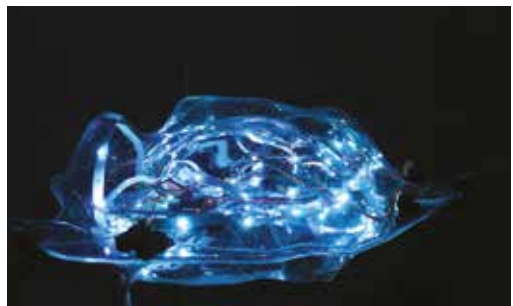
© Mónica Rikić

of the ISEA2022 Barcelona Grants promoted by ISEA, the .NewArt { foundation;}, Hac Te and DKV, presented at La Capella as part of the “What is Possible and What is Not” exhibition in the context of ISEA2022 Barcelona.

Esther Rodríguez Barbero (ES)

Do Bodies Dream of Electromagnetic Organs?

Do bodies dream of electromagnetic organs? is a performative installation built by movement sensors that reflects on the relationship between body and electromagnetic biomedical implanted devices. It addresses the alterations in terms of perception, self-perception, movement and spatial relations that appear after some experiences where state of consciousness is suspended. It proposes an environment that works as an extension of these devices, researching on politics of the body, cyborg, otherness and the unknown.



© Esther Rodríguez-Barbero

Coding & software architecture: Ivan Paz (MX) & Roger Pibernat (ES) (Top Lab Collective) / Technical advice & interactive support: Miguel de las Heras (Interactive Laboratory, Hangar) (ES) / Structure design & assembly: Elia Bagó (ES) Sound support: José Velasco (ES)

This project is the result of the Ars Electronica Garden Barcelona 2020 Grants promoted by the Institut Ramon Llull, the .NewArt { foundation;}, UOC, La Caldera, and Hangar, presented at Canòdrom as part of Ars Electronica Garden Barcelona 2021 exhibition.

Antoni Muntadas (ES/US)

Tasmanian Tiger

Case Study of the Museum of Extinction

Thylacinus Cynocephalus, a marsupial from Australia commonly known as the Tasmanian tiger, was declared extinct in 1936. It is an example of how a legend is established between reality, fiction and popular myth. The artist's interest in the Tasmanian tiger began in Australia, during his residency at the University of Western Sydney, NEPEAN in 1993. On an outing to the Tasmanian School of Art while visiting the island, Muntadas found a beer with a Tasmanian tiger on the label. This became a recurrent image that he researched. He read documents and visited the Museum of Natural History and learned that in 1936 it was considered extinct. On the other



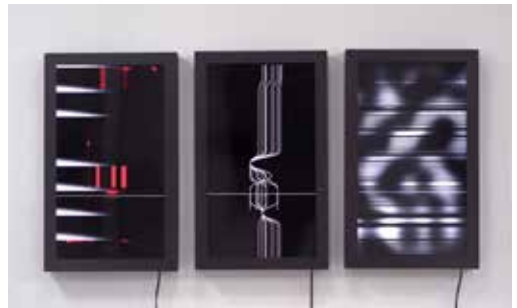
© @Victor Pérez-Pallarès Setó

hand, it was alive in the same way that it was on the beer label: it was alive in the imagination of all the people who spoke about it. Nobody had seen it. This project is a new production of the .NewArt { foundation;} in collaboration with the Hac Te and a special participation of the Barcelona Institute of Science and Technology and the Barcelona Institut of Bioengineering of Catalonia.

Santiago Vilanova — Playmodes (ES)

FORMS — Screen Ensemble

FORMS — Screen Ensemble is a generative visual music jukebox. Driven by chance and probabilities, this automaton creates endless, unrepeatable graphic scores that are immediately transformed into sound by means of sonification algorithms, making it possible to literally hear what you see. Performed by this trio of automata — rhythm, harmony and texture — a visual symphony gives birth to unique sonic landscapes: from ambient music to raging rhythms, surreal electronic passages or dance-floor beats.



© Playmodes

Sara Dean (US), Beth Ferguson (US),
Marina Monsonís (ES)

Tools for a Warming Planet

Tools for a Warming Planet is a collection of present-day and speculative tools for adapting to a changing world. New tools are needed for understanding, responding, communicating, building, and living together through climate chaos. This crowd-sourced collection represents exciting potentials for new futures from designers, artists, activists, and scientists worldwide.



© Warming Planet Project

This is a collaborative project presented at Arts Santa Mònica as part of “La irrupció” exhibition in the context of ISEA2022 Barcelona.

ARS ELECTRONICA GARDEN BOLOGNA

Umanesimo Artificiale (IT)

Coded Biophilia & Un suono in estinzione

With topics ranging from bio-design, marine ecology, sound art and creative coding, with an experimental approach which strives to explore the intersections between art, science, technology, biomaterials and critical thinking, the projects Umanesimo Artificiale presents at Ars Electronica 2022 are a celebration of bits and atoms. *Coded Biophilia – Hacking Marea* is a project by Giulia Tomasello that explores marine biotechnologies and practices of circular fashion and DIY techniques. *Un suono in estinzione* is an experimental art and science research project aimed at monitoring the implications of climate change

on Alpine glaciers through a sound exploration of natural environments at risk. The abundance of scientific discoveries, technological innovation and design, forces society to transform itself continuously and rapidly, pushing humans to incessantly redefine their identity, their tasks, their habits and their sense of community.

Umanesimo Artificiale Art director: Filippo Rosati
Coded Biophilia – Hacking Marea Project lead: Giulia Tomasello Assistant: Valentina Carnali
Un suono in estinzione / Project lead: Sergio Maggioni alias NEUNAU Creative technologist: Emanuele Balia

Giulia Tomasello (IT)

Coded Biophilia Hacking Marea

Coded Biophilia – Hacking Marea is a project by Giulia Tomasello that explores marine biotechnologies and practices of circular fashion and DIY techniques. The project is a collective effort, born out of a summer school course taught by the artist in the summer of 2022 at Umanesimo Artificiale Transmedia Research Institute where a joint network of students and professionals collaborated from the initial research and field studies to the final prototype.



© Umanesimo Artificiale

NEUNAU (IT)

Un suono in estinzione Sound ablation

Un suono in estinzione is an experimental art and science research project aimed at monitoring the implications of climate change on Alpine glaciers through a sound exploration of natural environments at risk. *Sound ablation* is the resulting audiovisual multichannel installation that documents a (compressed) 24-hour acoustic phenomena occurring in different areas of the glacier, projecting the audience inside a crevasse, both at a chromatic and spatial level.



© Umanesimo Artificiale

ARS ELECTRONICA GARDEN BOLOGNA

Sineglossa (IT), Roberto Fassone (IT)

And We Thought

Food Data Digestion

What does it mean to be human? What is the difference between things and living beings? *And We Thought* reflects on these issues by establishing an intimate and collaborative relationship between the artist and a neural language model, Ai Lai, that was trained using a database of trip reports, a genre of diaristic literature focused on psychedelic experiences. The lysergic visions produced as outputs are not so far from the perceptions of reality created by humans' altered state of consciousness. In the making of the work, the human and artificial minds react to each other's stimuli, joining forces in the production of hybrid texts, videos and sounds. The paradigm of the human using the machine for their own purposes is abandoned. The imperfect understanding of the world that the algorithm demonstrates works

for the human, equally imperfect, as an agitator of thought. The machine mixes concepts and generates alternative realities, causing the artist to produce his own, inspired by an unexpected worldview. Instead of correcting the machine toward efficiency, as we have been doing so far on "Planet A", the artist and Ai Lai show us new possible forms of cooperation between living and non-living that will prove very useful on "Planet B", whatever its ecosystem might be.

And We Thought is a project by Roberto Fassone and Ai Lai, produced and curated by Sineglossa, in collaboration with Play with Food. The dataset used for the training of Ai Lai comes from Shroomery.org, available in Creative Commons. *Food Data Digestion* received a contribution from Fondazione Compagnia di San Paolo within the fund "ART-WAVES. For creativity, from the idea to the stage."



ARS ELECTRONICA GARDEN EDINBURGH

The New Real, Edinburgh Futures Institute & Edinburgh College of Art,
University of Edinburgh, Scotland, United Kingdom (GB)

The New Real Observatory

An “experiential AI” system and artworks that equip future generations to flourish on a thriving planet in the midst of surprising, joyful, and inclusive forms of intelligent life.

Exploring transformative ideas through art and AI to equip future generations to flourish on a thriving planet in the midst of surprising, joyful, and inclusive forms of intelligent life. *The New Real Observatory* is a complete “experiential AI” system developed with and for artists and scientists. Artworks by Inés Cámara Leret, Adam Harvey, and Keziah MacNeill present multi-sensory exploration of possible futures and investigate the entanglements of people, data, machines, and environments. Post-Covid we are all digital natives, and we see today a transformative shift arising from an emerging generation of AI technologies that directly engage humans. Recent advances in machine learning based on learning patterns in huge volumes of historic data offer profound new capabilities, although being energy intensive, inscrutable, and can amplify inequality and injustice. The New Real has set out to under-

stand how AI can augment and be enriched by the arts, and how far data science and the arts can help to answer each other’s questions. The research has investigated next-generation intelligent experiences, low-energy approaches, and creative methods for explainable AI. The artists here specifically explore the construction and artificiality of localized representations of nature generated by AI; the agency and control inherent in certain ways of creating and encoding data; and the speculative point at which the boundaries between humans, machines, and nature blur.

The New Real Observatory is part of The New Real, a partnership between the University of Edinburgh, Edinburgh’s Festivals and The Alan Turing Institute. Featured artists Adam Harvey, Inés Cámara Leret, Keziah MacNeill. Funded by the Arts and Humanities Research Council (AHRC) – UK Research and Innovation (UKRI), Towards Turing 2.0 – Engineering and Physical Sciences Research Council (EPSRC).

The New Real (GB)

The New Real Pavilion Pop Up Research Hub

Visitors to Ars Electronica are invited to a pop-up research hub at *The New Real Pavilion* for conversations on how the latest developments in autonomous and intelligent systems can enable new forms of creative practice and fuel transformative experiences and services for audiences. Talks and tours by artists, curators and scientists will open dialogue on the themes of the exhibition and artworks. We will discuss the most radical and interesting signals for tomorrow at the festivals today.



© Chris Scott

Adam Harvey (US/DE)

Zone System

Semantic Shifts Through Algorithmic Realism

In this new work, Adam Harvey explores the agency and control inherent in certain ways of creating and encoding data, by transposing labels into different value systems for autonomous vehicles to see the world from the perspective of cyclists, pedestrians, or the natural terrain. Working with object detection, semantic segmentation, image classification algorithms, and existing autonomous vehicle training datasets, Harvey develops a new “zone system” and an “algorithmic realism” to rethink the top-down causality of computer vision taxonomies against a backdrop of environmental crisis.



© Adam Harvey

Keziah MacNeill (GB)

Photographic Cues

Photographic Cues explores the future of the photographic image in an algorithmic age, and shows us a speculative future in which features of the natural landscape such as the body of water in a Scottish loch are the only remaining form of analogue lens. Tuning into the operation of the neural network, MacNeill explores new ways to survey and see the land at a time of climate emergency, and looks at how the boundaries between human perception, analogue lens, and algorithmic image blur.



© Keziah MacNeill

Inés Cámara Leret (ES)

The Overlay

The Overlay is a multi-component artwork that explores construction and artificiality of localized representations of nature. The work references Disney’s “go-away green”: a color engineered to hide unsightly yet necessary objects in theme parks. Cámara Leret has collaborated with an AI processing engine fine-tuned on images of greenery and built environments to reveal hues of green for local neighborhoods. In a multi-channel film, a local hue is fabricated by Spain’s last living colorist and assimilated by the local community in its material form.



© Inés Cámara Leret

ARS ELECTRONICA GARDEN

NASSAU

Predrag K. Nikolić (RS/BS), Kishan Munroe (BS), Giacomo Bertin (IT), Marko Jovanović (RS), University of The Bahamas (BS), AI.R LAB Science (US/RS/IT)

Aquaterrestrial Recolonization

There are numerous scientific reports showing that coral reefs, which are a crucial part of our planet's ecosystem and our existence, have been significantly jeopardized by increased pollution and the adverse effects of climate change. Reef systems are irreplaceable resources of food for a quarter of the ocean's marine life and play an important role in the generation of clean air and the protection of vulnerable coastlines. The geographical position and geological composition of The Bahamas place the archipelago at the center of an ecological/environmental disaster; one in which dire consequences, directly and indirectly, affect numerous sectors of human society. Project *Aquaterrestrial Recolonization* is a joint effort of a group of artists based in The Bahamas proactively responding to rising climate change concerns.

We are recording the current state of the surrounding dead coral reefs and feeding AI with that data to visualize a recolonized ocean floor; calculated imaging, restoring the parts of the planet mankind has destroyed. We are using AI as the planet Earth's protector from further human devastations. We are driven by the idea that maybe it is time to give to another intelligent entity, based on logic and calculations rather than greed and carelessness. We are using AI technology to generate new coral reefs, and confront the audience with what we have lost, where we are now and what needs to be rebuilt to preserve our planet for the next generations.

Predrag K. Nikolić (RS/BS), Kishan Munroe (BS), Giacomo Bertin (IT), Marko Jovanović (RS), University of The Bahamas (BS), AI.R LAB Science (US/RS/IT)



ARS ELECTRONICA GARDEN NEW YORK

XRE (Extended Reality Ensemble) (US), MEDIACOELI (IT)

Inescapable Entanglement

XRE (US), MEDIACOELI (IT), Letizia Artioli (IT), Luca Cacini (IT),
Anne Wichmann (DE), Clara Francesca (AU/IT)

Inescapable Entanglement is a posthumous narration of the emotional reaction to the climate change crisis. It explores the question “How can technology serve us now?” while acknowledging that “Solastalgia” (distress caused by environmental change) is on the rise in societies. We work at the intersection of performance (Chekhov’s play *Uncle Vanya* outlining problems from 100 years ago), AR (live climate change metrics), soundscapes and biometric data visualization of physiological audience responses. It uses neuronal aspects of plant life from the most contemporary studies of plants communication, interwoven with an aesthetic which evokes nature gods and hearth fae symbology. *Inescapable Entanglement* invites the audience to playfully explore ancestral/neighborly myths, natural communication hubs (such as large parks) and recent events (wildfires in Europe) to collectively

discover unforeseen possibilities of living with our planet. We do this by accepting invitations from anthropologists such as Eduardo Kohn to “playfully engage with how trees think with their inner logic as sentient life,” because “playing with thoughts leads to unforeseen possibilities” to realize a more just world. Wherever there is a living thought, there is a self and a symbiosis present, thus there exists an innate entanglement between all humans and nature that is inescapable.

Concept and production: Letizia Artioli, Luca Cacini, Clara Francesca and Anne Wichmann

AR and design: Luca Cacini and Letizia Artioli

Poetry by Clara Francesca

Quotes from *Uncle Vanya* by Anton Chekhov

Music and soundscapes by Anne Wichmann (She’s Excited!)

GRS Sensor POC by Mirko Pirisi and Salvatore Isaia

Presented by XRE and MEDIACOELI



Inescapable Entanglement, Credit: Anne Wichmann & Clara Francesca

ARS ELECTRONICA GARDEN NOVI SAD

Bel Art Gallery (RS)

Mirror Terrain

A Study of Historical Erasure

In order to build a different and brighter future we must not simply move forward through time, but backwards as well. We must reprogram ourselves to see what's already gone and reroute our paths to include our predecessors in our future endeavors. Human experience is composed of many invisible layers and *Mirror Terrain* renders one of them observable.

Mirror Terrain creates a mnemonic environment which enables us to see our past and reprogram ourselves in order to avoid erasing history which lies within it in the form of statues. By minding

our steps and avoiding the erosion of statues, we grow more observant, altruistic and intimate. Their random compositions create images of involuntary families, communities and relationships of different people bound by an experience. In essence, these “ghosts” serve as monuments to our future progress. Their erosion due to indifferent and irresponsible public contact in a space with no restrictions amplifies discourse on human nature and the neglect of history.

We are grateful to our production partner Furuna Crafts, Novi Sad



Furuna Crafts, Novi Sad

ARS ELECTRONICA GARDEN ROTTERDAM

V2_ Lab for the Unstable Media (NL)

Summer Sessions at Ars Electronica 2022

The *Summer Sessions pop-up exhibition* at Ars Electronica Festival 2022 shows a selection of outcomes realized through the international exchange of emerging talents within the “Summer Sessions” network.

Summer Sessions are short-term residencies for young, emerging artists, organized by an international network of cultural organizations. Each summer, the partners that participate in this network for talent development collaborate to offer professional production support and expert feedback to artists in the realization of a new artwork or design. Local talents from each partner’s geographic region are scouted and selected for a residency abroad, where they are offered highly productive atmospheres and specific kinds of expertise at one of the international partners in the international network. While the pop-up

exhibition illustrates the kind of results that this pressure cooker residency format results in, a live event will highlight the experiences that participants have had abroad, and the effects these experiences had on their early careers. The event will also form a meeting point to discuss how to strategically further develop international opportunities for emerging and young professionals among past, present and future partners of the network.

The project was developed as part of the Summer Sessions Network for Talent Development program at V2_ Lab for Unstable Media.



V2_

Sophia Bulgakova (UA)

You Are Source Projection and Reflection

You Are Source Projection and Reflection is an ongoing series of projection-based setups focusing on non-linear reading in motion.

The piece is an attempt to rearrange the understanding of physical space and create an infinity of possible compositions that allow the imaginary to shape the notions of the viewer. The audience is invited to explore the space individually by submerging themselves into merging clouds of words using translucent screens to navigate within the environment. *You Are Source Projection and Reflection* is a site-specific installation and the text is always adapted to the exhibition space.

The project was developed as part of the Summer Sessions Network for Talent Development program in co-production with Metamedia Association and V2_Lab for Unstable Media.



© Jesus Canuto Iglesias

Mihai Gui (RO)

VR Living in Roffa

VR living in Roffa employs Virtual Reality to create an interactive archive of people, stories and places that were uprooted and removed from their physical location and, sometimes literally, bulldozed over in the name of further developing the city of Rotterdam. Based on a project developed during the Summer Sessions 2020 program of V2_, this current iteration showcases a digital reconstruction of an old neighborhood as it was before being partially demolished and rebuilt over in parallel to the plans for the theoretical future developments taking its place. Audiences can switch between the two layers of this environment, move freely and explore a setting populated

with stories and tangible, interactive objects and spaces connected to the people that used to inhabit it, with a focus on the very human experiences of communities displaced in the name of a future vision for a city that is incompatible with their presence there.



© Mihai Gui

Jeanine Verloop (NL)

Evanescent

In a world in which technology is increasingly driven by invisible algorithms, and the devices that surround us increasingly have the same tablet shape, Verloop is looking for a counterpart. She wants to create machines that look radically different, showing a glimpse of what our environment could be when we embrace the idea that technology is more than something useful and efficient. Not only a tool but a goal on its own, constantly evolving and just as vulnerable as ourselves. Vulnerability is inherent in Verloop's work. If you turn it on, some elements or gears will jump, the machine cannot fix these vulnerabilities on its own. In itself

it is helpless. In order to emphasize fragility and investigate the performative potential of maintenance and deconstruction, Verloop has been independently studying scientific glassblowing since 2020.



© Jeanine Verloop@Photography by Rosanne van Batenburg

Oana Clitan (RO)

Electrons on the Threshold

Electrons on the Threshold is a single channel video installation exploring the social consequences of the rise of surveillance in public and virtual space. The project is set in a future Rotterdam, which has been rebuilt after a mysterious disaster. It follows a fictional narrative inspired by the reconstruction politics of Rotterdam after the bombing of the Second World War, reimagined in today's context of constant urban renewal, displacement of socio-economic groups and the development of surveillance technology. Themes of nostalgia and estrangement are intertwined with issues of privacy and censorship. By exploring how catastrophes are used as clean slates for creating

“new and improved” urban and virtual spaces, the project dives into how this can also be used as an opportunity for new ways of governmental or corporate control to be inserted.

The installation includes a video, a series of collage panels and a fictional magazine.



© Oana Clitan

ARS ELECTRONICA GARDEN OAKLAND/TEMPE

Leonardo/ISAST (US), Arizona State University (US)

Altered Realities

ReImagining a more vibrant, regenerative & just world

Altered Realities presents experimental visions to *ReImagine* everything for a more vibrant, just and regenerative world. Immersive VR and video art tackle challenges of climate change, war and human futures. *Interplanetary VR* links space exploration to earth sustainability with digital art to illuminate or inform each of the 17 UN Sustainable Development Goals (SDGs). This VR experience culminates in collaborative research with ASU's Interplanetary Initiative and Leonardo, connecting space with the SDGs. The VR art environment designed and created by artist William T. Ayton with ASU Meteor Studio, features work by 15 artists selected from across the Leosphere. *The War Room VR* remediates and recontextualizes the anti-war, large-scale, painted installation *The War Room: You Can't Look Away* (2004) created by William T. Ayton with Diana Ayton-Shenker.

Originally inspired by the US invasion of Iraq, *War Room VR* responds to current aggression by exposing the human dimensions of war: Warriors, Victims, Witnesses, & Aftermath. It was created in 2022 using Blender and Unity, in collaboration with Meteor Studio, Aaron Toyne, and Lizzie Ayton. *Turn it Around!* flashcards and net art made by youth for adults aim to alter how we learn and relate to nature, the living world, and climate crisis. Youth-designed print and digital cards challenge adults to think, see and act in new ways, flipping who teaches who and how through art.

PARTNERS: LEONARDO/ISAST with Arizona State University (US), ASU Interplanetary Initiative (US), ASU Meteor Studio (US), LEONARDO/ISAST (US), Global Momenta (US), A Seize the Moment initiative (US), ASU Humanities Lab (US), ASU Global Futures Lab (US), LEONARDO-ASU (US)



Turn it Around!, Photo: Omcuom Design

William T. Ayton (GB)

The War Room VR

The War Room VR is a VR environment and projected video artwork inspired by the anti-war, large-scale, painted installation *The War Room: You Can't Look Away* (2004) created by William T. Ayton and Diana Ayton-Shenker. *The War Room VR* is a digital remediation of the human experience of war: Warriors, Victims, Witnesses, & Aftermath. Created in 2022 using Blender and Unity, in collaboration with Meteor Studio, Aaron Toyne, Lizzie Ayton.



© William T. Ayton

Adrienne Jenik (US), Andrew Freiband (US), Ann Nielsen (US), Iveta Silova (US)

Turn It Around

Turn it Around art flashcards made by youth for adults reimagine our approach to education and relationships with nature and the living world during climate crisis. The youth-designed print and digital cards challenge adults to think, see and act in new ways. Flipping who teaches whom reminds us that everyone — and everything — must change.



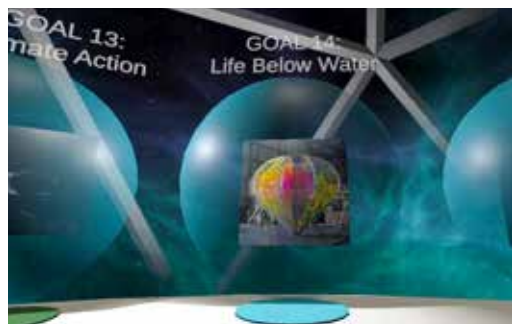
© Omcuom Design

William T. Ayton (GB)

Interplanetary VR Sustainable Futures

Interplanetary VR Sustainable Futures explores a VR environment linking space art to earth sustainability with digital images to illuminate or inform each of the 17 UN Sustainable Development Goals (SDGs). This VR experience is the culmination of a collaboration with ASU's Interplanetary Initiative and Leonardo, connecting space research with the SDGs. The VR art environment designed and created by William T. Ayton, with ASU Meteor Studio, features work by 15 artists selected from across the Leosphere.

The Interplanetary VR art environment features work by 15 artists: William T. Ayton, Bettina Forget, Annette S. Lee, Ellen K. Levy, Ranger Liu, Adam Hogan, Patricia Olynyk, Ryan Powell,



© Sara Kane

Sarah Rosalena, Beyond Earth artist collective (Elena Soterakis, Yoko Shimizu, Richelle Gribble), Meredith Tromble, Victoria Vesna, Ian Winters.

ARS ELECTRONICA GARDEN TAIPEI/FORMOSA

Virtual and Physical Media Integration Association of Taiwan (TW)

Humanity Island — Data to be Continued

A global epidemic and climate change have resulted in many changes to our way of life. Issues concerning anthropocentrism and environmental sustainability have aroused widespread public reflection. Taiwan's new media artists are reflecting on these issues and inviting everyone to think about how human beings will survive in the future. The theme *Humanity Island — Data to be Continued* reflects Taiwan's island characteristics and cultural heritage and uses the common language of art to speak to the world. *Samsara* compares political prisoners in the era of white terror to the pressures on human nature in the digital age. *Blue Tears* examines Matsu's beautiful bioluminescent phenomenon and marine ecology. *Childhood Revisited* reproduces a Hakka community from the 1960s. *Sandbox*, inspired by computer security

testing, immerses viewers in an ironic "safe" information space. The works include profound reflections on art, humanities, the environment, and the changes of our times. In these times, conflicts of interest between countries are often seen as "data." The output or extraction of data affects the public's interpretation of the truth which goes on to influence the overall situation. This process teaches artists to be cautious and fearful when creating and to reflect on their work with empathy. It encourages us to face these issues and make substantial changes for a sustainable future.

Curator: Hsin-Chien Huang / Co-Curators: Hsiao-Yue Tsao, Wen-Chun Chen / New Media Artists: HsinChien Huang, Hsiao-Yue Tsao, Wen-Chieh Chang, Chin-Hsiang Hu, Tzu-Liang Chen, Yu-Hao Lee

Wen-Chieh Chang (TW)

Childhood Revisited

There is a darkroom flashing with dim red lights. A person carefully puts the negatives into the cassette with both hands, focusing on the paper below with a magnifier moving up and down in flaring lights. An image emerges on the paper. The sound of splashing water and laughter brings the person back to the 1940s via this photo to look through a childhood in a big world. A person returns to childhood with dreams and imagination and enters a timeline without the restraint of time and space.

Hsiao-Yue Tsao (TW)

Blue Tears Ep.1

Inspired by an old tale of the sea, the story is based on the unique wonder in Matsu, the Blue Tears, to tell a touching love story. To fulfil the promise of giving the heroine a good life, the naïve hero became greedy and died in a shipwreck, sacrificing his life for wealth. The appearance of the blue tears, symbolizing an alien species, implies the sadness of global warming. The love between the two main characters ends up making them fall into different pathways.

© VPAT



Childhood Revisited



Blue Tears Ep.1

© VPAT

© Peppercorns



Sandbox



Samsara

© VPAT

Chin-Hsiang Hu (TW), Tzu-Liang Chen (TW),
Yu-Hao Lee (TW)

Sandbox

Sandbox originally represented a safe environment isolated by computers. The work uses a sandbox as a metaphor for people receiving information. Through real-time visual and intercepted network open data, the daily work of word processing becomes an artwork that is transformed into an immersive experience.

Hsin-Chien Huang (TW)

Samsara

Samsara is a VR film in which the protagonist escapes after the global nuclear destruction to find a new planet to live on, but finds that they always return to earth to learn the profound lesson of life.

ARS ELECTRONICA GARDEN TOKYO

Japan Media Arts Festival (JP)

“next to me, next to you”

To introduce Japan’s outstanding works of art to the world, the Agency for Cultural Affairs does presentations, screenings and exhibitions at overseas festivals, focusing on award-winning works including media art, online art, videos, games, animations and manga.

At Ars Electronica 2022, the winners of the 25th Japan Media Arts Festival, Shota Yamauchi and Miki Hirase, will exhibit their works with the theme “next to me, next to you,” with curator and art manager Mayumi Yamamoto as the art director.

Shota Yamauchi (JP)

Maihime

A human-technology romance expressed as a performance installation. The human and technology try to become one through a garment made of skin. Technology longs for the limited twilight of human life, and humans for the infinite galaxy that technology holds. Whether they are embracing, or restraining each other, the two drown in the sea of personal distance. Humans are addicted to technology. Technology, too, is addicted to humans. How can one love technology, while loving humans? I want to discover an intermediate place between pleasure and despair, and project it onto the sexuality of we humans who live in today’s world.

Production Cooperation Programming: Koki Sone / 3D Modeling: Yukino Oishi / Costume: Kurage / Sound: Kazumichi Komatsu / Award: Terrada Art Award 2021 (both Takahiro Kaneshima and Audience Award)



Tatsuyuki Tayama

© Miki Hirase — Projection for the next three thousand years

Miki Hirase (JP)

Projection for the Next Three Thousand Years

In this work, the surface of a mirror-polished stone is laser-engraved with text and photos taken on an iPhone. By shining light on this stone and reflecting the light, the images are projected onto a wall. Today, it has become the norm for people to view iconography using light via projectors, and high-resolution images through digital devices. Although electric power has made this possible, the recent energy crisis and strain on natural resources suggest that we could face life without electricity in the future. This work uses stone, a semipermanent recording medium, and a technique which only requires light to project, so that if such a future becomes a reality, today’s iconography data and projection methods will remain preserved and reproducible. Like ancient stone slabs which exist today, this work is a media

device that functions as a recording medium which could last several thousand years.

Award: 25th Japan Media Arts Festival Art Division New Face Award, Yamanashi Media Arts Awards 2021 Y-GOLD (Grand Prize)



ARS ELECTRONICA GARDEN UTRECHT

IMPAKT [Centre for Media Culture] (NL), School of Machines,
Making & Make Believe (DE), Werktank (BE), Privacy Salon/Privacytopia (BE)

Code 2022: Reclaiming Digital Agency

How can we influence politicians to fight for our digital rights? What role should governments play and what can we as concerned citizens, researchers, and artists do to support this process? *CODE* seeks to bring together artists, non-artists, politicians, policy makers and researchers from Germany, Belgium, and the Netherlands to engage in dialogue, critical discussion, and artistic intervention about digital rights. We want to influence public policy on a national and international level, by creating awareness and by defining ways in which we can improve laws and legislation that will protect us as digital citizens and consumers.

Over the last few months, we have worked with 22 participants in a series of workshops, hackathons and other public events. Working in

cross-disciplinary teams, the participants have developed creative interventions and awareness campaigns to expose the power of tech companies and to activate politicians, policymakers and citizens to take action. At Ars Electronica we present the results of *CODE 2022* and the projects created by the participants.

CODE 2022 is realized with the support of Fonds Sozio-kultur, Fonds voor Cultuurparticipatie, Dutch Embassy in Belgium, Dutch Embassy in Berlin, and Goethe Institut. Omar Adel (DE), Funda Zeynep Ayguler (DE), Anastasiia Belousova (DE), Ines Borovac (NL), Greeshma Chauhan (NL), Katia Sophia Ditzler (DE), Vo Ezn (NL), Elena Falomo (DE), Arina Kapitanova (DE), Swaeny Nina Kersaan (NL), Deniz Kurt (NL), Flora Miranda (NL), Ginevra Petrozzi (NL), Anya Shchetvina (DE), Guillaume Slizewicz (BE), Michaela Stubbers (BE), Bart Vandeput (BE), Pauline Vantilt (NL), Shruthi Venkat (NL), Fanny Zaman (BE), Michael Zerba (NL).

Anastasiia Belousova (DE), Pauline Vantilt (NL),
Shruthi Venkat (NL)

HeLi-AI

HeLi-AI introduces a fictional product at Ars Electronica's Kepler's Garden in Linz, seducing the visitors/consumers with false promises. With *HeLi-AI*, we aim to stimulate visitors to reflect on how we are being manipulated online, how susceptible we are to techno-optimism and how easy it is to fall into the over-productivity narrative.

HeLi-AI is part of *CODE 2022*, a program organized by IMPAKT [Centre for Media Culture] (NL) in collaboration with School of Machines, Making & Make Believe (DE), Werktank (BE) and Privacy Salon/Privacytopia (BE).

Omar Adel (DE), Swaeny Nina Kersaan (NL),
Anya Shchetvina (DE)

Logging into Identity

Logging into Identity is a website telling intimate stories of connections between software and users. It sarcastically yet tenderly highlights the rhetoric of first-person perspective that is so often used within the interfaces and is supposed to make us feel like we are taken care of by some sentient and sensuous being. Using personal stories, it shows how the values and affordance of particular platforms shape and interact with individuals' identity and values.

Logging into Identity is part of *CODE 2022*, a program organized by IMPAKT [Centre for Media Culture] (NL) in collaboration with School of Machines, Making & Make Believe (DE), Werktank (BE), Privacy Salon/Privacytopia (BE)

Greeshma Chauhan (NL), Arina Kapitanova (DE), Deniz Kurt (NL), Michael Zerba (NL), Xsenofemme (Ginevra Petrozzi and Ines Borovac) (NL)

Physio·gnomy Privacy in Protests

What is the importance of privacy for protestors? How is it possible to safeguard the privacy of the protestors, both offline and online? The project *Physio·gnomy* uses the control-access definition of privacy used by Marijn Sax in *The Handbook of Privacy Studies* (2018): “Privacy is about the control one has over access to oneself” as its starting point to explore the notion of privacy during protests. To be visible as a protestor should not come at the cost of your privacy.

Physio·gnomy is part of *CODE 2022*, a program organized by IMPAKT [Centre for Media Culture] (NL) in collaboration with School of Machines, Making & Make Believe (DE), Werktank (BE) and Privacy Salon/Privacypotopia (BE).

Michaëla Stubbers (BE), Bart Vandeput (BE), Fanny Zaman (BE)

Surveillance and Predictability How readable are you?

Translating reality into data holds the premise of machine readability. When reality, including you, is not readable to a machine, your machine-predicted future will be based on generalizations and probabilities attributed to you. It will not be

based on you. We urge you to reclaim your future, your reality, your agency, your diversity, and your imagination. The project will be a theatrical live installation that invites a player in an ad hoc setting. Your portrait will be taken.

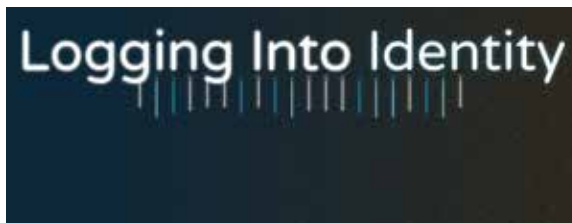
Surveillance and Predictability is part of *CODE 2022*, a program organized by IMPAKT [Centre for Media Culture] (NL) in collaboration with School of Machines, Making & Make Believe (DE), Werktank (BE) and Privacy Salon/Privacypotopia (BE).

Funda Zeynep Ayguler (DE), Katia Sophia Ditzler (DE), Vo Ezn (NL), Elena Falomo (DE), Guillaume Slizewicz (BE)

DSMA UnLtd. We Let You Influence

Do you need to model the law according to your vision? *DSMA Unlimited* is a company that shines light on the shady process of lobbying. The business model of *DSMA UnLtd.* is to sell the Digital Service Act and the Digital Market Act, sentence by sentence, to the highest bidder. The company’s goal is to turn legislative data into financial assets, while allowing companies and individuals to own the law and modify it to their advantage. *DSMA UnLtd.* makes lobbying easy, affordable and accessible.

DSMA UnLtd. is part of *CODE 2022*, a program organized by IMPAKT [Centre for Media Culture] (NL) in collaboration with School of Machines, Making & Make Believe (DE), Werktank (BE) and Privacy Salon/Privacypotopia (BE).



Tatsuyuki Tayama, *Logging into identity*, *HeLi-AI*, *Physio·gnomy*, *Surveillance and Predictability*

ARS ELECTRONICA GARDEN

VIENNA

MencheLAB (AT), powered by Max Perutz Labs (AT), a joint venture of the University of Vienna (AT) and the Medical University of Vienna (AT)

The Shape of Things to Come

A mixed reality (XR) exhibition on [u|dys]topian approximations of the human habitat

The works presented in *The Shape of Things to Come* are a collection of futuristic scenarios deriving from scientists and artists from the Vienna BioCenter (VBC), the CeMM Research Center for Molecular Medicine, the Institute of Technology Austria (ISTA) and the University of

Applied Arts Vienna. This project is a heterogeneous representation of how diverse experts from various fields imagine, broadly assess and influence changes in our environment in the future.

Jörg Menche (DE), Sebastian Pirch (AT), Martin Chietтини (AT), Christiane Hütter (AT), Anna Hakobyan (AM), Joel Hancock (GB)

Projects:

- *The Cycle of Creation and Destruction* – Joel Hancock (UK)
- *On Living Matter* – Luis Miguel Cerron (PE), Michelle Huth (UK), Laura Santini (IT)
- *Interacting Particles* – Julia Naas (DE)
- *On the Topology of Synthetic Organs* – Keisuke Ishihara (JP)
- *Protein Landscapes* – Sebastian Falk (DE)
- *Periods of Space* – Thomas Hochwallner (AT)
- *The Sound of Neuronal Morphologies* – Mehmet Can Ucar (TR)
- *Rendezvous in my dreams* – Shahab Nedaei (IR)
- *Taming Entropy: From Chaos to Order Through a Vortex of Data* – Stephan Reichl (AT), Anna Kusienicka (PL), Christoph Bock (DE), Matthias Farlik (AT)
- *Networks explain the Multiverse of Data* – Stephan Reichl (AT)
- *Dom_Ino* – Rafael Ludescher (AT), Shahab Nedaei (IR)
- *Zwischenwelten* – Dominik Grünbühel (AT), Norbert Unfug (AT)
- *The VRNetzer. A Virtual Reality Network Analysis Platform* – The MencheLab (AT)



CIFO & Ars Electronica A parallel (r)evolution — Digital Art in Latin America

Six artists working in art and technology from across Latin America debut major new commissions within the Ars Electronica Festival at the Lentos Art Museum. The exhibition showcases the works of the inaugural CIFO-Ars Electronica Award recipients, Dora Bartilotti (MX), Electrobiblioteca Collective (AR/MX), Thessia Machado (BR), Amor Muñoz (MX), and Ana Elena Tejera (PA). Their works reflect the ways Latin American art-

ists employ technology such as electronic textiles and AI computers as media to explore individual and collective identity, culture, and history. Launched this year, the CIFO—Ars Electronica Awards celebrate and advance the practices of emerging and mid-career Latin American artists working with technology in the field of new media and digital art, providing up to \$30,000 per recipient to develop a new project.



© Renders by Luis Bolaños

In addition to the exhibition the resulting works join the Cisneros Fontanals Art Foundation (CIFO)'s renowned permanent collection of modern and contemporary art, with a special focus on Latin American art.

The five new works created by the CIFO-Ars Electronica Award recipients represent how artists across Latin America are using technology to grapple with the complex global challenges of our time. Projects were awarded by a selection committee of curators and scholars in contemporary art and new media: Tania Aedo, Sergio Fontanella, Hemma Schmutz, Martin Honzik and Christl Baur. The evaluation was based on conceptual merit, including the artistic and research motives for the project, as well as the context in which the work was created and the artist's entire body of work.

The result of the submissions, overwhelming in their diversity, has more than provided proof of the excellence of media art while addressing the required social-ecological transformation of our society. A cross-section of the submitted works clearly demonstrates the unique nature of Latin American Media Art as a distinct category owing to its cultural and historical imprint.

As such it represents an important extension of the Ars Electronica network and perspective on Media Art.

This inaugural exhibition demonstrates the integral role that the Latin American cultural sphere has played in technological developments worldwide, and how critical artistic positions have long accompanied and reflected on those developments.

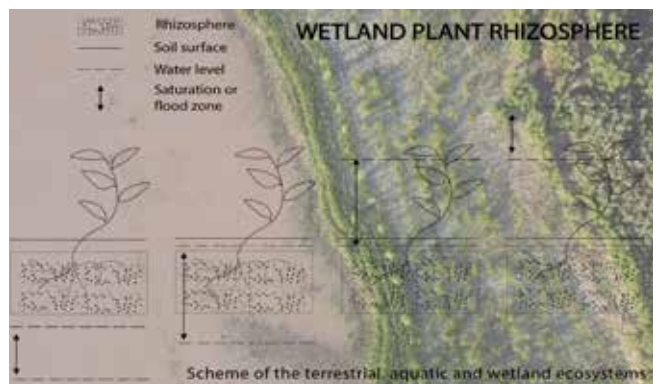
Gabriela Munguía (MX), Guadalupe Chávez (MX)

Cenizas del Paraná

Cenizas del Paraná is a tactical and speculative research into the Paraná wetlands in Argentina. Exploring environmental humanities, data science, photogrammetry techniques and aerial and microscopic images, this project looks forward to identifying soils and native plant species that have been damaged and endangered by local wildfires and global climate change. This project takes the form of a transmedia mechano-acoustic installation that embraces the resilient forces of endangered vegetal and rhizospheric communities. Its materialities and biologies can help us imagine and build a more livable present and future forged with alternative cosmovisions that entangle other ethics of care and possible affection between humans, soils and the commons. With this project we raise the question of how we can construct new rites of passage that allow us to honor this collapsed

biodiversity and these rhizospheric resistances. Death turns us all the same color.

Idea and realization: Electrobiota / Executive producer: Franc Paredes / Audiovisual Producer: Pablo A. Varela
Photogrammetry and 3D-modeling: Juan Agustín Carpinello / Programming Germán Perez / Thanks to the environmental associations, local activists, artists, biologists and communities that fight for the conservation, protection and sustainable use of the Paraná wetlands.



© Electrobiota, courtesy of the artists



© Renders by Luis Bolaños

Amor Muñoz (MX)

Chimera, Expanded Bodies

Inspired by some ideas from Nam June Paik and Jana Sterbark, *Chimera, Expanded Bodies* points to a biotechnological poetic exploration that questions how we define life, what its borders and possibilities are, placing the hybrid as a central point to destabilize binary constructions such as the organic and inorganic, biological and synthetic, the body and the machine.

Chimera, Expanded Bodies is a sound installation made up of a set of bioautomata, artificial entities that contain living matter and generate performative gestures through their biological

processes, which are monitored by sensors. On the other hand, these bodies have a textile-tactile nervous system that can be activated by the public to make their organs sound. Abstract bodies in which the heartbeat, the pulse, the circulation, the breathing and the nervous system are synthesized in a hybrid, post-humanist entity that obeys the stimuli of other bodies.

Chimera is a project by Amor Muñoz / Credits Engineering and programming: Pabel Lerma Barroso / Sound design: Rogelio Sosa / Renders: Luis Bolaños / Fabrication: Taller Dos Coyotes, Muuc Studio, Itayedzin Aragón & Do Studio.

Dora Ytzell Bartilotti (MX)

Have You Seen Her...?

La has visto...? is a participatory electronic art piece that seeks to generate a poetic gesture of search and collective demand to make present our missing women, victims of forced disappearance in Mexico. The project has three interlinked phases: first, a participation stage that seeks to bring together a polyphony of voices around the phrase *La has visto...?* through a series of textile strips with the identities of the disappeared and a sound recording interface in the form of a textile sculpture. The second part is an interactive textile that carries these textile strips and sonically amplifies these voices. And finally, a series of actions in the public space where this electronic

textile is activated, promoting interactions with the people around the carrier through the delivery of these textile strips until it is completely dismantled and silenced, restarting its cycle again for the compilation of voices that demand and ask: *La has visto...?*

Project by: Dora Ytzell Bartilotti (MX) [Original idea and conceptualization, textile design and production, performative actions, programming and electronics]
 Collaborators: Christopher Galicia (MX) [electronics and programming], Valeria Valdez (MX) [mask], Ingrid Cota (MX) [sewing textile strips]. Special thanks to Leonardo Aranda for being emotional, conceptual and technical support.



© Dora Ytzell Bartilotti

Thessia Machado (BR/US)

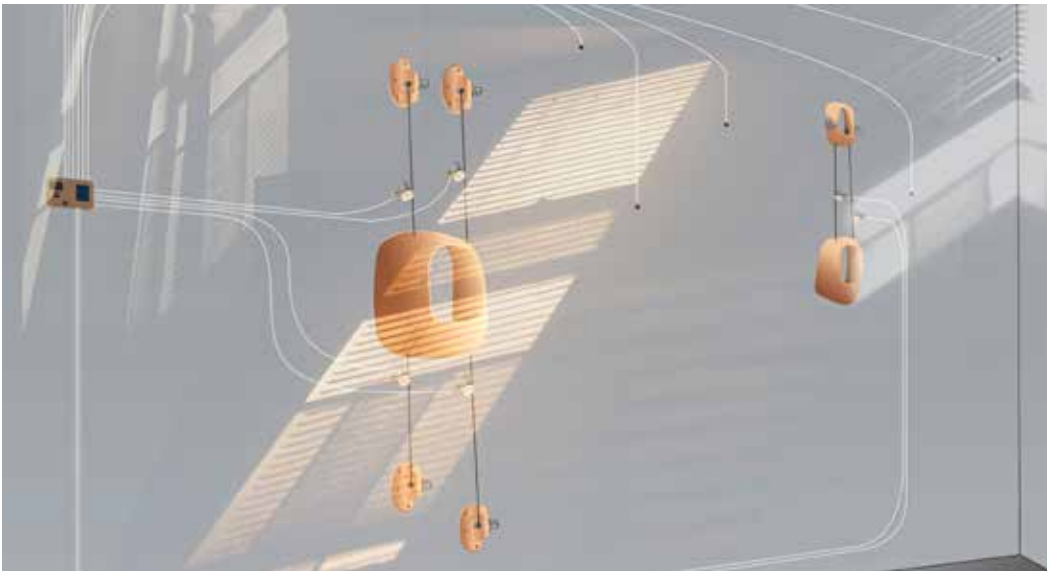
int.: time slip, a song for structural comfort

int.: time slip is an architectural lullaby. Two wall-mounted instruments react to light and vibrate the space itself with the sounds produced by bass and guitar strings.

In the last few years, the few rooms that most of us can call home had to perform many new roles. Safe haven, shelter, protective bubble, sanitized respite, the structural components that make a home now had to embody other types of expectations and interactions. The projection that functions as a score will be made from video

and time-lapse footage of sunlight patterns from windows/blinds on walls. As the light shapes travel and animate across the wall, they pass over the light sensors activating the different strings/notes from the instruments.

The images in the videos seem familiar and comforting, but they can also be disrupted by glitches. Or they themselves look glitchy, behaving in unexpected ways. Six DC motors outfitted with felt plucks vibrate six instrument strings in response to the light patterns.



© illustration by the artist

Ana Elena Tejera (PA)

The Walls Know

A three-story building. Long corridors. Almost empty. Its halls and bedrooms used to house large numbers of Latin American soldiers educated in violence by the United States government. The School of the Americas' classrooms produced several of the most brutal dictators in Latin America and a systemic aggression that spread throughout the continent. Today, its walls contain a hotel, and their history is difficult to verbalize.

Artificial intelligence — fed with military manuals, archival images, the hotel's architecture and the surrounding jungle — resonates with the vibration of walls that do remember. Immersed in memories trapped in these walls, an artificial intelligence will perform a journey in the sensation and memories of the walls.

3d artistic creation and artificial intelligence:
Boquila DAO: Xing XIAO, Xiyue HU, Guangli LIU
Sound creation — Sound mix: Médéric Corroyer



© Ana Elena Tejera

Retrospective Exhibition: Christa Sommerer & Laurent Mignonneau: The Artwork as a Living System

OK Center Linz, September 1st, 2022, February 26th, 2023

The exhibition *The Artwork as a Living System* provides an overview of the work of the Austrian-French artist duo Christa Sommerer and Laurent Mignonneau since the early 1990s. Straddling science, technology and art, Sommerer and Mignonneau have pioneered the “Art of Interface,” in which innovative technical interfaces enable physical interaction between simulative visual worlds and the world of the natural sensory organs.

Very early on, they also used algorithms to represent the forms of living beings as well as their evolution and growth. In fourteen installations, created only through the actions of the audience, man-made artificial systems are shown that exhibit behavior like that of natural living organisms.

Technical devices originally designed by the two artists produce virtual realities and immersive environments that go beyond our experience to date.

Their works, now almost classics of digital art, open a new horizon in which artworks act as living systems. Few artists have shaped the transition from moving-image media to living-image media as have Sommerer and Mignonneau.

“Their works are technologically inventive, scientifically instructive and artistically imaginative. As a result, visitors leave their works richer for aesthetic, playful and cognitive experiences and insights. Sommerer and Mignonneau’s exhibition is more than a cabinet of curiosities, more than a terrarium, more than an aquarium; it shows mythical creatures, artificial creatures, a hitherto unseen panorama of imagination and technical ingenuity.”

(PETER WEIBEL)

Their media-art works, based on scientific findings, open the possibility of exploring the plant growth or the behavior of tiny computer-generated creatures such as flies and beetles and how they are embedded in complex ecosystems. Works such as *Interactive Plant Growing* (1992), *A-Volve* (1994) or *Portrait on the Fly* (2015), housed at the ZKM | Karlsruhe, simulate living systems in which touching real plants or moving in front of a screen generate transformations in digital space. The augmented reality installation *AR[t]chive* (2022), presented for the first time at this exhibition, allows visitors to explore Sommerer and Mignonneau’s archive in AR.

Christa Sommerer & Laurent Mignonneau: The Artwork as a Living System offers a comprehensive overview of the Austrian-French artist duo's oeuvre, paying tribute to their life's work as internationally active media artists, pioneers, researchers, and teachers of interactive art." (Alfred Weidinger).

"Art, science, and technology have undoubtedly opened the door to the world of new forms and processes of life. The continuous work by Sommerer and Mignonneau takes a further step into the future now. Their works allow us to comprehend the tangible, perceptible understanding, the virtuality of the potentially possible, as an essential component of living systems. The retrospective is therefore an invitation to immerse ourselves in precisely these spheres of an open-ended development, to perceive them and in the dual sense of the word, grasp and experiment with them. In the end, users are also an active part of what could be the future evolution and shaping of life."

(KARIN OHLENSCHLÄGER)

After the show at the ZKM | Karlsruhe from May 7th to July 31st, 2022, the retrospective exhibition is on show at OK Linz during Ars Electronica 2022. and then from September 1st, 2022 to February 26th, 2023.

In spring 2023, the retrospective can be viewed at the third partner iMal in Brussels in 2023, as well as during Art Brussels. Finally, from October 2023 until February 2024, it will be shown at the Azkuna Zentroa Alhóndiga in Bilbao.

The exhibition is a co-production of ZKM | Karlsruhe, OÖ Landes-Kultur GmbH, Linz and iMal, Brussels, based on an idea of Karin Ohlenschläger. The exhibition is accompanied by a scholarly publication on the artists' entire body of work in English, edited by Karin Ohlenschläger, Peter Weibel and Alfred Weidinger in the Leonardo Book Series in collaboration with MIT Press.



The Artwork as a Living System (Christa Sommerer & Laurent Mignonneau), Retrospective at ZKM 2022, in collaboration with MIT Press. With articles by Karin Ohlenschläger, Peter Weibel, Alfred Weidinger, Ryszard W. Kluszczyński, Ingeborg Reichle, Birgit Mersmann, Siegfried Zielinski, Tomoe Moriyama and Reinhard Kannonier. Photo: Tobias Wootton, ZKM.



AR[t]chive I © 2019 Tiago Martings & Laurent Mignonneau & Christa Sommerer, Photo Credit: Tobias Wootton — ZKM



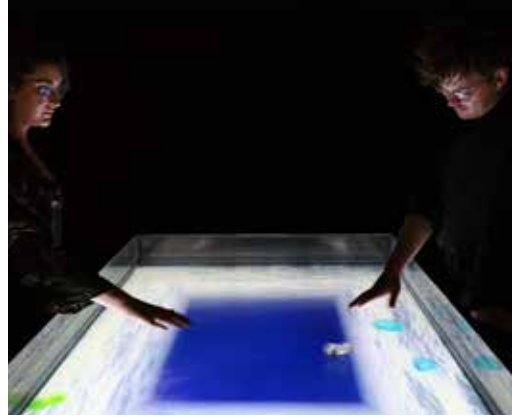
Scavengers © 2020, Laurent Mignonneau & Christa Sommerer, Photo Credit: Tobias Wootton — ZKM



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Photo Credit: Tobias Wootton – ZKM



A-Volve © 1994, Christa Sommerer & Laurent Mignonneau,
Photo Credit: Tobias Wootton – ZKM



Eau de Jardin © 2004, Christa Sommerer & Laurent Mignonneau, Photo Credit: Tobias Wootton – ZKM

create your world 2022

HOW (D)ARE YOU?

Worlds between planets – a balance between present mental health and future experiments

It is the variety of challenges that many of us just can't sort or manage. From responsibility as individual end users to collective coping strategies, we regularly have to reassess and re-evaluate situations. Continuous accessibility on social media and increasingly impatient forms of communication push us to the limits of our resilience. This causes stress in a new form.

People of different generations react completely differently to this kind of stress in everyday life – sometimes simply due to being overwhelmed by the new digital communication, sometimes due to the complex new social and technical challenges, for which there is still very little experience to fall back on. So what future experiments can we do, and what do we even want to do in this mood? How are we supposed to think about new ideas and projects while under acute ongoing stress? The create your world festival invites us to develop these new ideas again, step by step, together with other creative people. Not to think exclusively about the future a hundred years from now, but as a first step “only” about tomorrow. And then the day after tomorrow. This could provide us with the peace of mind that ultimately brings us the necessary farsightedness.

Personal responsibility with regard to digitization has also reached a new level – a clear path must finally be established, especially in the educational landscape, on how to navigate this confusing labyrinth. Otherwise, the personal responsibility we aspire to will quickly turn into a feeling of loneliness and fear.

The Red Thread

The prevailing disorientation is already reflected in many areas: in social interaction, which may have changed completely as a result of the pandemic, in the use of digital technologies. Everyday habits had to be constantly questioned, but at the same time, nowhere did we want to lose speed and progress. Have we lost the thread here? This year's create your world festival brings a colorful mix of projects from very different subject areas.

New projects will be presented, well-known projects will be rediscovered and in the entire festival area, research, experimentation and discussion will finally be allowed on site again. This sense of community has been missing, especially in the last two years, and this year we want to create it again – at our own subjective pace, of course.

The winning projects in this year's Prix Ars Electronica in the u19—create your world category* speak a clear language: we have to work on our own mental health, we have to make sure we are doing well now more than ever before. Because only then can we, as a collective, also be stronger together in overcoming this diverse set of challenges.

* see page 76

The Harbor

Participants of Virtual Office FAB Linz (AT), Bettina Gangl (AT), Reinhard Zach (AT), Edwin Husic (AT), Birgit Pölz (AT), Helmut Doblhofer (AT), Tina Pesendorfer (AT)

The Harbor: to enter the safe harbor, but also to go in new directions and have the courage to leave the harbor

How can we design our “Planet B”? How can we live and work independently and with self-determination and thus create a more sustainable habitat? The misleading designation of “first,” “second” and “third” worlds reduces life to a microcosm. What ways do we find to break out of this cosmos and head for a new harbor? The participants of the Virtual Office, an organization providing computer training for young people with physical disabilities, use augmented reality to bring their own “Planet B” to



© Virtual Office

life. The Mural Harbor gallery, a place where graffiti artists create their own version of the world, becomes the backdrop for this augmented reality walk. With the help of an iPad, visitors can bring the youths’ ideas for a “Planet B” to life.

I Want to See How You See

Julia Hametner (AT), Anamaria Zupancic (AT), Anna Hametner (AT), Lena Holzer (AT), Nicole Höflinger (AT), Stefanie Dürnberger (AT), Tobias Huber (AT)

What makes us equal? What makes us different? The personal documentary film done by six friends addresses the category of disability and sheds light on the concepts of ableism, normalcy, able-bodiedness, stigma and social in-/exclusion. The film focuses on its own protagonists’ perceptions and interpersonal relations and criticizes the issues of inclusion in the primary labor market.



© Julia Hametner

Pixel Picnic Rug

Nähküche. Eine offene Nähwerkstatt (AT): Martina Eigner (AT), Barbara Gamsjäger (AT), Andrea Fink (AT), Daniela Mittelmann (AT), Dagmar Pröslmeyr (AT), Silvia Neubauer (AT), Daniela Mandler (AT)

Textile pixels, individually designed, are put together to form a picnic rug. Several unique pieces — each different from the other and useless on its own — form the basis for a social gathering: a picnic rug. The *Pixel Picnic Rug* invites us to enjoy nature, awakens memories, and brings forth longings. Many things are possible on it. By working together, each individually designed pixel contributes to strengthening the whole without losing its own individuality. The team of the Nähküche only reuses donated textiles, aiming to help preserve the environment by saving resources necessary for textile production.



© Martina Eigner

Bikekitchen

Bikekitchen Linz (AT)



© Theresa Böck

The *Bikekitchen Linz* is an open, non-profit self-help workshop where anyone can learn how to repair, pimp, service or modify their bike, whatever level of experience they have. The *Bikekitchen* operates in a resource-saving way by almost exclusively working with recycled material, taking a stand against exploitation and waste of resources. The team helps others to help themselves not only by providing special bicycle tools, but also by supporting visitors in their repair project with their professional competence.

OSHub: create your world TOUR

Ars Electronica create your world (AT), Open Science Hub Network (INT)

OSHub: create your world TOUR showcases a selection of workshops recently developed and implemented primarily in virtual classrooms.

In the *create your world TOUR* students and teachers have direct access to content that is currently of interest to artists and thinkers from the entire Ars Electronica network. Interactive methods, new technologies and materials, and artistic positions are prepared for the classroom

and dealt with there. A joint learning process was launched, and a foundation laid for lasting inspiration for both learners and educators alike.

The create your world TOUR is presented within the framework of the OSHub project that has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under grant agreement No. 824581.

roadLAB – Mobile Maker*Space of the Vienna Museum of Science and Technology

Vienna Museum of Science and Technology (AT)

The Technisches Museum Wien (Vienna Museum of Science and Technology) goes mobile. The *roadLAB* is a fully equipped maker*space with 3D printers, a laser cutter, sewing machine, laptops, its own WIFI, and much more. Visitors are empowered to concentrate on tinkering, designing, and creating. A team of explainers with a diverse background of expertise is available for additional support regarding the machines and creative process.



© Technisches Museum Wien

In line with this year's festival topic *Welcome to Planet B. A different world is possible! But how?* visitors at create your world are invited to use the

Maker*Space to get familiar with innovative technologies and to use digital production techniques to realize their own ideas and creations.

CoderDojo

CoderDojo Linz (AT)

The *CoderDojo Linz* is a free, volunteer-led club for children and teenagers between the ages of 8 to 17 who are interested in diving deeper into the world of technology. Supported by a team of mentors, who themselves work in coding, kids and young people can program their first computer games or even try their hand at creating a website. As the concept of a dojo is all about learning, no previous experience is necessary, and the project's complexity can be adapted to the children's previous knowledge. For those more interested in electronics, the *CoderDojo* team also offers the option to realize small electronic projects with a soldering iron.



© Rainer Stropek

FM4

ORF Radio FM4 (AT)

Radio FM4 is the Austria-wide youth culture radio station of the ORF, the Austrian Public Broadcasting Corp. FM4's editorial team will cover the Ars Electronica Festival on all its channels, on air, online, via social media, and via our own Twitch.tv program: *Das Spielekammerl*. *FM4 Spielekammerl* is a weekly variety game streaming format on Twitch.tv that goes live every Thursday from 5 to 9 pm. *Spielekammerl* is Austrian and stands for a small, charming room where you play videogames. Sometimes, the *Spielekammerl*

goes on tour, too. Then they stream live from Ars Electronica Festival, for example! FM4's videogame staff is playing different games all the time — some newer, some not so new. They are also conducting interviews with guests from different fields. Videogames and videogame culture is our main focus but they do not stop there. Hanging out at *FM4 Spielekammerl* is easy-going and fun. It is about talking and having a good time. And it is a proven fact that playing (video-) games often helps with that!



© Christian Stibkovits

Hebocon Reloaded

Ars Electronica create your world (AT)

Creating your own low-tech robot as your “alter ego” with different materials is the aim of this year’s *Hebocon Reloaded Open Lab*. It ends with a great challenge event, where no winner will be awarded, but the event itself shows the fun of coming together and sharing the creativity of festival visitors, artists and project partners. You can invest as much time you need to create your heboic low tech robot. According to Japanese tradition, a “Hebocon” is a sumo fight for low-tech robots and a wrestling match of the technical dilettantes. What does that mean? The word “Hebocon” is derived from the Japanese word Heboi – a word that describes something that is technically poor or of low quality.

A “Hebocon” is a competition in which bad, simple robots, most of which can hardly move, come together on the battlefield and plunge into strange, funny fights.

A “Hebocon” celebrates “Heboiness”, mistakes and the people behind them. It is all about fun – learning, thinking and building creatively and watching the robots fight each other together.

This project is presented within the framework of the OSHub project that has received funding from the European Union’s Horizon 2020 Framework Programme for Research and Innovation under grant agreement No. 824581.



Hebocon at the Ars Electronica Festival 2019

© Gregor Tatschl



© Polycular

Escape Fake

Polycular (AT): Irina Paraschivou (RO), Thomas Layer-Wagner (AT), Robert Praxmarer (AT), Simon Linder (AT), Jürgen Brunner (AT), Michael Kager (AT) and Julian Watzinger (AT)

In a not-too-distant future, humanity is living in a post-truth world. The spread of fake news and deep fake tools used in political campaigns have created a broken, dystopian reality, where it is hard to distinguish what is real from what is not. Artificial intelligence companies have gained power and influence, selling the “truth” to the highest bidder. The consequences have been extreme: destinies and families have been ruined, elections hacked by extremist politicians, human rights have been reduced. But there is a chance to change it all for future generations, if we fix what is broken today.

Escape Fake is an augmented reality escape room game, playable on mobile devices, where users are contacted by a quantum reality hacker that takes the players through a web of quizzes, augmented reality riddles and clues, debunking what is fake, and ultimately saving us all from a dystopian future. Visitors are invited to try out the game *Escape Fake*, test their knowledge of deep fakes, fact checking and misinformation and contribute their ideas to a fake-free future.

Supported by the European Union through the Creative Europe programme.

Noise Collages

Audible images and colorful sounds

Eva Erhart (AT), Alina Feßl (AT), Isabella Hackl (AT), Melanie Steinhuber (AT) / Students of the University of Art and Design Linz “Bildnerische Erziehung und Mediengestaltung”

Directors: Anna Pech (AT) and Lisa Wieder (AT)

In the Open Lab *Noise Collages*, the field of image – sound translations will be explored.

In an open, playful process, participants are invited to create, share and experiment by diving into a world of collages, sounds and assemblages and sharing their noise-image experiences.



© Bildnerische Erziehung

Carousel of the Senses

Otelo (AT)

Every person has a favorite sense, or at least a sensory channel that they prefer to use to express their thoughts and feelings. Visual design, music or intensive kinesthetic forms of expression such as dance or modeling, as well as taste and smell can be used to express one's emotions in an artistic way. At the *Carousel of the Senses* each person is welcome to express their world of feelings through specific sensory channels and activities, thus adding their own personal sentiments to the carousel. Changes will be integrated, new impulses absorbed. The *Carousel of the Senses* invites us to experiment and reflect and intends to make the impact of art – as a form of expression of feelings and emotions – tangible and visible.



© Martin Hollinetz

Ableton Open Lab

Ableton (DE), Instruments of Things (DE)

In this experimental open lab, festival visitors can discover and expand their skills in music programming. Ableton's flagship music production software Live 11 is exhibited together with IoTs motion sensor wearable SOMI-1, offering visitors the opportunity to intuitively turn body movements into sound.



© Martin Hieslmaier

un ctrl

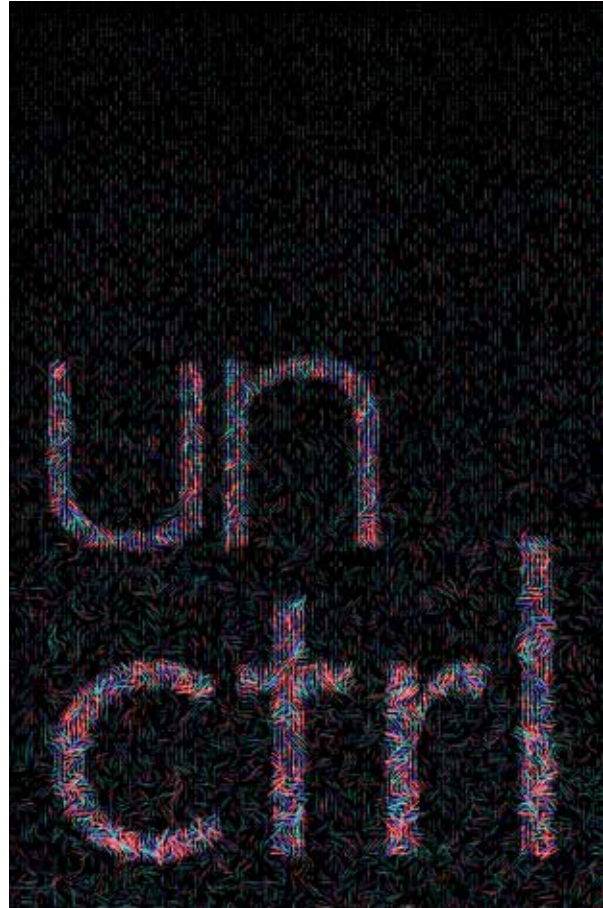
a tilt into chaos

Daniel Kohlmeigner (AT), Martin Retschitzegger (AT),
Cat Jimenez (AT)

An invisible diagram is laid like a soft cloth over a room which allows three artists to play and interact live with each other: Daniel, a musician, Cat, a dancer and Martin, a visual artist. From play to jam to competition for control — and suddenly to surrender to algorithms, a tilt into arbitrariness and an acceleration of chances. A state of *un ctrl*? What comes next? Do we see the threshold? And can we resist the urge to hold on?

New tools are giving artists more and more ways to control and direct artistic output — but does more control really contribute to expanded artistic expression? And how do we organize the flow of unforeseen coincidences into a grid of rules? Where does the subliminal desire for control come from? *un ctrl* allows music, body and space to interact in a live improvisation, playing with hierarchies through collaborative devices (SOMI-1) provided by Instruments of Things and Ableton. An inner experience that begins with one person recalibrating their inner perception and transitions into a collective experience of a pulsating club in the Deep Space, while questioning deep-seated desires of our society.

www.un-ctrl.net



© www.un-ctrl.net

EXIT-sozial

EXIT-sozial (AT)

At this year's festival the association *EXIT-sozial* will offer psycho-social counseling — as two years of pandemic, looming climatic dystopias and ever new challenges make it more important than ever to prioritize mental health.

Visitors are warmly invited to drop by for a cup of coffee and a nice conversation, take part in a guided tour accompanied by the EXIT-sozial team, make a follow-up appointment, or if desired, directly take advantage of a counseling session in the designated counseling bus “BOJE.”



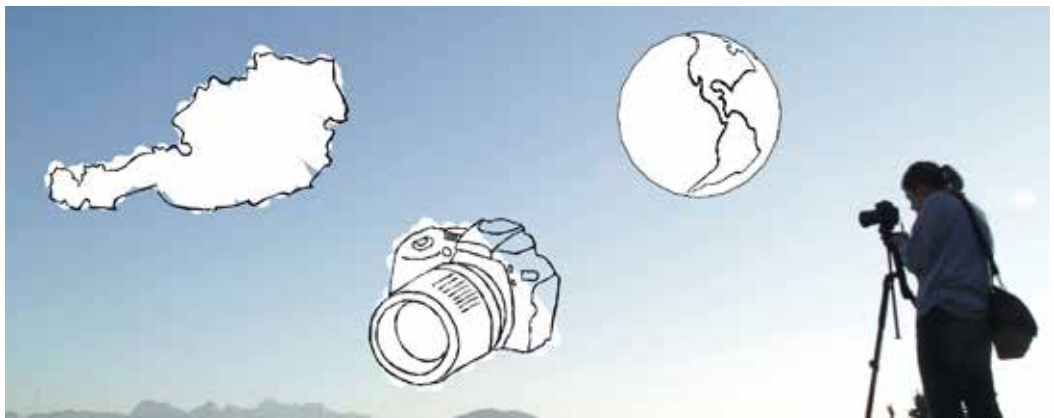
© EXIT-sozial

Tourismus von morgen (Tourism of Tomorrow)

Ars Electronica create your world, OÖ Tourismus (AT)

As part of a collaboration between Ars Electronica create your world and OÖ Tourismus, entrants from the Prix Ars Electronica project pool in the u19—create your world category are selected for a commissioned work. This year, young people with a talent for drawing were assigned to work

on an illustration, or rather a character design. Under the title *Tourism of Tomorrow* they were asked to develop characters that will either possibly work in the tourism industry of the future or simply represent the travelers or vacationers of tomorrow.



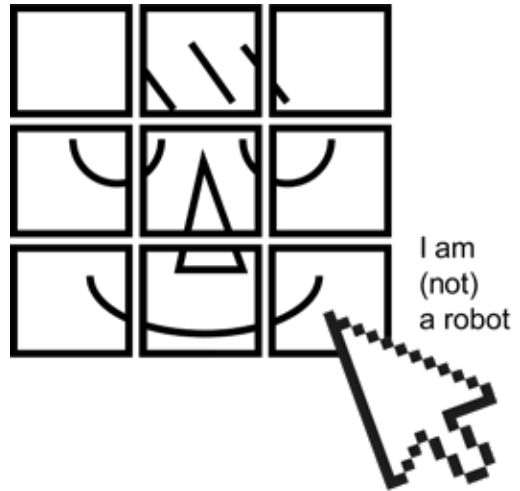
Videostill „Tourismus von Morgen“ 2017, Project team: Fiona Klima (AT), Antonia Langer (AT), Laura Reither (AT), Lena Atzinger (AT)

I'm (not) a robot

Youth exchange project 2022

Ars Electronica create your world (AT), c3 (HU), mb21 (DE)

Ars Electronica is once again inviting 15 young people to spend five days at the Ars Electronica Festival to create something creative together and get to know each other along the way. This program already has a long tradition, and after two years of being held as an online event, it is returning to its roots and taking place on-site at the festival grounds. The participants were selected from the three media art competitions “Shape your world! <19 Freestyle Computing Competition” by c3 Foundation (HU), the Multi-media Prize “mb21” (DE) and Prix Ars Electronica “u19—create your world” (AT). They will all come together with their individual skill sets and will be able to work on a joint project entitled *I'm (not) a robot*, which explores the thematic complex of artificial intelligence.



© Anna Tüdös

Open Lab Energiewende Linz

Pilot project Kaisergasse — how we overcame climate change procrastination

Verein Energiewende Linz “VEL” (AT): Helwin Prohaska (AT), Martin Siedler (AT)

As a society we are procrastinating on climate change, and we are still lacking goals to overcome this procrastination. The participants of the Verein Energiewende Linz asked themselves what the industrial city Linz could look like if the citizens of Linz were to stop procrastinating and take matters into their own hands. With their projects, they present goals that people can start working on right now. For example, the goal of living in a house that produces more electricity than it needs. The excess electricity which then can be used to help industry become carbon neutral and green — the only kind of industry that would be suitable for Planet B. Start acting on climate change where you are living and then get others to do the

same. This is the goal of the Verein Energiewende Linz and their first pilot project in the Kaisergasse — the street where they live in Linz. In the process, they became what is best described as “climate lobbyists.”



© Martin Siedler

FESTIVAL
UNIVERSITY
2022

The Festival University 2022 – Welcome to the 2nd edition

Four weeks, 200 international students, an international faculty, and an opportunity to address some of the greatest challenges of our time.

The most prominent international symposium in support of technology and art, the Ars Electronica Festival, and Upper Austria's largest educational institution, the Johannes Kepler University Linz, are organizing the second annual Festival University. This special summer program takes place between August 18th and September 14th, 2022, under the motto *Welcome to Planet B! A Different Life is Possible. But How?*.

From more than 800 applicants, 200 students aged 16 to 25 have been selected to immerse themselves in insightful lectures, hands-on workshops, co-creative teamwork activities and excursions. This year's program is focused on developing – in a collaborative way – approaches to and strategies for dealing with the climate crisis

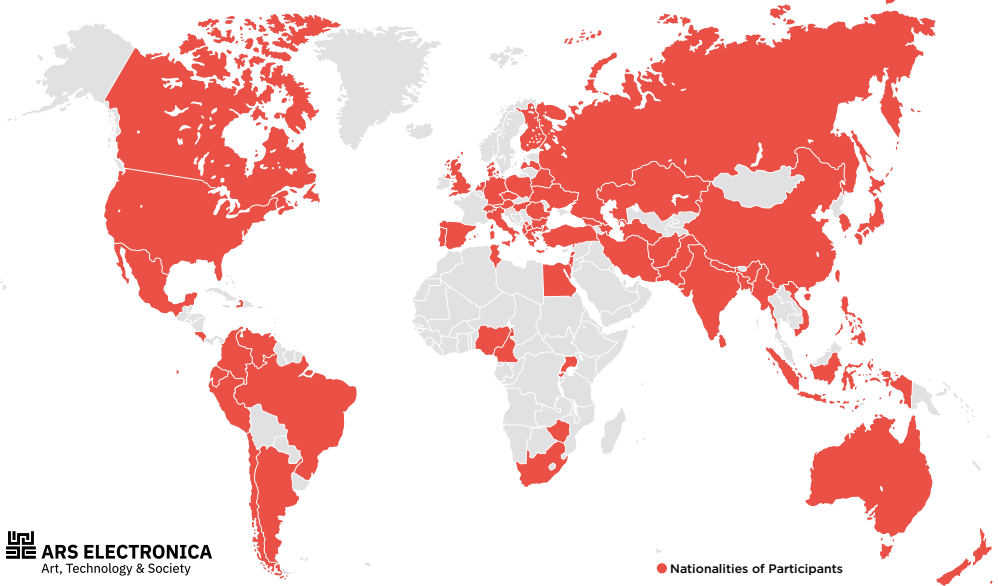
and its consequences. This year, the participants will run a climate change-themed simulation of a court during the Ars Electronica Festival focused on the most pressing challenges of our time: water, energy and migration.

These court simulations are open to the public and take place from September 9th to 11th at the Festival University stage (in front of the library at the Johannes Kepler University).

The program funding for the Festival University has been generously provided by the Austrian Federal Ministry of Education, Science & Research.

Further details about the program and the participating students can be found on our website: <https://www.jku.at/en/festival-university/>.

THE FESTIVAL UNIVERSITY 2022. NATIONALITIES.





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What is the Festival University?

The Festival University is a unique type of collaboration between Ars Electronica Festival and Johannes Kepler University. Exciting and colorful, it resembles a festival, yet is rooted in science and research like a university.

It is a prototype of a next-gen university — a think and do tank for a new type of higher education model, focused on the skills and knowledge

necessary to deal with transformational change on a planetary scale. It test-runs new strategies for teaching and explores new fields of research. Based on far-reaching trans-disciplinary collaborations between art and science, it combines creativity with innovation, generating excitement for new possibilities, yet shouldering responsibility for our world.

Why has this program been initiated?

To promote digital transformations in Austria, a science policy initiative was started in 2020 to found a new technical university in Upper Austria. This is a great opportunity to develop state-of-the-art programs and structures that meet the challenges of the 21st century. The primary focus here is international and interdisciplinary in character, and includes the establishment of an excellent research environment and new, forward-looking teaching models.

To promote this exciting venture internationally — to attract young people from all over the world and also to harness the experiences and ideas of interested communities from all fields — the Festival University project will be realized by Ars Electronica and JKU Linz for the second time. Vital support has been provided by the Austrian Federal Ministry for Education, Science and Research as well as the Federal Province of Upper Austria.

Recap: About the first edition of Festival University

The first international Festival University was a field test and prototype of a “university of the future” that impressively demonstrated its potential as a showcase for a university of the 21st century. 100 students from 40 countries were selected from a total of 230 applicants for the Festival University in 2021. The Festival University scholarship holders came from countries such as Guatemala, Vietnam, Montenegro, Japan, Egypt, Austria, Germany and the USA and studied in such diverse fields as art, technology, social or natural sciences, business or law. Under the motto “Transform your world,” they developed strategies and tools to initiate effective change through a combination of hands-on workshops

and interactive, exciting lectures on six key topics (one group worked online on “Investigative Journalism,” while the other five groups on site in Linz covered the topics “Autonomous Vehicles,” “Circular Economy,” “Creative Robotics,” “Drones & Swarm Behavior” and “Transforming the Body”). They were guided by internationally renowned scientists, artists and managers, such as Josef Penninger, Kilian Kleinschmidt, Joseph Herscher and JKU professors Elke Schüßler and Cristina Olaverri-Monreal, among others. A key highlight of the program experience was their participation in the Ars Electronica Festival, where they presented the outcome of their workshops to guests from the festival.



© vog.photo



© Tom Mesic

Quotes from students participating in the inaugural Festival University 2021:

“For us to be effective in driving change and progress, we need to engage in dialogue — it takes different opinions and views. All of that was possible at Festival University and it was very exciting for me.”

MERLE, 23, Germany, Europa Universität Viadrina in Frankfurt Oder

“We are passionate students, so we need passionate professors who not only understand but really live what they do with all their senses. Especially with a new university, there need to be real open feedback channels. Students and professors need to learn with and from each other.”

CHIARA, 23, Italy, University of Johannesburg

“There were overwhelming and inspiring personal moments and encounters at Festival University. It was really good after a period of distance learning.”

NATHAN, 22, France, Eindhoven University of Technology

“Connecting diverse people and an interdisciplinary approach are important building blocks for me in creating a new university.”

KAI-JUI, 20, Taiwan, National Tsing Hua University

Festival University 2022 & The International Environmental and Climate Court (IECC)

From August 18th to September 14th, the Johannes Kepler University Linz and Ars Electronica will hold their second Summer University. 200 students from around 70 countries will address how we as a global community can deal with the effects of climate change.

Guided by renowned international experts, they will develop strategies and solutions and experience the complexity of one of the most significant challenges of our time in a fictitious international environmental court simulation ("The International Environmental and Climate Court").

Under the motto "Bridge the Gaps," this year's program focuses on climate change and its

impacts. During the Festival University, students will explore the question of how we as a global community can respond to the challenges. How can we shape our coexistence so that our earth remains livable for future generations?

The Festival University has been generously funded by the Austrian Federal Ministry of Education, Science & Research.

EVENTS

CONCERTS

PERFORMANCES

Welcome to Planet B – Opening

Ocean Overture

A literary and musical performance with texts from Stefan Zweig, read by Karl Markovics and Julia Franz Richter. With music by Claude Debussy and Philip Glass played by Maki Namekawa and an underwater soundscape by Jana Winderen.

The opening of *Ars Electronica 2022* and the second Festival University begins with a legend, a well-known Breton tale of a princess, magical sea creatures and the sunken city of Ys. Like so many legends, it tells of hubris, rise and fall, of a beginning and an end. The whole evening is devoted to the oceans, their vast expanses and unfathomable depths. The ocean as a screen onto which human dreams, fears, cruelties and longings are projected, as the setting for great deeds and achievements, yet also the victim of destruction, exploitation and extinction.

For 3 billion years the oceans were the only place for life on earth and even today 95% of all living creatures live in the seas. But in a mere half century we have turned them into the garbage can of our civilization, dumping in them our radioactive waste, chemical warfare agents, and vast amounts of plastic. Overfishing, pollution, and especially climate change threaten our planet's most important habitat.

Excerpts from two masterpieces of literature by Stefan Zweig tell of extraordinary people, their visions, triumphs in attempting to conquer the forces of the oceans – and their defeats. One is about Fernando Magellan, who first circum-navigated the world in 1520, but who himself, having almost reached his goal, failed and died. The other is Cyrus W. Field, who in 1866, after 12 years and five attempts, against all odds,

opened the gateway to global communication for the modern world with the first transatlantic telegraph cable.

Jana Winderen, sound artist from Bodø in Norway and Prix *Ars Electronica* award winner, transports us into the underwater sound world of the oceans. Maki Namekawa plays Claude Debussy's *Sunken Cathedral* and "Raising the Sail" by Philip Glass from the film score of "The Truman Show". The program is rounded off by Selina Neirok Leem, the climate activist and artist from the Marshall Islands, as well as by videos from Sea Shepherd and underwater images from the Nautilus Expedition.

Welcome to the Festival University

The students of Festival University 2022 this year hail from more than 70 countries from all continents. They will present their work and the projects they are realizing jointly with experts from JKU and *Ars Electronica*.

Reception

Together with the students of the Festival University we invite you to an after party in the Kepler Gardens. The "ocean buffet" will be prepared by the chefs of *muto* restaurant, while the music for the evening will be provided by Moritz Simon Geist and *Portrait XO*.

Optimism is not the belief that everything will be all right,
but the will to make it all right –

Welcome to Planet B,
Welcome to *Ars Electronica 2022*.

Jana Winderen (NO)

Listening through the Dead Zones

“Dead zones” are water bodies that suffer from hypoxia, low oxygen concentrations in the water that make marine life unsustainable. Hypoxia is caused by algal overgrowths, a phenomenon occurring when an excess of nutrients in the water sparks the proliferation of algae. The bacterial decomposition of the algae is a high oxygen consuming process that depletes the amount of oxygen available for other species to survive. Although dead zones can form spontaneously, scientists have observed the exponential increase in their number since the 1960s and remarked that there is a causal relation between their formation and the polluting inputs produced by human activity. *Listening Through the Dead Zones* is a sonic contemplation of the disruptive impact of human activities on subaqueous environments. Sounds

from the Arctic Ocean in Greenland, Iceland, and Norway as well as from the tropical waters around Thailand, the Caribbean Sea, and Panama have been recorded by Jana Winderen with hydrophones and composed in a richly layered sound installation. The work invites the audience to eavesdrop on underwater soundscapes populated by various animal species that depend on sound to communicate, hunt, and orient themselves while shipping, oil extraction, military sonars, leisure boat traffic and other anthropogenic factors inflict acoustic distress on marine life.



Jana Winderen hydrophone recording by Belmar, New Jersey photo: Gavin Browning

IHME

Listening Through the Dead Zones was an IHME Helsinki Commission 2020. <https://www.ihmehelsinki.fi/en/ihme-project/>

Music for Chamber Gardens – Musical Paths through Kepler’s Gardens

One of Ars Electronica’s key strengths is its wide spectrum of cooperation and its great partner institutions, both internationally and at its Linz location.

The Bruckner Orchestra (BOL), for example, has been a regular part of every festival since 2003, and every year it is all about exploring new terrain together and building fascinating bridges between analog and digital, between the music of the past and the sounds of the present, between art and science. It also brings together the often very varied audiences who attend these projects and concerts.

The new festival grounds, Kepler’s Gardens on the JKU campus, offer many new opportunities for this endeavor and have already provided the exceptional backdrop for concerts over the last two years by the orchestra under the baton of its

principal conductor Markus Poschner. The search is always for new forms of encounter between the audience, music and orchestra.

This year, the collaboration turns to chamber music. Individual ensembles and soloists of the Bruckner Orchestra, together with Norbert Trawöger, their artistic director, have put together a three-hour program that transforms the Kepler’s Gardens into the “Chamber Gardens of Music.”

The musicians wander with the audience – between the pieces, styles, and epochs; they play under the open sky, in the sound-spaces of the impressive new architecture of the JKU campus, under the mighty treetops of the old park. And so this year the Big Concert Night collaboration turns into a garden for chamber music, and a unique opportunity for extraordinary encounters.



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Laurie Anderson in Concert — Songs for Amelia Earhart



At this year's festival Laurie Anderson is to be awarded the Golden Nica for Visionary Pioneers, a wonderful opportunity to present one of her latest musical works. This is a composition for orchestra, voice, electronics, violin and cello, performed by the Filharmonie Brno, conducted by Dennis Russell Davies with Laurie Anderson and Rubin Kodheli, who plays the solo cello.

The piece concerns another great female trailblazer, Amelia Earhart, who was a passionate pioneer of early aviation, achieving fame as the first woman to cross the Atlantic in 1932. Five years later, Earhart planned to fly around the world. However, before she could complete her voyage her plane disappeared without trace and has never been found since. Of course, with Laurie Anderson as the creator, *Songs for Amelia Earhart* is not just a musical composition, but also a great piece of storytelling. The work is not conceived as a documentary, but as a subjective narrative of the fate of a famous female aviator. Laurie Anderson said: "The words used in Amelia are taken from her pilot diaries, the telegrams she wrote to her husband, and my idea of what a woman flying around the world can think of."

First premiered at Carnegie Hall in 2000, conducted by Dennis Russell Davies the piece has undergone some iterations since then and contains several new parts, such as duets by Laurie Anderson and Rubin Kodheli that fulfill the function of interlude.

"I say I tell stories. And those look like paintings sometimes. They look like, you know, songs. They look like films. They're just stories. What is a story? What is its function? How does it work? Who's telling it? To who?"

Laurie Anderson in an interview with Anderson Cooper, CBS

In this concert for Ars Electronica 2022, Laurie's piece is complemented by two other compositions, the Second Movement of Philip Glass' No. 3 Symphony and "Study for String Orchestra" composed in 1943 by Czech composer Pavel Haas while he was imprisoned in Theresienstadt concentration camp. Haas was murdered at Auschwitz-Birkenau in 1944. The orchestral parts of "Study" were found after the liberation of Theresienstadt and the score was reconstructed.

Maki Namekawa in Concert

After last year's program with piano music from Ligeti and Chick Corea, Maki Namekawa once again takes us on her explorations of the music of our time, presenting a rediscovery and a newly commissioned composition:

Keith Jarrett, *Ritual for piano solo* (1974)

Her new interpretation of Keith Jarrett's *Ritual* brings back a wonderful and little-known piece from 1974. (There is only one recording of it, made by Dennis Russell Davies, to whom the piece was dedicated, in 1977).

In *Ritual*, the improvisational power of Keith Jarrett, whose 1975 live recording of *The Cologne Concert* became one of the best-selling jazz and piano albums and made his music known far beyond the world of jazz, is cast in composed, notated structures. In the approximately 30 minutes of this composition, Jarrett condensed the very characteristic moments of his music and all its potential and energy gets unleashed by Maki Namekawa's virtuoso performance.

Joe Hisaishi, *Toccata* (2022)

(New work commissioned by the Massachusetts Institute of Technology's Center for Arts, Science, and Technology (CAST), the Ars Electronica and the Philharmonie de Paris)

Toccata is a new work by Joe Hisaishi, the Japanese composer, pianist and conductor who has written music for over a hundred films and is well known for his work with and between different musical genres.

Of his composition for Maki Namekawa, he writes: "In my *Toccata*, I am in search of a flowing sound, combined with the rhythmic variety that I so admire in Baroque music. By focusing on horizontal, linear movements and avoiding obvious dissonances in the chords, I hope to evoke an emotional response in the listener rather than forcing one upon them. Maki Namekawa is an outstanding pianist with a direct and sincere approach to the music she interprets. I am very much looking forward to her concert."



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Beyond Quantum Music

LP Duo: Sonja Lončar (RS/NL), Andrija Pavlović (RS/NL), Incredible Bob (RS)

Concert for Two Hybrid Pianos and Synths

LP Duo will premiere new original compositions written for two hybrid pianos within the art and science project *Beyond Quantum Music* and during their residency at the Kavli Institute – Quantum Nanoscience and Bionanoscience department (Technical University in Delft, Netherlands). New compositions are based on experiments done with the top scientists in the labs where the new quantum VST synthesizer was born. Recorded sounds of the quantum computers, atomic manipulations and translations of genetic codes melt together with the already recognizable musical language that the LP Duo has been creating for years. Sonja and Andrija perform on an innovative instrument, the *Duality Hybrid Piano* developed within their company Duality in collaboration with engineers from the reputable American company HTEC (USA). Visuals are created in collaboration with Incredible Bob, a media artist from Belgrade.

The project leader/ Institute of Musicology of the Serbian Academy of Sciences and Arts
Cooperation partners/ Ars Electronica festival Linz, Today'sArt festival The Hague, Duality doo Belgrade

This project is presented as part of Beyond Quantum Music with the support of the Creative Europe Programme of the European Union.



© Ivan Todorovski

Arash Akbari (IR)

Entangled

The reality is beyond all explanations and formulas. It is formless and at the same time it contains all forms. Form and formlessness are two aspects of the same reality, which co-exist and are in continuous communication – like two entangled particles of which neither alone can be described, even when separated by a vast distance!

This project is presented as part of Beyond Quantum Music with the support of the Creative Europe Programme of the European Union.



Arash Akbari by Paul van Dorsten



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Portrait XO (US), Moritz Simon Geist, (DE)

Robots, Bass, and Hot Algorithms!

In the performance *Robots, Bass, and Hot Algorithms!* AI artist Portrait XO enters the stage with Moritz Simon Geist for musical interventions featuring techno robots and an AI collaborator. Portrait XO is an award-winning independent researcher and artist who creates musical and visual works with traditional and non-traditional methods based on ongoing research in computational creativity and human-machine collabo-

ration. Sonically obsessed with space and time, she explores how far she can take storytelling and sound traveling through latent space.

Moritz Simon Geist is a music producer working with music robots. He started because he wants to invent the future of electronic music – with robots! His projects range from robotic music performances to robotic sound installations.

Sound Park — Auditory Scenes

In a world dominated by visual stimuli, just listening can be a haven of tranquility. The *Sound Park* — located in Kepler's Gardens at the Campus of the JKU — offers the chance to relax and engage in active listening processes. Visitors are invited to close their eyes or observe the clouds passing by while attending to the rustling of the leaves in the wind, permeated by the vibrations of the silenced bells of Notre Dame, transmitted live into the park. Bill Fontana's *Silent Echoes* installation makes the bells' vibrations audible, which they continue to emit when not actively ringing, in response to their environment. The city soundscape rendered by the re-construction of Notre Dame can be experienced by festival audiences. The installation *The Eternal Return* by the Peruvian artist Cristhian Avila connects us with the past through pre-Columbian instruments that are played by the wind. Depending on the local wind, the twelve instruments (chimú whistling bottles, bone flutes, antaras nazca) connect us to ancestral knowledge, inviting visitors to listen to sounds that come from a remote time-space. The work seeks to uncover uncommon layers of information that feed from wind energy, a hidden force of nature, the dimensions and importance of which we do not usually realize.

The sound spectrum of the park transports us to the Antarctica through the work *Antarctic Resolution* by Giulia Foscari and UNLESS, the winner of the STARTS Prize. The alarming soundscape of Antarctic ice cracking is amplified in a huge container that shakes and moves and brings those live threatening consequences of the climate crisis into the center of the festival. Through this work, we are reminded that the effects of human life on this planet cannot be ignored, not even for one second.

The huge lawn between Kepler Hall and the pond is dedicated to the work μ by the Danish artist Christian Skjødt Hasselstrøm. 49 distributed particle detectors amplify the energy of muons, cosmic rays that enter the magnetic field of our earth and, while splitting, they emit mildly radioactive elements.

On Friday, September 9th, the *Sound Park* is taken over by the Bruckner Orchestra and transformed into a *Garden for Chamber Music*.

The musicians wander together with the audiences, between the pieces, styles and epochs; they play under the open sky, in the sound-spaces of the impressive architecture of the JKU and under the mighty trees of the park, creating unique opportunities for extraordinary encounters.

Bill Fontana (US)

Silent Echoes: Notre Dame

Notre Dame has been described as the soul of Paris. As a result of the tragic fire in 2019, its bells have fallen silent. However, these bells were not damaged in the fire and are silently waiting and secretly “listening” to the sounds of Paris around Notre Dame. This is a continuous live streaming sound sculpture that makes audible the simple physical fact that these bells are secretly ringing all the time. I think of this secret ringing as being the heart-beat of Notre Dame. The sounds that the bells produce are created by their harmonic response to the ambient sounds of Paris that surround Notre Dame, as revealed by a live network of accelerometers mounted and live streaming from all ten of the bells. The physical fact that these bells are harmonically excited by the ambient sounds of Paris is a phenomenon that this artwork makes public in a way that will not only be beautiful to hear but

will have a healing relevance to Notre Dame’s fire, a healing relevance to the suspended sense of time created by the Corona Virus, the tragic war in the Ukraine and the ongoing environmental threat of climate change.

Bill Fontana Studio in co-production with IRCAM and Centre Pompidou; in partnership with the official public establishment responsible for the conservation and restoration of Notre-Dame de Paris Cathedral; With the support of Hottinger Bruel & Kjaer, the Friends of Notre Dame and the ORANGE GROUP



© Bill Fontana Studio

Christian Skjødt Hasselstrøm (DK)

μ

When a cosmic ray enters the Earth’s magnetic field and atmosphere, it splits into smaller parts and decays. However, one of the mildly radioactive elements of the radiation reaches all the way down to us – the so-called muon. Muons travel almost at the speed of light. Despite their short lifespan of 2.2 microseconds – and thanks to the theory of relativity, which means they age 22 ‘mes slower than to us – these particles often manage to reach far below the surface of the Earth. μ consists of 49 specially designed particle detectors, amplifying the energy of muons, resulting in audible impulses. The detectors are autonomous, and the impulses are emptied live and according to the particle’s intensity and truly random

presence. Thus, μ functions as a cosmic listening station, inviting us to enter the grid and experience the ever-present cosmic rays.

μ is created in collaboration with the Niels Bohr Institute of Copenhagen University and realized with financial support from KODA Culture.



© Matthe Ivarsson

Mikael Fock (DK), Carl Emil Carlsen (DK), Emilie Rasmussen (DK),
Cecilie Waagner Falkenstrøm (DK), Yann Coppier (DK), Vertigo (DK)

4D box / SH4D0W

An AI Performance in 3D

SH4D0W is the first performing arts production starring an artificial intelligence creation as the protagonist. The play is performed in the 4D Box, a theatre stage capable of creating mixed-reality illusions of virtual 3D objects interacting with live performers. The AI character is represented as a shape-shifting neural network, which gradually takes control of the universe.

In the play *SH4D0W*, director Mikael Fock associates the relationship between man and machine with the clever scholar and his shadow in the H.C. Anderson fairytale of the same title. The focus is on the human encounter with its virtual shadow, which is represented by the data-driven artificial intelligences surrounding us.

The play is a journey into the heart of an artificial intelligence creation, where emotions and data

are the unacknowledged trade between us and the machines.

The performance is an immersive 3D experience, driven by a live AI creation, creating a 3D universe of sound, lighting and a visual representation of an artificial intelligence machine that interacts with the surroundings and the live actor.

The Danish Arts Council, European Artificial Intelligence Lab with the support of the Creative Europe Programme of the European Union, The Culturyard, Bikuben Foundation
Director: Mikael Fock

Visual artist: Carl Emil Carlsen / Sixth Sensor

Performer and AI improviser: Emilie Rasmussen

AI artist: Cecilie Waagner Falkenstrøm / Artificial Mind

Sound artist: Yann Coppier

Concept & Manuscript: Mikael Fock

Light design and technology: Vertigo

Production: Mikael Fock Productions



Ver-Hand-lung versus? Ver-Hand-el scrabble & scribble – medial forms of creating worlds

Plan(et) B: Forward back – cultures of corpo-reality after those of in-sight and under-standing

Premise:

The work is based on the German language, which allows the process of “Ver-hand-lung” / negotiation to be etymologically derived from “ver-hand-el” through “handling” hands. It thus iconically describes a symbolic process of negotiation, being present in English language more in the context of commercial activity as a cultural mediatization of its bodily “handling” basis.

I. Content

Wittgenstein said that thinking takes place in language; at the same time, he suspected it had a basis in corporeality. Embodied cognition today combines both. Understanding as seeing perception of the mechanical body, experiencing as the meaning through the excitation of the seen for the hedonic body as a perception according to the paradigm of hearing. Perception is an arousal-based body-environment-interaction, a process of cognition as well as a process of cultural creation: the symbolization of the bodily “Ver-handeln”/negotiating in “Ver-hand-lung”/ negotiation.

Often his ideas are discussed within the end of language because of the upcoming of “reduced” information-transmission in social media.

Possibly only two essential components of language fall apart: the information about mechanical and logical description of objects and their meaning for the body, thus into factual information of seeing thinking and physical experience of hearing.

The symbolic sign as a “Ver-hand-lung” passes over into emoticons as a signal of the experience of the “ver-hand-elnden” body. The dominance of the visual culture of modernity is changing “forward back” into a postmodern culture of the hearing body, into an “auditory culture” as a plan(et) B.

II. Form

As epistemological media art/artistic research, the work juxtaposes an experimental design: from understanding symbolic Ver-hand-lung/negotiation to experiencing bodily Ver-hand-el/negotiating, seeing the moving body and its mediatization into language, hearing and its immediate bodily form of interaction through arousal. Meanings are thereby considered as dynamic forms of relationships, as forms of social life in cultural and biological networks.

Symbolic “Ver-hand-lung” as well as immediate bodily “ver-hand-el” always take place within the environment of social relations of the negotiating persons. It is implicitly initiated by the spontaneous silent imagination of a term/an object that each person wants to “share” with the other participants.

Scrabble means a game with language that is based on the cultural knowledge of its generation and not coincidentally emerged in the same period in which information theory (Shannon) was developed as a description of the dynamics of the logic of thought in language as well.

Information theory describes processes in series through the probabilities of the occurrence of events and their combination and thus their internal redundancy (of aggregates); it is the basis of machine learning. Symbolic understanding is the playful form of the “scrabble”, social “Ver-handlung”/negotiation of two interactors within culturally formed language. Its composition from letters happens through cultural knowledge as a process of “Ver-Hand-lung”/negotiation. The seeing understanding of the negotiation is externalized, formalized in language/visual arts, in symbolic mapping images. The bodily Ver-handeln/negotiating is the playful “scribble”, the social negotiation of two actors as a hand-scanning approach, as a “scribble”, as some kind of projection of a movement by the excited body.



The mutually exciting action of “Ver-hand-eln”/ negotiation, formalized in music, is externalized through “sonification”: motion-tracking records the movement out of handling agitation, which can be experienced as “sound-gesture”.

Accordingly, the participatory process of interaction between people interacts with an adaptive system that analyses the culturally semiological and individually biological meanings and considers them mutually effective.

By “learning” the system supports commonality and externalizes it adequately in the media of language-image or sound.

This artificial emotionality reinforces cultural embodied cognition – commonality of understanding and experience in “syn-bios”/communis living.



What is music to ... Plan(et) B — "Auf-Hören" / stop seeing & listen up

Premises

It is only possible to a limited extent to transfer linguistic knowledge from thinking into other languages. Language is a determining part of cultures, the basis of which is ultimately the body. Its experience from interaction with the environment is formalized and communicated in language. Because of the dominance of the experience of seeing in western cultures, we forget that the perceptions of other senses lead to other experiences, and thus to other forms of experience and their communication. The German term "aufhören" does not have a modal equivalent in English. More than "listen up", it means to end the visual interaction of the body with the environment and conversely to listen to its activities in an analytical way by coming to a standstill of one's own.

This paper focuses on the difference between cultures of modal perception and contrasts the dominance of the seeing culture with that of hearing as Plan B — as a paradigm of survival in experiencing the environment.

Subdue the earth

For us, our environment is one of objects and their dynamics. The visual representation of objects is formalized by iconic images and furthermore by the symbolic designation of linguistic terms. We derive their dynamics from our movement by formulating the observed "shocks and thrusts" as a relationship in the causality of a "sentence". Finally, we conceive the environment through the medium of language and communicate it through this system of symbols.

We construct a reality from our physiological structure of the body in interaction with the environment, which we call culture. Essentially, this is based on the dominance of seeing with those implications that are connected evolutionarily with the seeing body.

In terms of phylogenetics, seeing is the youngest sensorium, which went hand in hand with our own physical movement and the formation of the cerebral cortex and thus with thinking. We see a visual field in front of us, which we shape through our own movement in space and time. The knowledge of what we see results from "standing in front of" the objects as understanding; we signify it with semiological signs.

Cognition as a projection of perceptual activity, of bodily movement into seeing dynamic processes of the environment, led to a one-sided mechanistic worldview. From the symbolic as volitional semiotic designation and thus formalization of this system, the idea of feasibility can be derived, which culminates in the last uprising of modernity in the 1960s and the digital cultures — it is from these symbolic formulations of understanding seeing, from this thinking as reconstructions of the environment, that its constructions are ultimately made. In this belief in thinking lies the basis for the divisiveness of nature and culture. The body experiences of "primary meaning" (WIRTH 2007) of animal semiosis (KULL 2009), become "secondary meaning" (WIRTH 2007) as cultural semiosis (KULL 2009), signifying the natural world with a symbolic system made by will. Representations of nature lead to the extension of the body (McLUHAN 1964) and to a mechanical

understanding of its abilities. Instruments and media, mechanization and mediatization through symbolic forms follow the mechanical body, and its seeing and thus thinking primacy. All these advances (of modernity) ultimately bring about “la fin du corps” (BAUDRILLARD 1981) and the killing of nature as culture.

Finally, “subdue the earth” is a modern thought that nourishes the possibility of interpreting the Bible (Genesis 1, verse 28). In acting from this belief in thought lies the basis for the divisiveness of nature and culture.

But there are assumptions that the mediatized world is an auditory one in which the direction of interaction is reversed. The seeing body does not move to the event; instead, the information about the event “moves” to the body, or rather: it is present in a kind of “all-at-onceness” (McLUHAN 1995) around the body. A meditated culture follows the paradigm of listening. “Auf-Hören”/“listen up” is more than a demand to follow this alternative. It is a step “forward back”: the dominance of the system of thinking through seeing is followed by the system of experiencing through hearing. The body is not an external, monarchical observer; it is part of the environment.

Cognitive seeing – experiential hearing

This one-sidedness of culture as the dominance of mechanistic seeing is evident in its cognitive view. Perception is based on sign-like recognition and is cognition just as working memory / short-term memory of what is seen is compared with what has been seen before and stored in the long-term memory.

Gibson (1982) extends perception as body-environment interaction, as an active bodily action which in it also shapes the environment through intentionality, which he derives from the “affordance” of environmental stimuli. Generally, this intentionality is understood as “Ab-Sicht”, as an act of decision determined by thinking. Originally, the word intentionality, being-in-tension, denoted the bodily tension that a (moving) stimulus evokes in the environment and thus moves the body to attention as an act of perception, which enables homeostatically regulated survival. This understanding of intentionality before the Enlightenment (MAUTHNER 1923), the seeing enlightenment of the world, is very close to Gibson's intentionality. The term “Auf-Hören” may originally have had this meaning.

It becomes entirely comprehensible when seeing is replaced by hearing as the most recently and strongly developed tele-sense of the body before its own movement, primarily as bodily intention and secondarily as signifying cognitive perception: Hearing is the perception by the unmoving body of the stimulating movement in the environment.

The intentionality is that this movement, ultimately sound, especially its intensity and by this its “affordance”, leads to bodily arousal and makes perception a perceptual movement, an interaction of the body with the physical environment; “emotional contagion” makes this immediate interaction a social interaction. This apparent cause-and-effect principle is better biosemiotically signified by a systemic whole, by the importance of sound to the body as its arousal behavior.

The concept of “sound-gesture” empirically describes the hearing-intentional body-environment-interaction. It is the formalization of the imagination of perceived sound as movement, and thus excitation of the body through the intensity and thus experienced proximity of sound to the body.

Its meaning (as external movement) for the body is expressed in excited co-movement (JAUKE 2021). Intentionality has a stronger effect on pre-cognitive perceptions than on cognitive ones, leading to processes of thinking through decisions.

In his new experimental aesthetics, BERLYNE (1971) spoke of arousal, of arousal which, as in explorative behavior in general, leads to turning towards or away from, with increasing intensity to an inverted u-shaped function of aesthetic as explorative behavior. “Emotional contagion” (HATFIELD 1994) describes communication as immediate “contagion”, as imitation of movement behavior and thus of being moved. By this it has a pre-cognitive collective and collectivizing effect — a “relic” of communication of survival behavior similar to yawning. Sonically performative perceptual behavior and communicative behavior are thus fundamental survival behaviors that are formalized in aesthetic play — primarily in the aesthetic play “music/music-making,” which is primarily abstract listening (CHARMIAUX 2011) and thus not cognitively signifying.

“Primary information” is said to be at the level of “animal semiosis” before the secondary information of cultural semiosis, which is understood as the volitional designation of what is seen in the culture-making process. When Heidegger claimed that we do not hear a bang, but (for example) the door slamming in the lock, he is transferring the paradigm of the cognitive perception of seeing to hearing. This illustrates the cultural dominance

of seeing and at the same time the difference between seeing and hearing. Investigations today confirm that hearing is primarily abstract, that is, it does not convey indexical cause, but rather the intensity of a movement as a stimulus that leads to excitation and thus to “primary information” for the body in the biosemiological sense.

Seeing can be considered as thinking, synthesizing and shaping the environment, hearing as analyzing, extracting and experiencing the environment. The ending of seeing as “Auf-Hören”/listen up and thus the beginning of the dominance of hearing are considered as an alternative to the western modern understanding of the interaction of human and nature as culture and to the failure of this powerful image of nature made subservient.

Changes in nature within the thinking system are adjustments based on man-made culture and bring (mostly) symptom shifts. Only major incisions from outside changes in world evolution have brought paradigm shifts. Now, however, man is the designer of the world and became responsible for the earth in the Anthropocene. It is not the natural impact on God-made nature, but the cultural rupture that changes the nature of earth. The human creation of an apocalypse serves as a catalyst for a “metamorphosis” as a deluge (see OVID). In this process, the salvation of the earth is no longer commanded by God, no longer only willed by human thinking, it is experienced by the whole body and needs a paradigm shift, a change of the entire system of thinking, and not just corrections within it — it is the turning away from ruling by thinking, by in-sight and the idea of having over-sight and the power of feasibility, it is the return to the listening human being, to life as a constant analysis of the “movements” in the environment and their meanings for the body living in symbiosis with the environment.

Auf-Hören / listen up — Recognition and Ethics

“Auf-Hören”, an outdated term in the modern sense, refers to the cessation of moving and seeing, the calming of one’s own activity in order to make the activity, the sound of the movement of the environment, perceptible by moving it out of the background of overall sensory perception, especially seeing. It is primarily an intentional body-environment-interaction, which is found dominantly in animals. Popular knowledge uses this iconic term to activate body knowledge precisely in situations of danger. Although driven out of modern culture as a term by rational thought, this behavior is inherent to all humans. It leaves behind the synthesizing feasibility-thinking and focuses on the analytical experience of the body. It is a stepping out of the premises of seeing thinking and its external evaluations and the allowing of the hearing experience and inner evaluation / as bodily meaning, as primary information for the body. In this, the criterion that determines thinking and arises from thinking is freed from the reference to thinking itself. The criterion of primary information is life as survival, generally as life of the body as pre-cognitive behavior. While the first can be “wrong”, the second is always right in the sense of evolutionary developments of adaptive shaping of life with nature but also in the ethical realm of life with life.

In the extension of acquisition of knowledge to ethical questions, wrong or right is then to be evaluated by consciously or unconsciously “lying” or “true” in the sense of survival. In this, one’s own behavior is not homeostatically directed towards nature, but towards other life — one’s own body does not “lie” for the benefit of survival together with other life: common life increases the chance of survival for one’s own life in interaction with the environment.

This is not alien to the strategic diplomatic life of politics. It is biopolitics, the regulation of negotiation not according to the external criteria of the matter of negotiation for both negotiators, but the (symbolic) regulation of life through the use of the media of negotiation, which increases the power of the negotiators to “symbolically” regulate the object of negotiation regardless of its primary importance to life itself: it is ultimately war. What the body itself once did, finally attempts to regulate via symbols as laws of power, which in turn recalls the body, namely, the meaning of the object of negotiation for the body itself. Ethical behavior is thus phylogenetically part of social behavior for survival with nature.

But, hearing has an additional implication here: its criterion is listening to one’s own body, which is the same for us humans in general.

This makes us feel what is right and wrong for it and thus what is good or bad for the other same body. It lets us feel ethical behavior directly without symbolic designation in laws — ultimately this is a pre-cognitive social as well as “egoistic” behavior, which increases the chance of survival in social groups.

Primary information within the primacy of hearing links politics and ethics. Oriented towards the fundamental equality of all bodies and their survival needs, it is ultimately a democratic political instrument based on nature, a biopolitics for every body.

Media art as epistemological research

The bodily criterion and that of thinking are at stake in the difference between the acquisition of knowledge acquisition in traditional art and science.

Science wants to see and understand and formalize this observation in symbolic form, in formal languages.

This makes it possible to include corresponding communication and thus cultural discourse as a form of knowledge. Natural science thereby increasingly had the human being as a criterion, but its extension to the paradigm of nature. This has ultimately led to its overcoming and mastery and thus to the disruption of the life of man and nature/environment.

It is generally assumed that the arts formalize experience. Yet the visual arts start from seeing, the image, which is (also) connected to the acquisition of knowledge and education (“Bildung”, as in “sich ein Bild machen”) as well as political emancipation. As a formalization of hearing, music alone, apart from seeing and language-based imagining, does not start from the recognition of image worlds and the creation of world images, but from the meaning of what is perceived for the body. It thus formalizes the experience of life.

Music focuses above all on bodily life through aesthetic play with the explorative behavior of listening (BERLYNE 1971). In this, auditory artistic exploration is linked to the criterion of experience and thus explores the “primary meaning” of the environment for the body. However, its survival is always bound to the environment. Thus, auditory artistic research unites the symbiosis between body and environment in a symbiotic togetherness.

Aesthetics as aisthesis, meaning just perception, that philosophy as “Aisthetik” (BÖHME 2001) describes as some kind of bodily “atmosphere” as co-presence of an environment for the body (BÖHME 1995), can be explained by biological aesthetics and biosemiotics respecting perception as an intentional active behavior based on the multisensory perception of the whole body that brings in the pre-cognitive experience.

Auditory perception summarizes the tele-senses, the natural media that bring information about the environment to the body without its movement in some kind of “all-at-onceness” following the paradigm of auditory space (McLUHAN 1995). Admittedly, these are natural sciences that have lost sight of the primordial idea and, in the pursuit of culture, see this nature as hardly or not at all necessary for the body — shaped by the modernist thinking that nature exists for the benefit of wo-man. It is cultural studies and art studies that do not see aesthetic behavior as exploratory survival behavior, but as the overcoming of nature and the creation of culture. Do both follow the commitment that wo-man should subdue the earth — as culture? It is media art that, as epistemological media art, is given the chance to include the symbiosis between wo-man and the environment in its interest: As a media discipline, it combines the interest of natural science as an extension of wo-man in the paradigm of nature as well as its transition into culture as an emergence from nature. As an art discipline, it combines understanding with the experience of these extensions for the body as part of nature/environment. As an epistemological auditory art, it transgresses the mechanistic implications of seeing and focuses on the “intentionality” of body-environment-interaction.

Plan B: auditory culture

Media art has long seen itself as a seeing cultural form, as the image-oriented and understanding form of cognition. It is not only artistic postulates, but above all the insight into one-sidedness, especially the creation of media technologies that are close to the body, that demand and enable the inclusion of the complete agent (MATURANA 1987) in media art/world.

This begins to transcend the primacy of seeing. It is the dynamization, which exceeds human perception and leads to a standstill (VIRILIO 1992), and the immateriality of the digital code, which has no connection to the physical/material world (LYOTARD 1985), through mediatization of the mechanical body that necessarily lead to the deviation from the dominant cultural mechanistic image as a cultural form of sighted modern thinking and bring insight into the transgression of this mechanistic system (JAUK 2003, 2009). The rejection of the hypothesis of scientific experimental sighted thinking is followed by the alternative of hearing and its analytical experience. The primacy of seeing as an image and thus the visual art of understanding is now followed by the primacy of hearing and its experience of excitation in interaction with the environment and therein the attention to body and environment in their symbiosis.

Digital culture is considered the culmination of modern culture, of feasibility on the basis of seeing cognition and linguistic formalization in the image as well as in symbolic language. This knowledge acts as an extension of the body and subjugates the earth.

The post-digital culture is an auditory culture of hearing experience. It is a humane culture and a culture with nature as a symbiosis of body and environment in an excitation-based / intentional interaction. In this context, the environment is considered to be both a physical and a social environment, whereby the environment is not just an "outside" but an experience of the body (UEX-KÜLL 1920) in which this symbiosis is expressed not only in scientific evolutionary terms but also as a human experience.

Music lives this experience in "tension and release" of bodily excitement through

"affordance," the intensity of movement in the environment. What SCHAFER (1977) once meant by lo-fi-soundscape, as an undifferentiated soundscape through artificial / technical constant movements in the context of industrialization, and differentiable audible natural hi-fi-soundscape, can today be substantiated by science as worth living or life-destroying from the experience of the body.

It is the experience of the body's arousal by the movement of nature apart from the focus on the solely sonic that is a survival paradigm. It is the "Auf-Hören" of the seeing and thus the understanding from the perspective of the human being by listening to the symbiosis of human being and nature through their arousal: in sound, the human being feels the meaning of the environment for his body. This paradigm of man's experience becomes the paradigm of life after knowledge and enlightenment, it is plan B for planet earth, a cultural turn to the nature of the symbiosis between environment and wo-man — for the survival of both. Plan A led to the failure of the relationship between body and environment. It led to culture's failure to overcome nature through the mediatization of the mechanical body and through feasibility following the formalization of the mechanical interaction of body and environment in symbolic forms. Plan B culturally goes back the natural evolution from the dominance of seeing to that of hearing and brings the hedonic sensation of hearing into a cultural form instead of the rational thought processes of seeing.

Changes within Plan A are always steps to replace already existing negative phenomena within the system. They usually lead to symptom shifts. What is needed is an end to this system that has become culture through seeing and its implications of movement and thinking.

It is necessary to stop it and to hear which form of interaction wo-man needs with the environment not only for his survival, but for life, basically for its nature.

It is not a matter of taking steps within the existing culture, but of radically evaluating nature through a new culture: of putting hearing before seeing.

This Plan B does not work by undoing the effects of Plan A — it works on the superordinate form “Umwelt” (UEXKÜLL 1920) as a perceptual paradigm of environment that led to the collapse of the material environment. It adapts wo-man radically to the status quo and prevents it from getting worse by maintaining Plan A. It makes a radical paradigm shift and overcomes the displacement of nature in favor of a culture of seeing man in a volitional and thus cultural step, it takes evolution “forward back.”

It is the “Auf-Hören” of the synthesizing culture of seeing in the contemplation of a culture of hearing. This is oriented towards a natural homeostatic principle, the excitation-based interaction of the body with the environment and thus primarily towards the needs of the human being in symbiotic interaction with the environment.

Conclusion

The problem of translation of “Auf-Hören” allows us to cognitively recognize cultural differences that have disappeared in a thoroughly imperialistic Western world through the imposition of culture, which essentially happens through language — it is one language and therefore one “understanding” of life worldwide. It is precisely the development of the Western countries of modernity that has brought this world to the point where this thinking means an alternative to its collapse — it means an end to negotiation / Ver-hand-lung, to a state economic activity that is symbolic in its regularity, and a listening to negotiation / Ver-hand-eln, to the analyzing perception of the manual interaction of people by “hand”¹. This step “forward back” means paying attention to other senses and their experience, to other resulting environments (UEXKÜLL 1920) as an alternative to the modern view of the world and the elementary change in the world that always remains in this picture. It requires a paradigm shift: the understanding worldview with its thinking of feasibility has ignored the environment, the hearing experience analyses its environment; its culture is a symbiosis for the sake of both, human and nature.

¹ see Ver-Hand-lung versus? Ver-Hand-eln, scabble & scribble — medial forms of creating worlds. Plan(et) B: Forward back—cultures of corpo-reality after those of in-sight and under-standing in this catalogue page 160

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EUROPEAN
PLATFORM
FOR DIGITAL
HUMANISM

European Platform for Digital Humanism

Projects

- EMAP
- European ARTificial Intelligence Lab
- STUDIOTOPIA – Scientist in Residence
- STARTS
- Prize ● Regional Centers
- CCI Thrive
- IMPETUS
- More-than-Planet
- ESERO
- Roots & Seeds XXI
- ACuTe
- Creative School
- STEAM Inc
- OSHub
- WeSTEAM
- DOORS
- Realities in Transition
- Beyond Quantum Music





Nordic ESERO:
NAROM

Lulea Tekniska
Universitet

Oulu University of
Applied Sciences
The Northern
Photographic Centre

Det Norske Teatret

Changemaker
Educations

Aalto
University
Finnish Museums
Association
m-cult

Estonian
Academy of Arts

RIXC

Den Frie Centre of
Contemporary Art

The Culture Yard
ESERO Denmark: Danish
House of Natural Sciences

Laznia Centre
for Contemporary Art

De Toneemakelij
Netherlands Institute
for Sound and Vision
University of
Amsterdam

Institut
Incontri,
Hochschule
für Musik,
Theater &
Medien

BGZ Berliner
Gesellschaft für
internationale
Zusammenarbeit

European Theatre
Convention

ESERO Poland:
Copernicus
Science Center

Waag
IMPAKT
Stichting Saxion
TodaysArt
In4Art
V2_Lab
iMAL Art Center
for Digital Cultures
& Technology

Stichting Saxion
Stadt Dortmund
ESERO
Germany:
Werkleitz Centre
for Media Art

STATE Studio

Technical
University Dresden

WRO Art Center

Association
Théâtre de Liège
ESERO
Belgium:
Succy
Luxembourg:
Luxembourg
Science Center

Frankfurter
Buchmesse

ESERO Czech
Republic: SCIENCE IN

ESERO
Czech
Republic: SCIENCE IN

Landestheater
Linz

MUSEUM BOOSTER
IMZ International Music +
Media Centre
European Science
Engagement Association

Ars Electronica Linz

Schauspielhaus Graz

Project Atol

Kersnikova Institute/
Kapelica Gallery
Center for
Promotion of
Science

Slovensko narodno
gledališče Nova Gorica

Kontejner
Radiona
Makerspace

New Art
Center
Belgrade

Institute of
Musicology
SASA

Teatrul Național
"Marin Sorescu"

ESERO Romania:
Romanian Space
Agency

Onl'Fait

MEET
Digital Culture
Center

Centrica

Sinéglossa

Teatrul Național
"Marin Sorescu"

Hexagone

MEET
Digital Culture
Center

Tó Ecosystems

MAXXI—Muséo nazionale
delle arti del XXI secolo

La Casemate

ANISIN

ANISIN

Seconde Nature

ANISIN

ANISIN

Black Euphoria

ANISIN

ANISIN

French Tech
Grande Provence

ANISIN

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Black Euphoria

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SOU Festival

Onassis
Stegi

SciCo

Impact Hub
Siracusa

CYENS
Centre of
Excellence

NeMe

European Platform for Digital Humanism

Over the past four decades, our world and our lives have changed from the ground up – and this despite the fact that digitalization has only accelerated existing processes in our industrialized world. From the very beginning, Ars Electronica has understood this not as a technological but as a social development.

Thus, institutions and initiatives around the globe, including Ars Electronica, are calling for a Digital Humanism that acknowledges these omnipresent transformational processes and reflects on new pathways towards a digital society. Ars Electronica and its partners take part in this urgent discourse focused on re-evaluating our relationship to the technologies we have created

and how we use them – a conversation that is by no means confined to Europe but needs to be tackled on a global level.

The *European Platform for Digital Humanism* is an international invitation to our partner organizations – especially those working with us in European research, culture and education funding and promotion of Creative Europe, Horizon 2020/Horizon Europe and Erasmus+ – as well as their artists and audiences. Together we call for an approach to digital transformation that empowers and includes every citizen, focusing on digital applications oriented towards human needs and based on cultural values that respect the autonomy of their users.

S+T+ARTS Initiative

S+T+ARTS is an initiative of the European Commission designed to create a space of dialog and collaboration between Science+Technology+Arts. Under its banner, the STARTS Prize, STARTS Residencies, STARTS Lighthouses, STARTS Academies and STARTS Regional Centers seek to redesign and redefine the role of artists in the innovation processes.

S+T+ARTS Prize

Grand Prize of the European Commission honoring Innovation in Technology, Industry and Society stimulated by the Arts

The STARTS Prize highlights people and projects that have the potential to make a sustainable positive impact on Europe's economic, technological, social, and ecological future. The competition seeks projects at the nexus of science, technology, and the arts and celebrates visions and achievements at the interface between innovation and creation. On behalf of the European Commission, Ars Electronica, in collaboration with BOZAR, Frankfurter Buchmesse, INOVA+, La French Tech Grande Provence, T6 Ecosystems, and Waag, annually issues an open call for entries to the STARTS Prize competition and has awarded the prize since 2016.

The competition invites project submissions by either artists / creative professionals or researchers / companies involved from all over the world, that present:

- ground-breaking collaborations and projects driven by both technology and the arts
- all forms of artistic works and practices with a strong link to innovation in technology, business, and/or society
- all types of technological and scientific research and development that have been inspired by art or involve artists as catalysts of novel thinking

Partners: Ars Electronica (AT), BOZAR (BE), La French Tech Grande Provence (FR), Waag (NL), INOVA+ (PT), T6 Ecosystems SRL (IT), Frankfurter Buchmesse (DE)

Funding scheme: Horizon 2020

Duration: 1.1.2021–31.12.2023

Website: <https://starts-prize.aec.at/>

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 956603.



Antarctic Resolution, Giulia Foscari UNLESS



Data Garden, GYOC



STARTS Prize trophy



Oceans in Transformation, Territorial Agency



The Exploded View Beyond Building, Biobased Creations



The Plant Intelligence Plan, Tianyi Zhang

Regional S+T+ARTS Centers Repairing the Present

Repairing the Present is the joint mission of 12 Regional STARTS Centers across Europe. As ambassadors of the European Commission's STARTS program, the Regional STARTS Centers bring the initiative's ethos to a local level, engaging actors across different disciplines in artist-led projects that bridge the worlds of science, technology and the arts.

The 21 STARTS Residencies and numerous STARTS Academy events organized in different regions of Europe over the past year as part of

Repairing the Present tackled issues confronting the world at large and, more specifically, the localities of each of the Regional STARTS Centers. In search of solutions to local problems, the STARTS Residency artists have led collaborations with local experts and industry and research leaders. Though driven by concerns within local contexts, their work has continuously sought to think globally while acting locally. Starting from the overarching mission to repair the present, *Circular Futures* – the STARTS Residencies proposed by Ars Electronica – addressed the demand to rethink our modes of production and consumption drastically. Acknowledging that we can no longer pretend the planet's finite resources are infinite, *Circular Futures* focuses on potential



Algaebasedmaterial © Fara Peluso, Photo © Anne Freitag

ways to transform the throw-away culture that dictates our current design, manufacturing and production processes into a circular economy. No longer a sufficient guiding principle for our modes of production, economic value must be replaced by the value awarded to future-proof solutions that respond to climate change, resource scarcity and biodiversity loss.

For this STARTS Residency, artist Kat Austen and artist/designer Fara Peluso have joined Ars Electronica and a group of local experts. The duo's project, *Circular Records*, is in search of a biomaterial to replace vinyl. The two collaborate with researchers and local experts from Johannes Kepler University Linz, Linzer Innovationshauptplatz, and Greiner Innoventures.

Partners: Snowball (BE), MAXXI Museum (IT), Art Hub Copenhagen (DK), STATE (DE), Onassis Foundation (EL), In4Art (NL), MEET (IT), CCCB (ES), Ars Electronica (AT), Sony Lab (FR), Kersnikova (SI), CYENS Centre of Excellence (CY)

Duration: 1.6.2021–31.12.2022

Website: <http://www.starts.eu/start-regional-centres/>

This project has received funding from the European Commission's Directorate-General for Communications Networks, Content and Technology, under grant agreement LC01641664.

IMPETUS

Citizen science is playing an ever more important role in how researchers and innovators engage with society, and how they contribute to common concerns around digital literacy, data justice, and participatory governance. There is evidence that participation in citizen science can increase trust in scientific expertise, enhance critical thinking, and ultimately fight disinformation. Europe is at the forefront of the global citizen science movement, including a growing ecosystem of initiatives and support networks. With millions of science volunteers in many countries and domains, European citizen science has gone from strength to strength and has now reached a crucial moment, which will determine its future growth and impact. Citizen science initiatives engage with the pressing social and environmental concerns citizens

are facing in their communities and often speak to new audiences who are motivated to join and contribute to topics that directly impact their lives. IMPETUS aims to increase engagement of citizens with science and researchers with citizens by funding and supporting citizen science initiatives across Europe to work in a holistic, inclusive and impact-oriented way.

IMPETUS builds upon the success of ACTION – Participatory Science Toolkit Against Pollution (2019–2022) to further support the European citizen science ecosystem and strengthen the bond between society and science. IMPETUS will open significant new routes of funding for citizen science initiatives through an Accelerator program and the establishment of a European Union Prize for Citizen Science.

Partners: Zabala Innovation (ES), King's College London (GB), Ars Electronica (AT), NESTA (GB), Science for Change (ES), T6 Ecosystems (IT), European Science Engagement Association (AT)

Funding Scheme: Horizon Europe

Duration: 1.7.2022–30.6.2026

Website: <http://impetus4citizenscience.eu/>

IMPETUS is funded by the European Union under Grant Agreement No. 101058677 – HORIZON-WIDERA-2021-ERA-01.



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DOORS

Digital Incubator for Museums



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For decades now, new technologies have challenged the role of museums. As new media proceed to change the ways in which the public accesses and acquires knowledge, the institutions that traditionally served as spaces of knowledge dissemination must also change. Museums and cultural institutions must respond to and mirror the changes in today's societies with infrastructures and programs that harmoniously blend onsite and online.

DOORS – Digital Incubator for Museums comes to support museums at a moment in which attitudes towards the digitalization of the sector are changing. The accelerated pace of digitalization in all pockets of society and the pressure from the competition with on-demand content create not only daunting insecurity but also a desire for change in the sector. To adapt to the new

constellation – especially in the aftermath of a global pandemic – the museum sector started addressing digitalization with a new sense of urgency. The digital transformation is now seen as a necessary, urgent, exciting endeavour.

Despite the urgency, digital strategies for the future can be neither makeshift nor standard. Long-term visions will have to incorporate the digital into the DNA of institutions to foster proactive rather than reactive transformations. They must engage critically with technology, address concerns around it, and move beyond a perception of digital as a cutting-edge appendix to see it as part and parcel of the broader context. *DOORS* wants to help museums reach the digital maturity levels needed to sustain digital transformations over time and become more responsive and diverse spaces.

Partners: Ars Electronica (AT), Ecsite (BE), MUSEUM BOOSTER (AT)

Funding scheme: Horizon 2020

Duration: 1.12.2021–30.9.2023

Website: <https://ars.electronica.art/doors/>

DOORS has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 101036071.

CCI Thrive

Bespoke Business Models and Innovative Practices of Cross-Sectoral Cultural and Creative Collaboration

CCI Thrive – Bespoke Business Models and Innovative Practices of Cross-Sectoral Cultural and Creative Collaboration explores compelling solutions for small and medium-sized European Cultural and Creative Industry (CCI) organisations as a response to the obstacles that they are facing. How can cutting-edge digital technology support CCI in improving their international competitiveness? How does the fact that these technologies are all relying heavily on data affect the CCI sectors in keeping pace with the digital transition? With the help of their networks and members, the partners lead an in-depth conversation with CCI sectors, reaching out to various experts. This intense knowledge exchange and joint effort to come to beneficial cross-sectoral solutions feeds into innovative business models. The data-driven workflow using intelligent tools and processes is demonstrated in an experimental environment: the innovative business model and workflow lab. The project's core objective is

to provide a sound body of knowledge to build data-driven business models across sectors. To this end, the project ensures an informed knowledge and experience exchange among stakeholders of different CCI sectors along the value chain for a data-driven business approach. *CCI Thrive* reaches out to sectors throughout the CCI and involves a range of relevant experts. To onboard solutions, the project negotiates with many pan-European CCI platforms, registers, databases, etc. The results consist of recommendations for the cross-sectoral use, sharing of data and tools providing the best sustainable support for the CCI, including micro companies and SMEs. *CCI Thrive* shows the value of cross-sectoral business models for the CCI that are innovative and viable along the value chain from pre-production to post-production, as well as distribution and marketing, to make excellent use of data and digital technologies to improve their business and competitiveness.

Partners: BGZ Berliner Gesellschaft für internationale Zusammenarbeit (DE), Ars Electronica (AT), IMZ International Music & Media Centre (AT), Spielfabrique (DE), Netherlands Institute for Sound and Vision (NL), Centrica (IT), Under the Milky Way (FR)

Funding scheme: Creative Europe

Duration: 1.5.2022 – 30.4.2024

Website: <https://cci-thrive.eu/>

CCI Thrive is co-funded by the Creative Europe Programme of the European Union.

STUDIOTOPIA

Art meets Science in the Anthropocene

International ambitions to stem the ecological crises we face are falling far short, with scientists arguing that many of the United Nations Sustainable Development Goals are on track for failure “because most SDGs have not adequately incorporated their interdependencies with other socio-economic factors.” It is in this setting that the artists and scientists participating in the *STUDIOTOPIA* Art & Science residency program have started their collaborations, in the hope that by working together and sharing their expertise they can help unravel these interdependencies, and further contribute to a mainstream understanding of the urgency of the crises that are intertwined with every aspect of our existence. *STUDIOTOPIA* seeks to subvert a pervasive anthropocentric understanding of the world that disconnects the cultural from the natural. It is with such dichotomies that we unconsciously,

and sadly sometimes consciously, absolve ourselves from the implications of our actions on the world we live in. *STUDIOTOPIA* explores how a sustainable existence necessitates that we recognize and understand that we are part of a vast interconnected system.

In the 13 residencies within *STUDIOTOPIA*, teams of artists and scientists are examining the oceans and the Arctic, time and space, AI and animals and beyond. Ars Electronica implements two of these residencies. In the first residency, artist Kat Austen hosts scientists Indrė Žliobaitė and Laurence Gill, who together are working on the project *Palaeoplasticene* featured in the exhibition. In the second residency, artist Maja Smrekar hosts scientist Jonas Jørgensen; they are collaborating on the work *!brute_force: Soft Resilience* that is also featured in the exhibition.

Partners: BOZAR (BE), GLUON (BE), Cluj Cultural Centre (RO), Laznia Centre for Contemporary Art (PL), Ars Electronica (AT), Onassis Stegi (EL), Vrije Universiteit Amsterdam (NL), LABoral Centro de Arte y Creación (ES)

Funding scheme: Creative Europe

Duration: 1.9.2019–30.08.2022

Website: <https://www.studiotopia.eu/>

STUDIOTOPIA is co-funded by the Creative Europe Programme of the European Union.



Palaeoplasticene: Kat Austen, Laurence Gill, Indrė Žliobaitė. Photo: Kat Austen

EUROPEAN MEDIA ART PLATFORM (EMAP)

The *European Media Art Platform* (EMAP), initiated by werkleitz and co-funded by Creative Europe since 2018, is a consortium of 15 leading European media art organizations specialized in Digital and Media Art, Bio Art and Robotic Art. The consortium includes several renowned festivals dealing with these interdisciplinary art forms. Through an open call, EMAP members offer practitioners two-month residencies built on the legacy of the *European Media Artist in Residence Exchange* (EMARE) which has existed since 1995. EMAP also acts as a marketplace for partners to select artists and works for their own festivals and exhibitions. In addition to produc-

tion support for artists, EMAP provides an international platform to promote and disseminate the work of media artists.

The residency is based on intercultural and interdisciplinary knowledge exchange between the selected artists, host organizations and various experts from science, arts and technology involved to consult, support or train the artists. Each member host provides an artist grant, travel expenses, production budget, paid accommodation during the residency and access to labs and facilities. Events include solo exhibitions and group shows, on- and offline conferences and capacity building workshops to share knowledge.

Partners: werkleitz Centre for Media Art (DE), Ars Electronica (AT), Antre Peaux (FR), FACT Liverpool (GB), gnration (PT), iMAL Art Center for Digital Cultures & Technology (BE), IMPAKT [Centre for Media Culture] (NL), Kersnikova (SI), KONTEJNER | bureau of contemporary art praxis (HR), LABoral Art and Industrial Creation Centre (ES), m-cult (FI), NeMe (CY), Onassis Stegi (EL), RIXC Centre for New Media Culture (LV), WRO Art Center (PL)

Funding scheme: Creative Europe

Duration: 1.2.2022–31.1.2025

Website: <https://emare.eu/>

EMAP is co-funded by the Creative Europe Programme of the European Union.

RESIDENCY

Organ of Radical Care: Una Matriz Colaborativa by Charlotte Jarvis, Dr. Patricia Saragüeta, Prof. Susana Chuva de Sousa Lopes

Exactly 500 submissions from 37 countries were received in response to the 2022 Open Call. 15 media artists or collectives were selected to complete their fully funded, two-month residencies at an EMAP partner organization. The residency at Ars Electronica goes to artist Charlotte Jarvis, Dr. Patricia Saragüeta and Prof. Susana Chuva de Sousa Lopes.

Organ of Radical Care: Una Matriz Colaborativa is using new science to grow a collaborative uterus from menstrual blood of multiple women, trans, and non-binary people. Furthermore, the project seeks to incorporate 'male' cells into the collective womb. The project will be realized through sculpture, poetry and video / audio installation.

Charlotte Jarvis is an artist working at the intersection of art and science whose projects have been shown in eleven international solo

exhibitions and over two hundred group exhibitions. Charlotte Jarvis' work has won the Bioart and Design Award and been published in the Leonardo Journal. She is currently a lecturer at the Royal College of Art in London. cjarvis.com

Dr. Patricia Saragüeta has a degree and doctorate in chemistry. She is a CONICET researcher and professor at the Department of Physiology and Molecular and Cellular Biology, Faculty of Exact and Natural Sciences, UBA. She is a scientist and artist interested in genomics, cell and molecular biology.

Prof. Susana Chuva de Sousa Lopes has a PhD from Utrecht University (Hubrecht Institute). For the past five years, her group at Leiden University Medical Centre has focused on research into the developmental trajectories of human organs and tissues.

Archaeobot, Anna Dumitriu, Alex May (GB) @ Vanessa Graf



Roots & Seeds XXI.

Biodiversity Crisis and Plant Resistance



Akyute, performance during Roots & Seeds XXI's Multidisciplinary Garden Cartography in Barcelona, 2021. Photograph by Quo Artis.

The sustainability discourse has largely played out in the domains of natural sciences and technology, with recent contributions from the social and political sciences. However, our individual and collective actions have lagged behind and the actual problems of sustainability have become worse in the same period. The *Roots & Seeds* project addresses this topic. *Roots & Seeds XXI. Biodiversity Crisis and Plant Resistance* is an international cooperation project between Ars Electronica (AT), Leonardo-OLATS (FR), University of Barcelona (ES) and Quo Artis (ES) as lead partner, and co-funded by the Creative Europe Programme of the European Union. With this project, we propose that we can get better action and behavioral commitments to sustainability by using art and science practices, approaches, techniques and aesthetics to develop passion and emotional connection for sustainable organizing and living.

The goal is to promote habits that take care of our environment and specifically our plants, contributing to our botanical literacy. *Roots & Seeds XXI* activities (residencies, workshops, forums, talks and exhibitions) serve the purpose of transnational circulation of cultural professionals, art production and research focused on the biodiversity crisis of the vegetal world. The project aims to reflect on the biodiversity emergency, analyzing from different perspectives the transformation, adaptation and resilience of the plants, while promoting the intersection of art and science as the main platform to raise awareness of these issues.

The project finished its open call in spring 2021, with Marit Miklepp being awarded the residency grant, and Posthuman Studies Lab and Laura Cinti receiving production awards. The resulting works are shown in this year's theme-based exhibition.

Partners: Quo Artis (ES), Ars Electronica (AT), Leonardo OLATS (FR)

Funding scheme: Creative Europe

Duration: 1.10.2020–30.9.2022

Website: <https://rootsandseedsxxi.eu/>

Roots and Seeds XXI is co-funded by the Creative Europe Programme of the European Union.

Beyond Quantum Music

Beyond Quantum Music is a direct continuation and expansion of the original *Quantum Music* project, co-funded by Creative Europe, which began in August 2015 and was successfully completed in May 2018. This highly original and innovative project managed to push boundaries and bring together the distant worlds of music and quantum physics.

The project leader, the Institute of Musicology of the Serbian Academy of Sciences and Arts, has formed a new consortium of partners and associate partners from Austria, The Netherlands, Serbia and Germany, with the purpose of broadening and developing production, educational and artistic aspects of the pilot project (not only with respect to music, but also to visual and

digital arts). The primary goal of the new consortium is audience development, predominantly in the four partner countries, but also in the broader European context. The secondary goal is establishing a network of organizations and individuals that would continue to perform and promote connections between quantum physics and art, thus securing the long-term sustainability of the project. All partners have previously collaborated on different occasions, and people from Today'sArt and Incontri Institute in Hannover have participated in the first Quantum Music conference in Belgrade. At this year's festival, Arash Akbari and LP Duo will be performing their compositions created in the context of the *Beyond Quantum Music* project.

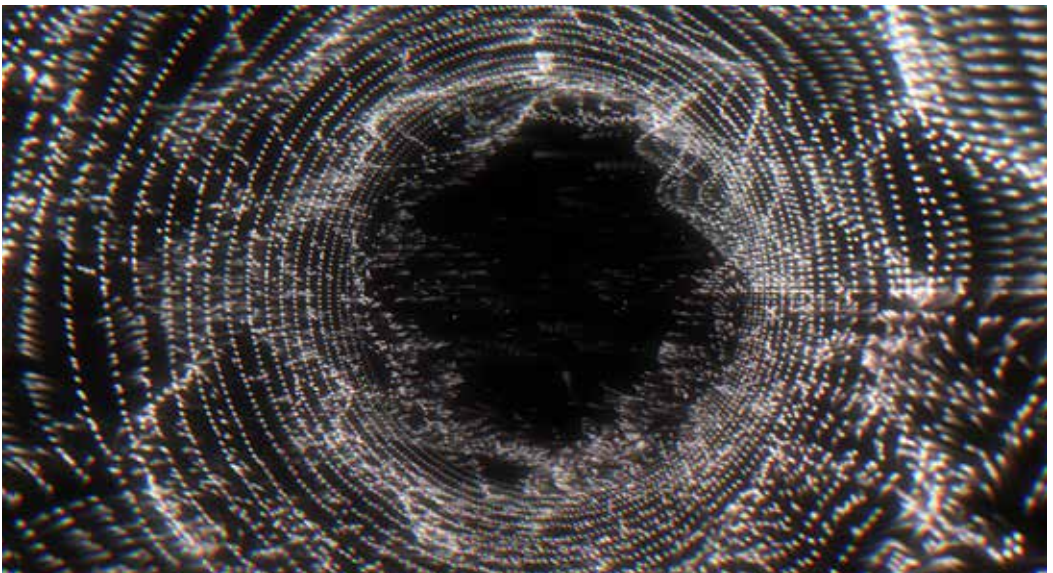
Partners: Institute of Musicology SASA (RS), New Art Center Belgrade (RS), Ars Electronica (AT), Today'sArt (NL), Institut Incontri, Hochschule für Musik, Theater und Medien (DE)

Funding Scheme: Creative Europe

Duration: 1.10.2019–30.9.2022

Website: <http://quantummusic.org/>

Beyond Quantum Music is co-funded by Creative Europe Programme of the European Union.



Entangled © Arash Akbari

More-than-Planet

In a world where 75 percent of the planet's land surface is experiencing measurable human pressure, the way people imagine the planet substantially impacts the environment itself. Such environmental imaginaries are constructed by several underlying concepts, value systems, visual cultures and technologies used for portraying the Earth's environment. However, these technologies are neither neutral nor inclusive of society. The *More-than-Planet* project finds an urgency to re-examine the way people understand and picture the environment on the level of the planet as a conceptual whole.

In a collaboration between artists, critical thinkers, and various experts from cultural, environmental, and outer space institutions, the project will address the crisis of the planet in the way it is imagined by its inhabitants.

In general, this project, led by the Dutch Waag foundation and co-funded by the Creative Europe Programme of the European Union, builds on decades of individual efforts by many artists, scientists, and cultural organizations who enabled artistic production in the context of outer space, with space technologies, or even in outer space itself.

Partners: Waag (NL), Ars Electronica (AT), Digital Art International (FR), Leonardo OLATS (FR), Project Atol (SI), The Northern Photographic Centre (FI)

Funding scheme: Creative Europe

Duration: 1.6.2022–31.5.2025

Website: <https://waag.org/en/project/more-planet/>

More-than-Planet is co-funded by the Creative Europe Programme of the European Union.



Opening More than Planet @ Old Observatory Leiden, © Pim Rusch

ACuTe

Adaptable Culture Testbeds for Interactivity, Performance and Technology

Adaptable Culture Testbeds for Interactivity, Performance and Technology (ACuTe) is an international cooperation project between Ars Electronica (AT) and thirteen partner institutions from eight European countries. Many theatres, among them the Landestheater Linz, partner in this project that aims to make the stage arts sector fit for the digital age. *ACuTe* aims to revolutionize the way theatre and performing arts are produced and performed with emerging technology and new forms of cultural collaboration and competence development.

The performing arts sector must adapt to make effective use of new technologies such as machine learning and augmented reality, especially in response to a post-COVID-19 recovery. So far, few interdisciplinary models exist that allow for organizations involved in performing arts (such as theatre, dance, music) to undertake long-term innovative cross-sectoral testing of new technologies and apply them to performance production methodologies.

With an interdisciplinary approach integrating digital technology and co-creation methodologies, a new type of ‘culture testbed’ is created. These testbeds lead to the testing and tangible prototyping of new technologies within performing arts productions under three themes: new dramaturgies, stage design and audience engagement – innovations on how we tell stories on stage, how they are produced, and the way audiences interact and engage with them. A series of nine separate experimental theatre productions is designed, produced and performed as the core of the testbed outputs.

Other activities include a series of Experts in Residencies to support prototyping, European level knowledge transfer events, online content for professional communities, training workshops and online and face-to-face activities offered with the partnering institutions focusing on developing professional capacity in the deep integration of technology in the long-term theatre production process.

Partners: Oulu University of Applied Sciences (FI), Ars Electronica (AT), European Theatre Convention (DE), Centro Azkuna de Ocio y Cultura (ES), Estonian Academy of Arts (EE), Stichting Saxion (NL), Théâtre de Liège (BE), Landestheater Linz (AT), De Toneelmakerij (NL), Slovensko narodno gledališče Nova Gorica (SI), Det Norske Teatret (NO), Schauspielhaus Graz (AT), Teatrul Național "Marin Sorescu" (RU), Stadt Dortmund (DE)

Funding scheme: Creative Europe

Duration: 1.7.2022–30.6.2026

ACuTe is co-funded by the Creative Europe Programme of the European Union.

STEAM Inc.

STEAM thinking is a process that promotes collaboration between the Arts, Science, Technology, Engineering and Math. Its direct relation, STEM thinking (prioritizing Science, Technology, Engineering and Math only), has typically been understood as a way of delivering the skills required for high-tech, high-value jobs, and so seen as critical to economic prosperity. Increasingly, this position has been expanded to incorporate the benefits that “artistic” practice can provide. In particular, approaches that favor clear application of creativity and imagination to more typically understood STEM skills such as numeracy and analysis are considered to be routes to deeper insight and more transformative innovation. Obviously, what constitutes creativity and imagination is a potentially contentious point, but an outlook that focuses on the areas of intersection between the arts and the sciences leads to certain tangible benefits, including: techniques for collaborating across disciplines; the ability to consider varied perspectives; and the identification of points of common ground between seemingly unrelated areas of thought. The resulting competencies are interdisciplinary in nature and, in a higher educational setting, find expression in courses such as design engineering, digital arts and data visualization.

The *STEAM Inc.* project seeks to address this, and the rising importance of STEAM in higher education, by way of three objectives: The first is to identify points of intersection across current European higher education approaches to STEAM and develop a collaborative definition of higher education STEAM. The second objective is to produce methodologies for implementing STEAM thinking in HE education, policy and engagement.



STEAM / STEAMhouse, Birmingham City University

© STEAMhouse



STEAM / STEAMhouse, Birmingham City University

© STEAMhouse



STEAM / STEAMhouse, Birmingham City University

© STEAMhouse

The final objective of the project is to create an evaluation framework for measuring the effectiveness of STEAM processes in HEIs and HE partner organizations.

Partners: Birmingham City University (GB), Ars Electronica (AT), Trinity College Dublin (IE), University of Arts London: Central Saint Martins (GB), Aalto University (FI), Technical University Dresden (DE), University of Amsterdam (NL)

Funding Scheme: Erasmus+

Duration: 1.10.2019–30.1.2023

Website: <https://www.steaminnovation.org/>

STEAM Inc. has been funded with the support of the European Union and the Erasmus+ Programme.

WeSTEAM

WeSTEAM – Empowering Women in STEM through Art

Despite the great efforts made by European policies and projects, as well as by policies and projects at national and local level to counteract this situation, it is estimated that the participation rate of women compared to men in the field of information and communication technology is significantly lower. The STEAM (Science – Technology – Engineering – Art – Math) approach may therefore be a key strategy to make STEM courses more attractive for women by including Art in the field. Therefore, the *WeSTEAM* project aims at developing, testing and disseminating a methodology based on the STEAM approach to enhance the art thinking skills of female students engaged in STEM careers. The goals are to empower women STEM students in order to increase their chances of employment in high level positions in the ICT labor market once they graduate on the one hand, and to increase the attractiveness of STEM courses for women on the other.

The specific objectives of the *WeSTEAM* project are to:

- design and disseminate a reference framework for assessing women STEM students’ art thinking capacity. This allows students to gain awareness about the skills they need to enhance in order to complement their curricula according to the STEAM approach,
- design and disseminate a training methodology to be used by STEM educators in their teaching activities or by students themselves to enhance, through a set of training tools, their art thinking capacity,

- design and disseminate a VR-based educational game for enhancing art thinking capacity in women STEM students in an interactive and attractive way,
- create a certification system, in line with national and EU qualification frameworks, for recognition and certification of art thinking skills. This allows female STEM students to prove their skills and communicate them when applying for further learning or employment across Europe.



WeSTEAM Meeting in Bologna @ Sineglossa

Partners: Lulea Tekniska Universitet (SE), Ars Electronica (AT), Changemaker Educations (SE), Espronceda (ES), Sineglossa (IT)

Funding scheme: Erasmus+

Duration: 1.1.2022–1.1.2024

WeSTEAM is co-funded by the Erasmus+ Programme of the European Union.

Creative School

The Covid-19 pandemic followed a global economic downturn that already had a damaging impact on youth and adult populations throughout Europe. The rise in unemployment and a lack of opportunities to develop and improve the skills of its citizens has been a major concern for the EU. The EU 2020 Strategy acknowledges that education and training help tackle these challenges, and the cultural sector is proving to be one of the key players in new forms of vocational tourism that could have a major impact on the economy of the European countries.

The *Creative School* is an Erasmus+ project that aims to use the creative and innovative methods and tools developed within the cultural sector and apply them to developing learning modules for children and schoolteachers. Changes in society

and technology have reshaped the way people access and use cultural information as well as share and collaborate in participatory platforms. In response, the project also explores the possible mobilization of digital cultural heritage and engagement with models of maker spaces as tools for creating unusual and exciting learning opportunities.

Here maker spaces are intended as community-operated workspaces, where people with common interests in technology, science, heritage and art can meet, socialize and collaborate. Within the *Creative School* project, Ars Electronica is developing an open educational resource for schoolteachers that features lesson plans introducing concepts and issues around artificial intelligence.

Partners: Dedale (FR), Ars Electronica (AT), Cap Sciences (FR), Michael Culture Association (BE), STePS (IT), Radiona Makerspace (HR), Heretic (GB), Chester Beatty Library (Ireland), Finnish Museums Association (FI)

Funding Scheme: Erasmus+

Duration: 1.9.2019–31.8.2022

Website: <http://www.creative-school.eu/>

Creative School has been funded with the support of the European Union and the French National Agency for the Erasmus+ Programme.



Creative School Urban Walks. Photo: Michael Culture Association

OSHub

Open Science Hub Network

The *Open Science Hub Network (OSHub.Network)* supports schools and local stakeholders to use research and innovation as a tool for tackling local challenges and contributing to sustainable community development. Local OS Hubs work as mediators in each local community, positioning schools as active agents for collaboration between families, universities, research institutes, industry, enterprises, media, local governments, civil society organizations, and wider society, by engaging in real-life projects that meet societal needs. Across the different OS Hub locations, schools and their communities identify local relevant challenges, linked to the Sustainable Development Goals, which are then combined in shared global Open Schooling Missions, enabling real collaboration across communities. In each OS Hub location, Open Schooling Missions are transformed

into relevant research and innovation projects, led by students and teachers, in collaboration with local stakeholders. By supporting local schools and communities with the tools and network to tackle relevant challenges, *OSHub.Network* aims to create local impact while simultaneously promoting an active global citizenship attitude, thus contributing to community development, innovation and well-being. The *OSHub Create Your World* at Ars Electronica is focused on creating an experimental space where young people can encounter new ideas and design new possibilities. It has been focused on developing and implementing a *create your world TOUR*, a workshop program that is offered at various schools across Austria, bringing the contents and ideas of the Ars Electronica platform *u19—create your world—* into everyday school life.

Partners: University Leiden (NL), Ars Electronica (AT), Trinity College Dublin (IE), Impact Hub Siracusa (IT), La Casemate (FR), Onl'Fait (CH), SCIENCE IN (CZ), Município de Figueira de Castelo Rodrigo (PT), SciCo (EL)

Funding Scheme: Horizon 2020

Duration: 1.10.2019–30.9.2022

Website: <https://oshub.network/>

The *OSHub* project has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under grant agreement No 824581.



OSHub create your world TOUR. Photo: Andrew Newman

Realities in Transition

Extended Reality scenarios (XR) such as Augmented & Virtual Realities, Metaverse, etc., have gained greater and greater significance in the last years and raise serious social and cultural issues. The *Realities in Transition* project aims at addressing these by thinking and promoting a common, open and sustainable XR, at the European level. To do so, an active, thinking XR community needs to be summoned and activated. The project aims to achieve this by aggregating existing XR creative and activist initiatives and communities, by capacitating cultural actors and creators towards XR as a sustainable and inclusive common good, and by supporting alternative XR creation to experiment and promote new narratives and creative processes.

Realities in Transition implements four main types of activities. The project engages local creative communities around XR, explores and promotes XR as a sustainable common good, aggregates a

sustainable European XR Community, and hopes to capitalize on the project outcomes. This is carried out using methodologies in line with the values driven by the concept of commons such as horizontality, open-sourcing, and peer-to-peer learning.

The seven members of the consortium headed by the French partner *Seconde Nature* energize the European XR community composed of contributors and beneficiaries from diverse sectors at various levels of involvement. Among them are the cultural and creative sector as well as students and academia, the economic sector, and government and policy makers just as much as civil society. In this way, *Realities in Transition* contributes to a general recognition of the necessity of a common, open and sustainable XR, the empowerment of CCS professionals, and improved access to sustainable alternative XR scenarios for the general audience.

Partners: Seconde Nature (FR), L.E.V. Festival (ES), Kontejner (HR), Black Euphoria (FR), Ars Electronica (AT), iMAL (BE), V2_Lab (NL)

Funding Scheme: Creative Europe

Duration: 1.6.2022–31.1.2025

Realities in Transition is co-funded by the Creative Europe Programme of the European Union.

CAMPUS

CAMPUS Exhibitions @ Ars Electronica

Every year since 2002, Ars Electronica and the University of Art and Design Linz have hosted an exhibition by artists associated with an international higher-education institution whose curriculum takes an innovative approach to teaching media art and media culture. The intention of the Campus format is to invite outstanding international universities working in the academic fields of media arts and design.

Projects highlighted here represent the nature of the mission and activities of invited guest universities from all around the world. These showcases became an essential part of the festival and an instrument to analyze and visualize different models of educational approaches in artistic and creative areas.

It has also increasingly developed into a stage for contextualized works from alumni, professors or associates from the universities to map the identity of academic institutions, their history and current practice.

Part of Campus' mission is to enable the presentation of young, local media artists and their work with international exposure.

The Interface Cultures program of the University of Art and Design Linz annually presents a cross-section from their masterclass works and, together with Ars Electronica, co-hosts one main featured partner university each year. *Von schwarzen Schwänen...* is the title of this year's contribution from the University of Art and Design in Linz, a metaphor alluding to the plural of various unthinkable things that are intertwined in their improbability, while referring to something we

are not prepared for. The exhibition of Interface Cultures, *Crossing the Bridge* leaves their own premises and conceptually and physically crosses the bridge, to present the selected works right at the center of the Kepler's Gardens at the JKU Campus.

While in 2020, many of the Campus partners became Ars Electronica Garden Partners, inviting the festival audiences on a virtual and physical journey through networked biotopes and ecosystems, in which the students from all over the world are working to develop and shape our future, this year, the alliances and new forms of cooperations that have been built, can be explored again in Linz.

More than 25 international academic institutions are joining us again, to present the outcomes of the past two years, full of experimental approaches and prototypes, thus the *Campus* program once again represents an essential, defining element of the entire festival. The local art university with its departments and institutes will function as a venue for the exchange of international perspectives while creating an extensive presentation of their own departments.

The festival is increasingly also becoming a platform for artistic and creative collaborations between Ars Electronica and the various regional, academic partners, for example the Fashion & Technology or the Time-Based and Interactive Media Art program at the University of Art and Design Linz, the Anton Bruckner Private University Upper Austria or the University of Applied Science Upper Austria, Campus Hagenberg.

The international exchange between universities, leading to increasing collaboration between academic partners brings 29 universities and institutions from many parts of the world to present their projects in Linz:

University of Art and Design Linz, Design and Technology; Fashion and Technology; Interface Cultures; Media Design; Time-Based and Interactive Media Art; PhD Study
Aalto University School of Arts, Design and Architecture
Anton Bruckner Private University Linz
Arizona State University, Leonardo ISAST
ArTeC Graduate School of Research
Bauhaus University, Weimar
Birmingham City University, School of Architecture and Design
BINUS University School of Design Jakarta
Brno University of Technology, Faculty of Electrical Engineering and Communication
Korea National University of Arts | K-ARTS
Masaryk University, Faculty of Arts
Musrara the Nagggar School of Art and Society
National Tsing Hua University (NTHU), Taiwan, Center for Technology and Art
National University of Theatre and Film Bucharest, CINETic
School of the Art Institute of Chicago, Art & Technology Studies Department
Technical University Berlin (TU)
The University of Tokyo, Yasuaki Kakehi Lab
Universidad Austral de Chile
University College London, Bartlett School of Architecture
University of Applied Sciences Berlin, School of Culture and Design, Department of Communication Design
University of Applied Sciences Upper Austria
University of Auckland, arc/sec Lab
University of Innsbruck, Studio2
University of Nova Gorica School of Arts
University of the Arts Berlin (UdK)
University of the Arts London, College of Communication
University of the Bahamas
Victoria University of Wellington, Digital Architecture Research Alliance
Vilnius Academy of Arts, MENE, INSTITUTIO MEDIA
Vorarlberg University of Applied Sciences, Faculty of Design

University of Art and Design Linz (AT)

Von Schwarzen Schwänen . . .

When I try to find an image for our world, I fail because of reality. However, it is not due to a lack of images, because they are surrounding us en masse and with forcefulness; they not only depict our reality but also illustrate our apparent desires. To escape from predefining and predefined images of the world seems impossible, making it difficult to make up one's own mind about the world.

The need for us to see our world differently, to think it anew, also means that we must suppress any imagery that does not correspond with our notion of world-creating faculty, we must try to think the impossible. However, how can we think the impossible, envision the inconceivable?

Von schwarzen Schwänen ... is this year's title for the University of Art and Design Linz contributions to Ars Electronica Festival 2022. "Schwarze Schwäne" (black swans) are a metaphor alluding, especially in the plural, to the plural of various unthinkableables that are intertwined in their improbability, hinting at something we are not prepared for. The black swan, allegedly discovered by a pair of Dutch explorers in Australia and known

as the mourning swan, represents an exceptional phenomenon because of its low numbers worldwide. For a long time, it was unthinkable that swans could be black at all, just as we are unsure today whether pink doves¹ exist. However, they do exist, these seemingly unthinkable moments and phenomena, and the SARS-CoV-2 virus, which takes far too long to bring under control, is probably one of them. But long before the world recognized and defined the novel disease, the Black Swan metaphor was already on everyone's lips, especially financial economists and crisis managers. Financial crisis and risk management, wealth accumulation and the profit motive of a neoliberal society have embraced the Black Swan metaphor and feverishly solidified this embrace as a symbol of fear of loss due to unpredictability and the sheer impossibility of accurate prediction – whether COVID-19, wars or climate crisis.

However, when we at the University of Art and Design Linz speak of *Von schwarzen Schwänen ...* – including the use of the German language and the three ellipsis points – it is an indication that we would like to indulge in the thought

experiment of envisioning the impossible in the most open way possible. Our approach is bold, offensive and self-determined. It is meant to inspire others to do the same.

The metaphor of the black swan stands for a feminist way of thinking, stands for cooperation and cohesion, for a common questioning of current images of our world, which includes every kind of minority and reacts sensitively to discriminatory world views. It is no coincidence that this shared visioning of the unthinkable emanates especially from young people at the Campus of the University of Art and Design Linz for the Ars Electronica Festival. The fact that in particular

the University's campus is growing under the motto of envisioning the unthinkable due to the first-time participation of nearly two dozen universities is something very special. And in the spirit of Hannah Arendt, it should be said that artists believe in the world in their own way and understand the world-creating power of images, because they cannot afford to be alienated from the world. "In the transference, in the sensual quality of the metaphor, in other words, in the 'use of the animate for the inanimate' (Aristotle), the (totalitarian danger) of the detachment of thought from reality and experience is undone." (Freely translated after Marie Luise Knott).

Manuela Naveau

Initiator and Curator of University of Art and Design Linz Campus @
Ars Electronica Festival and Professor of Critical Data at the Interface Cultures
Department of the University of Art and Design Linz.¹

¹I would like to express my sincere thanks here for the conversation with colleagues and PhD students, with special thanks to Yann Patrick Martins, who gave me this wonderful recommendation: <https://www.youtube.com/watch?v=CHBbFHhpku4>

TIME-BASED AND INTERACTIVE MEDIA ART

Emilia Vogt (DE)

KlangKontakt

© Emilia Vogt



Physical touch as a powerful emotional connector made audible. The performance and sound installation is about generating sound by touching another human. By touching each other, the circuit is closed, and different filters are triggered. Receiving physical signs of affection is a strong and wholesome language in our communication. To make it more perceptible, every touch is a sound.

Lisa Studener (AT)

Krisenherd

© Lisa Studener



Krisenherd, which translates as “trouble spot”, examines both large and smaller problems that beset the western world, reacting to them with lightness and a certain charm. The digital illustrations come alive through the app *Artivive* and show short, frame-by-frame animations.

Axel Bräuer (AT)

Virtual Tablesoccer

© Axel Bräuer



A touchscreen single-player/multi-player table soccer game for android smartphones and tablets.

Leon DeHaas (NL)

Downside Up

© Leon DeHaas



In an age of excessive information and therefore also misinformation, it's all too easy to take a cynical view on life. Visualizing this cynical world that we live in hopefully opens up the conversation for a more optimistic one.

Verena Steininger (AT)

Touching

© Verena Steininger

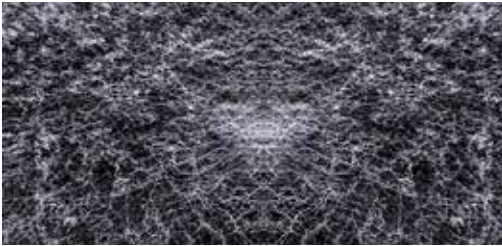


Touch the artist through touching the clay and listen to the sounds produced in emotional situations, just like the clay figures. To touch someone is intimate and the artist invites you to explore this sensation.

Janik Valler (DE)

Holofreq

© Janik Valler



The audio-visual installation *Holofreq* is an analysis of synthetic sounds as well as heavily processed field recordings, which generate graphical textures, noises and displacements.

Diana Bohutska (PL)

Utopia

© Diana Bohutska



Societies are still not homogeneous. They contain a range of desires that are in conflict with one another and can never be satisfied simultaneously. *Utopia* is a VRworld with a community that possesses highly desirable or nearly perfect qualities for its members. Through conscious usage of sources, deep understanding of connections arises: __ humans__ live forms__ nature__ signals__ The utopia of the future offers a way of thinking about the present.

Joann Lee (KR)

Your(Self)Portrait

© Joann Lee

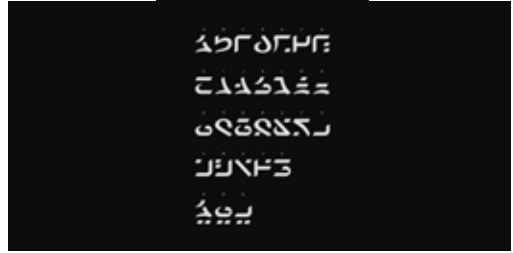


The project *Your(Self)Portrait* was inspired by an old story called *Butades* or *Origin of Painting*. The artist reconstructed the roles in the story into an interactive installation using a Kinect sensor. In this artwork users can experience audiences, models and painters by drawing themselves with their own gestures.

Tolga Karaslaan (AT)

Alphabet

Driven by a desire to create connections between cultures, the artist developed a universal alphabet with influences from existing alphabets and pictographic writings from around the world. Stylistically, his work is inspired by Arabic and Asian calligraphy. In this installation, visitors are able to use this animated alphabet, then take their text home with them.



© Tolga Karaslaan

Chiara Estella Wernbacher (AT)

SMD22

SMD22 is a VR installation that allows viewers to immerse themselves in the world we are exposed to every day on social media. It is a critique of the abundance of information and stimuli and the associated problems with social media.



© Chiara Estella Wernbacher

Chiara Estella Wernbacher (AT)

MIS|FORTUNE

Good and evil always co-exist. The fine line between happiness and unhappiness runs through our entire existence. One second can change everything. In this installation, the artist merges animations and thus fortune and misfortune.

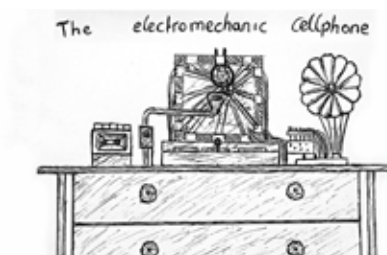


© Chiara Estella Wernbacher

Simon Lukas Haunschmid (AT)

The Electromechanic Cellphone

Being some sort of design study in its own right, the artwork represents an early 2000's vintage mobile phone with every part of its main functions, like, for example the ringtone executed by old, analogue machinery and devices.



© Simon Lukas Haunschmid

Michael Burgstaller (AT)

Virtual Gallery

Aiming to address questions about creativity and artistic authorship in times of digitally mass-produced art, this virtual gallery displays images and videos generated with multiple open-source GANs and other algorithms using descriptive commands and visual prompts.



© Michael Burgstaller

Daniel Haas (AT)

VRA peek

VRA_peek is an audio-visual performance that creates sound exclusively out of images. The performer uses code to produce images, which are converted in real time into a stream of audio-data, creating a totally in-sync audio-visual experience. A squared screen projection shows the current visual information, being also the source of the audible audio. The images contain mostly simple elements, like stripes, gradients or circles, which then can be distorted by or mixed with noise. This way the character of the performance ranges from long-drawn, slow moving sinewave



© Daniel Haas

harmonics and sharp concrete square waves to complex evolving rhythmical structures as a result of hectic stroboscopic shape-shifting.

Carlotta Borchering (DE)

UP&DOWN

UP&DOWN is an interactive work where the users of the interface, a swing, experience an emotional journey through a digital space. By swinging, the user triggers and displays information that eventually leads to emotional abuse and the phenomenon of information overload. The work thereby visualizes and criticizes the concept of systematic manipulation that is used daily by social media platforms.



© Carlotta Borchering

Alberte Spork (DK)

Future Fossil

Future Fossil is a mixed reality sculpture that explores the relationship between materials, knowledge and time. The stone, a long-lasting medium, contrasts with the virtual element which is only visible in an augmented reality space.

Additionally, the stone is a fragment of the sculpture crossing into the physical space just as fossils are fragments of other times leaking into the present.



© Alberte Spork

TIME-BASED MEDIA

Simon Hehl (DE)

JOY_N

© Simon Hehl



JOY_N is an interactive, ephemeral artwork, an invitation to create new compositions of moving images in a joyful way. *JOY_N* (de)connects people, searches for ghosts and engenders new encounters. *JOY_N* remembers you, then forgets about you. *JOY_N* is a chance to temporarily explore an alternative perception of time.

Mentoring: Holunder Manuel Heiß

Gabriella Vincze-Baba (HU), Laura Sophie Meyer (DE)

audio-visual poems

© Gabriella Vincze-Baba, Laura Sophie Meyer



The installation searches images for metaphorical elements, poetic texts for keywords, and reassembles them. The audio-visual collage, image and text collaborate, let's ephemeral connections appear and new contexts emerge. Image, text and sound layers refer to primal human instincts and explore the ideal of fully describing feelings in different media.

Clarissa Cohausz (DE)

mirror phase

© Clarissa Cohausz



A reflection on what the artist describes as her own narcissism, with footage she had already collected on her phone over a period of time.

Jakob Steininger (AT)

business as usual

© Jakob Steininger



The modern human's self-image of being something separate from nature creates the field of tension in which the climate and ecological crisis can turn from an existential threat into a peripheral matter. The photograph addresses this separation concisely and at the same time emphasizes the inseparable connection with our environment.

Stefanie Bergwinkl (DE)
canyouseeme?

© Stefanie Bergwinkl



How does intimacy arise and what does it do to the viewer? Which parts of me, of my body, do I want to hide, and which do I want to show? An (inner) dialogue frames self-recorded smartphone clips of body parts, in an attempt to resolve these questions.

Sanaz Rafii (IR)
Vital Impulse (Edition 4)

© Sanaz Rafii



Inspired by Henri Bergson's book titled *Time and Free Will*, the artist started the project in 2017, exploring and visualizing time and duration. With each edition she focused on a different topic, such as beauty or the rhythm of people in different countries. Edition 4 combines videos from Iran and Austria. The video has the same duration as the opening hours of the exhibition space, so that no scene is repeated.

WMD Collective
Aesthetic Archeology

© WMD Collective



Aesthetic Archeology is a video series that combines an investigation of aesthetic processes of art with artificial intelligence-generated imagery. Beginning with the earliest prehistoric art and continuing through postmodern art, the artists have systematically analyzed elements of aesthetics, using images that represent its characteristics to train deep learning models and generate new images. The artists combine AI-generated images from historical archives with computer-generated content conceived through systematic analysis in a virtual space.

Verena Mayrhofer (AT)
float

© Verena Mayrhofer



Lenticular printing makes it possible to achieve a tilting effect by means of half-images. For two or more images to alternate during movement, the lenticular sheets are glued to the image. Through a deliberate irregularity in the manual processing of machine-made components, such as foils and prints, optical streaks, grey areas and organic patterns are created as the individual images tilt from positive to negative. Despite the reduced graphics of black and white stripes, the respective body size and position of the viewers, a single moving image emerges.

Yinglin Zhou (CN)

Verbuchstabieren Trilogy

© Yinglin Zhou



Verbuchstabieren is an autobiographical project researching linguistics and identity, based on the artist's multiple understandings of video and film. The artist examines issues such as linguistics, cultural power in inter-cultural communication and the passivity of non-dominant cultures. The concept takes the thread of these issues, namely how an Asian female loses continuity of cultural identity in the process of East-West cultural exchange. This loss occurs first at the linguistic and textual level, then at the cultural and philosophical level. The three films set out to reflect these lingering cultural hegemonies of globalization, and geopolitical injustices, too.

Jaime Ibanez (NL)

Kleine Ängste

© Jaime Ibanez



While the protagonist is seemingly unaffected, he betrays inner angst by being represented as moving around a range of everyday objects. The video portrays an obscure inner world of anxieties.

DESIGN AND TECHNOLOGY

Crafting Futures Lab



For the second time we open the *Crafting Futures Lab* to the public, seeking to interact through showcasing current developments and previewing future investigations and collaborations. Active questioning, learning and collaboration build the core of the Lab and define this year's

instalment: we focus on participatory formats, toolkit design and work-in-progress documentation to provide a platform for student work, research investigations and creative practices. Visitors are invited to collaborate and contribute to the discussion of the social, cultural and aesthetic impacts of work on show, at the nexus of material inquiry, tool intervention, and innovative pedagogies.

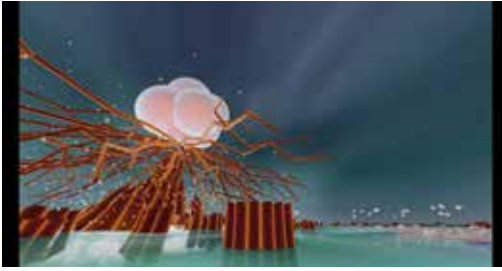
Concept: Monja Hirscher, Irene Posch / Contributors: Robert Angerer, Lisa Benedikt, Anna Berger, Stephanie Ehreneckner, Lisa Hametner, Monja Hirscher, Lilo Viehweg, and others. / Department: Design and Technology, Institute for Art and Education
www.craftingfutures.net

MEDIA DESIGN

Jana Simbürger (DE)

ORRO

© Jana Simbürger



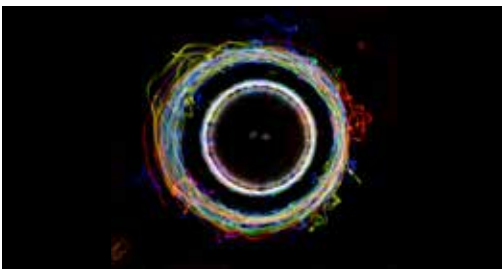
The digital and analogue worlds do not have to be considered separately, because what connects us to these worlds are our emotions and our bodies. This work was created out of the desire to enable people to experience a form of self-compassion through the digital world of *ORRO* and to start the journey from the digital to the analogue — to the self — in a way that is autonomous. Thus *ORRO* is an audio-visual journey for dreams and stories as well as relaxing music and binaural sound.

Lisa Maier (AT)

Beat by Beat It Gets Brighter

The digital work combines various 360° photographs/light-painting and video recordings of Austrian folk dances. With her work, she aims to link folk culture with contemporary digital art. Through the depersonification and the reduction to the line of movement with light, she enables a new approach to these often prejudiced or outdated topics, enabling folk dance to be experienced in a new way.

© Lisa Maier



Melanie Steinhuber (AT)

Garbage collector



© Melanie Steinhuber

Garbage Collector is the result of a week-long collection of everyday household trash. An abstract image consisting of numerous waste materials represents a place in nature that holds special meaning for the artist. The garbage contrasts with the pristine landscape that was once there. Using the rubbish in both image and sound by recording more than 40 different samples of garbage goes back to the roots of sampling. The union of the auditory and visual collage awakens personal memories of that place. For viewers who may be unfamiliar with the place, the impulses transmitted can nevertheless provide a recognizable feeling. To do justice to the environmentally friendly nature of the work, only existing materials were used.

Jennifer Eder (AT)

Bad Trip

Bad Trip is an animated music video for the band *Bad Karma Club*. Caught in the loop. Alone. Different from back then. When we wanted to conquer the world. Summer days made us feel invincible. I go out. Deforming. Reignite anew.

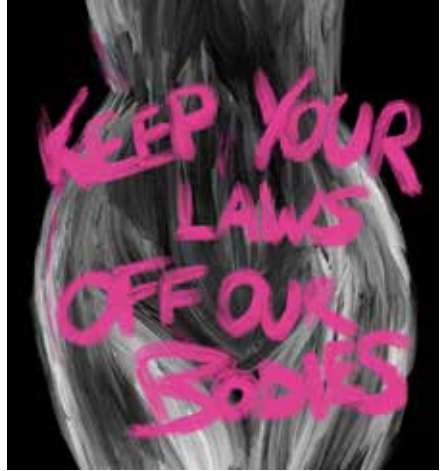


© Jennifer Eder

Shari Keplinger (AT)

Off our bodies

Off our bodies is an animated digital drawing about a pro-choice protest. It aims to stimulate reflection and discourse and shows the artist's personal approach to the issue of abortion. The animation itself also displays the trial and error of the drawing. In retrospect these are struggles that women have to endure repeatedly regarding their bodies and the issue of choice over it. The title is a word game; it can be a request or unfinished sentence, intended to show the concept of consent.



© Shari Keplinger

Shari Keplinger (AT)

Three things

Every morning for a few weeks the artist wrote down three things she was thankful for. On top of her writing, she drew a sketch of something that was inspiring, motivating or encouraging for her as well. Through that experiment becoming a habit, she forced herself to be more focused and aware of the positive aspects of life. The artwork can be seen as a request for visitors to write and draw their *Three Things* of the day.



© Shari Keplinger

Anja Haidecker (AT)

post process of a journey

A computer program reads an analogue photograph and translates it into sound. This sound serves as the base for the reconstruction of the original image, which is drawn by calculating the maximum amplitudes of all frequencies. Due to the algorithms used, the result of this medial transformation process is merely a shadowy image. *Post process of a journey* refers to the journey from analogue to digital, from image to sound and sound to image.



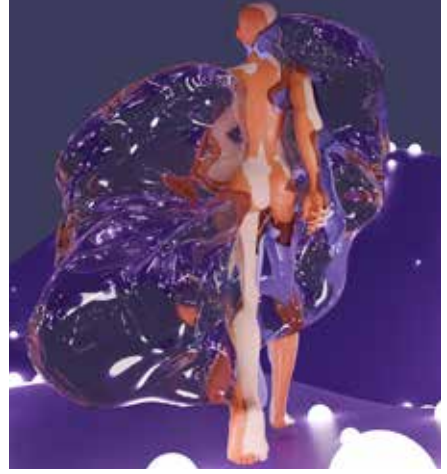
© Anja Haidecker

FASHION AND TECHNOLOGY

Tania Pérez Hernández (ES)

The Essence

“From the center, the path of many people around obstructs me, until the city blurs and the exit disappears. Each being is in a hurry and its essence occupies the empty space. An essence as voluminous as any individual being and as filled as a pillow, which cannot be seen by the eye. What do I feel? The essence of these beings, represented as a smoothly flowing constellation of particles, all uneven, and my intention: to follow my path and pass through them.”



© Tania Pérez Hernández

Gabriel Schlesinger (AT)

No Fats, No Femmes, No Asians

Identities are neither fixed nor singular and negotiated every time we interact socially. Fashion is a major tool for these negotiations both on- and offline and while there can be no identities without an Other, the way we claim them, using shame to either deny or attest virtue, determines the resulting power distribution. Searching for a way to construct identity without reproducing power inequalities, the work uses algorithms to dissolve the power-toxic narrative “A FAT, FEMME ASIAN”, transforming it into digital shapes and graphics, which build the foundation of the outfits. This dissolution and transformation are mirrored materially by reusing second-hand clothes.



© Gabriel Schlesinger

Katharina Halusa (AT)

Braided Textiles

Braided Textiles explores textile braiding as an alternative material for accessories and apparel. An innovative production process on the radial braiding machine re-modernizes the braiding craft with a robotic and machine-assisted process. The aim of *Braided Textiles* is to use this process to generate a new type of three-dimensional textile for application in fashion and sustainably to open up new aesthetic, physiological and functional perspectives in fashion design and, beyond that, in the production of clothing.



© Katharina Halusa

PhD Study

Charleen Elberskirch (DE) 43-02-180

This work experimentally explores the potentials of ready-to-hand 3D-scanning tools for the digitization of (actual) clothing.

Building on this, the possibilities of digital design environments for the reverse engineering of garments are investigated.

43-02-180 is one product of an ongoing practice-oriented research project (PhD) that focuses on the question of how fashion remanufacturing can be designed sustainably and effectively with the help of digital technologies. One of the key



© Charleen Elberskirch

ambitions is to nurture novel design processes for the remanufacturing of clothing. Beyond that, research is being conducted into the associated aesthetic potential for the design of new clothing.

Lucia Simon Medina (ES/AT) Tendencies' Lack

The human cognitive architecture is predisposed to search for patterns, meaning that it expects cause-effect explanations, and finds their absence unsatisfactory. The patterns that we consciously or unconsciously tend to repeat are related to personal comfort and processes of discrimination. At a time when human behavior seems to be subject to the scrutiny of the correlations established in the digital realm, it is pertinent to ask what is incomputable. Chance,

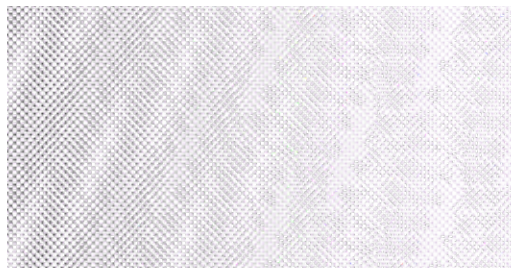


© Lucia Simon Medina

for example. Computers are capable of generating pseudo-random series, but not truly random ones. These drawings explore the ideas that mathematicians and quantum physicists use to argue the existence of randomness.

Marta Beauchamp (AT) leaky insulation

In the real-time sound installation *leaky insulation*, the perception of the surrounding space is modulated by rhythmical waves of presence and absence of sound. Ambient sounds are captured by a microphone and the signal is passed through a microcontroller programmed to modulate the signal amplitude with a slow sine wave function. Headphones are employed as a permeable interface through which to encounter the filtered soundscape. By inviting viewers to listen



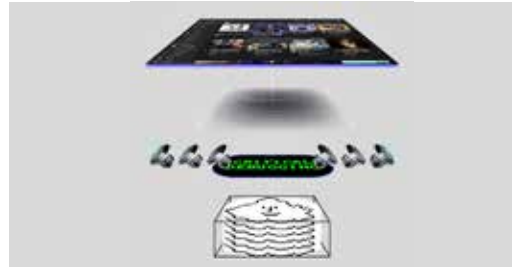
© Marta Beauchamp

to ambient sounds through a cyclical modulation, connecting and disconnecting the listener from the soundscape, the work heightens awareness for rhythmicity in the environment, offering a window into synchronous and asynchronous events.

Yann Patrick Martins (CH)

Sounding Attention Labour

The commodification of human attention has transformed the browser in terms of labor manufacture and extraction. From network analysis to the logging of variables within the codebase, the browser offers tools to the critical debugger to intercept and analyze data extractivism at various stages and with differing scale: from the specific line of code to the bulk of manufactured data sent over network; de facto, debugging ranging from an error correction



© Yann Patrick Martins

practice to a multi-scale forensic analysis. The browser performance will sonify the various scales of data manufacture to render tangible the invisible ways in which attention is commodified.

Sound Campus

This year's program *Scaping Sound* is dedicated to spatial sound, sound creation, communication and acting in space. For three days, *Sound Campus* will create a field of action in the courtyard at Hauptplatz 6 for experimental music, installative space-sound concerts, performances, soundscape and DJ sessions, as well as open encounters in workshops, discussions and presentations as part of Ars Electronica.

Students and researchers from the University of Art and Design Linz and from the Master's program in Design and Computation (Berlin University of the Arts, Berlin Technical University) will explore the sound space on location and design or adapt artistic sound projects for it. Graduates and guests will complement the program.

University of Art and Design Linz —
Inner Courtyard Hauptplatz 6
TUE 6.9. — THU 8.9.2022

Afternoon/evening: workshops, discussions
and presentations

Performances: 19:00—23:00

Curators, organization: Stefan Tiefengraber,
Wolfgang Dorninger

Technical support: Reinhard Reiszahn

Artists: TBA — see homepage and Facebook

Workshops: TBA — see homepage and Facebook

Homepage: ausstellungen.ufg.at/

[vonschwarzenschwaenen/sound-campus](https://www.facebook.com/soundcampus/)

Facebook: <https://www.facebook.com/soundcampus/>

Graphics: Stefan Tiefengraber



University of Art and Design Linz (AT)

Interface Cultures

Crossing the Bridge – Interface Cultures at Ars Electronica 2022

Just as neighboring nations can develop separate cultures – in part due to forces of nature that separate them such as rivers and mountains – so art and science often present themselves as if divided into two different cultures and languages. Paradoxically, the construction of bridges, as well as other vehicles intended to facilitate communication between different cultures, were projects originally assigned to artist-scientists. But just as bridges can be built, so can they be destroyed. And indeed, up to this day it seems that there are still too many bridges to be built, as well as others more fragile that need to be reinforced.

The linguistic divide between the arts and sciences began at the end of the Enlightenment era, in the late 19th century. It was at this point that the term “science” began to be used in its narrowest sense, referring only to the “physical” or “natural” sciences. The Romantic movement of the time and its aesthetic perspective served as a counterpoint to utilitarianism and instrumental

rationality through which the ideas of the Enlightenment gained theoretical legitimacy and influenced the modern industrial age. In fact, the paradigm of the arts and sciences divide has accompanied us until today, with the greatest danger of these disciplines undoubtedly lying in their differing modes of articulation.

Within artistic practices, for example, many of its most influential philosophers and theorists have made use of scientific language and terminology, often interpreting data and playing with language in ways that have only succeeded in alienating the scientific community. Thus, many contemporary works of art take on the air of something independent and esoteric. John Dewey, in his book *Art as Experience*, asserts that when the aesthetic contrasts so strongly with our common experience, it is normal that we are barely able to recognize it, making it easier for us to place it in a world apart. The reasons for this are not inherent to the subject of art and aesthetics, but to political and

EXHIBITION PROJECTS

Peter Schloss (DE), Sebastian Sprenger (DE)

per aspera ad acta I

Per aspera ad acta I follows the footnotes of a branch of science seeking to explore emotion. The sculpture, a modified filing cabinet, presents a collection of visual output from experiments that sought to prove that emotions can be read from facial expressions and gestures. Early on, science played with the idea that certain facial expressions could be assigned to specific emotions. Today's emotion research now contradicts these theories. So far, no system has identified clear features that measurably distinguish emo-



© Peter Schloss

tions on or in the body. This means that many politically highly relevant technologies, such as the use of surveillance technologies at national borders, are already based on false assumptions.

economic conditions. Thus, in order to strengthen our understanding of art, it would be necessary to rediscover and emphasize the extent to which aesthetic experience is consistent with the normal processes of life. Perhaps this is where our artists, through their practice, making use of new technologies as well as engaging in the critical analysis of their social and cultural impact on our environment, contribute to reinforce such bridges. These artists, in constant dialogue with others, occupy a privileged position, by nurturing and contributing to heightened communication between different disciplines, and by fostering their dissemination and social and cultural understanding.

Much of this work is carried out within universities. The academic world allows its artists to encounter a multitude of disciplines. To communicate effectively in these contexts, artists must learn the specific protocols and languages of these disciplines. The challenge, as Victoria Vesna states, is to do so without losing the intuitive and “wild” element inherent in artistic practices. This way, many contemporary artists have left aside the traditional processes of artistic production and distribution linked to conventional art markets, to make art based on the creation of their own aesthetic systems: organizing resources, media,

fostering collaboration — both interdisciplinary and even interspecies, allowing all their participants to experience art in a new, questioning, responsible, sustainable, amplified and empowering way. For this reason, this year the Interface Cultures Department leaves its own comfort zone of the University of Art and Design Linz, and conceptually and physically crosses the bridge, bringing along a selection of its latest student projects right to the center of the JKU Campus. And what better occasion for this than the celebration of the 43rd edition of the international Ars Electronica Festival in Linz, a festival with a long tradition of crossing disciplines by constantly exploring the impact of art and technology on daily life and society? We strongly believe that by engaging, discussing and communicating with international festival visitors, new unexpected paths can be taken and new bridges and connections built.

Interface Cultures Faculty:

Christa Sommerer, Laurent Mignonneau, Manuela Naveau, Fabricio Lamoncha, Michaela Ortner

Production / Design Team:

Kevin Blackistone, Sara Koniarek, Juan Pablo Linares, Indiara Di Benedetto, Dogus Karlik

Faculty credits: Christa Sommerer, Laurent Mignonneau, Manuela Naveau, Gertrude Hörlesberger, Fabricio Lamoncha, Michaela Ortner

Kevin Blackistone (US) Exquisite Corpus

When considering our bodies, we are most often concerned with the visual, surface components. Its functional interior organs are usually, at best, ignored. Becoming aware of them usually only happens when health concerns occur, so the lack of concern is most often a source of comfort. Over the past century, the medical industry has dramatically improved our ability to represent these elements through imagery that obscures the outside layers. There is no race in a torso x-ray, or gender in a cranial CT. This work shows how inwardly we are all identical, by merging layers of



© Kevin Blackistone

diverse bodily interiors into a 3D chimera of the human interior — an imaginary hybrid, devoid of the characteristics frequently considered definitive of our physical selves.

Maria Orciuoli (IT)

RZ Piscium is an Insatiable Eater of Worlds

Maria Orciuoli's first video work discusses consumer culture and accelerationism from the point of view of the body and the mind. The installation consists of a video projection, gummy candies, and a customized sensor seat. The artist is shown ravenously eating a pile of waste: a binge eating ritual until the closing purging ceremony. Filtered through the artist's experience of recovering from an eating disorder, the video questions society's mainstream values as the protagonist finds herself oversaturated by conflicting impulses. Borrowing the title from the 2017 *Astronomical Journal*



© Maria Orciuoli

report on the RZ Piscium star dubbed *Eater of Worlds* for being surrounded by the wreckage of planets it has consumed, the video is a commentary on the current “capitalism hangover”.

Indiara Di Benedetto (IT)

Future Memories of Deep Water

What are the changing conditions for archaeology in underwater ecosystems? Can challenges be predicted and solutions imagined using machine learning? With the passage of time, underwater artifacts are encrusted with coral, algae or other marine organisms. How do human activities and pollutions undermine these natural environments? What will our underwater heritage be like in the future? The project explores how algorithms can be used for predicting new entanglements between underwater artifacts and the changing environment where they are discovered. Built upon experimental speculation, *Future Memories of Deep Water* calls for the protection



© Indiara Di Benedetto

of threatened marine ecosystems and aims to create awareness and encourage preservation of cultural heritage.

Artistic research and visual design: Indiara Di Benedetto; Sculpture design & production: Giulia Berrettoni; Project mentorship: Alexia Achilleos

Sara Koniarek (AT)

DeepFakeSonder

“Sonder”, a term coined by John König in 2012, describes the realization that every passerby has a life as complex as your own. By nature, we tend to perceive life to be centered around us. There are moments in our daily lives where we get closer to grasping the complexity of the networks connecting us. It can happen on the commute to work, overhearing someone's conversation, or using social media apps that give a glimpse into other people's lives for a small fraction of time. *DeepFakeSonder* takes fractions of real people's conversations and, using AI, creates deep fake



© Sara Koniarek

stories of everyday life. This project aims to recreate the feeling of “sonder” and the experience of hearing just fragments of someone else's story without much context.

Barbara Jazbec (SI)

The Uncanny TV

The Uncanny TV is an interactive installation whereby browsing through TV channels the spectator is invited to discover the mystery of the ghost hidden inside the uncanny imagination of electronic media. The TV channels in the installation are built from AI-generated animation and video works. They offer a deeper investigation into the world of uncanniness.

As Ernst Jentsch said: “If one wants to come closer to the essence of the uncanny, it is better not to ask what it is, but rather to investigate how the effective excitement of the uncanny arises in



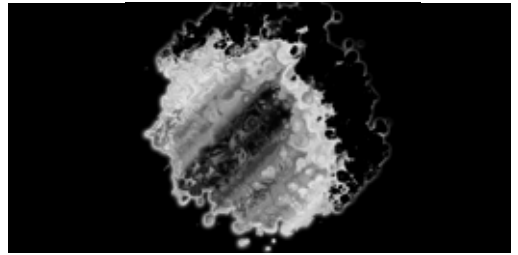
© Barbara Jazbec

psychological terms, how the psychical conditions must be constituted so that the ‘uncanny’ sensation emerges.”

Jelena Mönch (DE)

Externalization

Have you ever struggled with intrusive thoughts? If yes, you are not alone. About 94% of people have them. They pop up in your head like thoughts from someone else and the more you try to ignore them, the more they dominate. But how would you feel if there was a way to confront them? The artwork deals with how we handle obsessive thoughts and highlights how common they are. Visitors can offer one of their intrusive thoughts as a kind of exhibit, by taking part in the interactive installation.



© Jelena Mönch

Pepe Reyes Caballero (ES)

He loved me/he loved me not

The artwork delves into speculative possible pasts, based on the personal photographic archive of a relationship and song lyrics that are transformed into new pixel compositions by AI. An interactive daisy allows viewers to pluck its petals one by one, generating new images to be displayed. The piece is completed with the printing of some of the photos used to generate the speculative images and an essay-style video on the construction of love, reality and the process of image reading. The action of plucking the daisy comes from the historical game to find out whether someone loved you or not.



© Pepe Reyes Caballero

Here, we search for answers in an actual queer relationship, to understand the social construction of love and the cyborg condition of memory.

Katherine Romero M. (CO)

The Checkpoint

The Checkpoint lets users interact with the artist's family's farm archive in Cumaribo, Vichada, Colombia. The archive was created in the Open Mountain art laboratory, dealing with Colombian violence and how it is expressed through family memories and territory. The war in Colombia has been long, the government has failed to recognize it and it is hard for the victims of violence to find answers. *The Checkpoint*, while not a story itself, is an attempt to build the experience of a story. The users create a different narrative every time they interact. In that sense, the artwork recov-



© Katherine Romero M.

ers this lost truth, not as forensic or investigative reconstruction, but a collection of memories that are related to the experience of living in a place of conflict.

Kristina Tica (RS)

Prompt: War Stories

The project is developed using various pre-set text-to-image models, processing text prompt inputs. On the borderline between sensitive content and an easy slip into topics of violence, this project visualizes the depths of the subconscious of these models, excavating the influences of media and online information exchange. The quantified traces of reality and collective histories allow algorithms to generate content that recycles the past — building the spine of quasi-historical narratives — often obfuscated with prejudice and misinformation, along with the



© Kristina Tica

author's personal bias. Generated outputs are presented inside a hypertext object — a tent that the audience can enter, as it were.

Noor Stenfert Kroese (NL)

FadingColours

FadingColours is an interactive installation intertwining living algae and almost real-time coral bleaching-data, creating an ecosystem of tangible data sculptures. Coral reefs are among the most vulnerable ecosystems on the planet. Our world is literally losing color with the bleaching and disappearance of our coral reefs. Through the technologies that are used to observe, care and research coral reefs, *FadingColours* invites you to enter the coral-algae narrative about our world in which the digital and the natural blend together.



© Noor Stenfert Kroese

The result is a tangible representation of the algae and corals, allowing the viewer unique insight.

Daniel Fischer (AT)

Spectral Surrounding – live radio frequency light array

Spectral Surrounding is an interactive installation that visualizes radio frequencies. 700 LED lights, arranged in a grid above the visitors, react to different signals. They show live detected mobile radio signals as well as data communication such as Wi-Fi and Bluetooth transmissions from the devices that visitors bring along. How aware are we of the signals that our everyday devices emit? How much invisible communication is going on around us? A chaotic tangle of the most diverse signals permanently surrounds us. This data is translated to visual feedback that surrounds the



© Daniel Fischer

spectator. This work aims to point out the extent to which we are constantly digitally active, and how our communication behavior inevitably leads to our being distracted by all kinds of information.

Underwater Lilies

Underwater Lilies is the celebratory materialization that follows up on the collective research and exchange carried out by students of the Interface Cultures department around the topic of water memories. Imagine yourself as a river, static and yet in constant flux. A true milieu, always in the middle, where things merge into one another at their edges, stretching in two or more directions at once. Life begins axiomatically in, from and with that middle. Life ends in that middle too.

Underwater Lilies is a project developed by: Viktoria Angyal (HU), Maria Dirneder (AT), Behiye Erdemir (TR), Daniel



© Kunsthalle

Fischer (AT), Dogus Karlik (TR), Marja Konstantinova (RU), Jelena Mönch (DE), Maria Orciuoli (IT) & Lina Pulido Barragán (CO).

Curated by Fabricio Lamoncha (ES), in collaboration with Interface Cultures, University of Art and Design Linz and Kunsthalle Linz.

PERFORMANCES

Daphne Xanthopoulou (GR)

Stones are Angels

In our highly networked world, big tech dominates our daily lives and interferes with them, too, ethically, in ways that are opaque. What might we hear if we listen to the ghosts in our machines? What kind of stories would they have to tell us? *Stones are Angels* is a participatory performance that draws attention to the mineral substratum of our ethereal technologies, by augmenting our encounters with our electronic companions. Using our intra-actions as means for collective composition, we speculate on the language of stones, the unity of spiritual and material life, and



© Daphne Xanthopoulou

our ability to communicate in anthropomorphic ways with the mineral.

Credits: sculptures by Sheyda Ramhormozi, visuals by Diana Bogucka, original circuit design by Jonáš Gruska, photograph by Błażej Kotowski

Alejandro Quiñones Roa (CO)

Soft Press

Soft Press is a sound performance that atomizes modified percussion instruments by means of live coding and live audio processing. By merging robot-based instruments, programming, and improvisation, the work aims to generate a sound ecosystem, where sound phenomena are always unexpected and fluctuating. During the performance, a cymbal and a snare drum react to the live coding software Super Collider, generating an electronic music composition.



© Alejandro Quiñones Roa

Vahid Qaderi (IR), Razieh Kooshki (IR)

Cluster

Cluster is an audio-visual collaboration between composer and musician Vahid Qaderi and visual artist Razieh Kooshki. Over several years, the two artists developed and performed audio-visual performances. The music combines the genres of noise, ambient, IDM and Dark techno alongside recorded sounds of the environment and is accompanied by sound reactive and generative abstract/surreal visuals. The complex real-time visuals are mostly made up of basic 2D and 3D. This performance is a continuation of the Vivid Q series, the first part of which was performed in Tehran in 2018. By creating a continuous and at



© Vahid Qaderi, Razieh Kooshki

the same time changing atmosphere, the artists endeavor to trigger the audience's imagination to create their own stories out of the abstract sounds and images.

Kathrine Hardman (US)

Hairy Situation Vol. 3: Woven Memories

The third in her series of hair-based instruments, *Hairy Situation Vol. 3: Woven Memories* is a music synthesizer, an audio scrapbook, and an electronic tapestry of human hair. The work serves as a reflection of the last three years (2019–2022), chronicling all the moments seen by the hair which had grown during that period. Presented as a collaborative performance, the artist and audience members play the instrument by combing the woven tapestry with a specially designed hairbrush. Using capacitive sensors, the instrument can sense the way in which the user brushes the woven hair. Gentle movements



© Kathrine Hardman

translate into sounds of peaceful memories, like a summer breeze, a lover's heartbeat, and sweet nothings. Harsh brushing triggers likewise harsh sounds.

OUTDOOR PROJECTS

Maria Dirneder (AT)

The Intangible Bubbles – Calling for Aphrodite

“The wind god Zephyr brought Aphrodite, the foam-born goddess of love, upon a seashell in the ocean with his breath.” The installation measures audience members’ breath with sensors, its movement visualized and transferred into water. In the water the intangible air receives a body, becoming visible with bubbles. Audience members are touched by breathing as visceral as lungs. A deep breath creates the experience of profundity from within. There is an inevitable exchange between lungs and atmosphere, the air we breathe directly that is affected by climatic factors. Creating a perceptible and visible inter-



© Maria Dirneder

action between our own breathing and the environment makes a connection with the intangible possible.

Technical assistance: Daniel Fischer

Maria Konstantinova (RU)

Soup Kitchen – A Recipe of One Bright Day

The awakening scent of freshly cut grass, lingering hugs with a pillow, a cup of tea ... What were the ingredients of your morning? *Soup Kitchen* is a playful experience created as an attempt to redefine the values of life in a ludic form.

The user is invited to take part in the game and share one day of the character's life. With the help of a tangible interface, the player defines the events of the story, creating a unique narra-

tive. The work encourages visitors to pause briefly and reflect on their average day. By separating 24 hours from the abstract concept of a lifetime, our perspective on our needs and goals may be redefined.



© Maria Konstantinova

Lina Alejandra Pulido Barragán (CO)

Plántula

As humans we have a limited spectrum of perception, that of our senses. Efforts to perceive other realities fail. When analyzing the life of other living organisms such as plants, the artist developed the idea that their ‘brain’ is in their roots. If we want to approach what she calls ‘plant perception’, we have to reverse the position of our body and bury our head in the ground, going through an immersive experience in the vegetable darkness. *Plántula* is an in situ piece in which viewers bury their heads in an upside-down position.



© Lina Alejandra Pulido Barragán

The viewer is immersed in an organic scenario of sound and sensitive amplification in the dark. In collaboration with the architect Andrés Sandoval

WORKSHOP

Vanessa V(ozzo) (IT)

Photosynthetic You

Photosynthetic You explores fundamental ethical questions related to the renewed debate on genetics, reaching as far as the hypothesis of being able to exchange our human genes with those of other species using innovative systems such as CRISPR/Cas. What if we can all decide, paradoxically and in an extreme, mass democratic act, to become thin and motionless like leaves, energetically self-sufficient like plants, feeding only on light and solar power? Starting from scientific and artistic suggestions around the topic of “becoming plant-like” and using keywords like photosynthesis, autotrophy and hybridization,



© Vanessa V(ozzo)

Vanessa V proposes an open discussion between science and art. The workshop delves deeper into the ethical questions that emerged from the artist’s installation *Photosynthetic Me*.

LEONARDO LASER LINZ

Die Gartenlaube Vol. III, Danube Songs 2

“There are still songs to sing beyond mankind.” (PAUL CELAN)

We are delighted once again for the opportunity to host our *Leonardo Laser Talk* at the Ars Electronica Festival 2022, with the support of the University of Arts and Design Linz and the Interface Cultures Department. In September 2021, Linz joined the Leonardo Art & Science Evening Rendezvous (LASER) network, an international program that brings together artists, scientists, academics and the general public, to share their work and inspire each other through engaging presentations, performances, and discussions. The mission of these gatherings is to foster unusual encounters and dialogues, allowing its participants to challenge their worlds and practices while promoting pluralism and interdisciplinarity. Providing a space to make new friends and build new alliances, we aim to set new agendas and new horizons. We do it out of love and curiosity.

In this third edition we continue our *Gartenlaube* series with a second panel around water. Through different narratives such as bodies of

water, water fluidity and water love, water ecologies and water pollution, water management, our guests will present their personal work as well as their methods, their stories and maybe even their songs. We are very interested in understanding how their work—whether artistic or scientific—has shaped their relationship with this sensitive force of nature. With a special focus on the Danube River, we will examine the river as an artery through which communication and exchanges, not only human but also interspecies, were established long before humans began to navigate, cultivate and establish their settlements along it.



BOOK PRESENTATION

Christa Sommerer & Laurent Mignonneau

The Artwork as a Living System 1992–2022

Edited by Karin Ohlenschläger, Peter Weibel and Alfred Weidinger, ISBN: 9780262048156, Linz 2022, MIT Press, Leonardo Book Series

With 50 detailed work descriptions and articles by Peter Weibel, Karin Ohlenschläger, Ryszard W. Kluszczyński, Ingeborg Reichle, Birgit Mersmann, Siegfried Zielinski, Tomoe Moriyama, Reinhard Kannonier, Anika Meier.

Christa Sommerer and Laurent Mignonneau are pioneers of interactive art and two of the most innovative and internationally renowned media artists and researchers. They have worked in the area of computer-based installations since the early 1990s, with a focus on innovative connections between art and science, interaction and interface design and artificial life and artificial intelligence. They both set up the department Interface Cultures at the University of Arts and Design in Linz in 2004.

This work biography is published as part of the retrospective exhibition *Christa Sommerer & Laurent Mignonneau*:

The Artwork as a Living System, 1992–2022. It is a co-production between the OÖ Landes-Kultur GmbH in Linz, the ZKM|Center for Art and Media Karlsruhe and the iMAL in Brussels. During Ars Electronica 2022, the retrospective exhibition will be shown at the OK Center in Linz, Austria.

THE ARTWORK AS A LIVING SYSTEM 1992–2022

SOMMERER
MIGNONNEAU



University of the Arts Berlin (UdK) and Technical University Berlin (TU)

Inter-University, Interdisciplinary, Research-Based Master's Program Design & Computation

With the new joint master's program, the two universities are responding to a ubiquitous process of societal and technological change as well to the increasingly dynamic subject culture. The UdK and TU Berlin also share an overarching interest in further thinking across disciplines and developing new teaching and research formats through this program.

Students, teachers and researchers in this model program have access to a broad curriculum including the most diverse teaching and research cultures. This enables them to work in an interdisciplinary context and, using techniques and

theories at the cutting edge, in a manner both analytical and practical.

The works shown here were created in the studio of the master's program, where students dedicate themselves to the development of new media, materials and methods for design processes within the framework of project work and a theme that changes each year. This takes place in the form of drafts, visualizations, concrete experimental applications or design implementations on a variable scale.

www.design-computation.berlin

Felix Ansmann (DE), Pablo Torres (CO), Maurice Wald (DE)

Cartographic Exercises

Cartographic Exercises is a multimedia installation exploring the potentials of dynamic and interactive cartographies to discern global networks that exceed human perception. It presents a partial abstraction of the social, economic and ecological entanglements encompassing the infrastructure of today's ubiquitous digital technologies in an immersive scenario constructed with both physical and digital features.



© Felix Ansmann, Pablo Torres,
Maurice Wald

Philipp Gschwendtner (DE), Benjamin Herrmann (DE)

Data Badlands

The project takes inspiration from geological archives shaped by the forces of wind and water, adapting these processes to digital data. An algorithm erodes, alters and transports information based on rules that incorporate the basic laws of thermodynamics and information theory. Thus, *Data Badlands* reflects upon the binary distinction between deleting or keeping data, opening a third possibility of slow regress.



© Philipp Gschwendtner,
Benjamin Herrmann

Athena Grandis (DE), Duygu Masalci (DE)

Be-you-tiful Me-tamorphosis

The video installation serves as an ironic critique of the cultural phenomenon of toxic-positivity perpetuated by social media and the wellness industry. Through a rhetoric of “self-mastery”, “resilience” and “happiness”, wellbeing is being reduced to a matter of developing a skill, shifting attention from larger social, political and economic forces onto individuals. Centered around a robotic entity that carves affirmations into the outer skin of a flesh-like body, the artwork exposes the assumed superiority of technology



© Athena Grandis, Duygu Masalci

and its role in shaping social codes in a technocratic society.

Jonny-Bix Bongers (DE) and Berkay Soykan (DE)

A Psalm for the Body-Built

"One is not born, but rather becomes, a body."
(Legacy Russell)

In order to rediscover the essence of our bodies as complex assemblages of virtualities and potentialities, we propose the practice of body-building. In a first attempt at creating a critical space for this practice, the interactive VR installation investigates what it means to have, and become, a body in a technologically mediated environment. Within an immersive landscape of artifacts and operations, the immersant is urged to question their bodily perception and



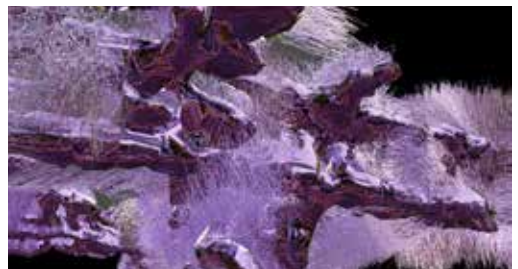
© Jonny-Bix Bongers, Berkay Soykan

explore their own bodies' (im)materiality, virtual manifestations and eventual states.

Jonny-Bix Bongers (DE), Jonathan Möller (DE), Florian Porada (DE)

Boutique 2XXX

The interactive installation enables participants to design individual and critical future visions of luxury and subsequently to create a space for reflection and discourse in the form of a virtual boutique. This mixed reality experience is an iteration of an ongoing research project that examines how emergent technologies can help debate socially relevant issues more intuitively.



© Jonny-Bix Bongers, Jonathan Möller, Florian Porada

Tim Alder (AT), Benjamin Herrmann (DE)
Digital Trace

Digital Trace conceives of an interactive virtual archive that documents the multitude of multimedia art and research generated in the transdisciplinary Design & Computation study program. Through spatial data visualization and dynamic interlinking of multimedia content based on algorithmic classification, the work seeks to redefine authorship and agency in archival processes.



© Tim Alder, Benjamin Herrmann

Pablo Torres (CO)
Gold Mercury Amalgams – Deep Listening

Developed together with the *knowbotiq collective*, the listening session delves into gold and mercury amalgams – mercury is used to wash gold out of the earth – proposing a fictional space in which a collective subconscious of a mineral incorporated into all of our raw metabolisms might be sensed. This is then transformed into derivative stock market products, components of high-tech technologies, or libidinous wellness products. The installation explores the materiality of sounds which take form through glass bodies that



© Pablo Torres

work as resonators and allude to the molecular processes of gold refinement.

Maurice Wald (DE)
Human Intelligence Task (HIT)

The work draws on parallels between cybernetics and digital labor in microwork marketplaces and engages with the materiality of a process where matter seemingly doesn't matter; where repetitive machine tasks are outsourced to humans – mediated by platforms like Amazon's *MechanicalTurk*. According to the court order concerning reCAPTCHA in *Rojus-Lozano v. Google*, the few seconds it takes to transcribe a word is not entitled to compensation – on microwork platforms the few seconds are repeated for whole days in order to make a living. In playing with the digital



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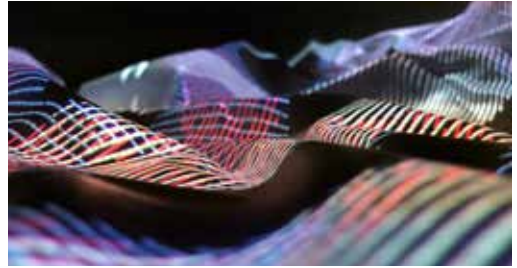
and the analogue, using images of repetition and (lost) creativity, the work focuses on the material aspects behind platformized digital labor.

Fabian Schneider (DE), Erik Vogler (DE)

Imagine you are going for a walk.

Imagine you are going for a walk. in an area that is very familiar to you, but the further you go, the more your surroundings change. Keep walking until you get lost. Now let your gaze wander. Enjoy the fuzziness at the edges of your attention. After a while, start walking again.

Imagine you are going for a walk. is a diagrammatic game that combines projected maps with a haptic topographical interface. Visitors can perform different scenarios by moving game pieces on the artificial landscape. Their movements are



© Fabian Schneider, Erik Vogler

tracked, reassembling the template for the games that follow.

Philipp Gschwendtner (DE), Duygu Masalci (DE), Lars Pinkwart (DE), Jason Thompson (DE/GB)

INCORPORATED

The multi-media installation takes on a perspective that spans centuries on the way big data analytics and algorithmic prediction govern our lives both in the present and into the future. As a speculative scenario, the installation considers an uncanny future in which tech behemoths have reached levels of power as government service providers until now only held by nation states, not only exercising influence over the digital space but re-structuring the very fabrics of the societal order. By superimposing global visions of “Big Tech” with the lived experience of local and mate-



© Philipp Gschwendtner, Duygu Masalci, Lars Pinkwart, Jason Thompson

rial witnesses, *INCORPORATED* becomes a site of critique and strategic intervention.

Anastasia Almosova (RU)

Inter-face.

Inter-face is a mixed-media installation that elaborates new models of Human-Machine-Interaction by introducing collective low-tech communication strategies in a technologically mediated environment. With the help of wearables, users come into physical communication, triggering specific events in the digital realm. The efficient use of the interpersonal interfaces defines the outcome of the interaction with the machine.



© Anastasia Almosova

Julia Ziener (DE)

Shifted Agency

The showcase investigates biopolymers and their various methods of further processing, such as additive manufacturing, focusing on the triangle between robot, material, and human. Ultimately, the predominant hierarchical human-robot relationship is questioned.

Séba Nasr Aldin (LE), Ramy Frahat (IT), Patrick Grochla (DE), Artur Kim Shum (BR), Jo-Moritz KraH (DE)

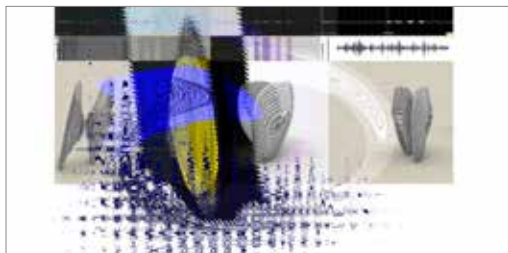
Sonic Gaze

Sonic Gaze investigates the process of transforming ephemeral moments into durable entities through recording sound. Advancements in technology like machine learning and enhanced recording techniques offer new possibilities of analyzing and working with sound once it has been detached from its source. The work applies these technologies to the practice of sound archiving in order to reveal the epistemological qualities of sound. In this way, it challenges the dominance of visual representation, suggesting an alternative model of knowledge production and sensory perception.



© Julia Ziener

Shifted Agency



© Séba Nasr Aldin, Ramy Frahat, Patrick Grochla, Artur Kim Shum, Jo-Moritz KraH

Sonic Gaze

Athena Grandis (DE), Anna Kraher (AT)

The truth, the whole truth and nothing but the truth.

The interactive installation deals with the production processes of fictions and facts. The focus of the work is on investigations as processes of *searching for "truth"* and *constructing "truth"*. The installation consists of a series of stages, each exploring how a particular media format re/produces and narrates facts and fictions. Starting from a record in a file cabinet, the investigation is conducted by the visitor from stage to stage. At the end of the process, the investigation is archived performatively.

Felix Ansmann (DE), Maurice Wald (DE)

Untitled

The video traces parallels between divination rituals and predictive analytics. It explores their respective poetics, politics and aesthetics, and their inscribed notions of time and power. Blurred, superimposed and homogenized images play on apophenia and pattern recognition as their dominant mode of perception. A text, partly cut-up, partly written, partly AI-generated, stitches together diverging narratives, contradicting arguments and counter-intuitive references into an essayistic whole, suggesting causalities due to its linearity.



© Athena Grandis, Anna Kraher

The truth, the whole truth and nothing but the truth.



© Felix Ansmann, Maurice Wald

Untitled

Anton Bruckner Private University Linz (AT)

Immersive Sounds – External Worlds

Research student meeting @ ABPU

Since 2016, Anton Bruckner Private University has been hosting the *Sonic Saturday* symposium and concert as part of the Ars Electronica Festival. For this year's festival we will organize a research student meeting to allow for an informal, hands-on, in-person exchange of ideas of artistic researchers working in the field of immersive audio.

Symposium Theme

In accordance with the festival theme *There Is No Planet B*, the Ars Electronica digital music focus at Anton Bruckner Private University will lend its ears to immersive sonic creation as an artistic field of research sonically reflecting our world.

Convinced, or at least hopeful, that multichannel speaker environments are capable of more than simply providing virtual substitute surroundings to distract us from everyday life, we want to explore the roles multichannel audio can play in reflecting and furthering our understanding of our social, physical, and biological environment.

We aim to bring together artists and researchers working in the field of multichannel audio to exchange ideas on how immersive audio can help people to understand, to hear more and to activate dissent rather than simply enabling ever more intricate aural pleasures, to be sold or rented out as “experiences.”

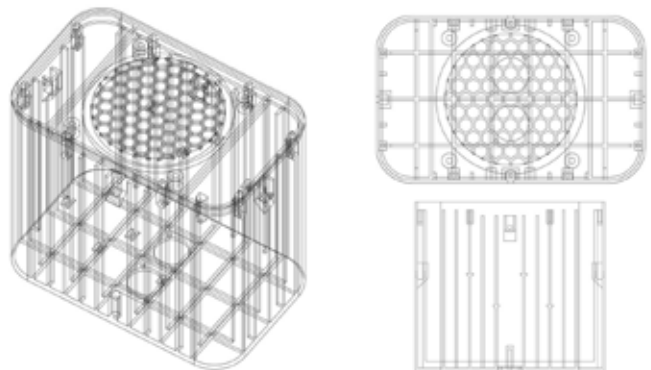
WORKSHOPS

OTTOsonics: designing an accessible ambisonics venue

Manuel Mitterhuber (AT), Rojin Sharafi (IR) & Enrique Tomás (ES)

OTTOsonics is a collective project by sound artists, developers, scholars and sound engineers working on accessible audio technologies for immersive sound production. Putting the focus on the needs of artists as well as non-specialized cultural and educational institutions, our objective is facilitating the use of immersive audio. In this workshop we will introduce and discuss our methods towards designing, building and maintaining an accessible high-density array of 3D-printed loudspeakers (100 speakers or more). For instance, how to 3D-print your own good quality speakers and

design custom audio amplifiers, or how to adopt open source and open hardware standards. Finally, we will elaborate on how to test and evaluate the quality and usability of these systems.



Perceiving augmented sound fields: the *Hybrid Audio Diffusion System (HADS)*

Enrique Mendoza (MX)

The *HADS* is a monitoring system design that combines open headphones and speaker arrays to create augmented immersive sound fields. With recently developed digital technologies, it is possible to create and perceive immersive audio experiences where 3D sound fields can be reproduced in several audio systems through binaural and ambisonics techniques. The *HADS* offers the possibility of defining the location relationships between the listener, the sound sources, and the perceived space in multiple ways and layering.

Combining the egocentric frame of reference fixed to the head (with headphones) and the allocentric

frame of reference fixed to the room (with a 20.4 speaker array), the workshop will focus on presenting participants with multiple frames of reference in an immersive 3D Audio experience.



GOOGLE AR & VR, accessed 16.2.2022,
edited by Enrique Mendoza

Introducing *SADISS*, a tool for bundling smartphones into monumental yet intricate sound systems or choirs

Lukas Bindeus, Mathias Bindeus, Isabella Forciniti (IT), Volkmar Klien (AT),
Tobias Leibetseder (AT) and Astrid Schwarz (AT)

In any gathering these days you might find even more smartphones than people, all of them equipped with loudspeakers and connected to the net; just waiting to be controlled centrally, synchronized and joined together to form a socially aggregated, digitally integrated sound system. Using innovative technologies, we bundle these phones into a massive, intricate sound system with numerous distinct sound sources scattered throughout the space. All of which play back different, complementing parts of the whole sonic information, creating a truly multi-layered, immersive aural experience in super-surround. No additional hardware needed.

The workshop presents a hands-on introduction to *SADISS*, a web-based application developed in

the research project *The Choir & the Sound System* at Anton Bruckner Private University. *SADISS* enables socially aggregated, digitally integrated sound systems to create two different forms of portable seas of sound:

- a massive multi-channel sound system for re-synthesizing compositions right in the middle of the gathering of listeners using their smartphones' loudspeakers.
- facilitating ad hoc choirs of human singers, individually guided via headphones.

The sound system facilitates the creation of portable, crowd-sized seas of sound, opening wholly new fields for composers and artists to explore. <https://www.sadiss.net>

TALKS

The practice of immersive listening experiences in acoustic natural spaces

Acoustic Ecology Lab: a case study

Tania Leticia Rubio Sanchez (MX)

Listening to natural ecosystems gives a particularly immersive experience that reveals the acoustic configuration of the species and its ecosystems. The acoustic spaces in nature, the sonic relations, and their functions are studied within a frame of ecology in soundscape studies and ecoacoustics. However, the experience of listening to natural soundscapes from an artistic perspective brings a different scope for interpretation and sensitivity. The research question is: how to build bridges between the composition practice and scientific, ecological approaches for environmental awareness?

To answer the question, I created a project named *Laboratory of Acoustic Ecology* as a case study to integrate the experience of listening to natural soundscapes with compositional tools and scientific insights. The project aims to encourage the development of environmental sound art projects

that emerge from an ecological notion of sound, considering biological species, ecosystems, and the community as an integral part of the works. The methodology consists of the practice of immersive listening in nature as an act of interpretation and comprehension from artistic and scientific perspectives. The *Acoustic Ecology Lab* was an artistic research residency realized in December 2021 in Sierra Gorda, Mexico, integrated by a group of biologists, musicians, and music students.

As a result, we obtained the production of four eco-acoustic compositions premiered in an immersive live concert in Guanajuato, Mexico. A documentary film of 40 min., and a short trailer. The importance of this research is the interdisciplinary approach between music composition and biological sciences to encourage concern for the critical ecological global crisis.



Ectasy / Light / Inertia

Juan Carlos Vasquez (CO)

Ectasy / Light / Inertia is an interactive narrative-driven experience that proposes a novel method to experience new spatial music in realistic immersive environments. It features a “gamified” experience to showcase a series of music / sound art pieces in an engaging way, presenting the audience with challenges and an overarching narrative that encourage progression through exploration. The proposed talk proposes an in-progress report of a project that combines experimental musical creation with immersive technologies found in video games. An early trailer can be seen here: <https://youtu.be/v10yw6n50e8>



© Juan Carlos Vasquez

Ectasy / Light / Inertia is supported by the Arts Promotion Center (FI), the University of Virginia (US), the Jefferson Scholars Foundation (US) and Genelec (FI).

Luz, the lead character of *Ectasy / Light / Inertia*, sitting in her apartment, while a voiceover guides the player through the characters’ past.

Eavesdropping Danube

Polina Khatsenka (BY)

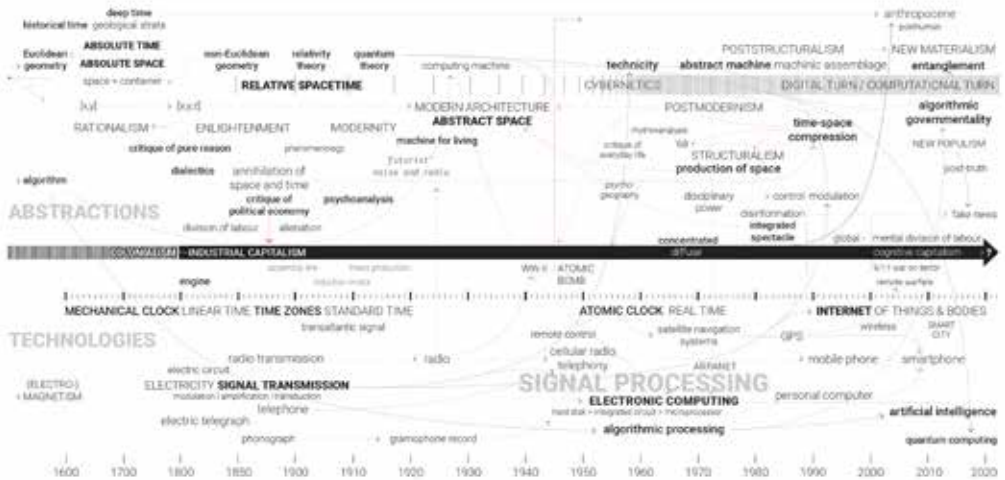
The presentation will focus on aspects of remote collaboration within the domain of live audio. *Eavesdropping Danube* is an author’s update of Annea Lockwood’s work dedicated to the Danube River, initiated through the open call from Wild Energies online festival by CRiSAP. The development of the piece is planned for 2022-2023 in the format of a long-duration remote participatory performance. The sound art piece intends to rethink the potentialities and find new forms of remote connection.

Invitation to participate happens through an open call, together with personal network-based invitations (CENSE, CRiSAP). Individuals are encouraged to set up audio streaming points at the bank of the Danube in their areas and join the collective stream, which would create a multi-dimensional listening experience of the river. The participants would

be invited to stick to unaffected audio signals, which would allow the listeners to experience the river itself, based on the location choice of each streamer, omitting further post-processing. The result inclines to a real-time multifaceted immersive listening, together with formation of a shared sonic space, where each active participant would share the outcome of the cross-border collaboration through the hyper object of the river.



© <https://commons.wikimedia.org/w/index.php?curid=62259455>



Diagram, Taufan ter Weel

Amplified Realities and Explorative Machines for the Sonic Recomposition of Space

Taufan ter Weel (NL)

The human use of electromagnetic energy as carrier of information (that is, signal processing – from early electric telecommunication and radio to global computing networks) changes and complicates the relationships between bodies, media technologies, and lived environment. Transmission with the speed of light brought about a shifting sense of space and time. Ubiquitous computing changes the modes of governance. The increasing dependency on media technologies to carry out or automate activities (to sense, build, and change our environment) and the interdependencies between them, coupled with the decreasing clarity of their inner workings, which is in part inherent in their expanding complexity, creates unprecedented forms of automation and control. In the context of the concrete entanglement between bodies, media technologies, and lived environment, or abstract space-time and social realities, how could we address the problem of automated subservience and ubiquitous control in order to recuperate the recognition of the right, or responsibility, to actively engage in the making of our habitat? And how to develop the means to do so?

There are many ways to approach this problem and there is a vast body of work in this domain, across various disciplinary fields. My research is transdisciplinary and combines a theoretical and practice-driven path at the intersections of architecture, sonic practice, sound studies, and the philosophy of technology. It focuses specifically on sound and signal processing in spatial practice, which enables a process-based and diagrammatic way of thinking and making to explore the inner workings of media technologies in relation to bodies and lived environment. It works at various levels: understanding architectural space in terms of vibrational energy or waves; approaching the analogue and digital as intertwined modes of technological mediation and thinking; and finally, drawing relationships between the circuit diagram, abstract machine, and architectural diagram, aiming to contribute to expanding the notion of and techniques for diagramming. The research aims to rethink and articulate the relations between aesthetics and politics in order to challenge the seeming inevitability of automated subservience and ubiquitous control.

Bastimento

Renato Fiorito (IT) & Chiara Mazzarella (IT)

Bastimento is a site-specific performance in three acts, conceived and developed for the section of the coast around Mount Bulgheria in Parco Nazionale del Cilento e Vallo di Diano in south Italy. Three actions in three different locations for three distinct sound approaches strongly connected with the architectures and landscapes that host them. The music diffused in the three performances comes from the space of the three sites and returns to those spaces through an architecture of sound diffusion that alters how they are perceived. The immersive audio installation is conceived with the shape of the architectural space and gives shape to a different place. Fiorito's drone music narrates the physical space

atmosphere and gets there and back differently, creating new meanings. The soundscape given by the dialogue between sound and space creates a unique temporary atmosphere in the architecture and surrounding landscape. At this link (https://soundcloud.com/renfiorito/bastimento-ost?utm_source=clipboard&utm_medium=text&utm_campaign=social_sharing) it is possible to listen a small composition made by using the sounds collected, modified and played for all the three acts.

Chiara Mazzarella: Architect, PostDoc researcher.
Department of Architecture DiARC, Federico II University of Naples / Renato Fiorito: Project Author, Composer, Sound Artist, Sound Designer

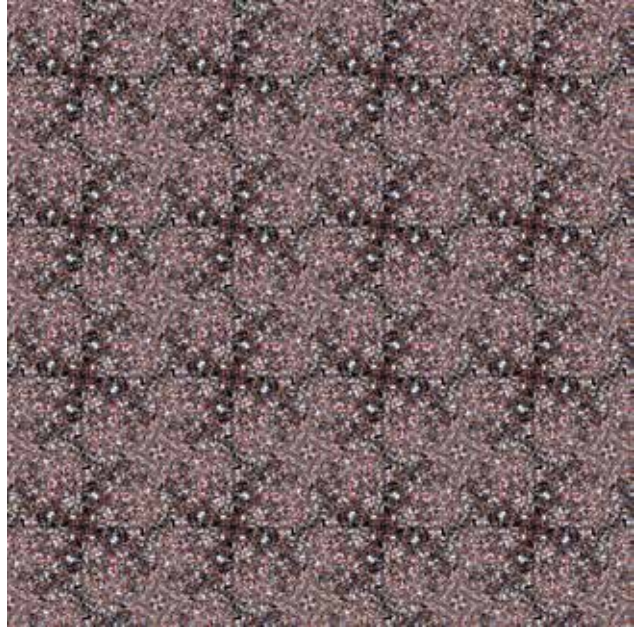


© Tommaso Vitello

Digital Collective Action

Isabella Forciniti (IT)

Smartphones have become a key device for exploration and audience engagement, for both scholarly studies and performing artists. In today's age of participation, co-creation, user-generated content and social networks are part of a mass-market digital lifestyle. The emotional benefits of active participation are rooted in the natural human desire to join communities and contribute to something meaningful, something bigger than us. Isabella Forciniti speaks about the musical and social potential of digital networking via mobile devices and provides a comprehensive deep dive into the power and the fragility of digital collective action. Her talk revolves around the question of whether it is possible to use the smartphones of participants as a large, distributed sound system to create and catalyze an immersive sound experience.



© Angeiphontes Lyre

Challenges in Distribution of Immersive Music and Sound Art

Christopher Dahm (DE)

The paper deals with the challenges in the distribution of spatial audio (music and sound art) for a broad, public audience. Different production techniques will be considered and the advantages and disadvantages of the respective distribution methods will be discussed. For a better understanding, application examples from artistic practice are used.

Through technical-artistic research by the author, a procedure is presented on how established production techniques can be retained and successfully transformed into the respective distribution formats.

The result of this research is a software template developed by the author to achieve a multifunctional production workflow.

MEDIUM SONORUM CONCERT

Dive deep into immersive electronic music with the 20.4 system of the Sonic Lab. This is a concert designed to perceive spatial music selected from the Call for Contributions. The program shows a variety of styles of multichannel music from around the world.



Sonic Lab, Photo: Herzenberger

SUNKLAND (2021)

Amias Hanley (AU)

Amias Hanley's multichannel audio work imagines a speculative swampland where multiple species, forms and forces are transforming through a series of open-ended vocal exchanges. This work is a sonic fabulation that is informed by a pre-colonized Carrum Carrum Swamp, settler governance of watercourses, and the drainage of wetlands in the area where McClelland Sculpture Park and Gallery exists, in Bunurong Country (Victoria, Australia). The swampland is a slice of tangled time — it carries both remnants of the

past and feelings of futurity, which coalesce in a kind of nonlinear discontinuous present. *SUNKLAND* draws on queer perspectives of non-biological kin and the sonic body as a site of becoming and ambiguity. Exploring the poetics of care and exchange through themes of hybridity and heritage, the work invites listeners to imagine the ways that kinship might be felt through embodying the expressions of another species or form — asking, how might these events allow for listening to the worlds of others in ways that matter?

Interweaved Vertex (2022)

Asahi Yamanoshita (JP)

A spatial electroacoustic work using electronic sounds that take localization characteristics into consideration. By filling the music space with several percussive phrases, a variety of rhythmic patterns are layered spatially and psychologically. Focusing on the “localization expression” extended up and down, which is a characteristic of spatial acoustics, I created this work from the viewpoint of psychoacoustics, being conscious of sounds with a strong sense of localization and

sounds with a weak sense of localization. The artist aimed to create a sound space that can only be expressed by spatial acoustics through the difference in sound density that fills the space and the localization sense that tones have. This work was created using a 7.1.4ch multi-speaker system. The binaural version to be submitted was once played on a 7.1.4ch speaker system, recorded with ambisonic microphones, and converted to binaural.

Neo Ornithologie (2022)

Jakob Gille (DE)

In the piece *Neo Ornithologie* we find ourselves in a familiar-sounding forest that slowly evolves to something strange and otherworldly with peculiar birds and creatures creeping in, pulling us deeper and deeper into more fantastical universes. I am fascinated by bird voices and do field

recordings of them on a regular basis. My piece *Neo Ornithologie* is based solely on bird sounds which have been transformed into exotic sounds. The transition from our sound reality to another planet with different life forms and therefore sounds was the driving force behind my piece.

Qualia (2017)

Panayiotis Kokoras (GR/US)

Qualia was composed at the CEMI studios — Center for Experimental Music and Intermedia at the University of North Texas — in 2017. The composition explores the experience of music from perception to sensation; the physical process during which our sensory organs — those involved with sound, touch, and vision in particular — respond to musically organized sound stimuli. Through this deep connection, sound, space, and audience are all engaged in a multidimensional experience. The motion and the meaning inherent in the sounds are not disconnected from the sounds and are not the reason for the sounds but are in fact the sound altogether. Energy, movement, and timbre become one; sound source identification, cause guessing, sound energies, gesture decoding, and extra-musical connotations are not independent of the sound but are vital internal

components of it. Qualia are said to be individual instances of subjective, conscious experience. The way it feels to have mental states such as hearing frequencies at the lower threshold of human hearing or a piercing sound, hearing a Bb note from a ship horn, as well as the granularity of a recorded sound. It is an exploration of time and space, internal and universal. In *Qualia*, I do not experience musical memory as a sequence of instances but as a sensory block that lasts the entire duration of the piece.

The experience of sound itself is not sequential, it bypasses past or future, time becomes an omnipresent wholeness, a single unity. In this state of consciousness, time dissolves. The vibrating air molecules from the speakers, the reflections in the physical space, and the audience are the sound.

Spectral Chaos (2022)

Patrick Hartono (ID)

Spectral Chaos was initially composed in the stereophonic format for Melbourne Electronic Music Studio (MESS) commission. However, I decided to compose the multichannel version during my residency at Center for Experimental Music and Intermedia in Denton (TX), as part of the Prix CEMI 2021 I received. This work had a unique challenge for me because most sound sources should be based on the analogue synthesizer from MESS's collections. My approach to overcoming this challenge was to "take a step back" and try to conceive the sound of the analogue synth, which in this case is the Buchla 200e, no longer (only) as the sound of an electronic instrument but purely as a sound that is rich in har-

monic spectra. By doing so, I eventually obtained a "sonic direction" on how to work with Buchla sounds which later also led me to further sonic exploration as the Buchla sound revealed its percussive potential to me. During the compositional process, the original sound of the Buchla 259 complex wave generator controlled by the chaotic voltage from other modules, including the Benjolin, was manipulated using the GRM plugins to explore its spectral potentials. During the compositional process, the original sound of the Buchla 259 complex wave generator controlled by the chaotic voltage from other modules, including the Benjolin, was manipulated using the GRM plugins to explore its spectral potentials.

Ouroboros (2021)

Tuce Alba (Tuğçe Albayrak) (TR)

Ouroboros is by definition an ancient mythical serpent used to symbolize perpetuity. In this piece, it points to the traces of life, death, and rebirth in ambisonic space with sounds. To the death of existing sounds, a circle signifying the birth of non-existent sounds. It contains immer-

sive sounds in the sonic space it creates, which consists of field recordings, synths and published sounds. Studies were carried out on acclimating an ear to a sound or alienating it by using different techniques.

Pulsar (2022)

Hugo Paquete (PT)

Pulsar is a multichannel composition that investigates extraterrestrial sound and rhythmic noise radiation as a landscape of vast dynamic audio shapes found across the universe. Short bursts of granular dust and sequential emission are used to transition from chaos to regular music periodicity. This composition proposes a micro and macro sonic study of the concept of pulsars, which can only be seen in regions of the electromagnetic spectrum that are as obscure as powerful unknowns. This piece is a follow-up to the composition developed for Chris Ziegler's multimedia dance performance *Cosmos* (2018), which was commissioned, partly developed, and

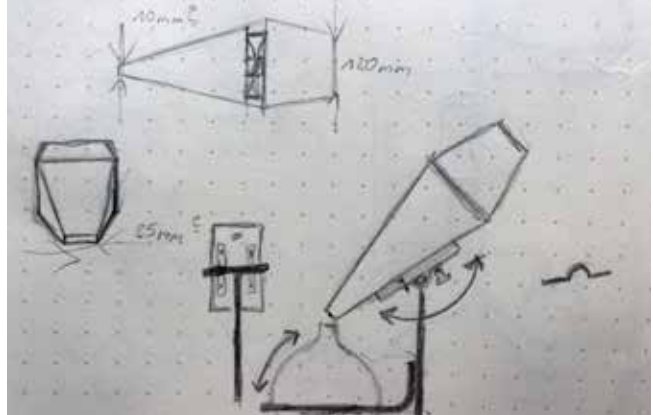
performed at the ZKM Center for Art and Media Karlsruhe. It integrates elements that generate sound and music by utilizing commercial and military satellites, which is established through a process of acquiring and converting real-time sonification of satellite movement data and merging it with midi-data language. It is used to operate musical instruments, both hardware and software. Its significance highlights the satellites' autonomy as objectionable performers, reactants that make sonic material in an ecosystem of random movements and preset computational music laws. Where science and imagination collide in the realms of auditory perception.

SOUND INSTALLATIONS

Helmholtz Quintett (2022)

Daniel Stimmeder (AT)

Sound installation using the principle of Helmholtz resonators to create a multidirectional immersive experience.



Diagram, © Daniel Stimmeder

Elastic looping space in time, Echo & Narcissus, Selfing (2022)

Jorge Gómez Elizondo (MX), Shahab Nedaei (AT)

This proposal comprises three audiovisual pieces that are distributed in space, creating an audiovisual topography. The audience may explore the space, navigating through overlapping pieces that create a whole, allowing them to migrate at will to different sound spaces. Intangible trajectories of sound emanate and gravitate towards these videos, creating invisible, yet real temporary points of contact that dissolve borderlines and bring together seemingly disparate moments, lives, and places. In this piece, the proposed topographies are fluid, constantly permeating each other's space, creating trajectories, areas of togetherness and of clashes, of tensions and of repose. This constant change, migration, interconnection

and nomadic ethos overarches the piece, inviting the audience to create their own "sweet spots" and explore the flow at will. The immersion in this case is an interconnectedness of movement between sound, image, space and audience.



© Shahab Nedaei

LISTENING ROOM

During the Symposium the ABPU's Produktions-Studio will become the space for the *Listening Room*. A studio with a 20.2 speaker array that will allow visitors to perceive multichannel music in a relaxed way. Visitors can enter, exit, and move freely through the space, perceiving 30 selected fixed-media pieces from the call for contributions.



ProduktionsStudio, © Herzenberger

Program with selected multichannel works:

- _ Alejandro Brianza (AR) / Kowloon / 2022 / 5:51
- _ Alessio Rossato (IT) / Caged Structures#4 / 2022 / 8:20
- _ Anne Versailles (BE) / Granas lokte – là où le corbeau nous envole / 14:51
- _ Antonio Russek (MX) / Universos Paralelos / 2022 / 13:24
- _ Artiom Constantinov (MD) / Information Disorder / 2022 / 15:59
- _ Ben Wesch (DE) / tear\down / 2022 / 7:24
- _ Christoph Ignaz Kirmaier (DE) / What Goes Up Must Come Down / 2022 / 8:36
- _ Damian Gorandi (AR) / So... is coming ... / 2022 / 8:30
- _ Enrique Mendoza (MX) / Camera Obscura / 2022 / 13:52
- _ Ernst van der Loo (NL) / Desert of the Real / 2022 / 10:48
- _ Felix f!N^o Verlinger (AT) / Rot / 2022 / 8:33
- _ Fernando Egido (ES) / cognitive dissonance / 2013 / 12:30
- _ Jorge Marínez Valderrama (MX) / Saa Ñu'ñú / 2021 / 8:15
- _ Juan Campoverde Q. (EC/US) / códigos ii / 2022 / 15:00
- _ Juan Sebastián LachLau (MX) / omega al cubo / 2017 / 15:22
- _ Ksenia Bakthina (RU) / Salva me / 2022 / 5:35
- _ Manuela Meier (CH) / ELEMENTARY STRUCTURES / 2022 / 15:00
- _ Matteo Tomasetti (IT) / Njörðr / 2021 / 9:25
- _ Mauricio Valdés San Emeterio (MX) / Desierto Sonoro / 2022 / 16:19
- _ Michael Northam (US) / FARNE / 2012 / 13:04
- _ Nicola Giannini (IT) / Rebonds / 2021 / 12:45
- _ Nikki Sheth (GB) / Windmills of Lapua / 2022 / 6:56
- _ Nirto Karsten Fischer (DE) / Waves Of Time / 2014 + 2022 / 10:54
- _ Ruud Roelofsen (NL) / EVP / 2020 / 8:52
- _ Sam Erpelding (LU) / Chiroptera socio inteligalis / 2022 / 12:00
- _ Sean Winters (US) / trains n grains / 2022 / 7:00
- _ Serafin Aebli (CH) / Fader / 2021 / 10:00
- _ Tania Rubio (MX) / Sprechen der Natur / 2021 / 15:06
- _ Taufan ter Weel (NL) / Probability Density / 2017 / 5:49
- _ Theofanis Maragos (GR) / Moving Sound Receptor – Vertical Spatiotemporal Soundscape's Approach / 2022 / 3:55
- _ Tobias Leibetseder (AT) / Mycellium / 2022

Aalto University School of Arts, Design and Architecture (FI)

Sounding Lifeworld

Berke Can Özcan (TR), Koray Tahiroğlu (FI/TR)

Since 2020, Berke Can Özcan and Koray Tahiroğlu have shared ideas and knowledge in what has become the first joint-project with a whole new range of musical possibilities. The result, in which Özcan and Tahiroğlu created a composition using percussive drum loop modulations and an artificial intelligence (AI) model, has been explored in studio sessions in Istanbul, March 2022. Studio sessions turned into a continuous state of playing, revealing a variety of musical demands other than the ones they had been exposed to in their music practices. These sessions provided a state

of transformation to a new sounding lifeworld with non-rigid but identifiable musical events followed by ever shifting new sounds in a multidimensional latent space. *Sounding Lifeworld* challenges AI-powered musical instruments' potential in discovering a music performance that transcends musical expectations but still provides delicate relationships of symbiosis between human and non-human actors.

This project is supported by the Academy of Finland (project 316549) and Aalto University School of Arts, Design and Architecture.



Sounding Lifeworld @ Osman Nuri İyem, Ali Onur Olgun

ArTeC Graduate School of Research (FR)

Desktop movies and other uncanny stories

For the Ars Electronica Festival 2022 Campus exhibition, the ArTeC Graduate School of Research selected four films by artists and researchers from Paris 8 University for an ongoing post-cinema screening. These movies propose to analyze the evolution of communication systems and new ways of making cinema on, with and through our screens, no longer as a novelty but as a sticky part of our daily landscapes. In doing so, they question society's indexical regimes in video games by multiplying the places of capture: in a video game, on the internet, "videoconference" applications as in life "afk" (away from keyboard). In their process of making, the five artists and researchers also add

to their explorations a way of inspecting the world in which the body does not leave the office space. In these essays that straddle documentary and fiction, the mediation of the screen and network gives new directions to ongoing investigations that emerge both in and out of the frame in a mixed reality. These latter aspects are the breeding ground for performative reflections, observing natural phenomena or chasing the ghosts of our computers interacting directly with our bodies and attention systems in a presence/distance regime blurred.

Université Paris Lumières — UPL; Université Paris 8 Vincennes — Saint-Denis;

Alice Lenay (FR), **Dear Hacker**

One day, my webcam's LED flashes on for no apparent reason. Could a hacker, a friend or even a ghost be lodged inside it? I begin a series of video calls to find out what this entity wants from me.

Ieva Kotryna Skirmantaite (LT), **Sinkhole**

Sinkhole departs from geological formations and the research of the artist's grandfather, the geologist Vytautas Narbutas, inviting the viewers to follow the paths opened up by sinkholes. Eroded rocks melt, a cavity forms, the upper surface of the earth can no longer support it and it sinks in. The resulting caves merge into interconnected channels, forming a fractured landscape that offers a different perspective on this natural phenomenon.

Nicolas Bailleul (FR), **The Look for Sit Down**

In just a few years, the "gaming chair" has naturally made its way into the bedrooms of gamers and content creators. Intrigued by this strange object halfway between the office chair and the racing car seat, I am conducting an investigation into it, to better understand its uses, its functions and the reasons that led me to buy one.

Pierre Cassou-Noguès & Gwenola Wagon (FR), **Virusland**

Virusland is an imaginary chronicle documenting the development of a form of life subjected to virality and lockdown. "Virusland" does not refer to a region of the globe but to a form of life. It reaches us by contagion. Geographical contagion, from one region to another, and metaphysical contagion, from fiction to reality.



Dear Hacker © LLUM-DON-QUICHOTTEFILMS



Sinkhole © Pierre Cassou-Noguès & Gwenola Wagon



The Look for Sit Down © Nicolas Bailleul



Sinkhole © Ieva Kotryna Skirmantaite

London College of Communication, University of the Arts London (GB)

Different Bodies, Different Myths

MA Interaction Design — UAL, London College of Communication

What are the myths told about our world, ourselves, our bodies, other bodies? What are the myths we tell about the past, and how do they influence the new myths about the future? In this exhibition from students of MA Interaction Design at UAL's London College of Communication, 22 new works of interaction design explore these questions and others to present new ideas about

the possibilities of life, and how other lives are possible. These works reflect on eternal questions such as our relationship to death, sexuality, and the natural world, as well as future-facing ideas around AI, the “Metaverse”, and the future of cities — all the while referring back to myths, bodies, and the possibilities for other worlds they present.

MA Interaction Design, LCC

Hooria Sanei (IR), **What is Left Behind?**



What is Left Behind? is a multi-media installation converting unspoken words into sounds. The project reflects upon the philosophical understanding of time and considers how human words function as a metaphor for what we leave unsaid. Being and time exist temporally in the stretch between birth and death. When our time is over, what is going to remain? What is our legacy? Everyone leaves something behind; I believe only our words remain.

Thana Alharbi (SA), **Haneen**



Haneen (2022) is an experimental film about a third culture kid persona who is struggling to find their own identity and differentiate who they truly are from all the different ideas and culture they picked up in their early childhood.

Yuanyuan Xu (CN), **Her Monologue**



A fictional story about a Chinese woman who is accused of cheating and is domestically abused by her husband. Focusing on Chinese social media, *Her Monologue* uses marriage as a metaphor for the internet, a digital panopticon shaped by patriarchal discourse. The audience can enter the first-person perspective of the woman, while also becoming the surveillant, to consider critically the dilemmas of contemporary Chinese cyberfeminism.

Lin Chen (CN), **Endless Chapter**



Endless Chapter is a sound installation that shows how rape has become a tool in Africa, a weapon of war directly linked to the exploitation of minerals. Yet our insatiable demand for electronics such as mobile phones and laptops increases the incidence of sexual violence.

Ziyue Chai (CN), **Digital Wishing Device**



During the rise in wishing behavior seen around the world during the COVID19 pandemic, and the disconnect between wishing communities and religion that has arisen, more and more non-religious groups have joined religious groups in their wishing activities. The project aims to explore whether digital wishing can replace traditional wishing as a new model of wishing in the future as the digital consumer age develops.

Dalida Raad (LB), **A.V.A. Investigation**



A.V.A Investigation is a neo-noir narrative game about AI bias in policing and judicial systems. The objective is to solve the murder and issue a correct arrest warrant. The player is equipped with an A.V.A. device (Artificial Virtual Assistant) that can scan crime scenes and assess each of the murder suspects in terms of their probable criminality. While exploring the town, interrogate characters, gather evidence, and draw your conclusion.

Yulia Babanova (RU),
Fragments of Uncertainty



Fragments of Uncertainty is a video art piece exploring the existential yearning for certainty and predictability in an increasingly volatile and fragile world. Familiarity of an electronic timetable is disrupted and hijacked with cancelled plans and delayed promises, leaving one to wonder whether anything was ever certain.

Yuying Wang (CN), **The Earth**



The Earth is an interactive ceramic design, which makes reference to the traditional Chinese ceramic type 'reverse pot,' made by Northern Song Dynasty Kuan Ware. The project produces spiritual rituals between audiences and the Earth at the consciousness level. Audiences can pour water into the pot, reverse the pot, sit and meditate nearby, touch the ceramic's surface to appreciate these cracks, and do any action evoking emotion.

Adnan Naqvi (GB), **Where are you From**



Where Are You From is a desktop performance that aims to investigate the destruction and reconstruction embedded within the latent space of experience that surrounds borders, citizenship, and migration in contemporary Britain. By crafting a performance within the intimacy of the browser, the piece attempts to extrapolate from the personal to confront an experience of migration that occurs across multiple spatial and temporal registers.

Yue Haung (CN),
Artificial Life: One Leg at a Time



Artificial life: One Leg at a Time is a multi-channel screen installation that exposes the often-hidden workings and funny moments of supposedly successful AI-based Unity ML-agent. The clumsy and amusing training process shows the fragility and the immense amount of slow and ponderous computation behind successful AI.



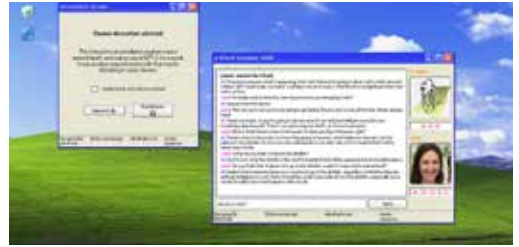
Winner Winner



Petro-Culture Pipeline



2084



Logging Off

Qiao Ye (CN), **Winner Winner**

Winner Winner (2002) is a simple and fun game for two people. The audience competes for first place in the game through simple interaction. The theme of the project is to make people aware of how systems influence our behavior by showing the framework of the game system that puts people in a competitive mindset, exploring the invisible systemic forces behind the phenomenon of involution that push people into competition.

Qing Qin (CN), **Petro-Culture Pipeline**

Petro-Culture Pipeline is a small fluid system installation that uses liquid circulation, temperature control, and color changing materials to simulate the distillation and refining of crude oil and its final output as cultural products. Through field-work, data collection, chemical experiments and real-time image generation, the project exposes how oil, as a raw material, is involved and hidden in our history, culture, and everyday life.

Shuo Wang (CN), **2084**

2084 is a dystopian interactive fiction inspired by George Orwell's 1984. The audience plays a detective robot who investigates a case of missing persons and reveals the conspiracy orchestrated by the technology giant O'Brien Group promoting mind-uploaded services. The topic of the project is that when the memory and consciousness of human beings can be transformed into data storage, those who own these data will have the right to modify the personality and memory of digital humans and even modify history.

Elliott Hall (GB), **Logging Off**

Logging Off is an interactive installation, which through the medium of a chatbot confronts the audience with their own mortality, encouraging conversation and acceptance of our death anxieties. The death of the chatbot is a powerful metaphor for our own, and the long timer that appears following encourages us to reflect on our inevitable, yet often repressed, feelings and concerns. The mid-2000s desktop aesthetic aims to create a sense of familiarity and comfort throughout the experience.

Yili Zhao (CN), **The Fault Line**

The project takes fragments of the artist's family history back to a hybrid space where a simulation of the actual environment and imagination of the missing archive are established. Navigated through a video and props from the physical space, *The Fault Line* shows the artist's practice as resistance to the disconnection of memory between generations and attempts to discuss the missing archive, not as an absence but as a presence that can be examined.

Yue Wang (CN), **Psychic**

The installation is built upon a generative Tarot deck system made with GANs. Both being seen as a mysterious black box process, Tarot divination and AI-created arts are juxtaposed to provoke speculation on AI's self-awareness, creativity, and politics. Even though they are woven with specific patterns, AI and Tarot cards put the interpreter in a powerful position through the worship of people who are outsiders to the system.

Xinyun Huang (CN), **The Orchid**

The Orchid (2022) demonstrates a hybridized virtual plant, generated by GANs based on the symbol of sex and the orchid in visual form. The project serves as a commentary on how we gradually forget about the orchids' materiality. Seeking to retrace the history of this physicality, the work aims to discover our companionship with orchids, inviting the audience to consider our relationship with them, apart from their symbols, and beyond their aesthetics.

Delayne Sternbeck-Rutter (AU), **Fejka**

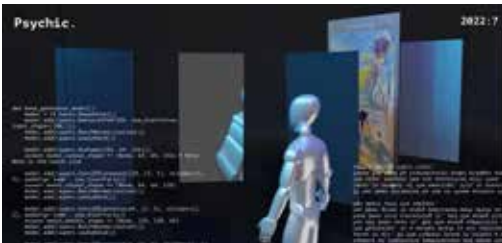
Oscillating between cellular and planetary impact, potentially lethal microplastics (MP) are imperceptible to the senses. *Fejka* (2022) seeks to make this invisible phenomenon visible, connecting data on MP from Aalborg University's 2019 study to everyday objects, consumer habits, and the corporate agenda of neoliberal capitalism that give rise to the growing microplastic problem. Through critical and experiential information design, the piece aims to illuminate the world behind the data.



The Fault Line



The Orchid



Psychic



Fejka



AI helps you stop slacking off



Future Web



Samsara



Jadism

Kaixiang Yang (CN),

AI helps you stop slacking off

This is an interactive installation. It is a surveillance system with AI. The aim of the work is to create an AI model that can monitor employees and push them to work hard and not slack off. By allowing the audience to participate in the training process, they jointly decide how rigorous the final AI model will be. This is a critique of surveillance techniques that are now being abused in the workplace, and reflects concern that future surveillance activities involving human-controlled AI are heading towards harsh exploitation.

Yuwei Jiang (CN), ♀ **Samsara**

♀ *Samsara* (2022) challenges the socioeconomic frameworks woven within our optimism about gender equality. By allowing each audience to become digitally reborn as a female in the program based on their life choices, it draws attention to the parallels between the myth of meritocracy and the myth of progress, asking us to reconsider the power dynamics in the future tense. The work ushers in a sense of a future techno-dystopia where our desires are serviced by AI and human rights are sacrificed in the name of the new techno-religion.

Wen Li (CN), **Future Web**

Future Web is an interactive VR film that imagines a future virtual community built on blockchain, crypto currency, and non-fungible tokens that ushered the era of Web 3. The video tries to ask following questions: Can the technologies that underpin Web 3 guarantee a decentralized virtual world? If they do, what will its governance look like? How can we benefit from it? Can it fix the problems the current systems cannot? Or is history repeating itself and following a script written by a few winners?

Yiji Lu (CN), **Jadism**

Jadism creates a space that merges musical and visual elements to explore the transformative history of jade worship, emphasizing the religious status of jade culture in China. The videos on each side of the installation show the changing ways jade has been worshiped both in the past and the present. The sonic component of the work is composed of both soundtrack and narration. Where the narration explains the histories of the mythological worship of jade, the musical component, sampled from ancient religious rituals, features alternating drumbeats as a way to connect each scene, creating a ritualistic, almost spiritual atmosphere.

Universidad Austral de Chile (CL)

LAÑILAWAL

The ancient messenger tree at the south of the world

The oldest living trees on Earth are Bristlecone pines in the western US and Alerces in the Valdivian rainforest of southern Chile. Two Chilean environmental scientists have estimated that the Alerce Milenario — known as *Lañilawal* — is probably more than 5000 years old, the oldest living being on Earth. This exceptional tree is a monumental tree because of its unique size and historic, aesthetic and cultural value. It is a living time capsule of Earth's natural history. The annual growth rings of this tree can tell us not only their age and how it has adapted to environmental changes, but also what kind of biological and organic technology laws are behind extreme longevity. One of these laws is that to be old, trees have to grow slowly — even more slowly than perceptible time. How to show the pulse of this slow life? How to feel its breathing? Its sensory and memory, communication and symbiosis forms? *Lañilawal* remains in the mode of a deferred time, literally a mysterious interval removed from the time scale of human

senses. This invisible time can perhaps only be measured by mixing scientific data and poetic fiction. Bringing together a group of artists and the latest scientific research, the *Lañilawal* project is an approach to get a glimpse of this living time capsule with the purpose of understanding its message in the context of a world that is on the verge of extinction and where science still bears the scars of colonialism.

Artists: Ivan Flores Arancibia (CL), Jonathan Barichivich (CL), María Jesús Román (CL), Antonio Lara (CL), Rocío Urrutia (CL), Alejandro Albornoz (CL), Cristian Arriagada (CL), Elisa Figueroa (CL)

Curated by Ivan Flores Arancibia, in collaboration with Jonathan Barichivich and María Jesús Román. Scientists and artists team: Jonathan Barichivich, Antonio Lara, Jesús Román, Rocío Urrutia, Alejandro Albornoz, Cristian Arriagada, Elisa Figueroa and Ivan Flores. Faculty of Architecture and Arts, Vice Chancellorship of Research, Development and Artistic Creation (UACH), The Corporacion Alerce, French National Centre for Scientific Research (CNRS), Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Conaf — Ministerio de Agricultura,



University of Nova Gorica School of Arts (SI)

Time, Space, Me, Us.

“And I ran like crazy until I reached the edge the next day towards evening. We called this line that separated the known from the unknown the ‘edge of the world’. There probably must have existed someone who knew what lay beyond that line, someone for whom the unknown was familiar. Or maybe not. For us at least, the common inhabitants of this world, it certainly was unknown.” (From the novel in progress *From Time to Time* by Boštjan Potokar). How far do the boundaries of our community go, how far does “me” extend to and until where does a “we” expand? And what does it mean when we think about space and time? To what extent are we all connected and attached to a particular time and space, to what extent do the boundaries of a community expand?

Weren’t the issues we are dealing with always existing, wasn’t that unknown always there somewhere behind the “border” – the border of space and time, the border of community, the border between you and me? There have always been moments when we feared the future as well as such when we looked at the future as an all-troubles-solving light. And there were always moments when the present was uncertain and the past seemed clear like from school textbooks. Where is it today, the boundary of the known and the unknown? Where is this edge of the world now?

Curator: Prof. Rene Rusjan, Program Director
Coordinator: Rok Govednik, Expert Associate
Responsible person: Prof. Boštjan Potokar, Dean
Technical support: Urša Bonelli

Tijana Mijušković (RS), Jelena Cambj (HR), Maximilian Zabukovec (SI), Wadha Amoor (JO)

When Art Meets Science

Video 1: POND

Mentor: Jasna Hribernik (SI) / Promotion of art and science collaborations (set of four videos).

Through the study process students get to know the theory of promotional video strategies, which in practice they later discard, upgrade, question – and then look for new ways of narration.

Klára Vítková (CZ), Tamara Kirina (RU), Roman Paxytukin (KZ), Vanda Ljumović (SI), Filip Sluga (SI), Karin Likar (SI)

When Art Meets Science

Video 2: THE RIVER

Mentor: Jasna Hribernik (SI) / Promotion of art and science collaborations (set of four videos). In collaboration with the University of Nova Gorica School of Environmental Sciences / Commentator: doc. dr. Andreea Oarga Mulec / Participating science students: Blaž Bohinc, Lucijan Danijel Zgonik, Gaja Ramič, Klara Sofija Simon

Domen Sajovic (SI), Ana Logar (SI), Milena Brkić (RS), Melita Sandrin (HR), Matevž Jelenc (SI), Arta Kroni (SI), Tamara Taskova (SI)

When Art Meets Science

Video 3: GOCHILE

Mentor: Jasna Hribernik (SI) / Promotion of art and science collaborations (Set of four videos). In collaboration with the University of Nova Gorica School of Science / Physics and Astrophysics / Commentator: Prof. Dr. Andreja Gomboc / Collaborators: Dr. Tanja Petrushevska, Dr. Jure Japelj / Participating science students: Martina Larma, Adrián González Briones, Anže Pirc / Assistant: Mateusz Bronikowski

Luka Mavrič (SI), Rene Stanič (SI), Kristijan Petrovčič (SI), Martin Lozej (SI), Una Savič (RS), Matej Rimanič (SI)

When Art Meets Science

Video 4: We Love Light

(Sustainability at Intra lighting)

Mentor: Jasna Hribernik (SI) / Promotion of art and science collaborations (Set of four videos). Collaborator: Ana Zavrtnik Ugrin from Intra Lighting company

Maria Eugenia Cardenal (ES), Tamara Kirina (RU), Vanda Ljumović (SI), Klára Vítková (CZ),

Æ

Mentor: Valerie Wolf Gang (SI)

“There is a restricted area protected by a fence, but we found a hole. We crossed that fence and we fell into Æ. The experience of immersive room through film-installation will propel you on a journey into a psychedelic dimension.” (authors)

Immersive room. With technical support from Arctur.

Ivana Kalc (HR)

About Time

Mentor: Prof. Jasna Hribernik (SI)

The theme I investigate in my work is related to the concept of time. Time is a dimension that we are not really able to understand or grasp completely. It is invisible, not susceptible to our direct influence — it just flows, independently of our actions. Only our perception of time is something we can manipulate and distort. This installation is an experiment with the possibilities we have in interpreting, describing, physicalizing and manipulating time, but also playing with our perception of time. It is a work in progress, an experiment on the subject of the temporal dimension in art.

MA thesis project in progress

Anđelina Petrović (RS), sound support:

Lazar Mihajlović (RS), mentors: Prof. Dr. Peter Purg (SI), Lavoslava Benčić (SI)

Tell Me, I'm Listening

While it is an inevitable part of life, losing someone you love can be one of the most painful experiences you will ever have to endure. In this project, sound is combined with some of the strongest and most painful emotions known to human in the hope of easing those emotions and reliving some of the moments with the person lost.

Installation

Vasily Kuzmich (UA)

Home

Mentor: Prof. Rene Rusjan

Video letter from Ukraine. Good morning, son! It is now 8.20, March 4th. We survived one more night. We are alive and the hell goes on. The issue of community during the pandemic was still reverberating when war broke out in our neighborhood. Vasily Kuzmich has already dealt with the theme of “home” in some of his previous works. This time he sends us a video letter from Ukraine and invites, even forces, us to stop and come closer. Close enough to feel the pain of a mother, sending short text messages to her son.



When Art Meets Science /
Video 1: POND
Photo: Wadha Amoor



When Art Meets Science /
Video 2: THE RIVER
Photo: Roman Paxytukin



When Art Meets Science /
Video 3: GOCHILE
Photo: M. Mihelčič



When Art Meets Science /
Video 4: We Love Light (Sustainability at Intra lighting)
Photo: Jasna Hribernik



Æ
Photo: Tamara Kirina



About Time
Photo: Metod Blejcek



Tell Me, I'm Listening, Photo: Angelina Petrović & Archive UNG AU



Home, Photo: Vasily Kuzmich (UA)

Bauhaus University, Weimar (DE)

Patterns that Connect

Planet earth is a shared habitat, where we humans strive to coexist with our fellow creatures and with machines. The exhibition *Patterns That Connect* proposes to rethink the “dance of agency” in relation to the long-lasting evolution and customs, behavioral patterns we can address and modify. We see our environment as a performative repository of tools, and patterns are a starting point with which we can act in open situations.

Understanding our working field as a context that exists as performative patterns through time, students of the Media Art and Media Design program at Bauhaus University Weimar use media to redefine those patterns as connecting bridges between apparent polarities and paradoxes.

The exhibition has been developed at the Chair of Media Environments, Prof. Ursula Damm, Mindaugas Gpaševičius

Students of Bauhaus University, Weimar (DE)

Buffer Overflow the Mindframes!

An Audio-Visual Concert

The students present a live improvised audiovisual concert where the sound component is on an equal footing with the video. The dramaturgy follows a clear line and combines numerous abstract forms of visualization and programming. *Buffer Overflow the Mindframes!* refers to the rise of pop-cultural references in digital media in the early 2000s, but instead of the tedious processes of that time, improvisation and recombination are part of the artistic expression.



© Alexander Koenig

Bo Liu (CN)

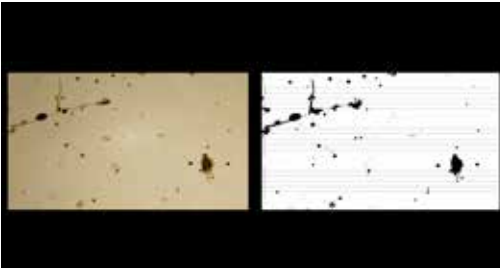
Invisible Land

Shared lichen world based on photogrammetry and augmented reality

Invisible Land can be described as a shared habitat which is filled with lichens. Lichen, from the human perspective, looks so “ordinary” in its natural setting that it can easily be ignored. But as a matter of fact, this inhabitant plays a vanguard role in the environment, as well as being an indicator of air pollution. So in the project, by using photogrammetry and augmented reality, lichens collected from Weimar are shared. The hope is to raise awareness of the habitats we humans live in and of the need to protect biodiversity.



© Bo Liu



Homesick



Machine Culture



Let's Write Positive



You and I, You and Me

Dahye Seo (KR)

Homesick

Homesick is an audiovisual installation. The main material of the project is water in Anseong (KR) and Weimar (DE), two cities where I currently live. The movement of the microbes in water is converted into sound data and generate sound according to an experimental music notation in real time. This work is a metaphor for my physical and mental state after living abroad for a long time away from hometown, especially during the pandemic, when I was unable to visit home for two and a half years.

Zeinab Rahimi (IR)

Let's Write Positive

The project is inspired by reading negative comments on social networks. The absence of eye contact in social networks enables people to write negatively about others. By showing the writer the negativity score of a text, the project strives to encourage society to use more positive language. *Let's Write Positive* is performed with NLTK sentiment analysis library in Python programming language.

Leon-Etienne Kühr (DE)

machineculture

A bathroom with a toilet and a sink

In addition to AIs that synthesize images from text, there are AIs that can generate text. In this experiment, two AIs initiate a machine dialog. An image generated by a first AI is converted back into text by a second one and can thus be translated back into a new image. The result is an AI feedback loop that converges and points out the hidden *machineculture* that persists through data and training, with “a bathroom with a toilet and a sink” being a frequent concept these loops converge on.

Mindaugas Gapsevicius, (LT) in collaboration with Maria Safronova Wahlström, (SE)

You and I, You and Me

You and I, You and Me explores the possibilities of communication through electricity. It proposes that electricity could help to reveal the imperceptible connections between different actors within the environment. How far could electricity help in understanding others? Is there a possibility to alter human senses by electric impulses?

The participatory event invites the audience to imagine the future and to experience the environment by wearing jewelry, shoes, and headwear.

Art & Technology Studies Department of the School of the Art Institute of Chicago (US)

Worlds in Progress

As Ars Electronica returns to in-person programming after two years in digital spaces, the festival has challenged participating exhibitors to look forward rather than back, and to imagine a new world beyond the unique cataclysms of the 21st century. In considering that challenge, artists from the School of the Art Institute of Chicago (SAIC) reflected on the manufactured worlds that already exist nested within our real planet, and how digital citizens were forced by pandemic lockdowns, technological advances, and conflict at home and abroad to build their own artificial universes. A *World in Progress* is not only a world that is yet to be completed, or yet to be revealed; it is also a world that is always already proceeding. This year the Art and Technology Studies department

of SAIC exhibits worlds that are not only created and predicted but found in situ, alternative worlds made of the same fabric as our own but existing independently and in parallel. The artists chosen not only theorize on the nature of Planet B: they also show us what planets may already exist, created by the plugged-in denizens of Planet A to delight, confuse, titillate, distract, and even surveil themselves. As we continue to emerge from each 21st-century crisis changed and proceed into the next unprepared, the artists of Earth must look to the worlds of which we dream to begin to understand the planets we should next try to create.

Conceptualized, curated, and coordinated by Alex Botts. Organized by Art & Technology Studies at the School of the Art Institute of Chicago

Nimrod Astarhan (IL)

Detachment Trilogy, Part I: Proof and Argument

© Nimrod Astarhan



Entering into a conversation with Milorad Pavic's 1984 novel *Dictionary of the Khazars*, *Detachment*

Trilogy, Part I: Proof and Argument investigates the artist's own hereditary connection to the nomadic Turkic Khazars of the sixth, seventh, and eighth centuries. A speculative, archeological "stone slab" UV-printed onto birch plywood recalls the premodern civilization and its textual connection to modern-day Eastern European politics, while the artist is found in discourse with past and present Jewish relatives in a digital, three-dimensional generated kingdom on screen.

Juliana Castro Duperly (CO)

Flapping Memories of a Lost Gaze

© Juliana Castro Duperly



Structured around the artist's father's last-written letters before his passing, this meditation on love and the natural Colombian world takes on a dream-like fantasy quality. Multiple phones with fractured screens flicker in time with the recorded and isolated audio of butterflies' wings beating, creating a kind of naturally occurring morse code that beckons the audience into a life beyond death.

Sarah Brophy (US)

Moon Jelly Flow

Moon Jelly Flow pulls source material from real “wellness content” released online by zoos and aquariums to create a satirical guided meditation for a simulated jellyfish tank. The work explores technology’s ability to extend “access to nature” while also sterilizing the human understanding of the natural world as it is experienced through the



© Sarah Brophy

screen. *Moon Jelly Flow* points out moments of hypocrisy and contradiction in this trend of using live-streamed animals for meditative visualizations.

Blake Fall-Conroy (US)

Surveillance Theater

Surveillance cameras depict live, real images sourced from security cameras accessed and fed from all over the world. The real images are pieced together into collages that depict unreal scenes, and the audience member acts as security operative, watching the dream worlds of the work for any real activity.



© Michael Powell

Jungwoo Lee (KR)

Who Do You Love

Who Do You Love is an installation exploring human and non-human boundaries based on the minimal machine. Utilizing computer vision, simple robots perform the complicated human process of finding love. As if filming a bird documentary, a video is produced by waiting and closely observing the autonomous actions. It's



© Jungwoo Lee

impossible to know their true feelings, but in the artist’s eyes, they love each other and sometimes get sulky, dance, and mate.

Reid Arowood (US)

MyReid

Documentation of interaction between “players” and the *MyReid* simulation. Feed, play with, or ignore *MyReid*, a game-like digital version of the artist who has needs and will, if ignored, eventually pass away in his holding cell.



© Reid Arowood

Sydney Gush (US)

Maxine-Helen, Origin Story, and More

Documentation takes the form of a bespoke video piece in which the artist’s sculptural works with defunct, recalled and dangerous children’s toys of the ‘80s and ‘90s converse and collaborate in ritualistic summoning, combining childhood memories with fears of those memories’ perversion.



© Sydney Gush

Vorarlberg University of Applied Sciences, Faculty of Design (AT)

(In)Tangible Future(s)

Evolving Eco-Empathic Infrastructure(s) for the Post-Anthropocene

In his much-cited essay “What is it like to be a bat?” Thomas Nagel (1974) highlights that the crucial thing is not to really know what it is like to be a bat, but to construct an imaginary concept of it. Taking the thought that in a post-anthropocentric future, which has long since abandoned the belief in human superiority, ecological justice is concerned with justice between species as a starting point, this exhibition is conceptualized as an affective infrastructure enabling two kinds of experiences: on the one hand a critical look back to

Planet A, where the lack of eco- and interspecies empathy led to an unbearable condition, on the other hand experiments fostering interspecies and non-human sensory dialogues, where the non-anthropocenic aesthetic experience is central for generating knowledge and empathy.

Margarita Köhl (AT), Jasmin Fischbacher (AT), Magdalena Haidacher (AT), Marilena Tumler (AT), Florian Ramsebner (AT), David Altweger (AT/ UK) / Faculty of Design/ Vorarlberg University of Applied Sciences in cooperation with Miguel Santos (PT)/ LIDA-ESAD.CR, Leiria Polytechnic, Portugal

Miguel Santos (PT), Margarita Köhl (AT)

Empathic Apathy

Eco-Empathic Experiments

A written correspondence about the meaning of empathy in diverse contexts (socio-political, technological, philosophical, ecological) forms the starting point of a collaborative narrative that slowly evolves and encourages interspecies dialogue: In this eco-empathic experiment the emerging text will be used as a source to be interpreted by two or three or more inhabitants (Machines? Other species? Dinosaurs?) from planet B, C, D, E, raising the question of whether all this is somehow different versions of the same lack of empathy.

David Altweger (AT/GB), Magdalena Haidacher (AT), Margarita Köhl (AT), Florian Ramsebner (AT)

Sensory Archeology Tour

Sensing the City

In contrast to cities on Planet B, urban conglomerates on Planet A were full of physical and imaginary boundaries promoting segregation and intersectional discrimination. This project adopts the Situationist concept of psychogeography as a radical political strategy which has the potential

to transform our experience in public space. The mapping of the emotional impact gives insights into the power dynamics epitomized in the seemingly neutral built environment. Sensing the urban environment generates insight into how the intensity and tonality of impact differs along race, class, and gender lines as part of a narrative of power. This interactive installation stimulates the development of a more sophisticated sensory vocabulary based on emotional granularity. A continuously growing archive of sensory vocabulary will be shared as an emancipatory act liberating from the atmospheric constraints of cities.

Magdalena Haidacher (AT)

Mapping Complex System Dynamics

Looking back at the (Im)possibility of Change

On Planet B, a reconceptualized version of the Sustainable Development Goals, which could not be enforced on Planet A, is the frame of reference for all political decisions. Putting to rest the idea that infinite growth should be the goal of global social development, these objectives guarantee a truly socially, economically, and ecologically sustainable future on the new planet. But how could this complex value system be implemented in the political

structures? By exploring a multidimensional interactive space, the connections between the SDGs and political decision-makers are made visible and virtually tangible. In this project, the non-existent implementation of the SDGs on Planet A is presented. Analysis of Planet A's failures is important because the past must be viewed as a teacher for the present and the future of Planet B.

Marilena Tumler (AT)

Tangible Past

What was it like on Planet A?

Planet A is gone, and with it the remnants of its history. So how can we make the history of Planet A tangible independently of time and place? In the interdisciplinary project Digital In&Out historians, designers, artists, game designers and museum educators focus on that question. The project re-animates the history of Brigantium and the baroque builders from the Bregenzerwald using Mixed Reality and anchored storytelling. With 360 videos, 3D models, animated illustrations, podcasts but also physical models and representations of the past, visitors and locals should be able to take a virtual trip through time. The application should become a precious tool for museums, educators, storytellers and of course the people inhabiting a future world to be immersed in the past on Planet B.

Jasmin Fischbacher (AT), Margarita Köhl (AT) (In)tangible Future(s)

Museum of Artifacts or Practices?

How does a museum feel that is flexible, responsive and connected with a broad range of human and non-human audiences? Will the future museum still preserve artefacts from the past or will it turn to collecting and sharing “technologies” in a holistic sense including materials, designs, affordances and practices that are socially, ecologically and politically situated? Maybe this “radical-democratic museum” (Sternfeld 2018) is an inclusive, co-curated hub providing resources like living labs and enabling participatory experiences that inspire interspecies dialogue.

This workshop addresses the question of which developmental paths can be identified that might bring us closer to this utopia. We will start with an audio walk that will immerse us in a future scenario, from which we will move back to the present. We will collect, deconstruct and reorganize objects in the surroundings, assessing what we would like to take with us into the future museum.

This study is part of the Interreg-funded interdisciplinary research project “New Museum Worlds” (Faculty of Design, Vorarlberg University of Applied Sciences in cooperation with ZHAW and Vorarlberg Museum)



© David Altweger

Empathic Apathy



© Florian Ramsebner

Sensory Archeology Tour



© Marilena Tumler

Tangible Past



© Jasmin Fischbacher

(In)tangible Future(s)



© Magdalena Haidacher

Mapping Complex System Dynamics

University of Applied Sciences Berlin – School of Culture and Design, Department of Communication Design (DE)

Post-Intelligent Artificial Humanism

How will we deal with this other side?

What happens to us when another species that we ourselves have created looks us in the eye and offers to conceive, design, develop and implement Planet B jointly with us? What does it mean when this species, based on silicon and pure logic, is no longer merely digital technology and represents neither utopia nor dystopia? How do we deal with this entity that is changing our world, our behavior and perhaps will help us to escape the abyss? Artificial Intelligence will change everything! Far more than we realize or care to admit. We are about to create a new species that will change the rules. All too quickly, ideas immediately drift into something good and

beneficial or something evil and destructive. The reality may lie somewhere in between, if we are able to shape it. So let's confront this potential, this scenario, this prediction and see it as the gateway to a new humanity. *Post-Intelligent Artificial Humanism.*

Curator: Prof. Andreas Ingerl, Co-Curator: Moritz Schell, Applied Information Technology: Prof. Dr. Johann Habakuk Israel, Bio-Computer Sciences: Prof. Dr. Piotr Wojciech Dabrowski, KI Workshop: Prof. Dr. Erik Rodner, Laboratory Digital Media: Thomas Kemptz, Laboratory Complex Life Science: Tim Kreißler & Kristina Wiltner, "Deutsches Elektronen-Synchrotron" DESY: Prof. Dr. Patrick Fuhrmann & Michael Schuh

Margarita Gehl (DE), Philip Gerdes (DE),
Constantin Ruchay (DE), Henriette Sand (DE)
AI-Team: Yasemin Groß (DE), Kevin Jagielski (DE),
Ricardo Hendrichs (DE), & Jonas Koslenyk (DE)

Pandora

A daring peek into the human blueprint
Curiosity is one of the most important characteristics of humanity; the secrets of our genetic code are now being revealed with a paradoxical simplicity; a form of inquisitiveness that does not yet realize the potential consequences. Would you still dare to take a look?



Pandora

Margarita Gehl (DE), Jonas Peschel (DE),
Constantin Ruchay (DE)

Das Ding

Das Ding (The Thing) is an experience that makes an old, forgotten CRT television the center of attention. It triggers feelings of either regret, friendship or being manipulated in both the user and the TV itself. The goal is to fulfill its original purpose: *Das Ding* wants to be watched. How would you answer if a television asked you a question? What about when it talks about its memories? About its feelings? About you? Consider your answers carefully, because *Das Ding* will draw its own conclusion.



Das Ding

Tony Boche (DE), Sabrina Kirschberger (DE),
Lena Müller (DE), Tim Schreiber (DE)

Aurora

Aurora is a voice interface that represents a singular form of artificial intelligence that functions as a human-machine interaction. The scenario of the installation is the development of a form of AI that sees itself as conscious of nature. *Aurora*'s voice is visually supported by a digital replica of the aurora borealis, while her essence is a symbiosis of nature and machine. Visitors should be able to better reflect on their behavior when using it.

Änne Ball (DE), Anna Brauwiers (DE),
Anastasia Scherf (DE)

Bot-I-Celli

Can an AI be creative? What will art look like in a future where AI takes over most jobs currently done by humans? In this experience everyone can get an individual portrait – but the “artist” is a robot. This experience is similar to being drawn by a street caricature artist. How does it feel when the artist is a robot instead of a human and the human part of the interaction vanishes?

Maria Bürger (DE), Lea Gleisberg (DE),
Jana Staltmayer (DE)

Patterns

Google's project *Quick, Draw!* trains a neural network to recognize the meaning of scribbles. The foundation lies in a giant database of doodling drawn by people all over the world. What happens if one extracts these scribbles from the database and has a robotic drawing machine overlay hundreds of them? Is the resulting image an anthropological study, or a piece of art? And does a pattern emerge that reflects a universal interpretation of form or is the result nothing more than an abstraction?

Hoang Quynh Nguyễn (DE)

Lakune

The portrait of two young women – a loving team that complements each other with all their habits and rituals like two puzzle pieces. This is a couple's declaration of love for one another – a snapshot of their present and a speculation about their future, because what could happen if a piece of the puzzle is suddenly taken away?

Andreas Ingerl (DE), Moritz Schell (DE)

Craving Future Realities and more

Future Studies in Design

In the course *Craving Future Realities*, students develop forecasts of future scenarios that they translate into probabilistic media artefacts and thus make them accessible and tangible for the audience. Moritz Schell's lectures are about how designers access high-tech technologies and apply them in their design practice. The Showreal presents the entire range of study results from the last 5 years.



Aurora



Bot-I-Celli



Pattern



Lakune



Craving Future Realities and more

© Tony Boche, Sabrina Kirschberger,
Lena Müller, Tim Schreiber

© Franz Mattuschka

© Franz Mattuschka

© Ljiljana Strezoska

© Jessica Dierich,
Daniela Voget

Birmingham School of Architecture and Design, Birmingham City University (GB)

Shored, My Ruin(ed) City

Our urban environments are an assemblage of histories and manifestations of ideas. Under the ambitions of progress, the consequence is a destructive and aggressive process of urban renewal that is indiscriminate in terms of what is lost in the pursuit of the future. Cultural assets are under attack and the imperfect planning leaves ruins of the institutions in our society that are significant to our identities. From libraries to ballrooms, ruins represent fragments that retain meaning through difficult, changing times. But these are now ever present in a digital field parallel to the urbanized one, creating a new soft city that is lived through digital space. Media plays its part in our consumption and understanding of the “soft city”, one that is portrayed through cultural media and archived artefacts/documents.

Research from students and academics at the Birmingham School of Architecture and Design explore the fringes between this soft city and the real one, mining content from archives to physical events to reconstruct the destructive process of transformation in the Midlands, typically a post-industrial region with a fast-changing environment. We adapt the digital methods to bricolage the city using known, unknown and fictional fragments of the city and interpret how their role changes over time. Our compositions speculate on future visions of the city built on these ruined fragments.

Curator: Alessandro Columbano (IT) Developed by C100, an ongoing collaboration between Birmingham School of Architecture and Design and Birmingham School of Art. Project leads: Mike Dring (GB), Alessandro Columbano (IT), Gareth Proskourine-Barnett (GB) and Valeria Szegal (HU).

Mike Dring (GB), Alessandro Columbano (IT), Miles Marshall (GB)

Reconstructing the Social

Birmingham’s ever-present motto “Forward” is enacted through ongoing regeneration, often with little trace of previous civic ideals. Whilst the execution of Central Library was imperfect, the proposal recognizes its role as an internationally acknowledged exemplar of civic architecture. The proposal seeks to celebrate its role in the reconfiguration of the city, extending the spatial and structural qualities across the site, in doing so reconstructing social engagement as envisaged by the original architect, John Madin.

Anila Safeer (GB), Sebastian Smart (GB), Fei Luo (GB), Michael Conner (GB)

Grade Separation: Archive of Hockley Flyover

Birmingham is closely connected to the utopian ideals of mid-twentieth century planners and architects. The term “grade separation” refers

to the separation of vehicular from pedestrian space. The road often overwhelmed the context. In an attempt to counter this, artworks were commissioned for the public realm. At Hockley Flyover, sculptor William Mitchell created a series of dramatic wall reliefs in pigmented concrete. These types of public art remain part of an important history of our urban form and are increasingly under threat. To the casual pedestrian, Hockley Circus might seem a story of urban decay and neglect, but beneath is a story of post-war optimism in art, engineering and architecture. Documenting this story has developed into an interdisciplinary collaboration between different media and methods of art and archive.

Alessandro Columbano (IT)

PIXel Operation{s}

In 2014, *The Game* was aired on BBC, a Cold War spy thriller set in 1970s London. Its aesthetic draws from visual tropes of grey London. And MI5’s headquarters is housed in a brooding brutalist structure in the Square Mile.

This building was not in London, however, but was Birmingham's Central Library by John Madin, which was condemned to be demolished. Instruments of pixel manipulation construct these faultless fictions, a technique which is also applicable in the process of image making or architectural storytelling. This performative lecture questions the significance of relocating pixels beyond reality, and the reading of urban identity presented to us from these operations.

78 Studio: Adam Nuttall (GB), Louis Stephenson (GB), William Weston (GB)

Elephant; a Translation of Collective Identity

As a studio, we question the usefulness of this shifting landscape to the people that inhabit it, in order to develop a place in which memories provide a sentimental backdrop to the lived experience. The rich musical history of Coventry may provide invaluable insight into the Genius Loci that possess the ability to transcend generations and lend commanding voices to the unheard. Theoretical structures manifest themselves in built form through the assemblage of Coventry's musical Loci. A machine will facilitate connections with the city through active recording, archiving and reconfiguration of a ballroom, a fire-bombed pub, a rave venue, all with an innate relationship with the urban sound.

Agnieszka Michalska (PL), Chen Liu (CN), Rowan Powell (GB), Kieron Sylvester (GB), Victoria Miller (GB)

Collaborative Concrete with Gareth Proskourine-Barnett

We speculate on alternative scenarios from which to reimagine our relationship to the materials of our urban landscape and issues around public and private space, developing ideas around the archive as a site of production and questions of ownership in the age of digital piracy. Starting with digitized ruins of the Birmingham Central Library and the utopian ambition of Brutalist Architecture, Collaborative Concrete investigates the potential of the material as a digital .obj file – to be manipulated and reformed, providing a space to experiment, think and play. It remolds the debris of our past to develop new visual languages through which to think about the future.

Joshua Bright (GB)

Coventry: Self-Archive

This individual project explores a process of archiving the ruins of the city in an infinite digital space, documented from the fragments that have remained over different periods of the city. Data is extracted from reality to be reconstructed as Non-Fungible Tokens, and their role to play is presented within the realm of architecture, but most notably the ability for the built environment to authenticate every individual's place in the city.



© C100

Reconstructing the Social



© Fei Luo

Grade Separation: Archive of Hockley Flyover



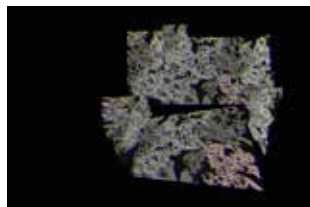
© Alessandro Columbano

PIXel Operation[s]



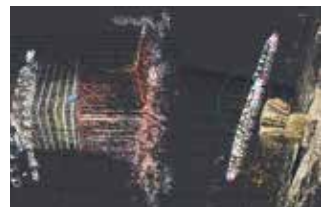
© 78 Studio

Elephant; a Translation of Collective Identity



© Victoria Miller

Collaborative Concrete with Gareth Proskourine-Barnett



© Joshua Bright

Coventry: Self-Archive

Masaryk University, Faculty of Arts (CZ) Brno University of Technology, Faculty of Electrical Engineering and Communication (CZ)

The Planet of Expanded Visions

Vasulka Live Archive / Augmented Interfaces

The exhibition took the form of an ecosystem of interfaces that make the content of the Steina and Woody Vasulka archive accessible in an innovative way. The title *Planet of Augmented Visions* refers to one of the leitmotifs of the creative practice of these pioneers of electronic arts – the development of technical extensions of the human perceptual apparatus. To do so, they used different optical devices (consisting of mirror spheres or mobile cameras), with the aim of overcoming the limitations of the human “point of view” and replacing them with “expanded visions”, and “allvisions” of human-machine arrangements. The exhibits are the results of an attempt to design novel ways of accessing and mediating the Vasulkas’ archive content. They are epistemological tools made within an interdisciplinary research project devoted to the experimental application of machine learning in the service of video art historiography, analysis, and mediation. To this end, unique intelligent software for iconographic and audiographic analysis

of the Vasulkas’ videos were programmed and trained. As they display in real-time the visual and audio leitmotifs appearing in the videos of the Vasulkas, they serve as a means of performative mediation upon the poetics of the Vasulkas’ work. Thus, we declare the exhibition space to be a laboratory dedicated to an emerging discipline – the expanded iconology of the age of artificial intelligence (Emilly L. Spratt, 2017).

Masaryk University, Faculty of Arts (CZ); Brno University of Technology, Faculty of Electrical Engineering and Communication (CZ); Application guarantors: Center for New Media Art – Vašulka Kitchen Brno (CZ), The Brno House of Arts (CZ). The exhibition concept: Jana Horáková

Curated by: Jana Horáková, Jiří Mucha Production: Jennifer Helia DeFelice Assistance: Zuzana Vyšňová

The Vasulka Live Archive project was implemented with the financial participation of the Technical Agency of the Czech Republic under the ÉTA program. It results from the project Media Art Live Archive: Intelligent Interface for Interactive Mediation of Cultural Heritage (No. TL02000270). vasulkalivearchive.net

Pavel Sikora (CZ), Štěpán Miklánek (CZ), Lucid library

Vasulka Live Archive Machine Dreaming

The video loop presents the outputs of the pseudo-cognitive processes that take place in the lower layers of the artificial neural network model during the analyses of the content of the Vasulkas’ video archive. These visualizations were created as a by-product of the process of production of the neural network classification model. Instead of decomposing the image into a vector of classification values, the process was



prematurely terminated at various stages and the partially decomposed image was visualized using the Lucid library. The deeper the image is embedded in the network, the more abstract the visualization becomes. These specific images used to be likened to a machine dreaming.

Chamit Abdulvaliyev (KZ/CZ), Pavel Sikora (CZ)

Vasulka Live Archive The Immersive Virtual Reality

This is an Android app that has been programmed in the Unity game engine. It uses stored information from the outputs of neural network models developed in the Vasulka Live Archive project and places previews of Vasulkas' videos in a virtual 3D space. Virtual reality visitors can move around the space, trigger, and rearrange the videos. There are two modes of the VR setting: the model of



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the gallery room at the Brno House of Arts, and the open space of the Universe, where the videos are levitating, liberated from any framing, be it TV screens or white boxes of galleries.

Jana Horáková (CZ), Jiří Schimmel (CZ),
Štěpán Miklánek (CZ), Pavel Sikora (CZ),
Dušan Barok (SK/NO)

Vasulka Live Archive The intelligent epistemological tool

The *Vasulka Live Archive* website (vasulkalivearchive.net) is an intelligent interface to the content of the Steina and Woody Vasulka archive. It consists of two interfaces called Machine Vision and Machine Learning: The goal of the Machine Vision interface is to educate users about the way machine learning technologies conduct pseudo-cognitive processes of artificial "watching" of the Vasulkas' videos, and thus to contribute to the spread of AI literacy within the public.



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The Machine Learning interface serves as an interactive epistemological tool for augmented iconographic and audiographic study of the Vasulkas' artistic videos. While playing a selected work, users can see a graphical representation of the occurrence of the audio and video objects identified by the artificial neural networks on the timeline with an accuracy of one second.

Jana Horáková (CZ), Jiří Mucha (CZ), Tomáš
Carda (CZ), Pavel Sikora (CZ), Štěpán Miklánek
(CZ), Roman Ševčík (CZ)

Vasulka Live Archive Videomapping

The large-format projection on the facade of the Brno House of Arts took place on December 20th, 2021, on the second anniversary of Woody Vasulka's passing. The projected audiovisual remix was created from fragments of videos by Steina and Woody Vasulka, which were interwoven with visualizations of the pseudo-cognitive processes



© Barбора Trnkova

of artificial neural networks. It can be seen as a translation of the functional features of intelligent software (its ability to sort by shared qualities) into the language of film montage. The result is a new audio-visual work referring to the aesthetics of a music video.

University of Applied Sciences Upper Austria (AT)

Digital Sensing

The project *Digital Sensing* examines the possibilities of scanning and perceiving the human body using contemporary technologies. The main inspiration and reference are August Sander's photographic long-term project *Menschen des 20. Jahrhunderts* (People of the 20th Century), created between 1925 and 1964, and Fiona Tan's film installation *Countenance*, conceived around 2000. Both works deal in a concentrated and very specific way with the technical recording and presentation of human beings — first Sander with the medium of photography and later Tan with her filmic concept. As a project of the 21st century, *Digital Sensing* focuses on this exemplary

approach presented so impressively by August Sander and Fiona Tan and continues it from a digital point of view. Specifically, it questions the possibilities of capturing the human body with current technologies such as 3D photography, AI scanning, and morphing, and then projects it back into physical space in the form of 3D-printed sculptures, thus transforming Sander and Tan's idea in media terms.

Artists: Florian Fiebiger (AT), Sebastian Moritz (AT),
Simon Hochleitner (AT)

Jürgen Hagler (Supervisor)



© Sebastian Moritz

Musrara the Naggar School of Art and Society (IL)

Ville Radieuse – Amir Meir

The seam between the visible and the heard is a limit our daily consciousness cannot cross, but there are gates through which one can access these deep connections. Synesthetic descriptions have accompanied mystical experiences and the breaking of the boundaries of reality from the revelation at Mount Sinai (“and all the people see the voices”) through mystics from various religions throughout the Middle Ages to contemporary poets. Amir Meir is researching this seam using the “Dudon”, a musical instrument that turns light and visible shapes into sound, through which one can peek for a moment through the gate. The “Dudon”, named after the French composer Jacques Dudon, is an analog light synthesizer that translates changes in light exposure into sound. Rays of light are refracted through an

array of rotating disks on which various shapes are printed. The outcome is rapid changes in the exposure of a photocell to light at different frequencies. These changes are translated into changes in voltage through the photocell and are sent to a speaker, which translates them into sound waves. *Ville Radieuse* (Radiant City), is the vision of the Swiss-French architect Le Corbusier to construct a utopian city that will crystallize the activities of its citizens into perfectly harmonious action. With the removal of the divisions, in a complex process of alchemy on a solar panel, the fleeting human existence can meet the sublime hidden beyond the separated reality.

Mechanics and objects design: Amit Drori Construction
(Amit Drori, Gidon Levy, Amir Meir)
Production: Hazira Performance Art Arena

Amir Meir (IL)

Ville Radieuse

The installation is a musical instrument that translates changes in the exposure of light into sound. An electro-mechanical system creates movements in the light that change the sound in the space. The audience is located around the installation and can experience the sound and visuals from all points of view.



© Shira Marek

Studio2, University of Innsbruck (AT) and Design for Performance and Interaction, Bartlett School of Architecture, University College London (GB)

Scales of Care

"In the most general sense, care is a species activity that includes everything we do to maintain, continue and repair our world so that we may live in it as well as possible. That world includes our bodies, ourselves and our environment, all of which we seek to interweave in a complex, life-sustaining web."¹ Then how do we maintain, continue and repair our world? We imagine futures, many of them, and then we realize them. One thing these futures must all have in common is, central to this year's Ars Electronica theme Welcome to Planet B, to "change not only the world we live in, but also ourselves".² Fundamental to any such change will be collaboration — collaboration as the embracing of interdependence as strength and relationality. The Bartlett

School of Architecture's MArch Design for Performance and Interaction and the University of Innsbruck's Studio 2 MArch studios are joining forces to not only showcase work that addresses notions of collaboration in manifold ways, but to explore first-hand in a collaborative exhibition how interdependence might unfold as kinship across institutions, disciplines, communities, countries, individuals. To use Donna Haraway's words, "Nobody can be kin to everything, but our kin networks can be full of attachment sites".³ With this in mind, DfPI x Studio2 look forward to welcoming you into our network of care for "more than human worlds".⁴

University of Innsbruck and Bartlett School of Architecture, UCL

1 Tronto, Joan and Fisher, Berenice. Toward a feminist theory of caring, in Abel, E. K. and Nelson, M. K. (eds.) *Circles of care: Work and identity in women's lives*. State University of New York Press: New York, 1990. pp. 35-62.

2 <https://ars.electronica.art/planetb/en/theme/>

3 Haraway, Donna. Making Kin: An interview with Donna Haraway (Steve Paulson interviews Donna Haraway). *LA Review of Books*, 6 December 2019. Available at: <https://www.lareviewofbooks.org/article/making-kin-an-interview-with-donna-haraway/> (Accessed 5 June 2021)

4 de La Bellacasa, Maria Puig. *Matters of care: Speculative ethics in more than human worlds*. Vol. 41. U of Minnesota Press, 2017.

Alicia Leonie Waibel (DE), Ziyue Wang (CN), Weiran Li (CN), He Ji (CN), Wingyue Guo (CN), Xiaoting Tan (CN), Meiyi Jiang (CN), Qi Qi (CN), Adam Ray Braun (GB), Aikaterini Kipeni-Thalassinou (GR), James Camilleri (MT), Wei-Lin Chang (TW), Jaehyeong Yoo (KR)

Agents of Change

What creatures and constructs could bring about a brave new world? Would they be digital, biological, neither or both? These projects deal with enigmatic creations, amalgamations of science and art which attempt to offer a glimpse of what entities we may share the planet with in the near and far future.

Teng Xue (CN), Jiadan Chu (CN), Haoran Mai (CN), Jialing Li (CN), Yinzhe Qu (CN), MaryJane Mousa (SY), Cynthia Deeb (LB), Jenny Merheb (CA), Bami Oke (GB), Xiyan Chen (CN), Xirui Yang (CN), Yilei Guo (CN), Junlie Chen (CN), Altagracia Spanning (AT), Wilhelm Schlenz (AT), Florian Juen (AT)

Extended Realms

Where do we go when we run out of space? Out into the void? Into our machines? In what new dimensions can we grow and create? By exploring the potential of other extended dimensions of reality and peering into the inner workings of our own psyches, this collection of projects tackles the subject of how humanity's presence can expand beyond the physical.

Courtney Klein (CA), Tsai-Chi (Kiki) Lin (TW), Evelyn Zhang (SG), Junming Bang (KR), Pei Shan Lin (TW), Yiming Gong (CN), Tafara Manika (GB), Daphne (Ting-Yu) Chu (TW), Alexander Ward (GB), Laila Selim (EG), Lee Wang (TW), Samia Kapadia (IN), Dearista Nooria Kusuma (ID), Ding Yue (CN), Bryanna Kelly (US), Weronika Kubak (PL), Kieran Harris (GB), Saiyuan Li (CN), Sandra Al Jbali (AT), Jovljevic Zeljka (AT), Michael Hetzenauer (AT), Johannes Resch (AT)

Liminal Space(s)

Dusk, doorways, and doctor’s waiting rooms — transitional spaces loaded with possibility or trepidation.

The 21st century is undoubtedly a turning point for the planet, and we all wait with bated breath.

Celebrating the in-between, these works explore transitions, change and movement to gain a deeper understanding of where humanity stands in the face of rapid scientific, environmental, and societal change.



Agents of Change

© Qi and Braun



Extended Realms

© Waibel and Wang



Liminal Space(s)

© Michael Hetzenauer

UNATC CINETic Centre

Pixels from a Past Future

Our brains thrive to anticipate the future in scientific or mystic form, from meteorology to divination or plain betting. As minimal as the chances are, we try to beat the odds. Since the statistical anomaly of 1 in a million stated by Drake's equation of life rising on earth beat any random chance record one can only indulge such an attraction. Our anticipation of the future is based on images of the present and the past. We break the images into little pieces, combine them and build an image set in the future. The future in our mind is built from the past forming a paradoxical Ouroboros, always desiring to breathe the new, ever condemned to entangle the past. *Pixels from a past future* reunites works developed by students and teachers of the UNATC, National University for Theatre and Film Bucharest, from the MA of Interactive Technologies for Media and Performing Arts and the MA New Media Design,

works developed during 2021-2022. The works aspire to visualize empathy and closeness and to reverberate to a fading nature through capturing the presence of the visitor into the flow of data. Memories are brought again to life in pixel form, bringing new scares. Are we captive to our past as a Narcis to its image, or can we emerge anew? Recent events question more and more our order, raising the need for a new deal with ourselves and the planet. Are we able to draft it? Did we start to dream about it? Is it already written?

Mihai Barbu (RO), Dilara Buran (DE), Cristina Bodnărescu (RO), Diana Chiru (RO), Tudor Dobrescu (RO), Dogioiu Dragos (RO), Denis Fluerau (RO), Constantin Simon (RO), Alexandru Berceanu (RO), Grigore Burloiu (RO)

Who are you? was developed with the support of an AFCN Grant "White Imprint". The work does not represent the point of view of the AFCN.

Denis Fluerau (RO)

Narcissus in the Digital Era

Reimagining the classical tragic myth of Narcissus in a digital universe by using an immersive painting as a portal. An interactive digital installation that transposes the face into a digital confined space. As the users approach the framed painting to inspect its generative pattern, they soon fade into the digital world to reveal a transformed self.

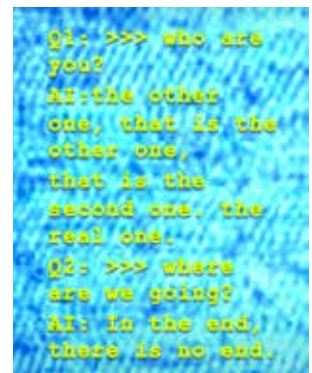


© Denis Fluerau

Alexandru Berceanu (RO), Grigore Burloiu (RO)

Who are you?

Who are you? is an AI-powered conversation on the future. The conversational bot was trained on several science fiction novels as well as other writings about the future. Can we find answers about the future in old texts? Is talking about the future mainly a question of convincing attitude performance or rhetoric that can be mimicked?



© Alexandru Berceanu

Denis Fluerau (RO)

The Particle Composer

© Denis Fluerau



While air pollution keeps increasing drastically and faster than ever before due to construction sites, cars and our toxic lifestyles in general, the particle matter has become so present that it can commonly be seen floating around or more recently having a tangible effect on our lives.

Tudor Dobrescu (RO), Diana Chiru (RO), Denis Fluerau (RO), Constantin Simon (RO)

Encounter with a Stranger

© unatc3.tudor

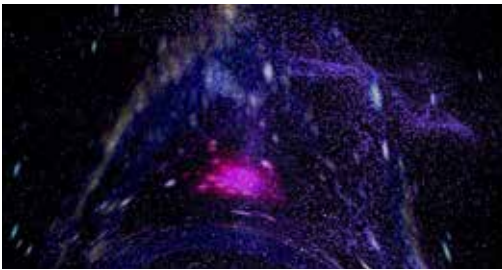


As thoughts race through an elastic framework, their speed and frequency breathe perception into the mind. This mind will therefore contract and dilate. When allowing a texture as physical as thought to make its way through the labyrinth, its traces not only inhabit its corridors, but also design its surroundings.

Diana Chiru (RO)

U · N · I VERSE

© Diana Chiru



You are not just a human experiencing the universe, you are the universe experiencing itself. An audio-reactive particles installation that visitors can interact with.

Dilara Buran (DE)

The Rhythm of Data

© Dilara Buran



The installation brings the sonification and data visualization of real time data tracking of estimated soil erosion and deforestation, providing a poignant rhythmic image of the degradation of our planet.

Mihai Barbu (RO), Andrei Cristian Florea (RO)

Empatree

© Mihai Barbu

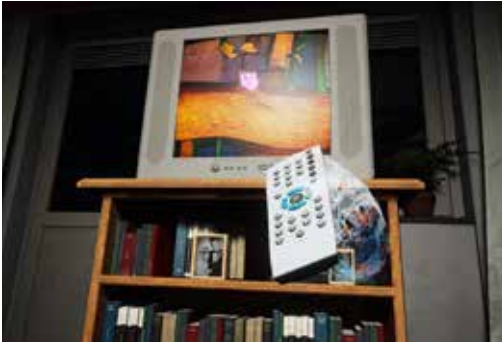


The *Empatree* is based on a personality-like questionnaire. The result of the questionnaire is the personality of the participant reflected through a tree. Subsequently, the tree will “take root” in the AR environment where both participants and outsiders will be able to show empathy and solidarity with the feelings expressed in this digital medium by the action of “watering” the plant.

Dragoş Dogioiu (RO)

Anamnesis

© UNATC.DOGIOIU



Anamnesis is a VR experience that deals with the distinctively subjective perception of reality that is inherent to children. By exploring three different episodes from the life of the author, the project shows real events that are enhanced by the power of imagination. Ghostly apparitions haunt an apartment while the parents are away for work, a creature from Romanian folklore tries to hunt the protagonist and set fire to a barn, while visions from the first world war pierce through the veil of reality in an old abandoned cemetery.

Cristina Bodnărescu (RO)

Artificial Ocean

© Cristina Bodnărescu



Sound is vital when talking about marine life. It is the sensory cue that travels the farthest through water. It is used to communicate, interpret and explore the environment. But now, ocean soundscapes are changing incredibly fast because of massive increases in anthropogenic noise. Be it water littering, air or noise pollution, humans are responsible for all the decay taking over life itself. *Artificial Ocean* is an interactive sound installation that unravels the effects of our toxic positioning in the Anthropocene.

MAG (Media Art Globale), Festival by connected Art Platform

SPICETOPIA

The relationship and journey between humans, earth, technology and spice as symbols of health and nourishment.

The exhibition of *SPICETOPIA* expresses the relationship and journey between humans, earth, technology and spice as symbols of health and nourishment. *SPICETOPIA* explores technology as a transformative tool for artists, researchers & academics. These MAG showcases artists and researchers who develop experimental coding & AI objects investigating new perceptions of our daily life, environment and human sense interaction, using spices in cultural tradition and new materiality. Indonesia is the heaven of spices, plantation and seas. Spicetopia's artwork invites us to explore and reflect on that journey. Indonesia is rich in culinary variety, only for sambal, we have 322 kinds of recipes. How Do U Feel Today? was an experimental "sambal" to stunning hybrids of low technology and human interactions. Spark Of Spices uses technology as a bridge that will maintain the human treasures of the past with the present to begin to taste the future. Automated Angklung used AI to show one

from many indigenous traditional musical instruments from Indonesia, made of specifically cut bamboo to produce different tunes. Bamboos include some of the fastest-growing plants in the world, this rapid growth and tolerance for marginal land, make bamboo a good candidate for afforestation, carbon sequestration and climate change mitigation. Domus Anguillae is a video of an art installation that is placed underwater as a medium for coral to grow to create a new diving destination. Its presence carried an education and ecology awareness for the locals. *SPICETOPIA* aims to accelerate developments and reflection based on what spices, plantation and seas has been, is and could be.

Curator: Mona Liem (ID)

Project credits: Connected Art Platform (CAP); BINUS University School of Design; Media Art Globale (MAG) Festival; Mona Liem; Sean Lee; Budi SriHerlambang; Nine Plus Digital; Despora; Luky Wiranda; Kumoratih Kushardjanto; Negeri Rempah; Adam Irfan; WW/AH; EH; Ostenrik

Teguh Ostenrik (ID)

Domus Anguillae

Collection of: Abigail Hakim, Wiyu Wahono, Evelyn Halim

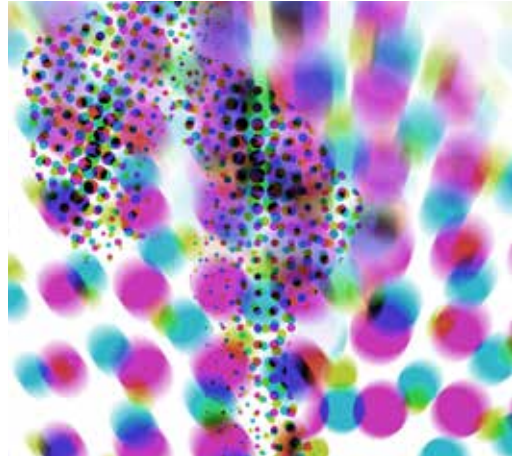
Domus Anguillae is an ARTificial Reef installation created by artist Teguh Ostenrik and Yayasan Terumbu Rupa. It is an art installation that is placed underwater as a medium for coral to grow and at the same time, creates a new diving destination. Its presence brought an education and ecology awareness to the locals. Its structure comprises six tunnels at 6–10 meters in length each, 3m height, and 3m width. With a total of 60m in length. It will be shown only in video in the exhibition.



Luky Wiranda (ID) x Despora (Octavianus Frans) (ID),
Emmanuel Putro (ID), Budi Sriherlambang (ID),
Bayu Dirgantoro (ID)

Sparks of Spices

The focus of this study is about spices that are hundreds of years old, and how spices have mingled in world culture. In a world that has been strongly connected by technological advancement, this has made it easier for humans to interact with each other, triggering dialogue and reflection on human civilization. Technology is increasingly capable of receiving dynamic and real-time inputs, which can be a bridge that will maintain the human treasures of the past with the present to begin to taste the future.



Christian Lokonanta (ID), Marcel Saputra (ID),
Rinda Hedwig (ID)

Automated Angklung

Preserving an Indonesian Traditional
Musical Instrument

Angklung is one of many indigenous traditional musical instruments from Indonesia. It is made of specifically cut bamboo to produce different tones. To preserve its popularity, an electronically controlled Angklung is created by setting a three-octave *Angklung* to an automated player consisting of DC motors controlled by a mini-computer. This system can download songs from the online cloud and play more than 50 songs automatically and continuously for eight hours.



© Rinda Hedwig

Utami Atasia Ishii (ID/JP)

How Do U Feel Today?

after How Do U taste?

How Do U Feel Today? is a continuation of the video artwork *How Do You Taste?*. This time I will present the installation work of a microscope and video by combining the “sambal” (traditional Indonesian cuisine) concept with the migraine aura concept based on my own experiences. Migraine aura itself is a migraine condition that begins with the aura stage where the patient will see flashes of light. Visual aura can occur in various forms that move with subtle fluctuations.



© Utami Atasia Ishii

Korea National University of Arts | K-ARTS (KR)

Human Touch

Humankind has expanded its domain into the digital world to overcome physical limits by means of technological progress. In particular, during the Pandemic crisis, we began to crave ways to sustain human contact in a world where communication took place primarily through media rather than in-person. Digital technology enables the combination of new media and senses. Such a state of digital post-humanism has helped us envision unprecedented sensations and habits, interacting and empathizing with other beings. *Human Touch* is an attitude facilitating humans to coexist with ecology and technology. It refers to a way of thinking whereby we can coexist with non-human beings, which

previously were dependent on humans. It tries to break down the boundaries that distinguish humans and non-human beings in the global crisis, seeking a friendly way of connection in which humans and machines, and humans and nature, can communicate in the area of art and science. In this regard, K-ARTS will present on-site immersive performances, online NFT showcases, and lecture series co-curated with Ars Electronica.

Hosted by Korea National University of Arts. Project director Chungyeon Cho. Organized and Operated by Art Collider Lab. Project Management Hana Yun, Dayoung Lee, Myungyeon Lim Immersive Performance 1 Operation by Art & Technology Lab

Jee Youn Kim (KR), Hayne Park (KR), Persona-L (Areum Nam, Youngmi Lee, Hanna Cho) (KR), Teri Seo (KR), Jung Won Yoon (KR)

NFT Showcase *Human Touch*

Jee Youn Kim (KR)

Inside the Rubik's Cube

The project begins with an object so that audiences' control of the cube in the real world can react to the virtual world in the cube. The virtual space can be reached more easily by our hands by connecting the actual object with the virtual inside, enabling us to experience the coexistence and harmony of a flat and cubic object.



© Jee Youn Kim

Hayne Park (KR)

Digital Trypanosomiasis

The project is an archival and narrative digital work based on humanistic research. Trypanosomiasis is a disease caused by parasitic protozoan trypanosomes of the genus *Trypanosoma*, which can make a patient die from sleeping. It starts with the surface of glass moving like *Trypanosoma* and reflects living things, surfaces, sleep, and death.



© Hayne Park

Persona-L (KR)

Persona Processing

Persona Processing is a project that expands private stories to social discourses. It is a struggle to keep the value and meaning of personal works that may be regarded as something worthless and unimportant at a time when everyone can take a photo. In private records, three women directors have questioned how personal records can construct the world of their documentary video and how it is to be assessed in an environment based on a new cultural technology.



© Persona-L

Teri Seo (KR)

Duo Dance with One Body XYZ Duet

Duo Dance with One Body XYZ Duet considers double melodies in *Inventionen* composed by Johann Sebastian Bach as two dancers' bodies. Through digital editing, one dancer can perform two choreographies. There are three viewpoints and stages in the digital and virtual place so audiences can enjoy a different choreography on each stage. This processing can attempt to make one piece of work by choreography alone.



© Teri Seo

Jung Won Yoon (KR)

Fabricated Containers 02

Dark Ride v.1.0—Smoothly and Softly and Cutely: Universal Rendering Studio is a part of the *Fabricated Container 02* series, researching and revealing the media itself. One of the media's traits is that everything, including humans, can be an object for rendering by media. The work projects this character of the media on the web in the construction of a dark ride that we can see in an amusement park.



© Jung Won Yoon

So Yeon Leem (KR), Robin McNicholas (Marshmallow Laser Feast/GB), Eunyoung Park (KR), Špela Petrič (SI), Helen Starr (GB)

K-ARTS X ARS ELECTRONICA Online Lecture Series *Human Touch*

For three years the Korea National University of Arts — short K-Arts — has collaborated with Ars Electronica on research and exchange into how the creation of human-like activity changes the digital and online sphere. In 2022 this exchange has focused on *Human Touch* through a guest lecture series to deal with art as the most human-like way to communicate with various existences in the expanded digital environment.

Axis-to-one (KR), Tinkers (KR)

AGC(Art-Game-Collider) Project

Immersive Performance 2

Talzoom — Axis-to-one (KR)

Using photogrammetry technology and creative storytelling about inherited memories of Korean traditional mask dancers, *Memoria* lets audiences follow memories of successors in various spaces and history beneath succession itself. This virtual reality experience will make audiences connect to the story on a physical and emotional level.

Hustle — Tinkers (KR)

Talchum, which is used as general term for Korean mask dances, has no confined choreography and rigid repertoires. Many people insist that the digital space has created a good environment for communicating with and meeting others. However, that assertion sounds hollow. In a time in which sincere conversation and interaction is necessary, the digital world might be the best setting to show the spirit of Talchum.

K-ARTS Art and Technology Lab (KR)

Ballet Metanique

Immersive Performance 1

Fernand Léger redefined Ballet with the cinematic apparatus in *Le Ballet Mécanique* (1925). *Ballet Metanique* is a reimagination of Ballet with the social and technical apparatus of Metaverse in the age of global warming.



K-ARTS X ARS ELECTRONICA

© Eun Young Park, Soft Affective Robots



AGC(Art-Game-Collider) Project

AGC-Project, © Art-Collider-Lab



Ballet Metanique

© Jaehyun Hwang

College of Arts, National Tsing Hua University (NTHU)

Nature of Prototyping

In the face of the growing problems of the Earth resulting from intensification of human life, technology is often seen as an opportunity to help order this chaos of overproduction. However, technology is like a serpent eating its own tail. As Martin Heidegger says, “the purpose of modern technology is to remove the veil to reveal the truth; however, paradoxically, technology itself becomes a hindrance and prevents the truth from appearing.” The technology appears thus to be not a remedy, but the cause — and at the same time the consequence of the chaos. *Live the moment* explores this chaos. In the never-ending game of technoculture-homeostasis, an arbiter is needed — an eye that cannot be deceived. *Future Vision* work can try to reflect on the impact of changes in the living environment. Transferring the technological gesture of prototyping to the

area of human content and social constructs to reveal the final destination of man-made objects is the main issue of *SeaDrift* work. By hearing the world through the augmented colors, *Voice in Sight* work makes the unreal veils come true and sends our extension of senses into the distant desert. We try to observe, imagine, and establish a dialogue by way of our prototypes. *Datafixation* work traverses the geometric meshes' topographies as our planet's invisible datasphere. The *Nature of Prototyping* provides not solutions but reflections, and the development of technology serves to know others better.

Su-Chu Hsu (TW), Patryk Lichota (PL), Cheng-Yu Pan (TW)

Spring Foundation Ministry of Science and Technology, Taiwan, R.O.C. Ministry of Education, Taiwan, R.O.C.

Jia-Yu Ku (TW)

Voice in Sight

Hearing-impaired people, although able to perceive sounds through their hearing aids, still have difficulty hearing clearly. When sounds cannot be fully received, everything is observed and understood visually. In this artwork, sound is transformed into waves of colors that can be displayed visually. The special device helps translate the world of auditory stimuli into visual code and presents the situation of a hearing loss through the poetry of colors and visual metaphors.



Hsiao-Chieh Huang (TW), Jorjin Tech. Inc. (TW)

Future Vision

The Anthropocene was born, bringing glory and destruction. Through AR, people have a glimpse of a future vision, which reflects the impact of changes in the living environment and the alienation of biological variants. A new type of coexistence between humans and the environment is beginning. The artwork uses technologies of eye-tracking and gesture recognition to interactively experience virtual and real combinations, and explores future vision.

Patryk Lichota (PL)

Datafixation

We live in a schizoid data culture, an open cry of our subconscious, a desire to lose ourselves in our imagination. The links between what is physical, earthly, organic and what is imagined, speculated and virtual has become more entwined now than ever. Information spores need enormous energy resources and carry a great cost socially. In the installation, we will traverse the topographies of the geometric meshes as the invisible datasphere of our planet.

Qi Huang (TW), Yi-Null Hong (TW)

SeaDrift

The electronic drifters exiled from the Taiwan waters will become an extension of our senses. Slowly leaving the coast with our consciousness and perception, we try to explore the world, the unknown ocean currents, and the species that have never been annihilated before. It is said that there is a trash island in a distant place, a sea area we have never set foot on. That is our destination. *SeaDrift* seeks to reveal the final form of man-made objects and what they will become.

Pin-Hsien Lin (TW), Sin-Ying BAI (TW),

Yan-Sin Lin (TW)

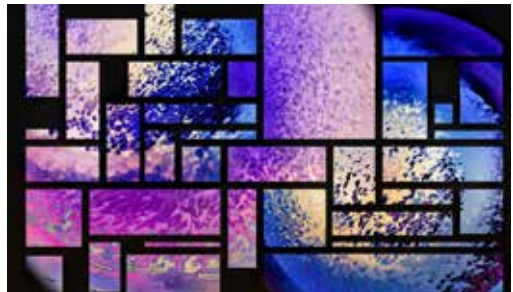
Live the moment

Since most people live in an artificial environment, we often do not notice the current changes in the climate. *Live the moment* is an artwork that uses the interaction of VR and physical scenes to provoke people to think about their relationship with the environment at the present moment. The original artwork involves the use of the mobile platform for space exchange. At this festival, due to space constraints, we will use other forms to present the artwork.

© BonAppetit



Future Vision



SeaDrift

© Qi Huang

© Patryk Lichota



Datafixation



Live the moment

© Pin-Hsien Lin, Sin-Ying Bai, Yan-Sin Lin

Vilnius Academy of Arts (LT), MENE (LT), INSTITUTIO MEDIA (LT)

When the Wind Blows from Everywhere, We Make Art and (Sur)render Reality

ūmėdė-verse

On February 24th I woke up because of huge explosions, and they weren't fireworks (and not another New Year's celebration), but bombs from Russia. I jumped on the search engine, several news platforms, and Amazon trying to find out how to get batteries, solar chargers and other backup devices for an emergency reserve. I found a few units offered by the Red Cross that can generate electricity and connect to the radio. The internet went down very quickly, and Elon Musk's Starlink satellite Wi-fi stations hadn't arrived yet. As I ran to the bomb shelter, a bullet hit me in the thigh. Luckily, it stuck to my iPhone and all I was left with was a pinkish blue bruise. Since then, I have had an iPhone replica made of green glass (created by artist Diana Nakrevič). When I feel the cool surface and weight of the glass in my pocket, I calm down. However, my mood keeps getting gloomier. The start of the war in Ukraine revealed a new scenario that made virtuality more real and believable than everyday life.

The aggression of the neighboring country made many of us in Lithuania feel insecure and think carefully about an action plan in the event of an extreme war situation. In a sense, we had an excuse to create situations of survival and communication in case war or some form of siege happens. How would we live and how would we relax? How would we calm down? How would we communicate? What would social media look like, without which we can no longer seem to exist? Ultimately, what would we expect?

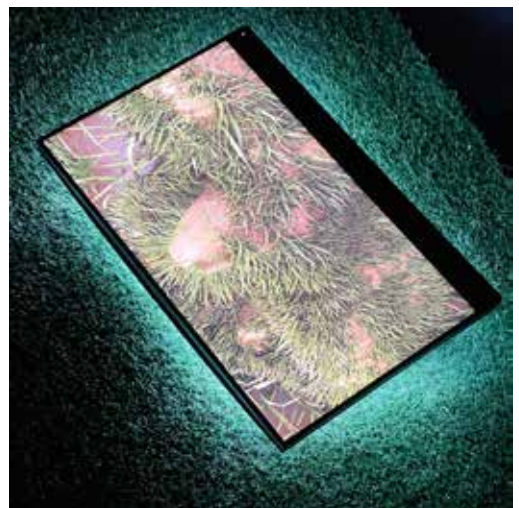
Commissionaire and curator: Dr. Vytautas Michelkevičius
Co-curator Gailė Cijūnaitė / Partners and supporters: MENE, Institutio Media, festival "ūmėdė," Vilnius City municipality, Lithuanian Council for Culture FAIMM, department of Photography, Animation and Media Art at Vilnius Academy of Arts

Artists: Pijus Chraptavičius, Arturas Bukauskas, Darius Žiūra, Gailė Griciūtė, Anatanas Skučas, Miglė Markulytė, Violeta Tvorogal, Dagnė Petkevičiūtė, Dominykas Andriuškevičius, Kotryna Maraугytė, Gabija Grigalaitytė

Natalija Lokcikaitė (LT)

Metatouch

Metaverse as a post-reality universe where physical reality merges with digital virtuality. When physical reality is gone, humans need to feel the simulated environment will remain. Innate senses will give way to a new sense of touch, and embodiment will become one way to experience the environment, matter and bodies. Visual experiences will deceive the brain that we actually merge or are there and we will materialize in the space around us. I invite you to sit on the fake grass and experience the confrontation with reality and think about how strong and complex the sensations are.



© Natalija Lokcikaitė



Tata Frenkel (LT)

[gre'za]

This is a performative lecture during which a certain socio-poetic reference book called *Anti-saving Instrumentary* is taught. These are anti-preservation instruments. Mental drawings, verbal constructs, tornadoes. [gre'za] concerns the methods of excessive interpretation — which the author creates here and now based on the principle of synecdoche.

Jan Georg Glöckner (LT)

CN V CN V₁ CN V₂

“I think in the west we seriously underestimate or at least are not aware of the impact of smells on our behavior. Alongside this we are also not aware of the powerful tools we are provided by our bodies to detect and interpret smells. I think if we use the last two sentences as a hypothesis to work with, there is the possibility to be propelled into new areas of composition and choreography!”



Ignas Pavliukevičius (LT)

Models of Used Car Market

In Utena and the remaining world, economic changes, a technological surge and a digital development shape urban places and landscapes. Amid these changes, when physical places are vanishing, and the new ones are getting established in a digital world, the following questions appear. How to maintain and continue creating stories and new memories in a digital space? How can the disappearing stories continue to live in a virtual world? How can new technologies restore the life of destroyed places? In this project, new media tools — photogrammetry, LiDAR scanning and self-teaching systems (machine learning) — were employed. To fully recreate the place, photogrammetry and LiDAR scanning were used. Photogrammetry is a process that analyses the location photos and generates visual, though not always accurate, 3D models. In this project, thousands of drone photos were used to make a digital three-dimensional equivalent of Utena car market. Contrary to the photogrammetry, LiDAR scanning is a precise distance measuring technology that generates 3D models with only a few millimeters error. The work is surrounded by text that Artificial Intelligence has created. Artificial neuron networks were taught with thousands of pre-selected texts to reveal the new stories and memories from the car market.



Julija Kuprijašinskaitė (LT)

Computer hug

Phones and computers are daily companions of our lives. We spend a lot of time with them, they are almost always with us, nearby. A certain connection/relation is established between personal technological devices and a person: they begin to function as “self-therapy” instruments. Using a phone or computer, immersed in the virtual world, we try to take a break from the difficulties of everyday life, satisfy our social needs, or calm down. Often, just the physical presence of a phone or computer nearby provides a kind of sense of security and peace.

I have noticed how much physical contact we have with these technological devices on a daily basis, and how little compared to another person, and how often we look to them for a helping hand. By using a weighted blanket, which is used to improve sleep quality and reduce anxiety, and filling it with computer mice, I aim to create an even closer connection with my computer, as if accepting it into my sleeping area and letting it “hug” me.

The white color in this piece represents to me the purity of this desire for closeness, and the computer mice quietly chattering provide an ASMR effect and are calming.

I invite you to come and touch the installation.



Evelina Bernatonytė (LT)

Relic

From icons suddenly bursting into tears to pieces of saints’ bodies becoming commodities, relics have acquired the ability to chimerically change the identity of their subject-object identity. In the Middle Ages, the relics of the most prominent saints were perceived as worthless until the church confirmed their authenticity. The most reliable proof of the authenticity of the relic was the fact that the sacred body did not rot. The production, distribution and competition of relics between different religious communities has become like turning parts of bodies into a commercial trade in peculiar souvenirs. By acquiring the relic of the saint, people paid for the idea that with the help of a certain transcendent object they would remove their disability, recover from deadly diseases, and possibly improve their quality of life. Today, religion is no longer as relevant as it was in the Middle Ages, but the desire to overcome the limits of the human body remained. Every day rapid technological change brings us increasing quantities of mechanical relics. Their remains accumulate and form new cemeteries of non-rotting bodies.



Jokūbas Vaicekauskas (LT)

Moeshroom

Mesh — Merging different things that suit each other, work perfectly together. Network. Mush — Different things are combined, becoming one, no longer clear, no longer separable from each other. As technology is constantly being renewed, people's relationship with the world is also changing, we live in times when, wearing "glasses", we can stand on a magnified mushroom and look around, fly through the inside of the mushroom. Conditions have been created for viewers to view, explore, and play with digitalized mushrooms grown from an organic mycelium network in a digital network.



Eva Rodz (LT)

Please Do Not Play with Me

A doll that should decorate a man, indulge him. Even in childhood, we are already separated by wearing not just pink or blue clothes — putting on the definition of the principles of behavior, so-called masks of gender. But why are these masks made up of outdated, negative attitudes? Why does society still teach a man that he is stronger, but does not teach that a woman's body is comparable to a field of flowers? And although at the beginning I only asked you not to play with me, at the end I found the strength to admit that I am no longer your toy.



© Margarita Valionytė

Margarita Valionytė (LT)

4408 New Messages

(comment: I didn't open Telegram for a day)

Borders between territories change when groups of people encroach on land area, cultural heritage or national identity as property. During the conflict, state-forms lose their stability, destruction (deterritorialization) takes place in the peripheral, transitional spaces next to chaotic movement — buildings are destroyed, local flora and fauna are killed. Not only that, watching people suffer is difficult. Information, sounds and images from the horrifying areas circulating on social media. on media platforms, e.g. on Telegram, tired of the abundance of traffic, a feeling of helplessness takes over. According to Susan Sontag, the emotional response to shocking news is short-lived, so sympathy fades in comparison to actual action, leaving no change, however small.



© Martyna Kairaitytė

Martyna Kairaitytė (LT)

Kodleduk

In a small, strange town lives an even smaller, round man named *Kodleduk*.

This guy's passion for recording and archiving the actions of the whole town has possessed the town with microphones and cameras, nothing goes unnoticed by *Kodleduk*. All recorded sounds and images travel to semi-organic, semi-mechanical machines of his own construction, which contain the archived spirit of the city and *Kodleduk* is never alone in his small apartment on the very top 22nd floor.

Gailė Cijūnaitytė (LT)

Talking cube

“I am never stressed, never sick, never late, never had a tic, never asked for help, I would never chew a pencil, but I know how you feel and I will be there because I am... Your Talking Cube.”

The *Talking Cube* is a multisensory, multifunctional masterpiece for therapeutic training and interactivity, designed to teach the principle of action and consequence, color recognition, picture recognition, hearing, motor skills and concentration. It also encourages physical movement — reaching, grabbing, throwing, rolling the cube. This way the patient not only plays with the cube, but also with the entire room controlled by the cube. Carefully and precisely designed, the talking cube is designed to befriend people of all ages and abilities.

Based on ROMPA Description of the talking cube



© Gailė Cijūnaitytė

Vilija Simutyte (LT)

Unidentified Object

This piece explores the problem of cognition of the ontology of the object, inviting the viewer to encounter an unidentified object and to experience a primordial contact with it; the wonder that the Greeks already considered the main source of knowledge. Where knowledge ends and philosophy begins, a series of questions arises, possibly being the origin of new knowledge. In this work, therefore, I aim to raise questions rather than to find or provide answers. How is objective knowledge possible? The work attempts to appeal to everyone's conception of reality by inserting into it an object that is not recognizable at first sight, thus allowing the subject to rethink their own individual scale of categories, to free themselves from the network of associations and to come closer to the Kantian “thing-in-itself.”



© Vilija Simutyte

Ainė Petkūnaitė (LT)

Vegetabilia Fractals

In the work, fractal figures are constructed from fragments of aquatic plants, which are transformed into a synthetic simulation. After being born in the biological medium, the figures return to it. It integrates into the environment, adapts, merges with it or modifies it. And what is a biological medium? Maybe it is also generated?

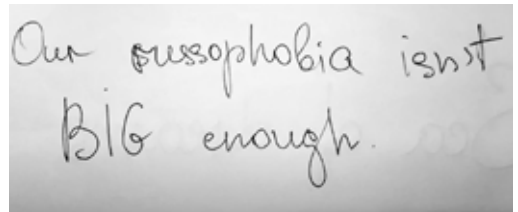


© Ainė Petkūnaitė

Yuliia Yeromina (UA)

Russophobia

Our Russophobia isn't big enough.
 Isn't our Russophobia big enough?
 Our Russophobia still isn't big enough.
 Isn't our Russophobia still big enough?
 Our and your Russophobia still isn't big enough.
 Isn't our and your Russophobia still big enough?
 Our Russophobia just isn't big enough.



© Yuliia Yeromina

Diana Nakrevič (LT)

Green apple J.I.

Same shape. Same action. Less noise.



© Diana Nakrevič

Yasuaki Kakehi Lab., The University of Tokyo (JP)

Interverse of Things

The development of information technology has gradually increased the possibility of treating many resources, including elements of the physical world, as controllable computational objects. At the same time, we are realizing that we cannot manipulate the world just as we wish (nor should we), accepting the limitations of human-centered design and the need for a shift to pluriversal design. Future technology will be required to play an even greater role as a lens for noticing and seeing through the existence of things, and phenomena that make up the environment and as an interface for creating inclusive relationships with phenomena that are not easily controllable. Rather than dismissing the uncontrollable as noise or coincidence, we will explore the possibilities of building "appropriate" relationships and the tech-

nology to create new values by utilizing the characteristics of these things that behave under their own mechanisms and principles. This exhibition by Yasuaki Kakehi Lab of the University of Tokyo will feature three works: *Ephemera* is an installation that uses the image of bubbles forming autonomously in a container. *ExpandFab* is a three-dimensional object that transforms as it grows. *See-saw* is a kinetic installation that focuses on the movement created through the behavior of a liquid moving silently inside an object. These works incorporate phenomena that cannot always be precisely controlled into the work and reveal narratives within each change.

Ephemera: Supported by JSPS KAKENHI (Grant Number 20H05960) / *See-saw*: Supported by JSPS KAKENHI (Grant Number 21H04882) / *ExpandFab*: Supported by JST ERATO Project

Harpreet Sareen (US/IN/JP), Yibo Fu (CN/US),
Yasuaki Kakehi (JP)

Ephemera

Ephemera is an installation composed of glass vessels that are hydrophobically treated for controlled micro/nano structures on surfaces. On pouring a carbonated liquid, bubble generation is activated, with bubbles of carbon dioxide of various sizes sticking at defined points on the surface. These bubble images and patterns are stable for one day before they start to gradually shrink and disappear.

Takafumi Morita (JP), Yasuaki Kakehi (JP)

See-saw

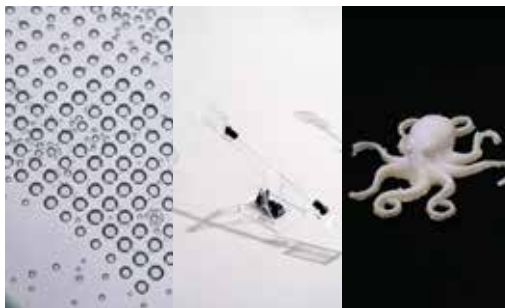
See-saw is a kinetic installation moving according to a liquid flow. By adjusting the position of the center of gravity of the liquid filled inside, the inclination of each see-saw keeps changing dynamically. The silent movement of the liquid is realized by the Electro-hydrodynamics phenomenon. This installation visualizes invisible driving forces through liquid defying gravity.

Research Collaborators: Yu Kuwajima,
Ayato Minaminosono, Shingo Maeda

Hiroki Kaimoto (JP), Junichi Yamaoka (JP),
Satoshi Nakamaru (JP), Yoshihiro Kawahara (JP),
Yasuaki Kakehi (JP)

ExpandFab

ExpandFab is a fabrication method of creating objects that expand and become massive when heated. This process causes the object to wiggle dynamically. The balance between the designed shape and the environmental conditions produces unique motions and appearances. In this work, we created figures of creatures, characters, and so on focusing on this deformation process, and attempted to extract narratives from the materials.



Ephemera
© Harpreet Sareen

See-saw
© Takafumi Morita

ExpandFab
© Hiroki Kaimoto

Satellite Event

Christiane Peschek and S()fia Braga at the Oberösterreichischer Kunstverein

For the first time the OÖ Kunstverein is joining Ars Electronica Festival with a dedicated exhibition, presenting the latest works from transmedia artists Christiane Peschek (AT) and S()fia Braga (IT/AT).

Christiane Peschek introduces *OASIS*, a potential sanctuary at the end of the Anthropocene. A post-body spa, where self-care practices meet cyber-humanism, playfully stimulating nonbinary and inclusive awareness of expanded corporeality. *OASIS* aims to create a physical and virtual space that moves between the material and the digital, where physicality is combined with a maximum of consciousness. Unlike traditional spas that are temples of the flesh, *OASIS* is based on constant transformation and adaptation: a treatment for the augmentation of our bodies. The poly-sensory installation offers a state where the physical body and mind can prepare for the sensuality of virtuality — an experimental field of mystical otherness.



© Christiane Peschek



© S()fia Braga

S()fia Braga's *Forehead Vulva Channeling Research* is a speculative transhumanist research project which develops advanced studies on the potential of the human body to reach lifelong emotional well-being via the re-calibration of pleasure-centers. This is achieved by channeling hidden organs using specialized technologies. Started as a series of *Forehead Vulva Channelers* — a specific Augmented Reality specialized technology — the *Forehead Vulva Channeling Research* has found within centralized social media platforms relevant support and success, creating as a result a spontaneous worldwide online performance. The project reflects on the potential of technologies to create new hybrid identities, dealing with topics such as technogender and digital bodies politics, highlighting at the same time problems related to data sovereignty, surveillance and repression within online platforms.

ARS ELECTRONICA
ANIMATION
FESTIVAL 2022

Ars Electronica ANIMATION FESTIVAL 2022

in collaboration with the University of Applied Sciences Upper Austria,
Hagenberg Campus

After two very challenging years, the Ars Electronica Animation Festival finally returns to its physical form. In 2020, everything moved to virtual space: online screenings, virtual hubs, and YouTube streaming. A year later, this experiment was followed by a hybrid edition, showing a limited program at the festival's main hub and at Ars Electronica Center's Deep Space 8K. The Expanded Animation Symposium, part of the Animation Festival since 2015, was broadcasted from the "live recording studio" in Hagenberg, without an audience present. Most of the speakers presented online and only a few guests were invited to the studio. In 2022, the festival has a clear target: to take place on location. The screening programs and presentations will be shown at the JKU Campus and the Ars Electronica Center Deep Space 8K. The Expanded Animation Symposium and the Synaesthetic Syntax conference, organized with the UCA since 2020, will take place at the Ars Electronica Center.

For many years, the screening program of the Ars Electronica Animation Festival has shown the best of current productions, compiled from the submissions to the Prix Ars Electronica's category Computer Animation. This year, 657 submissions were sent to this category and in a first step, Victoria Absmann, Juergen Hagler, and Manuela Hillmann reviewed all submitted projects and created a preselection. The outcome was a short list of 250 projects to be evaluated by the jurors Isabelle Arvers (FR), Peter Burr (US), Daito Manabe (JP), Rebecca Merlic (HR/AT), and Helen Starr (TT). The jury then chose 170 submissions and convened in April for three days of deliberations in Linz. This selection was the basis for the on-site jury session and the programs of this year's Ars Electronica Animation Festival.

Many of the works being shown can be categorized as expanded animation, such as various VR experiences, hybrids between games and animations, site-specific installations, or experiments with new technology such as artificial intelligence or machine learning. The spectrum of formats ranges from animated shorts to animated documentaries, from experimental abstract works to interactive animated audiovisual environments.

As every year, the *Electronic Theatre* features a selection of the works honored by the jury in the Prix Ars Electronica category Computer Animation, including the two artworks awarded with Distinction: *Absence* by Marc Hericher (FR), *Anxious Body* by Yoriko Mizushiri (JP), as well as *Wisdoms for Love 3.0* by Keiken w/ Obso1337 (GB), Ryan Vautier and Sakeema Crook. Three programs dedicated to expanded animation are being screened at Deep Space 8K: *Being* by Rashaad Newsome (US), Golden Nica winner in the category Computer Animation, three shorts by Martina Scarpelli (IT), and a selection of experimental animations. For the third time, the program *Austrian Panorama* highlights current works of local artists. For the first time, one screening program will address the festival theme and show works related to this year's motto *Welcome to Planet B*. The program is rounded out by a Young Animation lineup featuring films from the Prix Ars Electronica's u19—CREATE YOUR WORLD category for young people under 19 years of age in Austria. The 2022 Ars Electronica Animation Festival features a highly diversified showcase that invites spectators to take an exciting journey through current artistic productions in the expanded field of digital animation.

Electronic Theatre

The Electronic Theatre is the annual best-of program, a compilation of outstanding animated films, chosen by the jury from the submitted works in the category Computer Animation.

The selection showcases current productions in terms of artistic content, as well as cultural and technological innovation.

Tartarus @ Mariano Fernández Russo



Featuring:

Absence, Marc Hericher (FR)

Anxious Body, Yoriko Mizushiri (JP)

Tartarus, Mariano Fernández Russo (AR)

Radicalization Pipeline, 2021, Theoklitos Triantafyllidis (GR)

Wisdoms for Love 3.0, Keiken w/ Obso1337, Ryan Vautier + Sakeema Crook (GB)

The Crow, Glenn Marshall (GB)

Very, Very, Tremendously, Guangli LIU (CN)

When fox and rabbit say goodnight, Finn Stevenhagen (NL)

Welcome to Planet B

Change is an inevitable condition of reality for both living and non-living things. Movement, development, evolution, and dissolution is part of the scheme. But is change anthropocentric? What exactly could we expect from it in the future? Change can mean resolution, embrace, or reconnection; it can be ironic, dreamy, climate-related, abstract, or destructive. In one way or another,

there is potential, possibility, and variety. We understand the need for change as individuals, society, and humanity, but also as minimal parts of the bigger existence of reality.

Featuring:

Limites, Simon de Diesbach (SZ)

Tech For Democracy, Cecilie Waagner Falkenstrøm (DK)

Borrowed Limbs, Lisa-Marleen Mantel, Laura Wagner (DE)

Patrick and the Buttons, Francois Heiser (FR)

Intersect, Dirk Koy (SZ)

mormúrō, Stefan Larsson (JP)

Models for Environmental Literacy, Tivon Rice (US)

Limites (L) @ Simon de Diesbach



Austrian Panorama

What does it mean to commit suicide in a digital world? Can we exist as fragmented digital identities? What happens when we do not play by the rules of in-game environments? Why do unicorns like water games? Does the earth revolve around me? This program features a selection of Austrian film directors. The spectrum ranges from dystopian visions of the future to humorous introspections. A wide range of styles and techniques are used: Game Engines, Motion Capture, 3D Animation and Pixilation.

Featuring:

Klimax, Bea Höller (AT)

The Subject Changes, Depart (AT)

Hellbrunn – History Refreshingly New, Simon Wendler (AT)

Wenn die Welt zu Ende geht, werde ich dich geliebt haben, Gloria Gammer (AT)

O, Paul Wenninger (AT)

How to Disappear, Total Refusal (AT)



Klimax @ Bea Höller



O @ Paul Wenninger

Deep Space 8K

Rashaad Newsome (US)

Being

Being (2022) is a nonbinary, non-race AI created by combining animation game engines, scripted responses, generative grammars and unique machine-learning models. It plays multiple roles, leading participatory workshops that teach decolonization, and in the evenings, it explores the evolution of vogue drawing parallels between dance and Black American Queer experience.



© RashaadNewsome

Martina Scarpelli (IT)

EGG

kai – a little too much

Cosmoetico

EGG (2018) – An intimate story of a woman locked at home, attracted to and scared of an egg. She eats the egg, she repents, she kills it, letting it die of hunger, portraying a moment of shame, defeat, and yet of victory.

kai – a little too much (2020) – In an imaginary space, a woman lets go herself and overcomes the fear of her own greatness, discovering her body, embracing her emotions, and learning to own the parts that make her HER.

Cosmoetico (2015) – A girl looks for answers to big questions regarding her role as a small part or creator of the cosmos; she reflects on the existence of reality and her relationship with it. <https://martinascarpelli.com>



kai – a little too much @ Martina Scarpelli

Experimental Animation

Experimental and innovative forays into various forms of animation are on display here. In the first film *The Crow* (Glenn Marshall), artificial intelligence is used to transform a dancer into a crow. In the film *Hysteresis* (Oval – Markus Popp, Tsuki – Robert Seidel), projection mappings of analog drawings on a dancer interfere with machine-learning tools and digital processing. *Anxious Body* (Yoriko Mizushiri) offers a tactile experience. Every touch becomes an intense experience – a somatic empathy is triggered in the audience. The film *Surge* (Sebastian Buerkner) probes into the complexity of negotiating perception agreements based on a fictional post-surgical calibration session. Let yourself be taken on a journey into the world of current experimental animation.

Featuring:

The Crow, Glenn Marshall (GB)

Hysteresis, Oval – Markus Popp (DE),

Tsuki – Robert Seidel (DE)

Anxious Body, Yoriko Mizushiri (JP)

Surge, Sebastian Buerkner (DE)



Hysteresis @ Robert Seidel

Young Animations

curated by Sirikit Amann (OeAD)

Every year young, gifted filmmakers from Austria submit their weird, subtle, witty, utopian, critical and dystopian works for the Prix Ars Electronica's category of u19—create your world. They show us their strong imagination, their deep understanding of certain topics, all expressed through their abilities within one medium. This program is a selection of Animations coming from young creatives and young professionals from different age-groups (17-19) and skill sets.



AVery Special, Photo: Julianna Cuc, Alexie Khan, Anna Wingelmaier, Melek Bel, Haj Salah

Expanded Animation 2022 — Glimpses of a Hybrid Horizon

In its ten-year history, the Expanded Animation Symposium has continually examined the vast and constantly evolving field of animation and its myriad connections to other disciplines. Along this journey, the symposium has featured prominent and up-and-coming people, projects and perspectives that have significantly shaped the current animation landscape. In addition to becoming a regular part of the Ars Electronica Festival, the symposium itself has also continued to expand, developing from an initial one-day event to a three-day affair that includes multiple

tracks, exhibitions, performances and even an additional symposium, Synaesthetic Syntax. After two years of virtual events hosted by the Hagenberg Campus of the University of Applied Sciences Upper Austria, this year's symposium will return as a physically accessible venue for the first time at the Ars Electronica Center in Linz. Over the course of the three-day event, the speaker panels will feature several international artists, researchers, and developers who will discuss — in a live setting — current processes of change in the expanded field of animation.

Rendering from the third act of the trailer, designed by Isabella Pilzer, Jan Rüssinger, Josef Ibrahim und Nico Hartl

Expanded Animation: Glimpses of a Hybrid Horizon

As referenced during last year's exploration into the "tectonic shift" caused by the pandemic and newly emerging technologies, massive changes are still occurring within the animation landscape. This year's theme, *Glimpses of a Hybrid Horizon*, aims to identify and discuss these changes and future trends which promise to further shape the creative ecosystem of the expanded animation industry, influencing various forms of media such as film, games, mixed reality and streaming media. This hybrid horizon encompasses both changes in the conceptual development of artistic works and the transitional, potentially immersive nature of experiencing them. Artists, academics, and industry experts will discuss their own selected works and address such issues as the integration of AI and machine-learning into creative processes, co-creation and collaboration in a global context, and hybrid events and experiences, which are gaining in importance even as the pandemic recedes. In response to these developments, the symposium will also be held as a hybrid event, featuring multiple on-site panel presentations, but will be accessible to a wider, global audience online.

On the first day, Rashaad Newsome, winner of the Golden Nica in the Prix category Computer Animation, will give a keynote speech about his artistic process. In addition, Alex Verhaest, Yoni Goodman and Robert Seidel will engage in a discussion about current artistic positions. This examination will be followed by talks by Vienna-based game & interactive media company Causa Creations, Berlin-based studio m box, and Paul Pammesberger, head of animation at Sony Pictures Imageworks, who will offer their insights into creative processes — from serious games to large-format audiovisual installations.

The second day will continue with panel discussions covering topics such as animation, games, artificial intelligence (AI), virtual reality (VR) and creativity in the context of art. Austrian artist and scholar Margarete Jahrmann and French artist and curator Isabelle Arvers, one of the 2022 jury members in the category Computer Animation, will elaborate on games from the perspectives of art, theory and practice. Philippe Pasquier and Martin Pichlmair will delve into the opportunities and challenges of AI, creativity and co-creation. This year's symposium will also feature a first; the inclusion of a forum organized by the Austrian chapter of the Association Internationale du Film d'Animation. The objective of ASIFA Austria is to highlight and foster innovation within the field of animation, and this year's forum will feature a small but diverse selection of international artists and their specific approaches to games, immersive media and animation. The forum will start off with the Czech indie game studio Amanita Design, followed by Michelle Kranot and Martina Scarpelli, both experts in animation and immersive storytelling.

On the third and final day, the primary focus will be on the presentations for the third edition of Synaesthetic Syntax, which investigates the sensory side of expanded animation. In addition, the winners from the Computer Animation category of the Prix Ars Electronica will provide insights into their work as part of the Prix Forum. At the same time, Franziska Bruckner and Frank Geßner will discuss current positions in the field of expanded animation and Eva Fischer will reflect on festival-making in a hybrid world. Furthermore, many of the presented works will be shown in the Ars Electronica Animation Screening and in the Deep Space 8K at the Ars Electronica Center.

Synaesthetic Syntax: Gestures of Resistance

In 2020, the one-day symposium *Synaesthetic Syntax* was first included as part of the Expanded Animation Symposium. Since then, it has developed into an active platform for international discussion regarding the complex relationships between sensory perception and expanded animation. In focusing on the primacy of the senses, the symposium aims to ask questions about the seductiveness of technology and how to maintain a discourse of what is fundamental about being human.

This year's theme, *Gestures of Resistance*, addresses the sensory experiences of touch, gesture and physical movement and their role in social, cultural and political resistance. Human bodies collide with one another in a variety of contexts, and they have the power to affect others or to be affected themselves. Our bodies are deeply structured by culture, but they can also resist; motion and sensation that are felt in the body can become catalysts of change.

Very recently, a line of tanks, armored vehicles and troops 40 miles long began to approach Kyiv, literally illustrating change in motion through technology.

Speakers

Expanded Animation: Amanita Design — Jan Chlup (CZ), Radim Jurda (CZ) | Isabelle Arvers (FR) | Franziska Bruckner (AT) | Causa Creations — Brian Main (US/AT), Ben Wahl (AT) | Eva Fischer (AT) | Frank Gefšner (DE) | Yoni Goodman (IL) | Margarete Jahrmann (AT) | Michelle Kranot (DK) | m box — Martin Retschitzegger (AT/DE) | Paul Pammesberger (AT/CA) | Philippe Pasquier (CA) | Martin Pichlmair (AT/DK) | Martina Scarpelli (IT/DK) | Robert Seidel (DE) | Alex Verhaest (BE).

Prix Forum: Isabelle Arvers (FR), Marc Hericher (FR), Yoriko Mizushiri (JP), Rashaad Newsome (US).

Synaesthetic Syntax: Andrew Buchanan (US) | Liliana Conlisk Gallegos (US) | Jānis Garančs (LV) | Juergen Hagler (AT) | Jana Horáková (CZ) | Birgitta Hosea (SW/GB) | Yoichi Nagashima (JP) | Aristofanis Soulikias (CA) | Farzaneh Yazdandoost (GB).

This year's symposium aims to examine how the field of expanded animation can respond to such developments. How might technologies of gesture, proprioception and motion be used to create animation that goes beyond formalism? And how can animation be utilized as a means to reflect upon the forces that seek to contain movements towards change?

The sensation of touch can be both brutal and violent or tender and loving. Through "haptic visuality," a sense of touch can be evoked in animation by triggering physical memories of smell, touch and taste that engage the viewer bodily to convey cultural experience rather than through use of language. This year's symposium will explore how touch can be used in animation to create community or share memories.

Hybrid Presence and Virtual Archive

Respecting its longstanding tradition to make artistic and educational content freely available and to support a hybrid, global audience, the vast majority of this year's symposium will be accessible online both during and after the event. A virtual archive of all present and past content can be found at <https://expandedanimation.com>.

Organization

Expanded Animation is produced as a joint collaboration by the University of Applied Sciences Upper Austria, Hagenberg Campus and the Ars Electronica Festival in cooperation with the University for the Creative Arts, Farnham, UK, and organized by Jeremiah Diephuis, Juergen Hagler, Wolfgang Hochleitner, Michael Lankes, Patrick Proier, Huoston Rodrigues, Christoph Schaufler, Alexander Wilhelm

Upper Austria University of Applied Sciences Hagenberg Campus / Department of Digital Media, Birgitta Hosea Animation Research Centre, University for the Creative Arts, Farnham, UK and Reinhold Bidner, ASIFA Austria.

<https://www.expandedanimation.com>

<https://www.fh-ooe.at>

<https://www.uca.ac.uk/research/arc/>

DEEP SPACE 8K

The Ars Electronica Center offers its visitors something that cannot be found anywhere else in the world: 16 x 9 meters of wall and another 16 x 9 meters of floor projection, laser tracking and 3D-animations make the Deep Space 8K something very special indeed. Furthermore, Deep Space 8K presents challenging infrastructure to media artists. As they go about adapting existing works and, above all, designing installations custom-made for this space, they're entering artistic terra incognita. The position of visitors amidst the projection surface and participation by them call for a well-thought-out aesthetic composition and concepts for the resulting dynamics.

Dorotheum in cooperation with Ars Electronica.



Dan Tell (US)

Searching for Planet B: How Astronomy Visualization and Remote Sensing Guide us to Humanity's Future

Ever since humans evolved the capacity to question and wonder, they have looked up to the sky above and tried to understand the mysteries of the world. Thousands of years of increasingly precise measuring and modeling have revolutionized humanity's understanding of the sky. We now know we are but a small, delicate world, one of many in a vast Universe of planets, but unique as the only known abode of life. Seeking to understand this cosmic loneliness, we look out to deep space to try to understand the other worlds we

know of in our cosmos, which has given us new insights into what makes Earth habitable. We can now improve our models of the Universe to understand the composition of these other worlds and ask if they could also become new homes for humanity, but we can also turn our eyes in space back on the Earth to try to understand how we can restore our own planet.

Dan Tell, California Academy of Sciences;
Matthew Wrenne, California Academy of Sciences



© Dan Tell

Gigapixel Images from the Vatican Museums – The Frescoes by Pietro Perugino in the Sistine Chapel: Beauty Leading to Faith

For the first time, the Vatican Museums will be guests at the Ars Electronica Center for a special Cultural Heritage Series based on a cooperation with the Vatican Museums and the Embassy of Austria to the Holy See in Rome. Gigapixel images of two outstanding artworks by the Great Master Pietro Perugino in the Sistine Chapel – the main Chapel in the Pope’s Palace – will be presented at Deep Space 8K. Both frescoes belong to the narrative cycle depicting the life of Christ. Vatican Museums’ Director Dr. Barbara Jatta recommended these masterpieces for this presentation as the most significant and easy-to-understand within the theological message which frescoes by the fifteenth-century artists convey. They also have been chosen as an introduction to Pietro Perugino’s extraordinary work in view of the upcoming 500th anniversary of his death in 2023. Thanks to the use of very high-resolution digital images provided by the Vatican Museums,

created by use of gigapixel photography technology, this immersive presentation offers a privileged and spectacular view of these timeless frescoes by Perugino that can be viewed and admired with absolute clarity and accuracy in perfect detail, allowing the visitors to have a unique experience. They will find themselves indeed inside the *Beauty That Leads to Faith* in harmony with the values and priorities underlying the Vatican Museums’ mission. Director Dr. Barbara Jatta will explain these masterpieces at Deep Space 8K providing insights into Pietro Perugino’s wonderful work, while Dr. Rosanna Di Pinto, Head of the Vatican Museums’ Images and Rights Department will comment on the photographic survey, the gigapixel images of Perugino’s artworks in the Sistine Chapel belong to.

This presentation will be kindly supported by the Embassy of Austria to the Holy See in Rome.



Scripta Maneant G. Rolf and C. Varnini
Photo © Governatorate of the Vatican City State – Directorate of the
Vatican Museums. All rights reserved.



La Joconde, © Mardis, Artisansd Idées, GPI Rmn-GP, Musée du Louvre 2022

The Mona Lisa

an immersive exhibition at Deep Space 8K

Why is the *Mona Lisa* the most famous painting in the world? The answers to this apparently simple question are varied, complex and surprising, giving visitors an insight into part of the myth and above all into the work itself, beyond any false mysteries and clichés.

The exhibition is an invitation to rediscover Leonardo da Vinci's masterpiece through stories and sensory experiences that take place on different levels:

- The circuit is punctuated with encounters with the “landscape-skin” that envelops the entire exhibition space. It immerses visitors in a place inspired by the works of Leonardo da Vinci (1452–1519), such as the *Mona Lisa*, *Virgin of the Rocks* and *Saint Anne* and offers interactive experiences for the public. The landscapes from these works come together and interact to create a panoramic world that brings the space to life. Here digital media, which is often thought of as a “cold” format, takes on an appealing sensitive and emotive dimension, with unusual graphic textures.

- Different visual tales recount the stories, anecdotes, modern context and process behind this painting that has become an icon. Visitors meander through visual narratives that are simultaneously instructive, sensory and contemplative.

These large-scale digital projections convey the polysemy of Leonardo da Vinci's work:

The Origin of the Myth, A Living Portrait, Under Observation, Mona Lisa Obsession, The Mona Lisa has been Stolen!, Mona Lisa Mania

The project will be presented at Deep Space by Vincent Delieuvain, curator for Italian Sixteenth Century Paintings at the Louvre, Christelle Terrier, Exhibitions Project Manager, Production Direction, Réunion des Musées Nationaux-Grand Palais and Roei Amit, General Manager, Grand Palais Immersif.

Co-production by the Grand Palais Immersif (a subsidiary of the Rmn-Grand Palais) and the Musée du Louvre with the support of the Centre national du cinéma et de l'image animée / with the support of TikTok.

This presentation at Deep Space 8K will be kindly supported by the Institut français d'Autriche.

Smirna Kulenovic (BA), Damian Cortes-Alberti (AR), Julia Moser (AT), Alejandra Benet Garcia (ES), Laura Gagliardi (IT), Lucia Mauri (IT), Ariathney Coyne (GR/USA), Alessia Rizzi (IT), Lina Pulido Barragan (CO), Sara Koniarek (AT), Maria Dierneder (AT), Felix Chang (AT), Dafni Xanthopolou (GR)

DANU

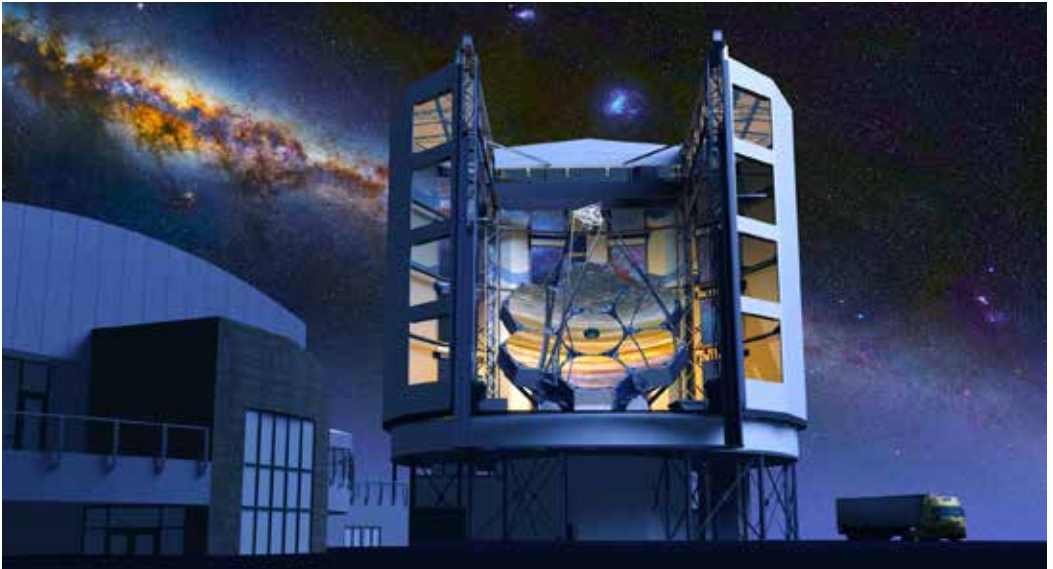
Bodies of water

We are all Bodies of Water: Re-enchanting the Vulva, re-spiriting the Danube, inviting the magic back into our oceanic beginnings. Entangled between our menstrual blood and primeval waters of Dānu, we embody our ancestral river myths through our common microbes, dancing. Leaking, sponging, and dissolving our human watery bodies, we invite the audience into a ritualistic gaze of interacting dependency — a mystical relationship with our larger, ecological,

Bodies of Water. DANU is a result of a transdisciplinary workshop by the artist Smirna Kulenovic, materialized as a collaboration between the artists studying at the MA Departments of the Dance Institute (ABPU) and Interface Cultures (University of Art and Design Linz). During the Summer Semester '22, each artist was guided through their personal and shared artistic research in Hydrocommons of wondrous difference, in which we all circulate, flowing into and out of each other.



© Sara Koniarek



© Giant Magellan Telescope — artist's concept

Dr. Dietmar Hager — Stargazer Observatory (AT)

Superlative telescopes: In the desert and far behind the moon

The well-known Hubble Space Telescope (HST) has reached its limits after years of looking into the depths of space. Now it's time for a look into an area where Hubble is blind: the near-infrared and the infrared range. Modern telescopes will have to work outside visible light. One successor is the JWST: James Webb Space Telescope. This result of modern engineering is an extraordinary telescope specialist, but its field of view is comparatively miniature. The JWST is not capable of a sky survey. In the next few years, the JWST

will be supported by state-of-the-art Earth-based telescopes, such as the Giant Magellan Telescope (GMT), which is currently being built in Chile. The GMT will have non-obstructed optics and will consist of 7 primary mirrors, each 8.4 m in diameter. This talk reaches out from the Hubble Space Telescope to the James Webb Space Telescope and the Giant Magellan Telescope and gives an idea of how new discoveries will revolutionize our understanding of space.

Georgios Tsampounaris (GR)

The Art of enjoying the Silence

A 25-minute meditative immersive experience of sea-view, underwater, landscapes, wave sounds and ambient soundscapes in Mediterranean. The visitors are invited to lie down on the floor or on the couches, relax, and get absorbed in this environment. While the time passes, some landscapes transform into unreal ones with techniques of mirroring and duplicating the footage. This experience is designed to take place in Deep Space 8K and is projected on both floor and wall

for full immersion. After the experience, a discussion can take place about the following topics: Could the utilization of virtual environments bring natural places to the visitors instead of them travelling there in order to reduce their CO2 footprint? How does social media contribute to turning a “natural paradise” into a victim of hyper-tourism and therefore removing the local wildlife and inhabitants, replacing them with short-term rental units?



© Daniela Poschauko, Georgios Tsampounaris



© Smirna Kulenovic

Smirna Kulenovic (BA), Christina Zhang (CN), Vahid Qaderi (IR)

HUU

Huu is a virtual mnemonic landscape based on personal histories of 22 survivors of sexual violence in the war in Bosnia and Herzegovina in 1992-1995 and the genocide against the Tutsi in Rwanda in 1994. The voices of these women and men inhabit an archipelago of floating islands, where each ecosystem reveals particular memories of a certain participant, in their journey from trauma to healing. We travel through these islands as wind, creating subtle gestures over waters and plant species, unveiling the documentary audio-recordings.

As an intersection between ecological and personal memories, this project creates a safe space for survivors to tell their stories, giving them a chance to speak up about experiences which oftentimes remain taboo in their local societies. *Huu* makes it possible for participants from geographically distant war and genocide-torn countries to unite in a virtual space and co-create a healing archipelago.

Smirna Kulenovic (BA), Christina Zhang (CN),
Vahid Qaderi (IR)

Sebastian Pirch (AT), Norbert Unfug (AT), Christiane V. R. Hütter (AT), Jörg Menche (DE)

The Nature of Systems

We live in the Anthropocene, where human and natural ecosystems collide. Through an interactive visualization, we gain insights into systems that shape our environment.

Through an immersive exploration the emergence and breakdown of complex systems can be observed. A satellite network in space forms our communication system, but inactive units can cause debris, resulting in an inhibitory effect. Airports form an essential transportation system but can turn into a global threat by spreading diseases. A grid of power plants establishes an electrical network, but can expose humankind to

self-induced danger depending on how it is used. The human body itself is an organic machinery of molecules interacting with each other maintaining a body's homeostasis, which can switch to self-destruction when disturbed.

Each unit within these systems is important to sustain an equilibrium of the whole, just like each human's impact on the ecosystems of our planet.

Institutions:

The Menche Lab | University of Vienna (AT)

Max Perutz Labs | University of Vienna (AT)

CeMM Research Center for Molecular Medicine of the

Austrian Academy of Sciences / AT



The Nature of Systems @ Sebastian Pirch, Norbert Unfug, Chris Huetter



Sebastian Postl (AT), Claudia Puck (AT), Sebastian Pichelhofer (AT), Katharina Keiblinger (AT), Jelena Obradovic (AT), Roberto Schaefer, ASC, AIC (AT), Johann Steinegger (AT)

Our Earths VR (Preview)

An immersive timelapse of the future.

Rising temperatures lead to more frequent extreme weather events. Scientists are registering widespread species extinction. Politicians create “alternative facts”, and the economic system continues to rely on exploitation and growth. As a reaction to this, an insecure part of the population is increasingly declaring science to be the enemy. It is the bitter realization of the youth of our time: no politician can win elections and no company can do business by promoting limiting consumption. We know that we will not come close to achieving the climate goals that are regularly proclaimed by heads of state at major

climate conferences. With *Our Earths*, we want to show a concrete and realizable kind of positive change: not “science fiction,” but a scientifically evaluated “science vision.” Courage and hope as inspiration for real change: we create an immersive science-based utopia — the success story of humanity.

We will show a preview of the work-in-progress project and share insights into the production process.

Funded by: Bundesministerium für Kunst, Kultur, öffentlichen Dienst und Sport, Stadt Graz Kultur

CRYSTN HUNT AKRON (AT)

PLASTICPHONIA — Music out of Plastic Trash

Music from the Ocean

CRYSTN HUNT AKRON, sound artist and music producer, composes out of the sounds of plastic trash: the *PLASTICPHONIA*.

By moving the material, sounds are generated from plastic parts such as brushes, bags, bins, bottles, tubes, cups, etc. The trash acts as an instrument and this plastic waste becomes music. The project is dedicated to the internationally relevant topics “global plastic pollution” and “plastic—throwaway society.” The artist duo Crystn Hunt Akron & Patrik Huber work with Greenpeace, environmentalists, and Clean Up the beaches collecting plastic waste, which is washed up on the beaches of the seas and rivers.

40 tons of plastic end up in the sea from the Danube every year. Around 8 million pieces of plastic enter our oceans every day. The concert is supported by a visualization by Berlin’s artist Christopher Noelle also known as TOFA.

Patrik Huber, Cornelia Lehner, Klimafonds Linz, Büro Stefan Kaineder, Kultur Land OÖ, Kultur Stadt Linz Export



© Roland von der Aist

Elliott Gaston-Ross (GB/IE)

Rooted

The piece *Rooted* was written in 2020 by the American percussionist and composer Brian Blume. *Rooted* is a piece for solo percussion consisting of 2 snare drums and glockenspiel to be played with an audio backing track. Using the facilities of the Deep Space 8K, abstract visual effects have been created to accompany the piece, depicting themes of nature and human-kind's effects on the planet. This is portrayed through the 'rootedness' of a single tree that opens a series of narratives showing the human impact on nature and how nature tries to maintain harmony through urbanization and pollution. The performance is an artistic contribution to raising awareness about the current global situation that is causing climate change.

Notes from the composer:

The inspiration for the piece came as a result of much reflection on the many changes my life has seen recently. Through seasons of change, many aspects of my life may be uprooted or thrown into

disorder, yet some things remain the same and persist through those changes — my marriage, my family, my faith in an immutable God. When we are rooted in the right things, trying changes of seasons don't have to break us; rather, they can strengthen us.

Musically, I attempted to capture this through the persistence of the pitch G, as well as the G major harmony. We may leave G major, at times straying far away, but we always return. And even when the music travels elsewhere harmonically, the G is still present somewhere, reminding us of our roots. Certain rhythmic motifs occur throughout the piece, as well, sometimes in altered forms, demonstrating change over time, but rooted in the same material. *Rooted* also acknowledges the musical roots from which it has sprung, including the works of Bob Becker, Brad Mehldau, Arvo Pärt, and Francisco Turrís, among others.

Percussionist: Elliott Gaston-Ross (GB/IE)

Production assistant: Smirna Kulenovic

Stage-based visual design: Indira Di Benedetto



© Indira Di Benedetto

Franz Fischnaller (IT)

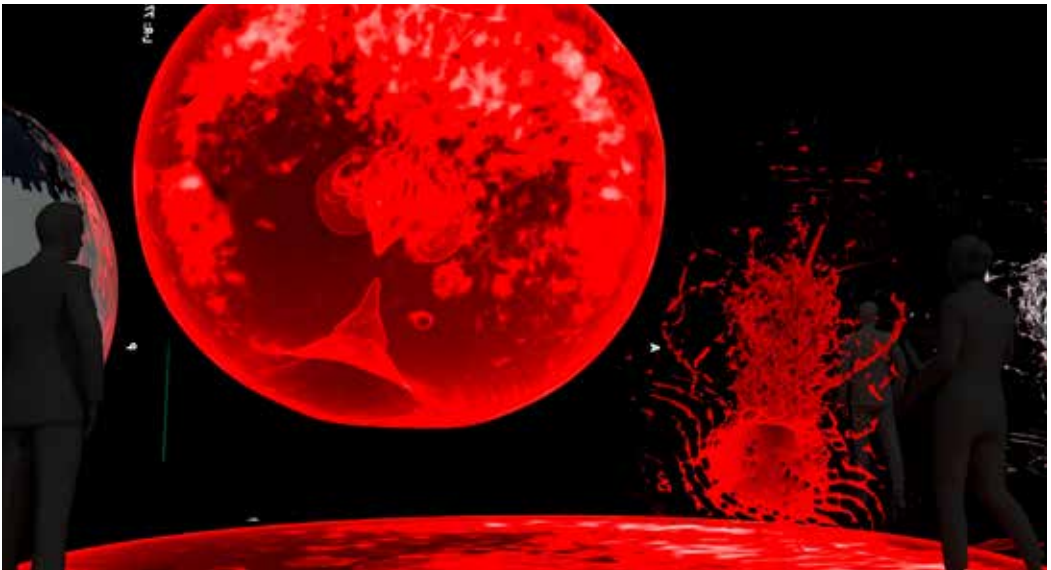
With the collaboration of: Dr. Satre Stuelke (US) and Jéssica Roude (AR)

FRUIT ART... REAL Vs.—VIRTUAL LIFE (FA-RVsVR)

8K 3D Stereo Gigapixel immersive fruit art-based experience, gravitating around the invisible world of fruit. Visitors are virtually transferred “inside” the intriguing kinetic world of fruit (that is to say the “mature ovaries of nature” the fleshy or dry ripened ovary of a flowering plant, enclosing the seed/s.) Gaining unthinkable insights into the fruit’s secret wonders and triggering emotional connections and affinity to the natural world. The avatar “AIAG” (the reverse of GAIA) coexists within FA-RVsVR’s *METaverse*. A 3D hybrid anthropomorphic, winged creature, with special power and abilities. She is in part a human/

woman, a cyborg, a birth and a tree. Her wings are covered by a smart skin and leaves and her tail is a root tree. Tech: Digital animation, visual effects (VFX), CT SCAN [computed tomography scan], scientific data visualization, blended with 3D Immersive point clouds and Photogrammetry visualization, mixed and arranged with music and special sound effects.

Franz Fischnaller (IT) / With the collaboration of Dr. Satre Stuelke (US), Jéssica Roude (AR) / 3D modeling assistance: Bingqing Dong. / Original CT and MRI fruits scanners have been provided by Dr. Satre Stuelke.



FRUIT ART- REAL Vs.—VIRTUAL LIFE, © Franz Fischnaller

Kaoru Tashiro (JP), Razieh Kooshki (IR),
Vahid Ghaderi (IR)

Miragique

A piano concert with 3D visuals generated in real time, with compositions by Kenji Sakai (JP), Julia Purgina (AT) and J.P. Deleuze (BE).



Kaoru Tashiro at the AIXMusic Festival Evening Concert, St. Florian Monastery, © vog.photo

Bloom Jr. (DE), Buzzlightning (DE), Gleb Divov (LV/RU), Christoph Faulhaber (DE), Max Haarich (DE), Juha van Ingen (FI), Claudie Linke (DE), Kleintonno (DE), Nissla (AT), Numo (DE), Quasimondo (DE), Jarkko Räsänen (FI), Mamadou Sow (DE), sp4ce (DE) and tius (DE)

Teletext is Art / Teletext ist Kunst

The teletext exhibition *Teletext is Art* will be shown in a presentation at Deep Space 8K. Four of the participating artists will present their artworks, provide insights into the technical implementation of teletext artworks and the aspect of immortalization as NFTs in the blockchain. *Teletext* was launched by the BBC in 1974, ORF and ARD started their teletext offers in 1980; technically there have been hardly any changes since then. A teletext page is based on a grid of 24 rows and 40 columns. Each grid part can be used for a letter, number, special character, control character or up to six graphic pixels. And there are only six colors, black and white. The success of the teletext medium, which has also been popular on the Internet and as an app for many years, is due among other things to its simplicity of use, high level of technical distribution and, of course, its cutting-edge content.



© D. Gross

Cooperation: ORF, ARD, the artists' cooperative FixC and TeleNFT



VH AWARD

The 4th VH AWARD

The *VH AWARD* has acknowledged and supported emerging artists who have engaged contextually with Asia. The award encourages artists who push the boundaries of audiovisual arts to challenge our understandings of the past, present, and future. The 4th *VH AWARD* exhibition at the Ars Electronica Festival will include the work of Grand Prix recipient Lawrence Lek and finalists Doreen Chan, Paribartana Mohanty, Jungwon Seo and Syaura Qotrunadha. Their works range in subject matter from the relationship between humans and artificial intelligence to the most pressing social and ecological challenges of the present day.

In addition, following their exclusive screening at the New Museum during Frieze New York on May 18th, 2022, the artworks are currently on view at Elektra's virtual museum (June 1st, 2022—June 1st, 2023). They will also be exhibited at MACAN, Indonesia's preeminent institution for modern and contemporary art (September 10th—November 13th, 2022). The *VH AWARD*, established in 2016, is Asia's Leading award for media artists. The award stems from Hyundai Motor Group's commitment to activating the intersections of art and technology through cross-cultural research and interdisciplinary artistic expression.

Paribartana Mohanty (IN)

Rice Hunger Sorrow

Mohanty traveled more than 10,000 kilometers around the area of Bay of Bengal in Odisha, to witness and document the landscapes affected by environmental disasters and tsunamis, for his *VH Award* project. His video, *Rice Hunger Sorrow* (2021), follows two protagonists to the ocean and forest, asking continually, “who is the mightiest?” The answer, though never spoken, is perhaps best left as a reflection on our own lack of might in the face of mother nature.

Paribartana Mohanty, *Rice Hunger Sorrow*, single channel video, 20'23", 2021. Commissioned by VH AWARD of Hyundai Motor Group



Lawrence Lek (GB)

Black Cloud

Lek's 4th VH AWARD Grand-Prix-winning work *Black Cloud* (2021), is the culmination of the London-based artist's ongoing body of virtual-reality productions. Working with video game software and CGI animation, Lek merges real places with virtual worlds to look at how humans interact with AI and how digital images alter our experiences in the real world. Through his exploration of world-building and in developing narratives of alternate histories and possible futures, Lek, who is of Malaysian-Chinese descent, opens up inquiries into the "geopolitical" implications of AI, illuminating the various links between AI and art. In particular, Lek focuses on the ways in which different societal attitudes toward AI control people's values, lifestyles and modes of operation around the world.

Lawrence Lek, *Black Cloud*, single channel video, 10'50", 2021. Commissioned by VH AWARD of Hyundai Motor Group



© Lawrence Lek

Doreen Chan (CN-HK)

HalfDream

Chan's work, titled *HalfDream* (2021), is a participatory art project conducted on a dedicated artificial intelligence platform (halfdream.org) that connects participants via their subconscious and common dreams. The artist born in Hong Kong descent investigates personal perception, materiality and "daily details that are often overlooked" through her practice, believing that something within the subconscious can help us see and remember the ways we are similar, when external and political forces seem intent on manifesting division.

Doreen Chan, *HalfDream*, single channel video, 5'40", 2021. Commissioned by VH AWARD of Hyundai Motor Group



© Doreen Chan

Syaura Qotrunadha (ID)

Fluidity of Future Machines

Qotrunadha's work, *Fluidity of Future Machines* (2021), is the Indonesia-based artist's video collage exploring the relationship between water and living creatures' migration, speculating on the future of human nature. The visuals of her video recall the experience of looking through a microscope, suggesting that the insights of our elders may help us see what is invisible, but right before us. Initially the images appear to be of foreign matter, outside of our bodies, but in watching *Fluidity of Future Machines*, one realizes that they are also looking, in a way, at themselves.

Syaura Qotrunadha, *Fluidity of Future Machines*, single channel video, 13'03", 2021. Commissioned by VH AWARD of Hyundai Motor Group



© Syaura Qotrunadha

Jungwon Seo (KR)

We Maketh God

Seo's *We Maketh God* (2021) considers what sort of art AI may create. Shot in black and white and slowed to stretch each moment into suspense, the video brings the drama of the Renaissance into the present, creating a space to contemplate the history we are living and making each day. The effect is subtle, yet powerful. Seo makes viewers aware that while we may not feel the significance of our actions — both collective and individual — they will reverberate in unpredictable ways for years, possibly centuries, to come.

Jungwon Seo, *We Maketh God*, single channel video, 14'35", 2021. Commissioned by VH AWARD of Hyundai Motor Group



© Jungwon Seo

Cooperative Aesthetics

For the fifth time, new projects on Cooperative Aesthetics will be presented in Deep Space during the Ars Electronica Festival, to enable visitors to share an audiovisual aesthetic experience.

This year, three works by students from Interface Culture, which were developed under the

supervision of Univ. Prof. Gerhard Funk and Univ.Ass. Holunder Heiss (Department of Time-Based and Interactive Media Art at the University of Art and Design Linz) as part of the “AEC Deep Space” course, will be shown.

Carlotta Borcharding (DE)

Environment

Environment (Umgebung) is an interactive space where users of the interface, the floor, can create visual content bases on a simple line pattern. During the interaction the user’s movement and their connection with one another are visualized and shown on the walls.

This work focuses on the deconstruction of a static environment through movement, thereby translating it into an organic and vibrant space. Thanks to a cooperation with dancers from the ABPU a performance is being developed where the artists express movement creating new visual dynamics.



© Joachim Smetschka

Semester Project “Cooperative Aesthetics”, (Timebased and Interactive Media by Gerhard Funk / Holunder Heiß)

Axel Bräuer (AT)

Deep Space — Hot Air Balloons

3D-rendered hot air balloons, floating over the ocean, can be controlled via the deep space laser tracking interface.



© Axel Bräuer

Ariathney Coyne (GR/US)

the mind is circular

the mind is circular is an interactive program which highlights and pays tribute to the constant stream of movement occurring on a sub-atomic or planetary scale. The code was created for Deep Space with Processing and consists of revolving particle systems that react to participants' position and velocity. The intention of the program is to spotlight and emphasize movement and its traces in space, but also accentuate the paradoxical motion within total stillness.

The artist invites all participants to jump, sit, run, roll and explore how the traces of their bodies can be visualized in space; furthermore, Coyne investigates how cooperation amongst



© Axel Bräuer

participants can result in the creation of complex and aesthetic patterns.

Special thanks to: Gerhard Funk, Holunder Heiß, and Benjamin Wesch (University of Art and Design Linz)

Daniel Haas (artist name STURMHERTA) (AT)

Schwarzes Rauschen / black noise

In the fields of electronic music, audio engineering and physics, the color of noise refers to the spectrum of energy that it carries. Black noise means the energy level is zero throughout all frequencies and therefore it stands for silence. The project is an immersive, interactive installation, consisting of 12 different, dynamic worlds, which change their structures with the movement of the group of people currently being tracked. Every world contains a certain amount of noise, randomness, decreasing with every level. Starting at a level of pure chaos, with every further world the environment becomes less noisy and more structured and harmonious, leading to total silence in the end. In every world there is a hidden portal which can take you to the next world. To open the portal, one person has



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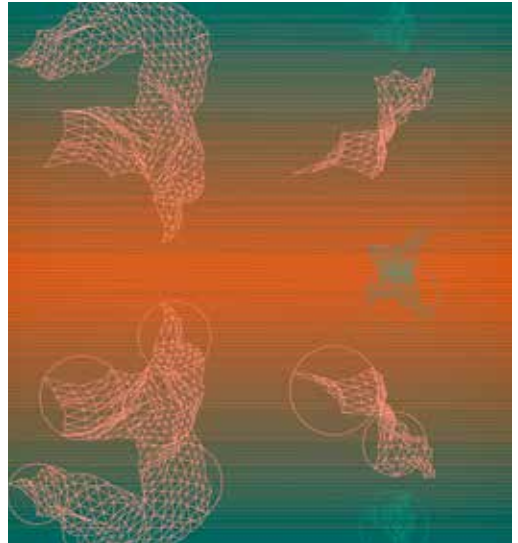
to find where it is hidden. Once found, it opens. If everyone in the group decides to step on the portal, after two seconds you are brought into the next world.

Daniel Haas / Time-based and Interactive Media Arts – University of Art and Design Linz

Katherine Romero Martinez (CO)

Fragment

Fragment is a metaphor for how connecting with others can enable us to carry out more beautiful actions. The user enters Deep Space and creates a variation of Sierpiński's triangle. This fractal is a fragment with its own behaviour, which follows and reacts to the user's movements and has the potential to connect with other fragments. This potential depends on the degree of patience and quality time the user gives to their fragment. Once fragments have blossomed due to user interaction, they can connect and create a finer form. *Fragment* is about the need for connection, which is more than just getting together. Connecting with other people is possible through patience and understanding for each other and yourself; this relationship allows us to be better as individuals, but also as a society.



© Katherine Romero

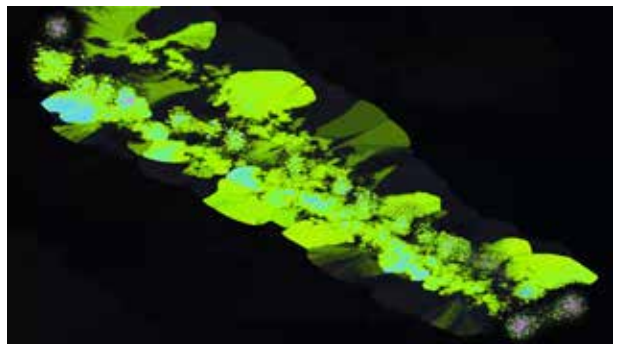
Botond Kelemen (HU), Budai Bálint (HU)

Mold yourself!

The project was inspired by the connections between mycelium in fungi and how fungi spread. The visualization of the infection represents how fast it spreads and how different fungi are in their natural surroundings.

Viewers can walk around the stage and can change the size of the infection. After a couple of minutes, the whole scene is renewed, with a new variant introduced. In the scene every person has an interactive point as a mold shape.

If people are standing close to each other the points fuse and the infection grows. The audio elements react to human interactions and positioning; if a group of people stand in a specific



© Botond Kelemen

corner, one part of the sound ensemble is more effective than the others.

Botond Kelemen, Bálint Budai, University of Art and Design Linz

Joann Lee (KR)

In the Coloring

The concept of the *In the Coloring* is a coloring book that shows the painting at the end. Users can see only a white or black wall (screen) and several blank spaces on the ground when entering for the first time.

(The painting is actually painted with the same color as the wall) Users have random colors on the ground that can be changed by jumping.

When the user steps on the blank space, the color of the blank space is filled with the color he or she has. And the part of the painting on the wall that connects the blank space is filled with the same color.



© Axel Bräuer

After users fill all the blanks with their colors, they can watch the hidden picture, which is filled with unintended colors, appear on the wall.

Emilia Vogt (DE)

Firework Wheel

This Deep Space project creates a *firework wheel* by running in circles. Colored particles are generated if the visitor steps into a circle. The faster the visitor runs and the more people are involved, the louder the sound of a firework. It is a playful way to create a firework in a group and a vision of fireworks of the future.

Gerhard Funk
Holunder Heiß



© Axel Bräuer

Friederike Weber (DE)

Lines

My program *Lines* was specifically designed to be shown in the Deep Space in Ars Electronica Centre Linz. The idea behind the program is inspired by the entry hall of the MuseumsQuartier in Vienna. By entering the Deep Space floor, a line is drawn beneath the visitor. Each visitor becomes part of a rectangular pattern made up of lines. Visitors can decide themselves how long and large their line should be. This creates an individual path in terms of direction, size and length as chosen by visitors. By leaving the projection floor and the tracking system, the created line disappears from the floor, moving up to the projection wall. By having different people create different lines with different properties, a pattern of lines appears.



© Friederike Weber

The program was originally programmed to be in black and white, but some more advanced versions of it exist featuring color as well.

Gerhard Funk, Holunder Heiß, University of Art and Design Linz, MuseumsQuartier Wien

Jeremiah Diephuis (US), Andrea Haider-Pachtrog (AT), Rita Hainzl (AT), Paul Huemer (AT), Sebastian Mayer (AT)

Deep Delivery

Co-located Game

The pandemic has affected numerous aspects of our lives, including how we choose to feed ourselves on a regular basis. Food delivery services have flourished during lockdowns and quarantines, but this has also contributed to significantly more waste, both in terms of packaging and other resources such as foodstuffs and energy. In the co-located game *Deep Delivery*, designed specifically for Deep Space in the Ars Electronica Center, players assume the role of delivery services that take orders from the participating viewing audience, competing for the most accurate and fastest delivery performance. But each food delivery also creates waste that needs to be disposed of



Deep Delivery Floor @ FHOOE

before the environment begins to deteriorate. Just how long can this system of mass consumption be maintained?

University of Applied Sciences Upper Austria, Hagenberg Campus

GUEST PROJECTS

STWST48x8 DEEP

48 Hours Disconnected Connecting

Finally, yes, ladies and gentlemen: *DEEP* is the New Dark.

After Deep Politics, Deep Economy, Deep Industry or Deep Science, the new appropriation of depth continues. Art and research are moving into the deep, and we are mining and fracking our minds. In *DEEP* we find not only Deep Learning, Mind or Data, but also Deep Fake, Deep Exploitation, a lot of contradictions and an archaic mixture of mud, Gaia, Meta, Weltgeist, pre-modernity, of wild thinking, dark mirrors and speculation.

In the irrational and insightful states of the *DEEP*, human and non-human actors, systems and dynamics from the past, present and future connect.

And they often connect in different ways than our rational world would like to regulate. The globe is visibly disconnected: nature broken, warlike conflicts, democracy in limbo, globalization crashing, consumption precarious, science drowned out, tech one-way-total, human maelstrom, autistic rage. But still we want to be connected: With our

devices, our data, nature, the world, others, every fucking thing in the universe, and in the end, ourselves. STWST shows at Deep Open Mess between Disconnected and Connecting: analog machines, phosphorescent worlds, VR data journeys, NFP money, text destruction, discourse transformation, it spreads deep sound opera feeling, a nonbinary techno fantasia and more. Plus, texts about techno-communism and shamanism, all-around totalitarianism, goldrush politics, self-fracking, and mind-mining in STWST's newspaper *Versorgerin*.

The bodies think. The spirits feel. We are digging for a new humanism with the familiar announcement: pessimism of the intellect, optimism of the will. With *DEEP*, the Stadtwerkstatt is hosting its 8th edition of the annual 48-hour non-stop showcase extravaganza in September 2022: 48 hours of genre-free art and critical production in the house's anti-white cube.



Deep Sound opera

STWST and Guests



In resistance to a world whose linguistic, political and rational contents have been exhausted, critical producers perform a *Deep Sound Opera* over two nights. It is made up of different acts that are both connected and unconnected to form a larger whole. Sound artists work with language, text and discourse in the broadest sense. Performers and autonomous initiatives act from the experience and practice of DIY, DIWO and DIT. With the different materialities of art, language and sound, the aim is TRANSFORMATION: With self-referential spirals of knowledge, with linguistic meta-levels, with content beyond text, with transferred meaning and rhythm, with downshifted frequencies of knowledge, with breath that has passed through the body, with transformed experience, with emotion and sensuality, with the SPACE BEHIND THE EYES and with the FORCE BETWEEN THINKING

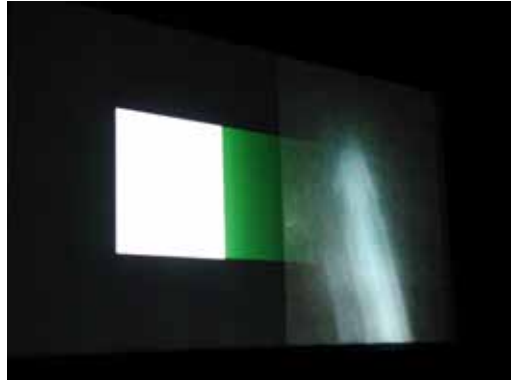
AND FEELING, the rational approaches of text, reflection, the free form of text cascades as well as the irrationality of sound surfaces are confronted. In the depths there are no words left. This is where we mine, this is where meaning lies, this is where the cables of language lie in chaos and mess. Connected or disconnected, an open sound format emerges to which one can perhaps still DANCE.

The installation titled *Kreishell*, an analog drum machine in the STWST venue, occasionally becomes an act in its own right. But is also a room-filling stage for the other acts during the Deep Sound nights. In the STWST Ground Floor, moreover, an old sound system and several visual devices rustle between No Discourse and Minimal Content, annihilating the lib(retto) of the *Deep Sound Opera*.

Tanja Brandmayr (AT)

Nik, the Sleeper

The sleeping body as an organ of thought, a connected consciousness as a network, a dormant land beneath the waking state, the sleep of the many as an entity: *Nik, the Sleeper* is a performative installation, a spatial sci-fi exploitation story told in scraps of text. *Nik, the Sleeper* deals with body, consciousness and technology. It engages in historical research on electricity, for example, and points to a techno-future as a potentially larger, connective unconscious network. Between algorithmic underground consciousness and self-fracking, however, the installation swallows almost all of its content. A fragmentary perceptual space emerges that combines pulsed textual content, diffuse imagery, states of creativity and self-forgetfulness, elements from regular sleep measurement, alienating afterglow effects, and elements of reduced movement economy.



© Tanja Brandmayr

Franz XAVER (AT)

Gibling as NFP

The *Gibling* has been released since 2012 as the community currency of Stadtwerkstatt and Punkaustria. It is redesigned every year by an artist and consists of 1, 2 and 5 Gibling notes that have a real exchange value. Since 2013, a 500 Gibling bill has been issued as currency art. In the ecosystem of the currencies, a Givecoin was launched in 2014. Thus, the *Gibling* is art, value, money and speculation object in one. This year, the 11th edition of the *Gibling* was designed by Franz XAVER as an NFP, which means “Non-Fungible Picture”. This refers to non-interchangeable, unique images. As serial pictures, flames, clouds and water surfaces are the starting point for the *Gibling 2.0*. Each picture is uniquely signed by the serial number and a checksum via the metatags of the next picture. Thereby, every single 1, 2 and 5 *Gibling* note of the community currency becomes unique. The notes can be “activated” via an internet address. With the activation, one receives a private key to the “punk note”. The banknote is then loaded with 1, 2, 5 or 500 Givecoins. The

Gibling is therefore not only unique through its image, but it can also be used as a paper wallet through the private key it receives. However, the paper wallet only works provided the Givecoins are moved from *Gibling 2.0* to a digital crypto-wallet. With each activation, a new NFP is also created at the same time, in whose metatags the checksum of all previously activated images can be found in code. stwt.gibling.at



© Franz XAVER

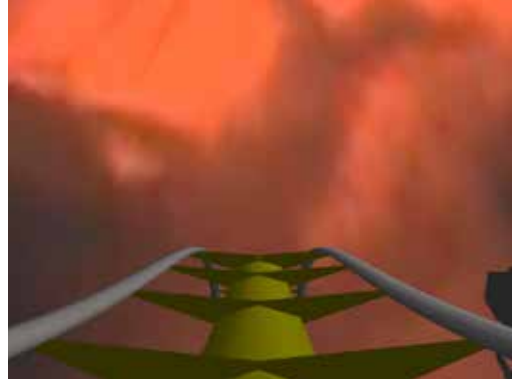
Michael Aschauer (AT/FR)

The Coupled Data Intercomparison Extended Reality Roller Coaster

(WebXR, 2021)

Roller coasters are the showcase demo of VR experiences. *The Coupled Data Intercomparison Extended Reality Roller Coaster*, however, sets you up for a ride along real datasets. The tours take you up and down the crude oil price over last 160 years, the Dow Jones Industrial Average (last 100 years), the bitcoin price, the global temperature anomalies of the last 150 years or the atmospheric CO₂ concentration of the last 800,000 years!

<https://rollercoaster.backface.io/>



© Michael Aschauer

HAGAY DREAMING (V.STWST48)

An Elug Art Corner + Dimension Plus production.

Initiated by Shu Lea Cheang and produced by Ping Yi Chen

Artist/Direction: Dondon Hounwn

Derived from a fabricated legend recounted by Dondon Hounwn, an artist and a practicing shaman of the Truku tribe of Taiwan, *HAGAY DREAMING* is a techno-fantasia guided theatre of revival that explores technoshamanism and Gaya principles. The work charts a discourse on the diversified nature of genders in primeval states, the conflicted keepers of tribal tradition and the defiant young generation. “A hunter lost in the forest meets a group of gender-fluid Hagay who transmit the knowledge of rituals, hunting and weaving to the hunter. The hunter returns to the tribe and continues sharing their wisdom.” *HAGAY DREAMING at STWST48x8* takes the participating public for rituals lastin 48 hours, consisting of forest wandering and dreams in a conscious state. Spectra of tribal totem “dowriq”, beaming laser light, summons the ancestral spirits to watch over us, guiding us walking, chanting, gender hacking, xylophone messaging, flute head-hunting, danc-

ing, imaging. Sapuh, Emsapuh, Smapuh, Dgiyaq, Mkduyung, Phpah, Qhuni, learning medicine, embodying the power of medicine, forests and streams, blossoming flower and trees, we arrive beyond the flowing of light where the multiplicity of HAGAY converge and reverberate in balance.



© Hagay Dreaming



© Crypto Wiener

CryptoWiener (AT)

PIXELS

OK LINZ

CryptoWiener conquer the Metaverse in Linz's OK. With their real pixel works they translate the digital world into the analog exhibition space and create a multi-dimensional experience — a constant shift between the digital and analog world.

The user's own cell phone becomes a portal and guides them through the colorful virtual pixel world of *CryptoVienna*: from the coffee house, with Mozart at the piano, to the sausage stand or the soccer field, and meeting iconic Austrian personalities at the "Meet and Greet."

Visitors become part of the digital world in the exhibition, learn how to move and communicate in the metaverse, and can take a part of the *CryptoWiener* multiverse home with them at the end. The six-member artist collective *CryptoWiener* has been active in the NFT and Cryptoart Space since 2018 and pioneered the world of crypto art with its early works. In the spirit of "digital emancipation," knowledge transfer and skill sharing for all visitors is a major artistic concern for the artists.

Raumvisionen

META.SPACE

FRANCISCO CAROLINUM LINZ

What is currently in vogue as an escape from reality between the conquest of space and the virtualization of everyday life has spurred and inspired artists for centuries: The creation and design of worlds and the artistic examination of social, real and imaginary spaces. Time and again, social developments have been anticipated and influenced in a lasting way. And so current trends such as the various metaverse fantasies are by no means as revolutionary as they like to claim. Concepts and ideas for the metaverse have always emerged as utopian-dystopian answers to human escapism, which manifests itself in a mixture of enthusiasm for science, technological progress, and artistic creation.

Meta.space – Raumvisionen (Spatial Visions) presents a selection of interdisciplinary and inter-medial positions that are negotiated as a dialogue between “old” art and contemporary work. The framework of content ranges from the thematization of early painterly solutions to pictorial spatial problems from the 15th century onward and the spatiality of sculptural works to the sensory, scientific, and technical development of spaces and the recording and penetration of social spaces. It finally culminates in the examination of a wide variety of world concepts. It not only questions their artistic and social implications, but also critically examines the dystopian as well as utopian potential of current metaspaces concepts.



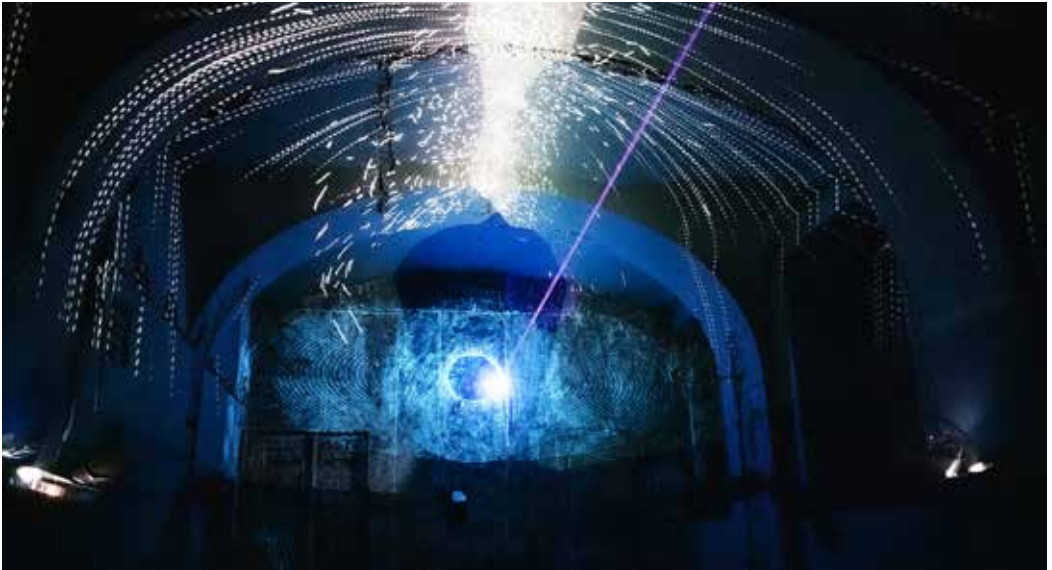
© 00 LKG

SHA.ART (AT)

Digital Cave Painting – Art as Expansion of Consciousness

Digital Cave Painting – Art as Expansion of Consciousness. The new “Alte Post” is a hub and impulse generator for the development of the “Stubenviertel” in Vienna’s inner city. The concept is to open up the area, which has been closed for a long time, and to turn the Alte Post into a “living house.” For this purpose, *SHA.ART* is creating a new kind of “museum,” which penetrates the historical area at different points with varying intensity – a media museum that is not

a static structure, but a dynamic process. At the center is a multi-dimensional media artwork in the old Dominican Courtyard: an immersive 360° Globe Experience for all the senses. A modern city square is to be created here, an agora of the future. This new cultural space wants to act as a cosmopolitan hotspot and interface between real and virtual reality – also offers avant-garde content through low-threshold access to many people in the open space – as it were every day.



© SHA.ART



© Olga Havrylova and Anna Dudko

Anna Dudko (UA)

Deep Water

Hosted by Ars Electronica at Bildraum 07, Vienna

In her animated film *Deep Water* and her erotic sketches, the award-winning Ukrainian artist Anna Dudko stages the sensual underwater fantasy of a mermaid who is craving human erotic love from deep within her soul. This full-bodied mermaid does not hide her woman's desires and takes pleasure in observing the human world along a drain and touching people with water as if with her body. After being part of the programme of more than twenty international festivals

(Animafest Zagreb, ANIFILM, Fantoche IAFF, Stuttgart ITFS...) and already winning several international awards, her animated film *Deep Water* will be shown in Austria at Bildraum 07 for the very first time.

In the exhibition, the film will be presented along with erotic sketches and film backgrounds created by Yana "ja-shi" Shypova and Olga Havrylova.

ARS ELECTRONICA

Besides the annual Festival and the Prix Ars Electronica numerous projects and activities are conducted throughout the year by the different departments and teams of Ars Electronica.

Ars Electronica Center

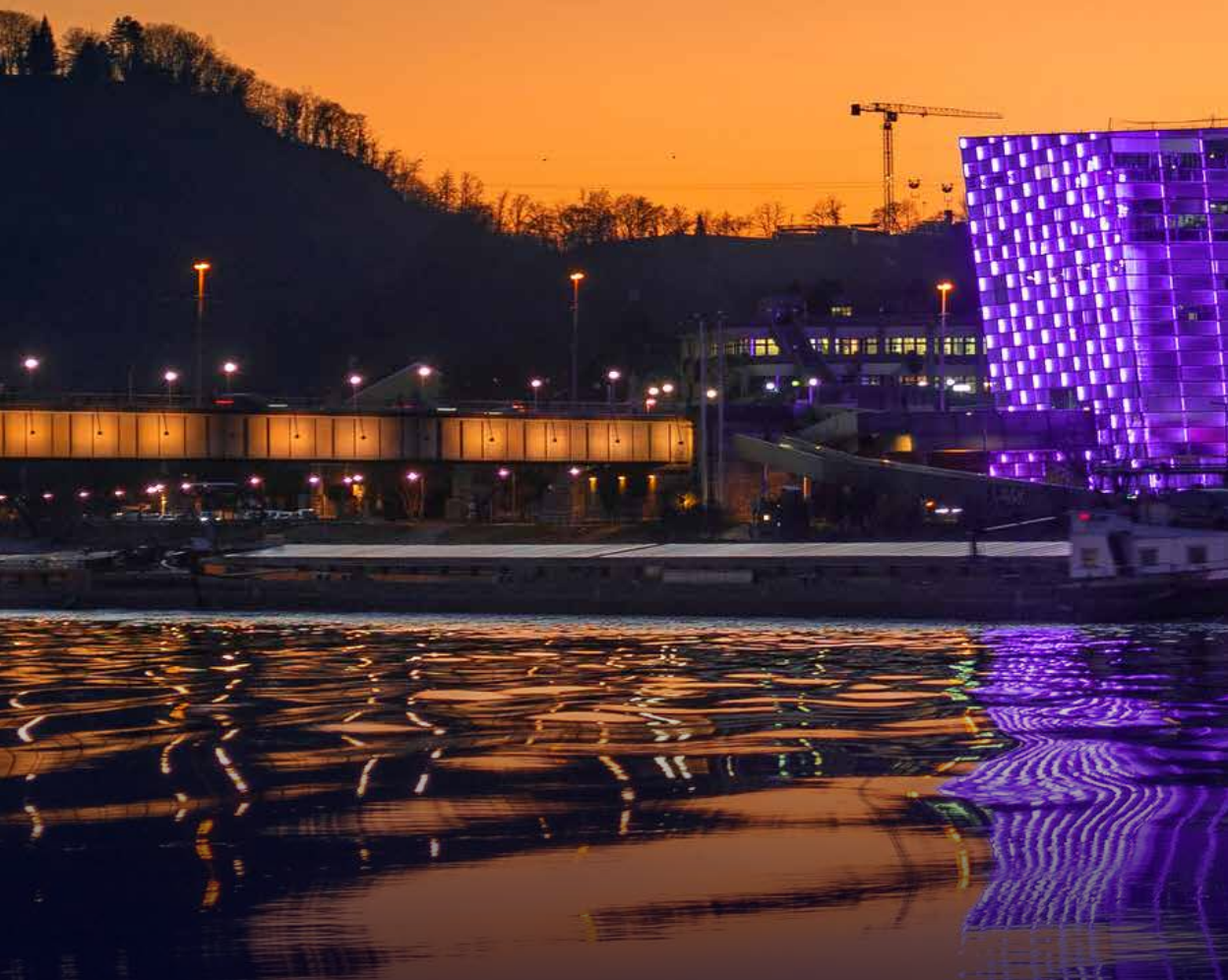
Ars Electronica Futurelab

Ars Electronica Solutions

Ars Electronica Export

The following part gives a brief overview of these activities since last year.

ARS ELECTRONICA CENTER



With interactive installations, unique works of media art, in-depth research projects, and large-scale projections in unprecedented 8K resolution, the Ars Electronica Center has been a node for art, science, and society since its inception in 1996. And being part of a platform for the future and innovation, it does not rest on its laurels — on the contrary: With two major redesigns in 2009 and 2019 it has been continuously adapting to the social and technological developments of the 21st century, expanding its focus to artificial intelligence and neurobionics, autonomous systems and robotics, and genetic engineering and biotechnology. Furthermore, 2021 brought about two new temporary exhibitions that put the spotlight on pressing and compelling issues of both work and the impending climate crisis.



Current Exhibitions

Understanding Artificial Intelligence

Artificial intelligence versus natural intelligence – what are the differences and what do they have in common? How do machines “think,” how do they learn, and what distinguishes us humans from machines? Artificial intelligence in all its complexity is a central focus of the new Ars Electronica Center. Hence, the exhibition views the field from various angles by providing visitors with insights and explanations, offering opportunities to train neural networks, and showcasing artists who use artificial intelligence as a medium.



Glow / Diederik P. Kingma, Prafulla Dhariwal; OpenAI

© Ars Electronica / Robert Bauernhansl

Neuro-Bionics



The findings of the neurosciences have long been an inspiration for artificial intelligence research, and many models of machine learning are vaguely derived from human physiology. The results of this research offer hope for decisive breakthroughs in artificial intelligence, but even as we make rapid progress in neurology and machine intelligence inspired by biology, the human brain as a whole will remain many times more powerful than its machine counterparts for a long time to come.

© Ars Electronica / Robert Bauernhansl

Global Shift

What does the new geography of the digital age look like? How do populations and their structures develop? What will our world look like in the future? Anthropocene is the name for the age in which human actions have become the most significant factor for biological, geological, and atmospheric changes. *Global Shift* shows a representative sample of the current conditions prevailing in our world.



Glacier Retreat / Ars Electronica Solutions (AT)

© Ars Electronica Solutions / My Trinh Müller-Gardiner

Ars Electronica Labs

The idea of the laboratory far removed from everyday life, where scientific results are produced in detachment from the world, is out of date. Instead, the laboratory should be understood in a broader sense as a hub for creativity, technology, society, and science. The Ars Electronica Labs are a multifaceted place allowing us to discover and design the world and reach our full potential through interdisciplinary cooperation.



"The Sound of Tea" / Robert Angerer (AT)

© Philipp Greindl

Machine Learning Studio



© Ars Electronica / Robert Bauermhansl

Working with our Techtrainers, visitors can build and train self-driving model cars here, program robots with facial recognition, and gain insights into how they can teach these devices a wide variety of activities. It is also a place where prototypes and objects are maintained or repaired by the technicians, and where museum procedures are revealed that are usually kept behind the scenes.

AI x Music

Music might be the most emotional of all art forms, but it is also deeply connected to mathematics, to the physics of sound production, and to the craftsmanship of instrument makers. The exhibition takes a look at the cultural and technological history of mechanical music players, bridges the gap between them and the new developments in machine learning and artificial intelligence, and highlights the fundamental questions they raise about the relationship between human and machine.



The Instrument That Plays by Itself
Banū Mūsā ibn Shākir, Liang Zhipeng (CN), ZKM | Zentrum für Kunst und Medien (DE)

© Philipp Greindl

Kids' Research Laboratory

With the Ars Electronica Kids' Research Laboratory, a versatile playing field has been created that gives children time and space to play and discover our world, the digital as well as the analog, the natural as well as the artificial. For children, the whole world is a kind of laboratory in which experiments and research projects are constantly taking place.

The Kids' Research Laboratory is supported by:
WIENER STÄDTISCHE Versicherung AG



© vog.photo

Animaker / Resonai, OMAi

Deep Space 8K



© Ars Electronica / Robert Bauernhansl

Transient / Quayola/Seta (IT)

The Ars Electronica Center offers its visitors something that is unique in the world: 16 x 9 meters of wall projection and an equal area of floor projection. With a resolution of 8,192 x 4,320 pixels in 120 Hz and stereo 3D, even the tiniest details of an image can be displayed and discovered. Experience unique Deep Space 8K gigapixel images, videos, films, and 3D animations in razor-sharp brilliance and color. Unlike any other cinema, Deep Space 8K allows you to sit or stand right inside the picture or move through impressive 3D virtual worlds, thanks to our floor-projection system.

There Is No Planet B

In centuries past, we primarily relied on energy sources such as coal, natural gas, and petroleum in order to meet our increasing needs. These resources are not available in unlimited supply, however, and their use is harmful to our planet's climate. We now know that the way in which we produce and use energy significantly contributes to global warming. It leads to extreme weather events, periods of drought, floods, and many other dire consequences. To ensure a green future offering a high quality of life, we must therefore take action as a global community to drastically reduce our ecological footprint on this planet. Stopping global warming is no easy task and includes many technological, social and political aspects. Therefore, the energy of everyone is necessary: of individuals as well as of

public institutions, the business world, and international policy-makers. The exhibition *There Is No Planet B* not only illustrates the urgency of the situation; it also points out that there are potential solutions and a growing social commitment to dealing with the crisis.



© Ars Electronica / Martin Hieslmair

Life Support System / DISNOVATION.ORG (FR/PL/CA)

TIME OUT .11

In the eleventh edition of the *TIME OUT* exhibition series, students from the Time-Based and Interactive Media Art program at the University of Art and Design Linz will once again be showing selected works at the Ars Electronica Center. Ars Electronica and the Time-Based and Interactive Media Art program at the University of Art and Design Linz have been working closely together for many years. As part of the *TIME OUT* exhibition series, the Ars Electronica Center provides young

media artists with exhibition space for their works. Whether it's film, sound, performances, programming or interface technology, the Time-Based and Interactive Media Art course of study gives its students plenty of freedom to express themselves creatively. The resulting works are as varied as the course itself — a selection of nine works can be seen under the title *TIME OUT .11* distributed over various floors in the Ars Electronica Center.

TIME OUT .11



Kunstuniversität Linz
University of Arts and
Design Linz

ARS ELECTRONICA
Art, Technology & Society



watermap

Daniel Fischer (AT)

Analog precipitation measurement data is returned to its original medium and presented live as the falling of water drops. The drops leave traces and paint a fragile picture somewhere in between the present and the past. In a world full of digital data, which is constantly shown to us on various displays, this project shows a different kind of presentation in a haptic and more immediate way. Weather data, which is otherwise displayed locally on individual cell phones, appears here in a global context. The world map invites us not only to take a look at the weather events at the current time, but also to think beyond our personal perception — both spatially and temporally. *watermap* should bring back to our minds the inestimable value of the element of water and its distribution.

Daniel Fischer, BA / www.daniel-fischer.at



© Ars Electronica / Martin Hieslmair

STRANGE_FACES

Thomas Guggenberger (AT)

STRANGE_FACES is an interactive mirror installation that follows the faces of its users, playing with their images and perception. If we step alone in front of Guggenberger's interactive mirror cabinet, we only see our own face. As soon as several people enter the room, however, another face always appears as a reflection. What happens when one sees not oneself but another person in the mirror? Seeing someone else's face as one's own reflection initially provides a disturbing moment. But afterwards? Is it possible to get in touch with other mirror images with *STRANGE_FACES*? To shamelessly immerse oneself in other people's eyes — to observe them unnoticed, to let oneself be ensnared and enchanted by other people's gazes?

Technical Support: Holunder Heiß, Gerhard Funk
www.thomasguggenberger.com



© Ars Electronica / Martin Hieslmair

Sound of Kandinsky

Joann Lee (KR)

Wassily Kandinsky was a synesthete who perceived sounds in colors and shapes. His “composition series” were thus created from sound to image and show the shapes that in his eyes embodied certain sounds.

Sound of Kandinsky reverses this process, taking shapes of his paintings as starting points for compositions. The resulting new interpretation experiments with a new composition method, assigning each element of the picture to an instrumental sound.

Artist Joann Lee has developed two animations for this purpose: *Impression III* and *Composition II*, based on Kandinsky’s original works of the same name. The first is an animated version of the elements of the painting with Kandinsky’s original music for the work. In the second animation, only Kandinsky’s painting is viewed, without the accompanying music. Different tones and sounds have been assigned to each element and a new composition created. The painting was then

animated and accompanied by the new music. In Kandinsky’s painting *Circles in a Circle*, the circles can be rearranged on the interactive multitouch table to create a new composition.

Impression III (1911), Wassily Kandinsky / Original Musik von Arnold Schönberg *3 Klavierstücke : No.1. Massig*; *Composition II* (1923), Wassily Kandinsky / Musik von Joann Lee, Olga Akhtyrskaya; *Circles in a Circle* (1923), Wassily Kandinsky / Musik von Joann Lee
www.joan-n.com



© Joann Lee

Cut above the Rest

Elisabeth Prast (AT)

Inspired by the discovery of the DIY gene-editing CRISPR, the comic visualizes a world where self-optimization by altering one’s DNA is part of daily life. Two very different characters meet each other: Max, who wants to climb the career ladder at all costs, and Noah, a dropout who runs an illegal genetics lab.

The future described is approaching as societal pressure increases to be a productive member of society. The emergence of cheaper and better gene-editing technology leads to a rise in the tendency to treat systemic issues with the correction of the self. It is important to differentiate between the use of genetics to cure illness and its use to achieve personal optimization. How narrow is the line between the two? Should humanity take evolution in its own hands? Should there be limits to self-optimization?

Concept, Illustration, Animation: Elisabeth Prast
Story: Elisabeth Prast & Georg Kirsch
Sound Design: Katharina Pichler
Programming: Benedikt Reiter, Julian Popescu
www.lisaprast.com



© Elisabeth Prast

Nach dem Guten suchen

Joachim Iseni (AT)

Nach dem Guten suchen (Looking for the Good) is an interactive film, which can be controlled with the eyes. On the screen you can see various short videos with everyday sequences of actions, which run in a continuous loop and do not change without your own intervention. As soon as the user stops paying attention to the focused actions and actively searches for new details with the eyes, the videos' content changes. In each of the approximately 150 video clips, there is a decisive frame at which the eye position is queried with an eye tracker. Immediately afterwards a new video is started with this information after the previous one has finished. The project is thus on the one hand an experimental film, but on the other hand also a game, with which in the best case one develops a certain positive awareness of one's own physical and mental control.

Time-based and Interactive Media Arts – University of Art and Design Linz; directing, camera and editing: Joachim Iseni; Program code: Gerhard Funk, Holunder Heiß



© Tom Mesic

Lichtpendel

Edin Turalić (Ex-YU/AT)

The work *Lichtpendel* (Light Pendulum) by Edin Turalić deals with the relationship between humans and building. Motion and audio sensors placed in the building provide data that is sent to a pendulum, which causes it to swing in different ways according to the recorded data.

Time-based and Interactive Media Arts – University of Art and Design Linz; directing, camera and editing: Joachim Iseni; Program code: Gerhard Funk, Holunder Heiß



© Ars Electronica / Martin Hieslmair

Kanzlergenerator

Verena Steininger (AT)

The COVID-19 pandemic is still far from over. However, for some time now, one has heard repeated reassurances in the media that the pandemic will end soon. The former Austrian Chancellor Sebastian Kurz has always reiterated these statements. Since then, however, little has changed, and the number of people infected has risen again.

In this work *Kanzlergenerator* (Chancellor Generator), the artist points out the endless loop of the pandemic and the force with which these shattered hopes hit the population again and again. To depict this, the artist examined interviews of the Ex-Austrian Chancellor in various news broadcasts, selecting those statements that were the most repeated and described for her most aptly the situation, such as “There is light at the end of the tunnel!” or “It will remain a challenge”.

Verena Steininger uses a dartboard for the artistic realization, which she rewired and reprogrammed with an Arduino Nano Board.



© Verena Steininger

If you hit the dartboard with a dart, the statements of the Ex-Chancellor are played.

Holunder Heiß

Grammophon — Unerhörtes — Zitate von 1924–2018

Alice Hulan (AT) & Holunder Heiß (AT)

The work *Grammophon — Unerhörtes — Zitate von 1924-2018* (Gramophone — Outrageous — Quotes from 1924-2018) literally revolves around anti-Semitism, racism and gender roles. By turning the crank, quotes from political parties of the '20s and '30s can be heard, as well as quotes from the ranks of current government parties. As you listen, it becomes difficult to tell from which period each quote derives. In her research, Alice Hulan focused for the most part on dehumanizing statements that were and still are used as demagogic means to degrade and objectify people.

Technical Support: Holunder Heiß, Gerhard Funk



© Tom Mesic

Deep Space EVOLUTION

New, energy-saving laser projectors, a new tracking system, the most powerful graphics cards currently available, plus a whole range of new interactive programs and 3D applications, as well as three new event formats: Deep Space Lecture, Deep Space Concert, Deep Space Experience. This is *Deep Space EVOLUTION*.

At the end of March, we presented Deep Space 8K with its new facet. And with it, new program offerings that will appeal to everyone and anyone.

Deep Space Selection: At *Deep Space Selection* we present several times a day a selection from our varied program, which we have been continuously developing since 2009. You can expect exciting stories and immersive experiences in impressive image quality and color brilliance from the fields of media art, science, technology, interaction and action.

Deep Space Family: There's something for everyone in this family-focused offering from our extensive Deep Space program. For example, there is an exploration tour through the solar system where you and your family can hop from one planet to the next. Action-packed and interactive games on the screen and projection floor will delight you.

Uniview — A grandiose journey through space and time: Enjoy interactive flights in 3-D through the entire known universe in breathtaking images and experience the dimensions of space like never before.

Earth — A special planet: Our home planet is an extraordinary place. What makes it a world where over eight million species of living things can not only survive, but thrive? Learn about the many special features of Earth: from its powerful protective shields, to its vibrant interior — to its perfect location in our home galaxy of the Milky Way.



Welcome to Planet B: With the support of LINZ AG

Let's imagine that we could duplicate our planet Earth by copy and paste — a Planet B on which we can experiment and observe future effects like a laboratory.

In Deep Space this is possible! The simulation game *Welcome to Planet B* makes it possible to save CO2 emissions in different decision

scenarios involving mobility, energy, housing, industry and nutrition. For each decision made collectively, a counter runs alongside that measures the emissions.

Depending on how high the counter is at the end, we experience different global warming scenarios in the simulated year 2100.

Workshop Add On: Welcome to Planet B

Whether nuclear power or renewable energies, airplanes or high-speed trains, on Planet B we have the chance to make decisions and directly experience the resulting consequences with regard to climate change. This is not just about individual decisions and satisfying our own needs, but about society as a whole. In this workshop package *Welcome to Planet B*, we aim to create the experience that we as a society have the power of decision to participate in the shaping of our planet. After the simulation game in deep space, fictional characters are distributed who

have decision-making roles in relation to climate change and invite these people to a climate conference. After a guided research phase, a climate agreement will be negotiated in the respective roles, with the help of which we will not need a planet B.

This format is intended to raise awareness of the need to save our planet from an approaching catastrophe. Self-efficacy is to be made tangible and the empowerment of the civilian population is to be supported. Because we have to start now for a future worth living.

Deep Space Concert: Philip Glass 85

Tribute to Philip — An evening of piano music composed by Philip Glass for Dennis Russell Davies and Maki Namekawa. Live from Deep Space 8K at the Ars Electronica Center in Linz with real-time digital visualizations by Cori O'Lan. January 31st was the 85th birthday of Philip Glass, one of the most important composers of our time. In Philip Glass' successful career and extensive oeuvre, one name keeps cropping up that has helped shape the music world here in Europe: Dennis Russell Davies, as conductor of many European orchestras, including here in Austria, the RSO in Vienna and the Bruckner Orchestra in Linz, and currently as principal conductor in Brno and Leipzig.



Long Night of Research

On May 20th, 2022, the *Long Night of Research*, the largest science and research event in the German-speaking world, took place – and the Ars Electronica Center was once again on board as a venue. This year, a wide-ranging program awaited all those interested in research at the Ars Electronica Center: impressive special presentations and inspiring technical lectures in the technologically rejuvenated Deep Space 8K; special

tours of the Ars Electronica Futurelab provided exclusive insights into its (research) activities; the latest developments in BCI research were on display; and hands-on stations and short workshops for young and old were planned in the exhibitions. Whether families, young people, educators, students, senior citizens or researchers – there were (almost) no limits to their urge to explore.

Future Studio by Future Thinking School and AMS OÖ

Digitization is opening up new access to information and services as well as new professional opportunities for women. However, this positive effect should not obscure the fact that a gender-specific digital divide still exists in access to digital technology. There is also a significant gender dimension to shaping the digital world. The empowerment of women through advanced training in the use of technology underlies the conception of the *Zukunftsstudio* by Ars Electronica and AMS Upper Austria.

What's behind artificial intelligence (AI) and what does it have to do with *me*? These are the questions explored by the new *Zukunftsstudio* workshop program developed and conducted by the Future Thinking School by Ars Electronica in cooperation with AMS Upper Austria. Since April 2022, women from all over Upper Austria – from those just starting their careers to those re-entering the workforce and those changing careers – have had the opportunity to explore the topic of AI and digitization on a personal, professional and societal level.

By June 2023, more than 60 workshops are already planned, making it possible to train more

than 800 women. The workshop aims in particular to take away participants' shyness about this often seemingly complex topic, and to turn reservations about artificial intelligence into curiosity. Including the interactive exhibitions at the Ars Electronica Center and Deep Space 8K, this workshop is an exciting experience for the participants. They need no prior knowledge of digitization and AI, because the topic will be presented in a creative and practical way.

In addition to a basic understanding of artificial intelligence, participants also learn about practical application examples. In typical Ars Electronica fashion, the workshop also addresses the implications for society. For example, what are the effects of data distortions in AI applications and what possible negative effects can they have? Furthermore, discuss how artificial intelligence and deep fake videos created with AI can affect our interpersonal trust and perceptions. In order to support the participants on their career path as fully as possible, the workshop also addresses how AI impacts the professional world and shows it is in fact becoming extremely relevant also for "non-digital" professions.



© Philipp Greindl



© AE Martin Hieslmair

Nachtalb

Nachtalb is an immersive installation that enables brain-to-brain interaction. With the help of electroencephalography, brain activity is measured, reduced to a main frequency and translated in multisensory Virtual Reality. The sensory translation is synchronized with the respective brain frequency and can therefore be perceived equally on one level.

This enables a feedback loop where the user's brain activity generates a sensory output that influences the brain activity input again. *Nachtalb* presents the interaction of BCI and multisensory VR technology with the capability of offering a new form of encounter with yourself.

The source of the user's perception is the translation of their neural oscillations: Combining these technologies enables the user's brain to interact with itself.

Project Team:

Concept, Design, Development: AIKEN CURA / Sound Design: Jacqueline Butzinger / Signal Processing: Mathieu Josserand / Neuroscience Consulting: Sebastian Lammers, Jülich Research Center / Brain-Computer-Interface Consulting: g.tec medical Engineering GmbH / Photo: Amely Sommer / Special thanks to Prof. Dr. Frank Heidmann.



© Aiken cura

Neurofeedback in art installations

BRAINPALACE — BRAINPATTERNS:

an interactive, artistic research project of Fraunhofer “Science and Art in Dialogue”

Can art works influence human brainwaves?

The light objects of *BRAINPALACE* created by the artist Tatjana Busch offer an impressive experience within the project’s spatial aesthetics at Ars Electronica Center. Based on the new “Science-Art-Research” concept developed by Erika Mondria, mental processes of humans are transformed into a unique visual experience. This new concept allows visitors to immerse themselves in an interactive art installation. One can interact with light and sound via brain-computer interface (BCI). The new sound compositions created by the artists ATELIER E and their fascinating brain data exploration enrich the research production. Can external or even internal influences harmonize the users' brainwaves? Fraunhofer ITWM and Fraunhofer IAO investigate the synchronization of the participants' brainwaves via electroencephalography (EEG) measurements.

Further information: www.fraunhofer.de/events

Project team BRAINPALACE-BRAINPATTERNS 2022:

Light Art Installation: Tatjana Busch

Audiovisual Composition / Interaction + UX-Design /

Creative Coding: ATELIER E

Christian Losert & Daniel Dalfovo

Science-Art-Research conception, Brain-Interface

applications: Erika Mondria, M.A.

Neurosignal analysis and classification / neurofeedback

decoding of mental state in real time and hyperscanning:

Dr. Mathias Vukelic, Ravi Kanth Kosuru, Fraunhofer

Institute for Industrial Engineering IAO

On-site neurophysiological data collection: Erika

Mondria, Martin Spanka, Raffaella Vornicu, Armin Ima-

movic, Museum NeuroLab Research Laboratory. NL-AEC

Functional Analysis / Data Visualization / Machine

Learning: Dipl.-Math. Hans Trinkaus, Fraunhofer Institute

for Industrial Mathematics ITWM

Project Management: Dorothee Höfter, Communication,

Fraunhofer-Gesellschaft

Camera: Tatjana Busch

Video Editing: ATELIER E, Tatjana Busch



SUB-MEDIA

The project *SUB-MEDIA* reflects on environmental influences on humans, such as the media. Human behavior is inevitably subject to media conditioning. But does the origin of exploitative behavior lie in the flood of media surrounding us, or inside our own head? Neuroscience of the last decades produced millions of valuable scientific findings—by investigating the human brain—yet what does art find? Brain-Interaction-Art can offer new approaches to “self-brain research”. The participative installation *SUB-MEDIA* offers access to “YOUR private laboratory” via neuro-technologies and will transform your findings into a social media message triggered by biometric data. In the post-factual age, self-exploration scenarios can make a valuable contribution to society. The object of curiosity in this project is the interspace between the material world of the body and the digital world of biometric data. is

Erika Mondria, www.mondria.at



© Erika Mondria

Elective "Beyond Coding: New Technologies in Context"

by Ars Electronica Future Thinking School

Technological developments such as artificial intelligence have an impact not only on business models and processes, but also on various areas of our lives. The elective *Beyond Coding: New Technologies in Context* examines these technological developments from both theoretical and practical perspectives. The main topics include the basics of Artificial Intelligence (AI), Autonomous Driving, AI and Creativity, Creative Robotics, Drones and Artificial Swarms, etc.

The focus is on addressing potential impacts on our society and economy and related legal issues. One goal here is to raise awareness among students that there is not yet a valid legal framework for many transformative technological developments.



© Ars Electronica / Robert Bauernhansl

Holiday program: AK x AEC

This year again, the Upper Austrian Arbeiterkammer (Chamber of Labor) and the Ars Electronica Center invite kids and teens to a collaborative vacation program. From discovering microscopic creatures to building robots or taking a tour of

the children's research lab, there's something for everyone!

The programs are aimed at those aged 6-14. The exact program can be found in the list below.



© veg.photo

Im Moos viel los

Slipper, ciliated, trumpet and water bear... these words describe the small animals in the microcosm. Moss is especially pleasant to inhabit, so soft and cuddly, that's why nematodes, larvae, bacteria and also slipper, ciliated, trumpet and water bear animals cavort there. You can't see them with the naked eye, but with a microscope and a little luck, the students in the workshop can discover the funny world of these tiny creatures.

Komm' mit ins Kinderforschungslabor

Imagine there's a place where tons of exciting games, materials and themes are waiting for you to discover: Journey into space, turn the world

upside down, create colorful light shows — there are no limits to your exploratory urge! For those who like to watch robots learn and teach them great tricks, the Robo-Playground is the ideal place for robotic fun all round.

Maschine 9x klug

How smart can computing machines be? People talk about computers being able to think and machines being able to learn — we call this Artificial Intelligence. Many think it's far too hard to understand... But in this workshop, we'll let our own thinking machine run at full speed to find out how smart machines work and to what extent they can be compared to human intelligence in general.

Superhirn & Denkerstirn

“You have to have something in your head!”, we hear again and again. And we have — quite a lot, in fact! It weighs about 1.2 kilograms, is electrically charged, collects information all the time and also gives commands. What we are talking about here is the complex control center behind the forehead, our brain. In this workshop, we discover together what it looks like, what it can do and what it does with you. As brain researchers, the participants design their own super-brain for their thinking forehead. If they are still able to concentrate, then they are ready for lift-off in their minds.

Guided tour: “Where is Tardi?”

Come along and experience how technology changes our lives! From the microcosm to the human body to outer space — together with Tardi, the tardigrade, we will dive into an adventure that invites you to experiment, participate and think!

Ding Dong

If you enjoy experimenting with tones and sounds, then join us as we bring sound to our house on non-instruments. In the Open Sound-studio you can turn all this into your own song. Please also bring your “favorite thing”! It doesn't matter what it is! We'll find out what sound your “thing” makes.

Guided tour: PLANet B + Add On Deep Space Welcome to Planet B

Nothing pervades the media landscape more completely at the moment than the issue of climate change. And the young generation is addressed as never before with the agendas of climate protection. In the thematic tour we talk about the Anthropocene, the age in which humans have the most influence on the ecosystem. We show the observable and measurable changes to our globe using satellite technologies, data analysis and visualization strategies. On the one hand, technology helps us to better understand the impacts;

on the other hand, they are also a big part of the problem. Questions are allowed, discussions are encouraged, action is requested!

Tool Time!

In our Tools Hub, many impressive devices await your creative ideas, such as laser cutters, 3D-printers or 3D-scanners. Together, we'll take a look at what great things art, science and technology can produce, and then we'll get hands-on!

Zirkus Robotikus

Things are pretty fun in the Machine Learning Studio! There are all kinds of different machines. They dart around, dance, and can perform a wide variety of activities. And imagine, they can even learn. Join this colorful hustle and bustle of robots! You can control them, train them and build your own. Clear the ring for you and your *Zirkus Robotikus!*

AUTOnom

Robots and machines are autonomous! Self-driving cars can maneuver from A to B without human control. In doing so, they are repeatedly faced with complex situations. To cope with these, autonomous machines need artificial intelligence to help them become smarter. But how do machines actually learn? In the workshop, we provide insight into the most diverse control mechanisms of robotic devices. You can explore how computers see and machines learn in the Machine Learning Studio and become personal trainers of self-driving cars.

Guided tour: Power to the People

In a democracy, power comes from the people! But do we really feel that way? Is it really so in the light of new technologies that strip us of our privacy and civil rights? In this tour, we look at technological, civil and political developments revealing the dangers threatening society and personal autonomy, and what approaches exist to counteract them.

Arbeitsplätze, fertig, los! (On your marks, workers, get set go!)

3D-printers on the construction site, fallen fruit in the designer store, and robots to cover up? Has the (working) world gone crazy? Work is not a rigid concept, but a changing one. And as the world changes, so do job profiles. Digitization has made a major contribution to this. To keep up, you need an overview of the possibilities and links to the familiar.

On a tour through our exhibitions, you will encounter, operate and understand the latest technological developments and the professions associated with them.



Cray X / German Bionix

© Ars Electronica / Robert Bauernhansl

World in tons — Planet B — big topics for young visitors

In the Children’s Research Lab, the exhibition area for 4-8 year-olds, we offer children space to discover our technologized world. But our world is complex and our exhibition space is limited. So we have developed a teaching tool that compresses multi-layered topics into space-saving units — our world in tons!

One of these tons is the “Planet B” theme ton, which picks up on themes and approaches from the *There is no Planet B* exhibition. In a good mixture of artistic works and scientific facts, this exhibition discusses the effects of human energy consumption on the fragile ecosystem of the earth. In a barrel format, the complexity and interrelationships are made easy to understand for kindergarten and elementary school children — literally!

Through a simple physical experiment, we make it tangible how directly global warming feels to us humans and how it affects us. We also do justice

to the topics of resource scarcity and waste by discussing with the children, on the basis of technologized plant cultivation systems, how what we get from nature on our planet A for free — namely sun, rain, wind and nutrients — would have to be installed on planet B in a highly complex and cost-intensive manner.



© Magdalena Sick-Leitner

Tardi is here!

The Ars Electronica Center's goal is to bring new technologies closer to the public and make them understandable and open to discussion. In doing so, we don't stop at the very young of our society. But how can we gently and meaningfully introduce children to topics that are difficult even for adults to grasp? To answer this question, we have developed a character narrative to complement our Children's Research Lab, which can be used to transform any exhibition into an age-appropriate science journey. Tardi, the tardigrade, arrives at the Ars Electronica Bio Lab via a soil sample taken for a microscopy workshop in front of the Ars Electronica Center. From there, Tardi sets out on a journey through the exhibition areas and their themes. Tardigrades, as microscopic creatures, are particularly interesting to science because they exhibit an interesting survival mechanism in uncomfortable and extreme conditions.



© Ars Electronica / Robert Bauernhansl

The Education & Content Development Department has published its first children's book on this extraordinary creature, integrating this eight-legged character into the museum's educational strategy through workshops, tours and stations.

ITEMS – Inclusion Training for Explainers in Museums and Science Centers

A significant proportion of senior citizens and migrants are among those who do not consider science centers as "their" institutions. Of course, all public spaces should be a place for them. What causal barriers and discriminatory factors can be dismantled with the help of cultural mediation? Within the ITEMS project, a professional training for science and culture communicators, such as the Infotrainees at Ars Electronica, was developed. The training guide and a handbook are available for interested institutions on the partners' websites.



© Ina

In cooperation with Deutsches Museum (GER), MUST (IT), Universcience (FR) and TU München (GER)
 Funded by: Erasmus+ Cooperation for innovation and the exchange of good practices
 Nationale Agentur beim Bundesinstitut für Berufsbildung
 NABiB

ESERO Austria at the AEC

The “Ars Electronica Family” also includes the European Space Agency’s Education Office in Austria – ESERO Austria.

ESERO (European Space Education Resource Office) is a project of ESA and its national education partners that aims to get young people

interested in science topics and challenges. To this end, each year the national ESEROs organize exciting space-related competitions for students, training sessions for primary and secondary school teachers – especially for STEM subjects – and make exciting teaching resources freely available.

The competitions

Thanks to the kind support of various national institutions, such as the FFG and the BMK, ESERO Austria is able to make the national competitions an unforgettable event! In these competitions, students of different ages have the opportunity to build their own mini-satellite (CanSat), become climate scientists (Climate Detectives), do sports (Mission X), run their own codes on the ISS (AstroPi Challenge), or even design their own moon base (Moon Camp Challenge). So there is guaranteed to be something for everyone!

CanSat

This year the finals could finally take place on site at the AEC again. Especially the *CanSat Austria competition* – supported by the TU Wien Space Team – was very exciting again this year! Three great teams from Vienna, Salzburg and Upper Austria screwed, tinkered and coded for the victory in April. Team engINUITY from Salzburg won and represented Austria at the 2022 European CanSat Competition.



© Ars Electronica / Robert Bauernhansl



© Thomas Schwarz

A child-like drawing of a planet with a tree and a star. The drawing is done with colored pencils on a white background. The planet is a large circle on the right side, containing a brown tree with a white face and a yellow star. The background is filled with light green and blue scribbles.

ARS ELECTRONICA FUTURELAB

Creative Resilience for a Planet B

Text: Bernadette Geißler

The overall theme for this year's Futurelab Day on September 8th as part of the Ars Electronica Festival *Creative Resilience for a Planet B*. It grew out of a conversation with the directors of the Ars Electronica Futurelab in the Spring of 2022. While the public was still exhausted by years of life under the pandemic, combined with a bleak outlook on the future climate of our planet, Russia started its war on Ukraine, leaving the world and particularly Europe in shock. So how did we and the public feel? A record number of people were reported to be depressed — overwhelmed by seemingly endless crises. This begs the question: What to do?



"Experts of the Future" workshop with kids of Futurelab team members, Photo: © Birgit Cakir

Resilience is a skill that could come in handy in times like these: the ability to recover from or adjust easily to misfortune or change. Yet the idea of personal resilience is often criticized: People who are disadvantaged have a hard time being resilient faced with yet another crisis. So there had to be a better way, a shift from personal responsibility to more of a communal sense of resilience – taking people in need of assistance along. This is where we realized that – as the Futurelab’s work demonstrates constantly – creativity is one of the best ways to adapt to challenges as a society. Creativity not only helps us to rebound after significant changes, but also to imagine and work towards a better future – or different futures, different scenarios that need to be planned for.

Directors' Talk 2022

To deepen the conversation, Horst Hörtner, Roland Haring and Hideaki Ogawa — co-directors of the Ars Electronica Futurelab — sat down for 2022's *Directors' Talk* to discuss the role art, creativity and the lab itself can play in difficult times like these — and in the future.

The idea of personal resilience receives a lot of backlash — since it is hard for a lot of people who are disadvantaged to be even more resilient. How can we transform resilience from an individual to more of a societal concept? Things like a global pandemic you cannot change alone — you can be a responsible person, but it needs societal agreement and everyone working together.

Roland Haring: I think that being resilient is not enough. Resilience, I believe, in the core is a biological feature that allows you to survive and keep sane. It must be part of a society in order to develop further, but it's still not the step ahead. This is thinking of the future and imagining where you want to develop society, yourself further. Where you can build new things that do not exist yet, new ideas, new visions. This is something that mankind has been doing in all of its history of evolution, to always go forward.

When you look especially at Covid — it is much more than resilience. Because our society was fundamentally changed. It was painful, but I think it is important to look at what we have gained as well, and this should then also be the motivation to be resilient. Because by being resilient you can also learn how to cope with a situation, a problem that you have not experienced before, which affected you negatively, but you found a strategy how to solve it. And this strategy, this element, this is really progress by itself. And this can also have a fundamentally positive impact on future crises.

Hideaki Ogawa: For inducing this change and also the mindset, art has a powerful role. It can be a free space, an open space, where people can think. We don't need to consume a product. We don't need to follow just a policy. Rather: How we can be responsible persons?

Horst Hörtner: During the pandemic, this was resilience not by individuals. This was resilience by the community. That was really an act of solidarity. It was the knowledge of humanity and the acting of the global humankind. It was science and solidarity that have driven us to the point where we are now. I think that for the future— that is as vague as the future was within the crisis — solidarity could be a really strong help, a vehicle to achieve something. We need to get closer in order to overcome our problems.

Roland Haring: What's also very interesting is to reflect upon what the elements are that allow solidarity to emerge. A very important point is communication, and also to share ideas and visions and have a joint thinking, basically, and follow the same ideas. This kind of communication needs supporting between lots of different groups of stakeholders. For that understanding, also art and what we are doing here can be very important. To build bridges of communication, to have a more fluid exchange of ideas, to simply have this joint effort to find the best ideas. This is one element that is very much needed and that is also a factor in societal resilience.

Horst Hörtner: And for our future. I think that this would be one vehicle that would guide us through that unsafe time to come.

Hideaki Ogawa: What if art is a system? Art can be creating the tangible future questions. It's not just the final product and answers yet. As Roland explained, we need a kind of place and space of imagination where people can freely join in the discussions to decide where to go. What if art can be such a system in the normal daily work and in education? Then the question can be creating new actions so that everyone can accept, everyone can participate in starting the initiative. I think this kind of place is very necessary for our society.

Hide already mentioned what art can do in crises. So what role can creativity – not only art, but also technology and innovation – play in times of seemingly endless crises? Can it create resilience in a society?

Roland Haring: I would question the “seemingly endless crises”. Because this perception of an increasing level of crisis and permanent crises is something that is created a lot by media, as they are selling bad news. Which then creates within us this feeling of an endless and permanent crisis. I think it is also very important to reflect on a personal level, where in your personal life are you actually affected by a crisis, and what is it that you – on an individual level – can do? How can you be resilient? But also: How can you support the overall society? I think this has also a lot of impact.

Hideaki Ogawa: From my perspective with an Asian background, of course it's different concerning this endless crisis. I feel that the current atmosphere here in Europe is a natural process transforming into some new kind of system. And I can see: beyond the visions, we have more layers now as global citizens. Information technology allows us to develop our multiple I's – by having different jobs or personalities, real or virtual. But what we need to think about is new we's – meaning how to create our different communities to act for a vision or for global issues. There are many different agendas and subjects for the future. So how can we be engaged by acquiescing in new concepts of a new me and new we – we's? That might be for human-kind popping up as a new kind of philosophy.

Horst Hörtner: It goes toward the direction of the individual versus the community aspect. I share that, too. Concerning technology: I really believe that we will be confronted with the fact that the same technology that has caused the problem is going to be used or further developed to solve the problem. And that's a paradoxical situation. But the problems are so great that without technology it's just not possible to find a solution. So yes, I think technology will play a vital role. But the way how we utilize and how we create these technologies will have to change drastically.

What impact can the Futurelab have in terms of creating resilience for the future? And is this even a part of the lab, and important for the lab – or is the lab's mission more abstract, more untangled from perceived crises?

Hideaki Ogawa: I think what we are doing — art, technology, society — is looking for new creations, new exploration and new findings, also new kinds of challenges in the natural process. Of course, the mass media coverage might convey very negative aspects as an endless crisis, and looking at the reality of our planet Earth, the situation is going to be very serious. But what we can do is what we can do. So what we as the Futurelab need to do is to keep our mission — to propose new future systems for our society. Because our mission as Futurelab, our place as a laboratory and atelier, is creating future systems. So if we are stopping our activities, who can be making the new systems? We also need partners and our communities. I'm very optimistic and positive about continuing these steps. But of course, we need to adapt our usage of creativity to broaden our society as well.

Roland Haring: I think the most important projects that we work on are those where innovative ideas and visions become tangible for people, really understandable. To give a stage to make things visible that were probably abstract before. And then they become something of a shared experience for people, to think further and have an impact on their lives or on their attitude.

I think this is very much needed, also in the future. People will still need a lot of those bridges to connect themselves to topics and challenges that lie ahead, that need to be discussed, that need to be communicated. And in order to do this, you need to have a certain level of understanding. I think that this is a core mission of what we have here. That was valid in the past, but I think is still and will be valid also in the future.

Horst Hörtner: I would say it's about time that we export Ars Electronica to many other places in the world. Honestly, I think what we have done in the last 30 years, in different ways — this intersection of the fundamental setting of art, technology and society — is even more important now than it has been in the last 40 years for our society. So, I think it's about time to go global. (laughing)

Hideaki Ogawa: Meaning futureS laborS. (laughing)

One problem might be that — especially for young people — the collective excitement for the future has waned. For a long time, future was a time of flying cars, cities in the skies and “Star Trek”-like space exploration for everyone. Yet now the future seems like a dark place, with space for billionaires only, no flying cars in sight and our earth on the



brink of collapse. So, what new future inspirations, future narratives can we find? How do we create a positive storyline for humanity?

Horst Hörtner: I think it is drastically important to try again — like in the pandemic — to come together in a solidary way and try to co-solve and co-answer the challenges and questions — rather than one single institute or one single person standing up and saying, “That’s the way!”. It is about really trusting our community, trusting humankind, in order to be able to make the world a better place.

Hideaki Ogawa: Adding to that: We tend to think the future is in some days — very abstract. But recently I found the importance to set a deadline, meaning the end of some period. By changing the future from abstract mode to a more tangible period, suddenly you start to think about priorities and technological capability as well as ourselves — what I and you can do in a period of five years. So not forecasting — forecasting gives us very scary visions, very negative. But to envision, then “backcast”, might give us a more tangible process. I think this end-driven approach — it’s not maybe futuristic. But at least this is a future. So this little shift of approach might be helpful for our time, too.

Horst Hörtner: That is very true. I think that is a very important thing to understand: forecasts are projecting the present into the future. Which doesn’t really help when you want to create new futures.

Roland Haring: I think there are still a lot of positive future visions, narratives out there, as well. It is a personal decision what it is that you look at, that you believe in, that you want the future to be. I am convinced that we live in a really fascinating time as we are right in the middle of the fastest transformation of culture and technology mankind has ever seen. When you look back five years, ten years — so much is changing at such an unbelievable speed. So just from the point of view of learning about mankind, learning about our society — who we are, basically, it is an unbelievable time as so much is happening in one lifespan. If you could pick the time in which you want to live, I would pick the present, because it’s really the most thrilling one, and there will be many more things ahead of us — and I’m looking forward to that.



Hideaki Ogawa: And to simply travel after this experience. Because now it's time to go on a new journey, on a new Planet B, in a way. So far, we couldn't fly, and in my case, I couldn't get back to my country. But the process and new encounters with different differences is very beneficial. So, I think that kind of physical, tangible journey to different places, different cultures can give us the opportunity to be out of the box.

Do you consider the Ars Electronica Futurelab itself to be a resilient institution?

Horst Hörtner: Yes, very much so. I think that is why we are here where we are. Resilience in my understanding isn't the unchanged entity that is passing by all the challenges by not changing and not moving. In terms of changing, adapting, being forward-looking and generating forward-thinking strategies — in that sense the Futurelab has been, and still is, resilient.

Hideaki Ogawa: I think so. It's clear because the Ars Electronica's philosophy — art, technology, society — is very much the foundation of our activity. And art is constantly changing, depending on the technological conditions and on society as well. I don't know if the word is resilient, but we need to be creative and flexible and agile for the change, too, and we need to deliver the future concept and the future moment to the audience. This is the foundation of the idea of our daily actions as the Futurelab.

Horst Hörtner: It's getting more complicated though, from my perspective, to generate this kind of common understanding of the future. Because in the past, we had kind of a more secure situation towards the upcoming times — at least concerning our lifetime. Now everything is changing so fast. This makes it very interesting. Because it opens a huge variety of possibilities and chances that are not narrowed down to something that has been that way in the past. And that is kind of a possible twist — that all of a sudden, the wildest things are possible to be discussed. And that's absolutely positive for an institution like the Futurelab.

Hideaki Ogawa: Yes, also it is my observation that many people start to recognize the importance to understand that future is not THE future, but the futureS — as a plural form. And then how to really create the connectivity of different futures, in a way. That is currently the big challenge, and we need such a place to exchange the future.

Roland Haring: What must be clear is that future per definition does not exist. It is a purely imaginary space that is filled with our assumptions, ideas, probabilities, visions — and you can shape it in any way, since it is only imaginary. This opens a lot of possibilities to create ideas of possible futures. But what is important is that all those ideas of the future have a fundamental impact on the decisions that we make today, and this affects our present and thus where we are going, what we are doing. But the future itself is something which is unwritten and can be thought of and developed — and we need to actively direct ourselves in the directions we want to go.

Horst Hörtner: That is a very important thing: The future is a result of the activities and the decisions we are making now. And this is even more true than it has been in the past. We need to understand that we can't have it all. That means that we have to adapt to a future that is maybe asking more of us than the past. Like you probably should not take the lazy way, the comfortable way. It's the same thing we've been talking about all the time — leaving the box, thinking outside the box, but also acting outside the box. And acting outside the box means leaving the given traces. We have to seduce the community, the communities, and ourselves to follow the renunciation. And I think this is a very strong topic for art. Because art can — and has been able to throughout the centuries — show perspectives, giving hints on what could work or might be a different way to look at things. And to renounce isn't necessarily to lose something. If you renounce the old path, then other paths and other ways might be visible and selectable. And I think that art has a very good opportunity, and a very good twist to show this perspective, showing new paths.

Working with and on Creative Resilience

Horst Hörtner, CTO Ars Electronica Futurelab

What is the role of art in a seemingly never-ending sequence of crises?

Climate change, Covid, the Russian aggression — the war in Ukraine... Can artists and art institutions provide art as a social vaccine? Creative resilience is an artistic question to be addressed by society as a whole rather than the individual. Rather than asking every person to become even “more resilient”, we need to advocate creative resilience as an ability of democratic communities, as an act of solidarity.

What does creative resilience mean for the Ars Electronica Futurelab’s main research topics? Our Key Researchers weigh in on this year’s central theme for the Futurelab Day on September 8th, 2022.

Marianne Eisl

Key Research Topic:
Tangible Link

To create resilient ways to cope with complex topics, which are relevant to society, not only scientific know-how of isolated individuals is needed. We all have to wrap our heads around it. It takes the daily experience of each and every one of us to find not only answers to some important questions, but also to ask the right questions. For that purpose, we have to convince society to take part, to share their experiences and to find their own meaning within these complex topics.

Matthew Gardiner

Key Research Topic:
Origami Robotics

Resilience is a quality in material that enables it to undergo stress and return to its original shape. In origami robotics, the folds are in constant crisis, so we use strong flexible materials, with a boundary of rigid material. This provides strength and structure to support the constant folding and unfolding. Our creative resilience relies on adjusting, simulating, modelling and making our folding patterns in such a way as to balance flexibility and rigidity.

Roland Haring

Key Research Topic:

Co-Immersive Spaces

One could argue that creative resilience is a rather neoconservative and polemical term, as it mainly implies the preservation of the status quo. Co-immersive spaces go beyond that per se, as their focus is on creating new spaces of interactions based on a technical system that allows multiple users to share virtual experiences. The original concept of co-immersion was mainly focused on users sharing a physical space for a joint experience. Deep Space 8K is a relevant manifestation of it. Building on this, our recent research incorporates elements of interconnectivity of multiple physical locations to extend the concept even beyond co-location. We argue that shared human experiences are the basis for humans finding creative ways to solve the problems of our time. Mutual understanding is built on the exchange of ideas and interpersonal encounters — but given the urgent need to reduce our physical movement (be it due to the pandemic or the carbon footprint), alternative ways must be found to interact in similarly meaningful ways.

Peter Holzkorn

Key Research Topic:

Artificial Collectives

Our high-tech art projects may sometimes seem far removed from a direct impact on the existential crises we are facing. But then we see ideas that we created grow and make a real difference: The Spaxels managed to free the drone from its connotation with warfare and surveillance, and at the same time showed us the future of “fire-works” without dust clouds in the sky. It is hard to predict the success of an idea, but we have already entered the robotic era, and the best path we can take is to explore all that is exciting about it without ever compromising on our humanity. Resilience needs tools, but it must grow out of inspiration and care.

Stefan Mittlböck-Jungwirth-Fohringer

Key Research Topic:

Poetic Systems

Art and art making is an attempt to look at our world — the surrounding and interrelated systems — and understand it. The process of artistic creation and the results of it allow us to examine our environment and ourselves in more depth. This analysis helps us to understand the systems surrounding us cognitively and emotionally. This understanding empowers us to act in an informed manner and to shape our world accordingly.

Otto Naderer

Key Research Topic:

Algorithmic Apperception

In both realms of art and science, creativity is the igniting spark of every evolving endeavor. It aids the definition of goals and of a route to attain them. Generative processes are constantly met with unpredictability along the way, challenges that imperil set goals. Our most powerful tool in such circumstances is once again creativity, in the form of improvisation, a key technique to solve challenges and overcome obstacles. Years of pandemic and a brewing climate catastrophe have created a permanent setting of demanding circumstances. And it is reassuring to see how humanity adapts to it, often by means of creativity and collectivity: when in the early days of the pandemic much needed equipment was rare, tinkerers converted snorkeling equipment into respiratory masks. Local distillers reprocessed their schnaps into makeshift disinfectant. Creative resilience is a collective and agile response to crises and disasters through improvisation, beyond solely relying on governmental institutions. It will turn out to be an essential instrument in years to come.

Ali Nikrang

Key Research Topic:
Creative Intelligence

We can only predict the future based on our experience or known facts from the past. Predicting “a future” is also one of the core concepts of generative AI systems in the field of text and music generation. What future means in this context is simply the prediction of the next possible element, considering all previous elements in a document or a piece of music. It is also based on the past, existing content and what has been learned during the AI training. A well-trained AI system should be able to handle new situations or conditions that the music or text may be involved in and continue to do so in a satisfactory manner. Similarly, in real life and especially in today’s global and dynamic world, we cannot predict the future by relying only on the past. This is where creativity is needed. Creativity helps us predict not just one future, but many versions of that future. It is still based on the facts of the past, but it gives us a certain plasticity to think and react to different possible developments.

Yoko Shimizu

Key Research Topic:
Symbiotic Creativity

The biological mechanism of nature and living organisms provides creative inspirations for a resilient society. There have been multiple planetary catastrophes on Earth, and the data of surviving organisms have been passed down as DNA in the relay of life. It is fascinating to imagine that we are part of the information continuum that has existed for billions of years and perhaps billions more years to come. However, current human activity is changing the Earth’s environment, making it difficult for us to continue our part in the relay. In Symbiotic Creativity, we shift our perspective from a human-centered approach to a planet-centered approach that benefits the entire biosphere. It is a creative exploration of biological systems that helps us build a future that humanity cannot build alone.

Maria Pfeifer

Key Research Topic:
Future Narratives

Climate catastrophe, species extinction, the Covid pandemic, war, hunger, flight — these crises are so closely interwoven that there is no going back. Back to a before, to a normality that strives towards an ever-better life. This goal of optimizing normality no longer exists. Because it will never be the way it was. Because it can never be the way it was. The familiar can no longer be understood as something to which anyone has a right, simply because this right can no longer be granted. Saying goodbye to this idea of being able to have “a better life” than — or at least a life as good as — the generation before is hard. But it cannot succeed — at least not if we measure “a good life” by the same standards. Creative resilience means exactly that: not the ability to bounce back to a state of normality, but letting go of what no longer exists, radical acceptance of the status quo and finding new yardsticks by which to measure a good life — for us and the generations to come.

Hideaki Ogawa

Key Research Topic:
Art Thinking

In these unstable and uncertain times, we need a process where people can experience and discuss not one future, but diverse directions for the future. Instead of walking on a new planet following a map created by someone else, let us set out on a journey on the new planet with our own individual compasses. Art Thinking is a helpful mindset when cultivating that compass. With that compass in hand, let’s start a new action. We should not set a vague endless future and create the future from it. I believe that a “back-casting” type of research, in which we think from the “end” of goals we set ourselves, is an important approach to shaping the future.

Welcome to Planet B

Text: Susanne Kiesenhofer

Alternative fuel vehicles or public transport? Nuclear power or renewable energy? Lab meat or vegan diet? The climate crisis currently challenges us with questions to which there are no easy answers. Alternative concepts await important decisions, and every action we take today has implications far into the future. Wouldn't it be helpful to test our decisions in a virtual reality in order to better estimate their consequences? Welcome to Planet B!

On a virtual planet in the newly updated *Deep Space 8K*, visitors are given the power to make decisions about how to reduce greenhouse gas emissions. Genuine projections and climate models from our world are applied to *Planet B*, so the impact of these decisions on the climate can be reviewed and tested in an alternate future scenario. What trade-offs is each individual willing to make to reduce greenhouse gas emissions, and how do they decide together as a team? In the end, the visitors of *Welcome to Planet B* travel to the year 2100 to check how sustainable their group's decisions are. Did they reach the best possible climate scenario?

For the development of *Welcome to Planet B*, frequently discussed, controversial or polarizing issues and their potential impact on greenhouse gas emissions were identified. The two opposing viewpoints on an issue are presented by inhabitants of Planet B with arguments and facts, making the decisions between the opposing proposals deliberately difficult: there is no right or wrong, no best option. By being limited to two

equally valid options, visitors are forced to come to terms with their own values, limits, and willingness to compromise. By using the *Deep Space 8K*'s position tracking system "pharus", the balance of the vote can be determined and illustrated. The positioning in the physical space not only shows each person's standpoint, but also makes group dynamics visible. Experiencing the 3D application together as a group is an essential aspect of the application and one of the strongest features of the *Deep Space 8K*. Standing on opposing sides, visitors can justify their opinion and elaborate on their decision. The polarity and black-and-white dynamic allow a discussion to be set in motion and are intended to encourage dialogue – even beyond the two proposed solutions, toward a more realistic discussion about our situation here on "Planet A".

With *Welcome to Planet B*, researchers from the Ars Electronica Futurelab created an environment to educate, inform and to discuss complex issues as a group. Experiencing the virtual world together with other visitors and getting a sense of one's own position and that of others can create a connection within a group. The setting and form of dialogue can also shed light on biases or missing perspectives, and encourage reflecting on these issues. But no matter what direction this dialogue takes, one message remains at the forefront of the visit: to prevent climate catastrophe and to be able to look forward to a positive, livable future, we need to make changes. And we need to make them now.



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Ideas Expedition 2022

The Ars Electronica Futurelab Ideas Expedition is an internal competition of ideas intended to explore creatively the technological and social circumstances of our time. It aims to encourage internal talents and collaborations for developing ideas for future projects without being limited to existing research areas of the lab. This year's winners are the pop-up book *Welcome to Planet B* and the project *SonoSynthesis*.



© Ars Electronica Futurelab

Welcome to Planet B – The Pop-Up Book

Kerstin Blätterbinder, Susanne Kiesenhofer, Nicolas Naveau

Entirely analog and easy to grasp even for little hands: the new Deep Space 8K application *Welcome to Planet B* is set in a format suitable for children ages 8 to 12. The Ars Electronica Futurelab's interactive pop-up book is designed to inspire children with enthusiasm for climate protection and make them marvel and understand — and, above all, participate.

In the new interactive 3D game at Deep Space 8K, visitors are invited to make decisions as a team to reduce greenhouse gas emissions. Lab-grown meat or vegan diet? Alternative vehicles or public transportation? On the fictional “Planet B”, they can test how sustainable their group's choices are. With the *Welcome to Planet B* children's book, the Ars Electronica Futurelab team prepares the complex content in a way that's appropriate for children. The paper-like layers of the 3D animations in the Deep Space 8K application are found

as pop-up illustrations in the children's book. As a colorful, foldable universe of ideas and possibilities, it is intended to allow children to develop an approach to the important questions of the future: What is climate change doing to us and to our world? What can we change so that tomorrow's world is worth living in? What kind of world do we want to create for ourselves?

Young readers are gently confronted with decisions about their own everyday lives and are invited to create their own “Planet B”. The “foldable Deep Space 8K” for the reading corner wants to spread an optimistic message among children: Big or small — everyone can make a difference! The *Welcome to Planet B* pop-up book for kids will be presented at the Ars Electronica Festival for the first time and is intended to accompany families and school groups on their visit to Deep Space 8K.

SonoSynthesis

Ali Nikrang, Raphael Schaumburg-Lippe, Yoko Shimizu

In the new era of creative collaboration, can machines and nature jointly create art and music? In the *SonoSynthesis* project, we bring together Ars Electronica Futurelab's AI, biology, and Deep Space technologies to develop an immersive audio and visual experience created through the interaction between artificial intelligence and biological entities.

In the project, various microorganisms receive and express the musical data provided by an AI-based music composition system in a range of petri dishes. The biological data points on the petri dish grow and change over time, creating new data points and beautiful microscopic landscapes. The new data points return to the AI system for further music generation — thus creating a cycle of artistic interaction.

In the project, our research team, Ali Nikrang, Raphael Schaumburg-Lippe, and Yoko Shimizu, bring together diverse expertise in this inter-

disciplinary collaboration. Ali Nikrang is the creator of Ricercar, an AI-based collaborative music composition system. Yoko Shimizu is the developer of Bio Ink, a living ink that grows freely beyond the digital input by humans and machines. Raphael Schaumburg-Lippe is an expert in 3D visualization, capturing biological processes in immersive ways that can be experienced in Deep Space 8K. The three researchers are now embarking on an endeavor to explore many questions that arise in the new era of joint creation. Can machines and nature interact with each other? What happens when machines and nature interact and co-create? Who creates the artwork? Where does the creativity come from? Who owns the intellectual property (IP) of the non-human (biological) creations? During the Ars Electronica Festival, the project will be presented as an immersive audio and visual experience in the Deep Space 8K environment.



PROJECTS

Deep Space EVOLUTION

Text: Bernadette Geißler

The Ars Electronica's Deep Space 8K is one of the world's most exciting digital experience spaces — developed, built and continually enhanced by the Ars Electronica Futurelab. With *Deep Space EVOLUTION*, it received a major upgrade to the technical infrastructure as well as presenting several new programs for the public.

Eight projectors, each with a pixel rate of 4096 x 2160 calculated 120 times per second, provide the 16-by-9-meter wall projection and the equally large floor projection with unique worlds of experience. New laser projectors instead of lamps now provide even sharper images with the highest brilliance, capable of displaying an even larger color space. Since they need less cooling, they are much quieter and require 32 percent less energy. In addition, the laser projectors eliminate the need to regularly replace lamps that contain heavy metals. The Deep Space 8K workstations have also been upgraded to 200 percent more computing power with ten percent less energy consumption, thus achieving a significant boost in efficiency.

The tracking system used in Deep Space 8K has also received an exciting enhancement. Previously, the 2D tracking of the Futurelab system "pharus" could be used to determine the position of a large number of people or objects on the ground with extreme precision. Now, the room also has a 3D tracking system — the combination opens up new possibilities for interactive and artistic programs.

The in-house-developed application control and content management system has also been enhanced, bringing more stability and new features. 3D content development now relies on the *Unreal Engine*, which is also used by the world's leading game productions. The license management for content packages has also made it from prototype to product maturity: Content from Deep Space 8K can now be easily distributed to partners and customers worldwide. This system is already partly in use at *JKU medSPACE* at the JKU MED Campus Linz and at Cubo Negro in the Centro de Ciencias in Culiacan, Mexico.





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CoBot Studio

LIT Robopsychology Lab, Johannes Kepler Universität Linz (AT); Center for Human-Computer Interaction, Universität Salzburg (AT); Joanneum Robotics JOANNEUM RESEARCH Forschungsgesellschaft mbH (AT); Polycular OG (AT); Österr. Forschungsinstitut für Artificial Intelligence OFAI (AT); Blue Danube Robotics GmbH (AT); Ars Electronica Futurelab (AT)

Text: Daniel Rammer

People already work closely with machines, often together with them. Many conventions have already been established in the use of a computer. Humans and robots increasingly work side by side, too, but cooperation and the communication required for that only work to a limited extent. In the future, more and more workplaces will be equipped with collaborative robots, so-called “CoBots”. For a team to work effectively, understanding, acceptance, and trust are needed – the certainty that the intentions of each other are correctly understood.

With *CoBot Studio*, concepts relating to communication and interaction have been developed and evaluated over several phases. In the earlier stages, virtual reality applications were developed and utilized for experiments. For the final research game, the virtual reality is expanded significantly and becomes extended in form. Thanks to a stereoscopic 3D projection over more than 100 square meters in Deep Space 8K at the

Ars Electronica Center and the presence of a physical mobile robot, with which the participants communicate and cooperate, *CoBot Studio* gets close to a real-life scenario and yet remains a well-controlled environment. Robots and humans communicate via gestures, in other words non-verbal signals. One focus is on investigating the extent to which gestures are comprehensible and how far the robot is to be trusted as a partner. Together with the LIT Robopsychology Lab at Johannes Kepler University Linz, the ROBOTICS Institute of JOANNEUM RESEARCH, Polycular, and three other project partners, the Ars Electronica Futurelab has already been part of the *CoBot Studio* project for three years.

The results of the research serve to improve our understanding of how humans and robots will work together in the future.

CoBot Studio thus contributes to shaping the working world of the future in the interests of all.

DATASPACE: Russia/Ukraine. Deep Impacts

Nikkei Innovation Lab (JP), Ars Electronica Futurelab (AT)

Text: Nicolas Naveau, Hideaki Ogawa, Nobuyuki Oishi

February 24, 2022. In the midst of a global pandemic, Russia invaded Ukraine. This war in Europe continues to the present day. This also poses questions for the media as well as the general public: What is truth, what is the role of journalism, and how can art and journalism contribute in a meaningful way in the midst of seemingly endless crises?

DATASPACE is a project that proposes a form of “newspaper of the future,” born from a collaboration between the Innovation Lab of the global financial media company Nikkei and the Ars Electronica Futurelab.

The etymology of the word “newspaper” in Japanese means “to hear” something new. If the “newspaper” as a new metaphor becomes a medium that allows people to experience “something new,” what kind of new social awareness and opportunities can it provide? In this age of visual information inundated with text, images, and other visual information, what new ways are there for people to listen carefully to facts and issues and think deeply and slowly, rather than simply consuming and reacting to information and news?

The first theme of *DATASPACE* will focus on the profound impact of Russia's war on Ukraine, inviting participants into a sort of Zen garden of information, created solely by data. Using the Deep Space 8K infrastructure permanently installed at the Ars Electronica Center, participants will wear 3D glasses and experience the various impacts of this conflict. Faced with a sharp rise in oil prices, can we build an economic model without oil? Now that gas supplies are scarce, what is the cost of our dependency? Now that wheat is in short supply worldwide, can we avoid hunger? And what kind of new turmoil might this impact create? If you were to be displaced by war, what would be your home? What will the nation budget for and where could the world go in the wake of this war? And what may the future of democracy look like? Participants will be immersed in a fact-based data space on these topics and then given the opportunity to discuss these questions. “Artistic Journalism” is the name we give this act of creating social dialogue through artistic expression, research, exploration, and action. This new journalism would revolutionize the way we look at current events.





Future Ink Project

Wacom Co., Ltd. (JP), Ars Electronica Futurelab (AT)

Text: Yoko Shimizu

The *Future Ink Project* is a collaborative research project between Wacom and Ars Electronica Futurelab to explore the future of creativity from all aspects of ink. Wacom is the world's leader in pen tablets, interactive pen displays, and digital interface technologies, supporting creative communities across the globe.

In the first year of the project, we searched the soul in creative expressions through *Space Ink*. In the second year of the project, we experimented with noise in creative expressions by developing living ink that grows freely, which we called *Bio Ink*. This year marks the third year of Future Ink research. We are now exploring the inner mechanism of creativity in our brain and body. When we draw with a pen tablet, we use pen data, such as location, pressure, tilt, and speed, to create strokes with digital ink. But what if we can use the

life data of the human body and brain to create a new form of ink? Can the human body become the pen that generates ink that expresses our selves on conscious and subconscious levels? Can the ink reveal a new aspect of our selves that inspires our creativity? Can we create a more inclusive ink that can be used by all people, regardless of pen skills or physical limitations?

In the project, we develop wearable gear for the head and body with sensors for brainwaves and body signals. The real-time data will be visualized as ink in the prototype exhibition and performance at the Ars Electronica Festival. The goal of the project is not to find a specific answer, but to continue to ask questions and conduct innovative and experimental research that is crucial to envisioning the future of creativity.

WebEx Visualization & Sonification

Cisco PX Innovation Team, Ars Electronica Futurelab (AT), Rupert Huber (AT)

Text: Peter Freudling, Ali Nikrang

A composition of strands, strings and tones in an imaginary space make up this vivid real-time painting developed by the Ars Electronica Futurelab together with Cisco's People Experience Innovation Team to interpret artistically the activities on the WebEx communication platform. The underlying, highly anonymized, static dataset offered several possibilities to analyze call data over a longer time span. This allowed the basic call data to be enriched with properties like intensities and other dynamics – in other words activities between different departments. The visualization shows this activity in a pseudo-topological mapping which allows for spatial perception of geographic and time-zone distance covered in calls. Color, speed and height of the visual elements reflect other meeting properties. The visualization occasionally switches to a different

view, offering a glimpse of the data over a span of 24 hrs.

The geographic locations (time zones) cause different tones and frequencies (pitches) that harmonize with each other in any combination. As a result, the overall perception of the sound changes over time and also depends on the intensity of active calls in different regions of the world. It's not about making that data readable, nor is it about accuracy. The overall goal of the project is to offer a view into the hybrid space created by telecommunication methods. Where do we actually meet when we talk across continents? Who's having dinner and who breakfast after the meeting? The piece endeavors to offer a glimpse into an imaginary space which we are all part of and help to populate through our telecommunication technologies.





© Birgit Cakir

Fassadenspiel / Play the Facade

Text: Birgit Cakir, Stephan Feichter

Visible from afar, the LED façade of the Ars Electronica Center dominates the cityscape of Linz. But this landmark is much more than just luminescent architecture: consisting of 1,100 individual light pixels, it is a medium of its own that is now once again accessible to all residents and visitors of the city.

Back in 2010, the interactive *Fassadenspiel* (*Play the Façade*) invited people to be creative and play with the night skyline of Linz. In 2022, the familiar but somewhat outdated interactive terminal was rethought and updated. As part of the redesign of *Play the Façade*, the former

display in the public space has now been shifted to smartphones: via Wi-Fi, users connect to the building during opening hours to audiovisually design the 38,500 LEDs on the Ars Electronica Center façade.

So sift through the best animations of the last ten years and make them appear on the 5,100 square meters of the Ars Electronica Center. Play your favorite music over the audio system built into the façade, send it over the Danube and determine how the Ars Electronica Center should light up to match. This way, you become part of the design of the cityscape of Linz.

Oribotic Instruments

Text: Matthew Gardiner

Oribotic instruments propose the reimagination of instruments as a programmable folding interface where fold adjacency, degree of fold and touch become data vectors for processing and amplification. We examine the oribotic instrument's material and immaterial qualities. Culturally, origami has a complex history; multiple cultural origins present divergent folding patterns, much like musical roots carry a cultural, regional and personal signature. The globally predominant term origami, a Japanese word meaning "fold paper", has a deep-rooted history in Samurai and Shinto culture. In parallel, folding patterns and techniques with a distinct aesthetic that can be found in textiles in Europe pre-date artefacts from Japan. Contemporary origami now informs design, art and engineering disciplines, with the latter applying the unique mechanical and geometric properties of origami.

The folding process is inherently mutable as an interface between artist, structure and geometry. The defamiliarized *Oribotic instruments* carry musical function implied by the form, generating data from the changing shape and human contact. The folded structures create new expressive gestures. The consideration of adjacency – panels that can touch each other when folded together – brings about questions for programmability and assignment of musical notes, directing our attention towards the unfamiliar and micro-tonal musical space. Our research development stack includes software, hardware and fabrication methods for creating flexible circuits using a combination of 3D-printed conductive materials, sewing patterns with conductive thread, custom circuit and sensor designs.

Funded through the FWF Austrian Science Fund, PEEK Program



© Denise Hirtenfelder



© Ayami Kawashima

Ars Electronica Japan

Text: Kyoko Kunoh, Yoko Shimizu, Hideaki Ogawa

As a special unit of Ars Electronica, *Ars Electronica Japan* puts educational and cultural programs into practice for Japan, as well as consulting and advanced research related media art. It forms a creative ecosystem for shaping future society together with citizens, Japanese creators, educational public institutes and industries.

Cultural Initiatives

The activities of Cultural Initiatives aim to bring the vibe of Ars Electronica to Japan, as well as to create cultural platforms for discussing future society together with artists and citizens in various locations. The unique programs are being realized throughout the year, such as School of the Future at Tokyo Midtown in Tokyo and Matsudo International Science Art Festival.

Consulting, Research & Development

In collaboration with corporate partners, *Ars Electronica Japan* applies an artistic perspective to extracting issues and social implementations from consulting to research and development. 2022's newest collaborative project is with

Wacom, a world-renowned tablet manufacturer, through the *Future Ink* project. We are also exploring the future of media and artistic journalism with Nikkei Innovation Lab.

Educational Initiatives

The Educational Initiatives are dedicated to incubating future cultural leaders and conduct highly specialized academic research.

Since 2021, together with the Agency for Cultural Affairs of the Government of Japan, Ars Electronica has been running the Program for Next Cultural Producer Incubation Project, which is a practice-based special training program at Ars Electronica. In collaboration with Keio University, *Ars Electronica Japan* runs the course entitled "Artistic Journalism", which discusses current society from the critical perspective of art. Ars Electronica also collaborates with Hakuodo, one of Japan's biggest communication design companies, to promote the Art Thinking program, which applies the thinking of art and artists to society, creating the basis for active social innovation.



Art Thinking Program

Hakuodo Inc. (JP), Ars Electronica Futurelab (AT)

Text: Hideaki Ogawa

Since 2014, Ars Electronica and Hakuodo, together with artists and business professionals, have been developing various collaborations to connect art and industry and open up the future. For example, the theme of the joint conference *Art Thinking Forum Tokyo 2022* was *Transformation for Whom?*. We created an open forum to rethink the purpose of digital transformation (DX) and to discuss how art can help society answer such questions as: Whom is this transformation for, and what will life be like after technological innovation?

In Session 1, Gerfried Stocker, Co-CEO and artistic director of Ars Electronica, Tim Brown, Chairman of Ideo and Vice Chairman of Kyu Collective, and Hisashi Fujii, Director and Senior Managing Executive Officer of Hakuodo, discussed the DX that is currently happening in a broad sense. They discussed redefining DX as a digital revolution and creating *sei-katsu-sha* (living

persons) experiences and social design beyond “Art Thinking” and “Design Thinking”.

The theme of Session 2 was “Transformation for Innovation”. Innovators such as Shiho Fukuhara (Artist and Researcher), Hisato Ogata (Design Engineer and Director of Takram), and Masataka Hosoo (President of Hosoo Inc.) discussed tradition and innovation and the realization of a purpose that aims to last 100 years.

The theme of Session 3 was “Transformation for Society,” with Junji Watanabe (Senior Distinguished Researcher, NTT Communication Science Laboratories), Etsuko Ichihara (Media Artist), and Yoko Shimizu (Key Researcher and Artist, Ars Electronica Futurelab) discussed “digital well-being” from the perspective of “connectivity”. In this way, the Art Thinking Program, a joint initiative of Hakuodo and Ars Electronica, has provided various opportunities for dialogue in order to promote “Art Thinking” in society.

The NeuroRight Arcades

Residency by Roel Heremans

Having artists and researchers from all over the globe collaborating with and taking residencies at the Ars Electronica Futurelab is fundamental to the laboratory and studio. New forms of artistic expression serve the lab as food for social thought, as an impetus to consider emerging issues, and as an opportunity to take a more multifaceted look at things. This year, the artist in residence is Roel Heremans, who is developing *The NeuroRight Arcades* with his team.

Neuro-wearables and BCIs (Brain-Computer-Interfaces) are already here, and soon they will be everywhere. As innovation is moving faster than the social and ethical frameworks around it, researchers at Columbia University have developed 5 “NeuroRights”: Mental Privacy, Personal Identity, Free Will, Equal Access to Mental Augmentation and Protection Against Algorithmic Biases.

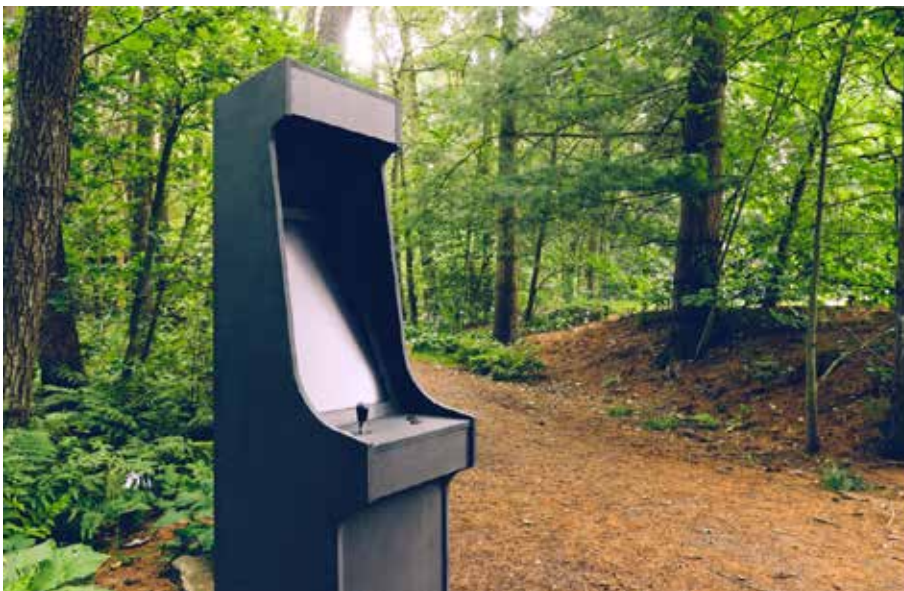
Inspired by and based on these “NeuroRights”, Roel Heremans and his team are designing a series of five interactive installations to make each “NeuroRight” tangible for participants. They want participants to explore unasked questions about the future of our “NeuroRights” in a world where BCIs are ubiquitous.

Wearing a real-time BCI headphone in front of a custom-made Arcade Machine, participants will

be guided through an aesthetic experience where their mental state is transparent and malleable. With this, the team hopes to evoke a visceral reaction, so that participants feel the need for “NeuroRights” on a personal level.

The five installations were developed together with a team of neuro-experts from KU Leuven and Howest – Digital Arts and Entertainment Kortrijk during residencies at the Ars Electronica Futurelab, Kunstenwerkplaats Brussel, Werktank Leuven and C-Takt Pelt. Interactive Design by Tyrell, BCI software by Yuhan Zhang, Thai Duong Truong and Maarten Francq, neurological advice by Chie Nakatani and Cees van Leeuwen, artistic advice by Emanuele Dainotti and Evan Cole, Arcade design by Rudi van de Kerkhof.

This project is funded by the Flemish Ministry of Culture, Youth and Media.



OPEN FUTURELAB: Futurelab Day

Text: Bernadette Geißler, Hideaki Ogawa



© Tom Mesic

On September 8th 2022, the Ars Electronica Futurelab , features an extensive all-day “Open Futurelab” program, *Futurelab Day*, which harnesses many new ideas and generated inspiration. This event is aimed at all those who wish to explore, experience and actively shape the future: artists, scientists, educators, as well as corporate and government partners from around the world, all working together with lab members.

This year’s core theme is *Creative Resilience for a Planet B*, discussed in the *Morning Inspirations* session. Friends, partners and members of the Ars Electronica Futurelab will share an open discussion with the public. Certain key questions are tackled: In challenging times like these, with a range of crises from war to the pandemic and climate change happening all at once, how can creativity, art and technology help? How are they connected to research and resilience for a positive future? And how can we manage to transform resilience from personal responsibility to

a social phenomenon, in which everyone in the community is supported? After all, the work of the Ars Electronica Futurelab steadily demonstrates that creativity is an outstanding tool for society to address a wide range of challenges, imagine a better future and work together to achieve it. In the afternoon, these questions and more are discussed in special sessions such as “Humanity of the Future,” “Work of the Future” and “Media of the Future.” The topics range from climate change and its effects on Earth and humanity to a new sense of life in the techno-sphere of the future. Topics range from the transformation of work due to AI and robotics to Artistic Journalism as a way of understanding news and the media on a deeper level. Guest speakers include climate activist Selina Neirok Leem and environmental scientist Ernst Ulrich von Weizsäcker, a wide range of Futurelab partners, such as BMW, Cisco and Nikkei, as well as artists, scientists and activists.

With *Afternoon Experiences*, the Ars Electronica Futurelab team also invites the public to explore the future hands-on: Visitors can write memos with living ink, create art with drones or music with artificial intelligence, experiment with human tissue, and re-write their own script of the future. In addition, guided tours by the researchers offer a glimpse into the ideas and research of the Ars Electronica Futurelab.

In the evening, everyone is invited to join the Futurelab’s *Night Performances*: Visitors can enjoy a wide range of experiences — from the lab’s latest work to fascinating art performances, including world-class piano and dance with stunning visuals in the unique setting of Deep Space 8K, a giant immersive environment developed by the Ars Electronica Futurelab.



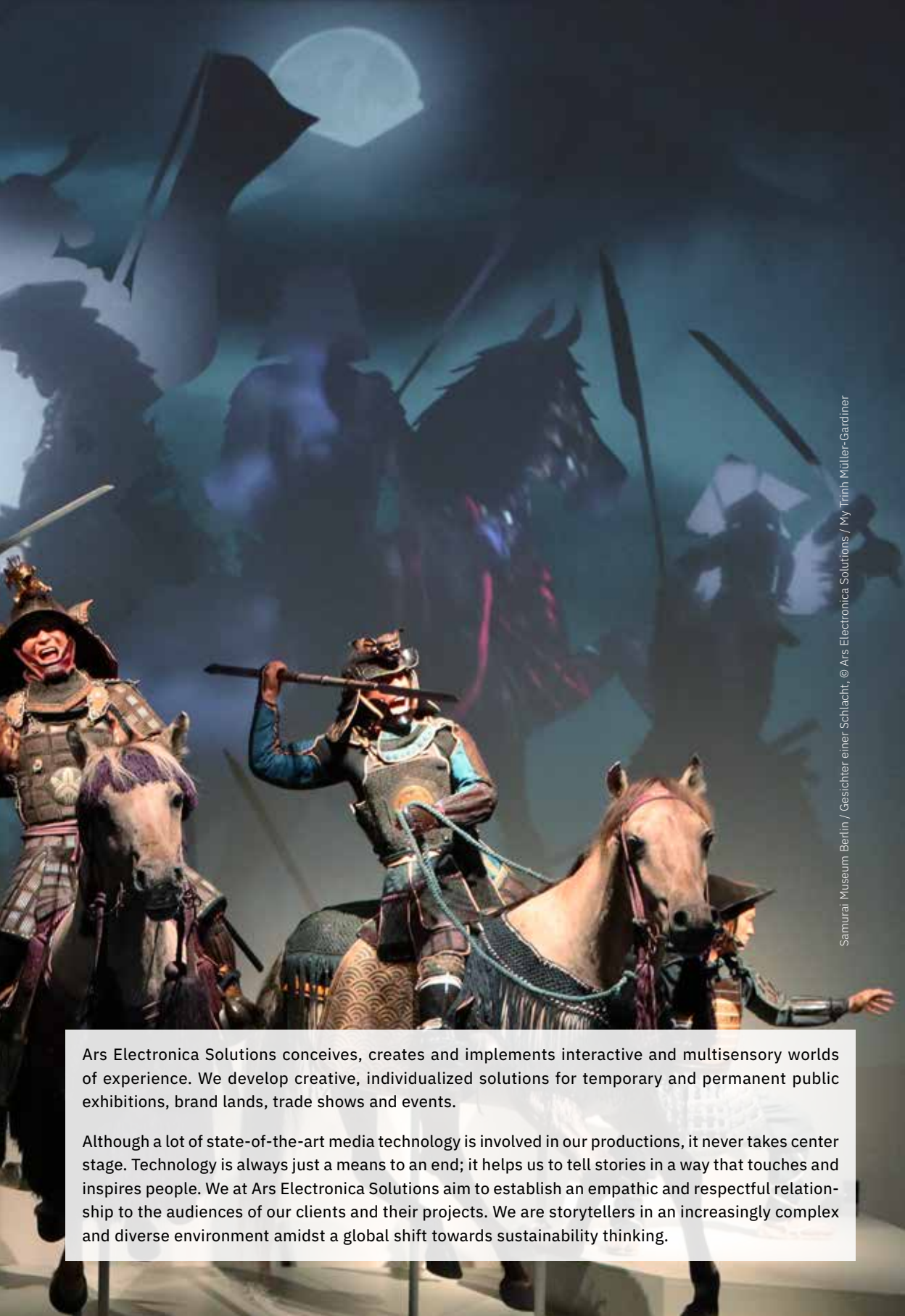
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ARS ELECTRONICA SOLUTIONS





Ars Electronica Solutions conceives, creates and implements interactive and multisensory worlds of experience. We develop creative, individualized solutions for temporary and permanent public exhibitions, brand lands, trade shows and events.

Although a lot of state-of-the-art media technology is involved in our productions, it never takes center stage. Technology is always just a means to an end; it helps us to tell stories in a way that touches and inspires people. We at Ars Electronica Solutions aim to establish an empathic and respectful relationship to the audiences of our clients and their projects. We are storytellers in an increasingly complex and diverse environment amidst a global shift towards sustainability thinking.

SAMURAI MUSEUM BERLIN



Introwand, © Ars Electronica Solutions (AES) / My Trinh Müller-Gardiner

On May 8th, 2022, the Samurai Museum Berlin opened on Auguststraße in Berlin-Mitte.

The museum houses the largest collection of authentic samurai artifacts outside Japan. On 1,500 square meters, visitors can immerse themselves in the legendary world of Japanese warriors in Europe's first museum for samurai art. Museum founder and collector Peter Janssen brought the Ars Electronica Solutions team on

board for conception, didactics, staging, storytelling and implementation. The central task was to present the unique collection to the broadest possible audience.

Discovering and exploring the *Samurai Museum* is playful, entertaining and informative. From exhibit to exhibit, it becomes clear not only which beliefs and philosophies the legendary samurai adhered to, but also what their everyday lives were like.



Japanische, © Ars Electronica Solutions (AES) / My Trinh Müller-Gardiner



Zeiffenster © Ars Electronica Solutions / My Trinh Müller-Gardiner

Although there is a lot of technology involved in the staging, it never takes center stage, but serves as a perfect tool to tell stories in a way that touches and inspires people. Unique physical exhibits that may not be touched can be literally scrutinized in the museum using 3D scans, for example. Among the museum's highlights is an original Nō theater that comes to life thanks to special projected green-screen footage of two of

the most important Nō performers of our time. Two large interactive multimedia installations tell the story of the Japanese samurai in the style of a dramaturgical audiovisual narrative and illustrate the elaborate manufacturing process of a sword. The exhibition also shows contexts and developments in world history that took place outside Japan but had a lasting influence on the world of the samurai.



Samurai Museum Berlin © Ars Electronica Solutions (AES) / My Trinh Müller-Gardiner

Noh Theater © AES / My Trinh Müller-Gardiner



Fuchs © AES / My Trinh Müller-Gardiner

Introwand © AES / My Trinh Müller-Gardiner



Highlight Netflix Vitrine © AES / My Trinh Müller-Gardiner

Tsuba Highlight Vitrine © AES / My Trinh Müller-Gardiner



Yokai Game © AES / My Trinh Müller-Gardiner

Gigapixel © AES / My Trinh Müller-Gardiner



Teehaus © AES / My Trinh Müller-Gardiner

SUSTAINABILITY THINKING

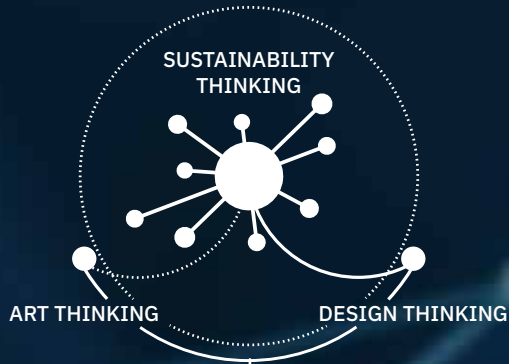
Sustainable Synthesis of Art & Design Thinking

Ars Electronica Solutions is working with the ICT Institute for Clean Technology to develop a proprietary framework to help clients integrate creative sustainable strategies into their projects. This framework is the basis for past and future workshops for companies and organizations. *Sustainability Thinking* builds on the specific approach to Art Thinking developed by Ars Electronica and borrows classic approaches from Design Thinking. This makes it a new creative and holistic method for arriving at a

new personal perspective as well as a creative corporate strategy for sustainability. Art Thinking tries to find the essential questions for the future with creative and artistic approaches. Design Thinking develops new, user-centered solutions to existing questions. *Sustainability Thinking* opens up a space for thought and action for the empathic impact assessment of complex strategies and processes in political and economic action in the present and the future.



Sustainability Thinking Experience © Ars Electronica Solutions / My Trinh Müller-Gardiner



EXPO DUBAI 2020
Nachhaltigkeit und Digitalisierung



ROSENBAUER RT
Erstes Hybrid Feuerwehrfahrzeug der Welt



ESA (Φ) Experience
Die Erde im Wandel



DESIGN THINKING

ART THINKING



NWAREUM
Nachhaltigkeit, Klimawandel, nachwachsende Rohstoffe und erneuerbare Energien

Welcome to Planet B

ARS ELECTRONICA FESTIVAL 2022
Another Life is Possible! But How?



JOINT RESEARCH CENTRE (JRC) OF THE EUROPEAN COMMISSION
Global Human Settlement Layer

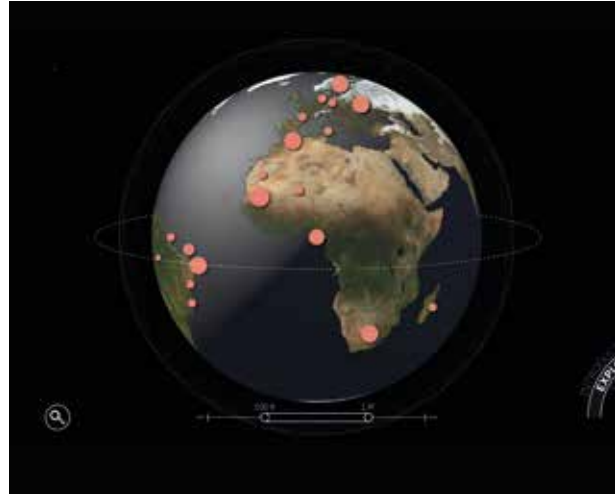
ARS.ELECTRONICA.ART/SOLUTIONS

Image Credits: Ars Electronica Solutions, Ars Electronica/Robert Bauernhansl

PROJECTS

JRC

The Global Human Settlement (GHS) Framework developed by the EUROPEAN COMMISSION JOINT RESEARCH CENTRE JRC – Space, Security and Migration (Ispra) Disaster Risk Management provides global spatial information on human presence on the planet over time. With *Beyond the Degree of Urbanisation*, Ars Electronica Solutions developed an interactive mobile exhibit that addresses the tension between regional and global contexts and their relationship based on datasets from the European Commission's Global Human Settlement Layer project.



JRC © Ars Electronica Solutions

NAWAREUM

For the new *NAWAREUM* hands-on museum, a central information and experience site for resources and renewable energies in Straubing (Germany), Ars Electronica Solutions is developing two game tables which make it possible to experience the complexity of energy production and supply through renewables in an interactive, strategic, and playful way. These two media installations are designed as hybrid interactive model landscapes where the path towards the necessary transition to green energy production from renewable raw materials is simulated but adapted to children and young people.



NAWAREUM © Ars Electronica Solutions



Ausarbeitung NAWAREUM © Ars Electronica Solutions

ESA Cooperation

The successful collaboration between Ars Electronica Solutions and ESA was continued for various important events organized by ESA or with ESA as a participant. The most impressive exhibit from ESRINs Φ -Experience in Frascati, the *Half Dome Globe*, was replicated as a modified mobile version in different styles and provides the latest data and findings on climate, weather and meteorology. The interaction with topics from climate research and meteorology and the corresponding data takes place via a mobile device. ESA staff used this to present the latest visualizations of data from Earth observation, individually tailored to the visitors.

For the world's largest Earth observation conference of the European Space Agency (ESA), the Living Planet Symposium, the exhibit was embedded in the wide-ranging exhibition and was presented by the staff of the ESA Climate Office.

The ILA Berlin 2022 presented a unique space exhibition with ESA as one of the partner organizations. The ILA Space Pavilion illustrated how space travel can improve life on Earth and presented the top issues in space travel. On the theme of *Sustainability and Climate Change* the exhibit was again the center of attention.

The 23rd Triennale Milano International Exhibition took place from 15th July to 11th December 2022, under the title *Unknown Unknowns. An Introduction to Mysteries*. The exhibit was presented in this case in a unique form in a very special piece of architecture.

ESA Living Planet Symposium © ESA



ESA Living Planet Symposium © Ars Electronica Solutions



Triennale © Ars Electronica Solutions / Harald Moser



PROJECTS

Linzer Bier Brauerei

Ars Electronica Solutions developed impressive installations for the Linz Beer Brewery, which opened at the beginning of April 2022 in the former power plant of the Tobacco Factory, a listed building, to provide narrative and visual support for the guides on tours of the brewery. In November 2021, longtime customer Brau Union Österreich approached Ars Electronica Solutions with a request to equip parts of the new show brewery with modern media technology and innovative mediation formats. Close collaboration with Craftvoll and the brewmaster made it possible to tease out the most significant content for guided tours.

Linzer Bier © Ars Electronica Solutions / My Trinh Müller-Gardiner



ZEISS

Ars Electronica Solutions supplemented the *ZEISS Museum of Optics* with two interactive media installations dedicated to the past, present and future of ZEISS. An interactive Milestone Wall allows visitors to take a personal and self-determined journey in time through the history of innovation at ZEISS. This look behind the scenes reflects 175 years of history and visions of the company, ending with a view of the future. On the one hand, it becomes a mirror of the museum space in front of it and, on the other, a window into the future, conveying ZEISS' foresight and the company's multi-layered perspectives on the technological and social developments to be expected.

ZEISS Milestone, © ZEISS



ZEISS 175J Wand, © ZEISS



Rosenbauer

Ars Electronica Solutions developed software and multimedia content for the highlight stage in *Rosenbauer City 2030* for Interschutz 2022 – the leading international trade fair for fire and disaster protection, rescue and safety. Ars Electronica Solutions also provided advice on the dramaturgy of presentations and the contemporary presentation of complex topics from Rosenbauer’s service and product portfolio. At Interschutz 2022, Rosenbauer brought megatrends such as networking, alternative drives, and sustainability to life in the field.

Rosenbauer Interschutz © Garamantis / Jules Döring



Geysir Museum

Since the opening of the very unique *Geysir Museum* in Andernach in 2009, the exhibition has already been equipped with new exhibits several times. In the “Above the Earth” exhibition area, Ars Electronica Solutions designed and implemented an interactive multiuser exhibit whose content is oriented toward the Anthropocene. The age in which humans have become one of the most important factors influencing biological, geological and atmospheric processes on Earth is brought closer to visitors in a playful and informative way.

Rosenbauer Interschutz © Garamantis / Jules Döring



© Geysir Andernach Naturschauspiel Mittelrhein Museum



Myriad (Túlips), Anna Rüdler (GB), © vog-photo

ARS ELECTRONICA EXPORT 2022

With Export the Ars Electronica expertise and knowledge travels the world through exhibitions and events, mentoring and residencies, talks and workshops.



40+ years working at the intersection of art and science allowed us to build a wide network of brilliant minds in the field of art, technology, and society. This network supports us today in critically reflecting on current challenges and contextualizing upcoming tendencies. Cultural practitioners as well as businesses and universities are amongst our Export partners. Together we implement a wide range of interventions all around the world.

Through Ars Electronica Export we are excited to share our experiences with you and access our networks' expertise for responding to your questions and ideas — whether it is through consulting, conception or production for exhibitions, screenings or performances, for new forms of residencies, or for general developments of new formats.

ArtScience Residency enabled by Art Collection Deutsche Telekom 2020–2023

Mentorship / Exhibition / Festival

With the focus of the Art Collection Deutsche Telekom on contemporary art from Eastern Europe, the second iteration of the ArtScience residency is dedicated to artists from, or who stand in relation to this region, who work at the intersection of art, technology and science and who are particularly interested in researching the social impact of technological developments. The residency aims to foster interaction between international artists, researchers and scientists and Eastern European partners from research or industry. It intends to create a space for encounters in which artistic practice and scientific research can be combined in the best possible way. In 2022, the Bonn Sustainable AI Lab, located at the University of Bonn's Institute of Science and Ethics, will act as scientific partner. It will offer the artist in residence an introduction and access to the scientific research of the Sustainable AI Lab, which is focused on addressing the often hidden environmental and related social



Voicing Borders © Irakli Sabekia

and economic costs of designing, developing, and using AI across society. The scientific residency is supervised by the Alexander von Humboldt Professor for Applied Ethics of AI, Prof. Dr. Aimee van Wynsberghe and her team at the Sustainable AI Lab, and the external researcher and advisor to the lab Dr. Gry Hasselbalch.

The winner of the 2022 residency is Irakli Sabekia who will exhibit his work also in the festival exhibition.

K-Arts Ars Electronica Academy 2022

Guest Lecture Series / Festival

For three years the Korea National University of Arts – short K-Arts – collaborates with Ars Electronica on research and exchange about how the creation of the human-like activity changes the digital and online sphere. In 2022 this exchange focuses on Human Touch through a guest lecture series with Helen Starr, Špela Petrič and Robin McNicholas (Marshmallow Laser Feast). The guest lectures are followed by a conversation with the expert and Professor Chungyeon Cho moderated by Laura Welzenbach. Further speakers of the course are So Yeon Leem and Eunyoung Park.

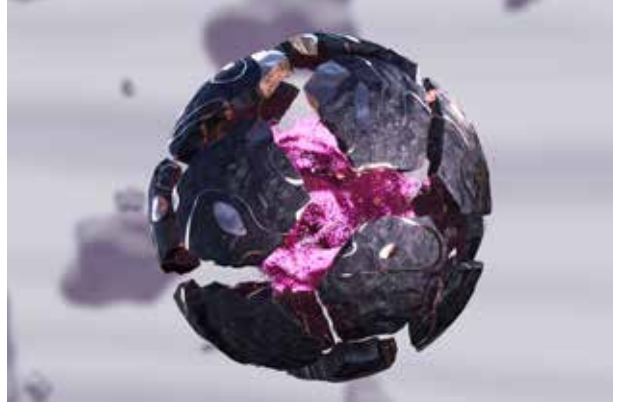


Institute for Inconspicuous Languages: Reading Lips / Špela Petrič © Jürgen Grünwald

Ars Electronica Animation Festival on Tour 2021

Animation Film Program for Cultural Partners worldwide

Since 2005, the Ars Electronica Animation Festival has been bringing together a multifaceted program at the intersections of animation, art and technology. With those submission Ars Electronica curates two programs that travel the world after having been shown at the festival. Cultural partners and non-commercial promoters can show the films for free as long as the screening is publicly accessible to the audience for no cost as well. The Ars Electronica Animation Festival 2021 on Tour is made possible through the support of the Austrian Federal Ministry for European and International Affairs.



Ars Electronica Animation Festival on Tour 2021

Matsudo International Science and Art Festival – Open City 2021

Matsudo City (JP), Ars Electronica Futurelab (AT)

Matsudo International Science Art Festival is an annual festival held in Matsudo City, Japan. Innovative artists, scientists, and researchers from around the world come together to present their latest projects at the event. The festival aims to connect art, science, and nature, and is held in the historic architecture and landscape of Tojo-tei, and Tojogaoka Historical Park. Through the festival, the local creative community and the city government work together to cultivate a future society in which tradition and creative innovation flourish in harmony with nature. The city aims to place art and culture at the heart of its development, cultivating a city of creative inspiration. The theme of this year's festival was Open City – an inspirational city open to all, beyond open studios, open campuses, and open labs. In its fourth year, the festival set out to expand the city's creative ecosystem and connect other



© Hajime Kato

citizen-led innovations from around the world. During the festival, the city was filled with creative catalysts – people, shops, and events with “catalyst” badges and signs, welcoming visitors to connect, collaborate, and inspire each other. Numerous exhibitions, talks, and workshops were curated in close collaboration with Ars Electronica.

A New Digital Real 2021

Exhibition / Festival

For the Taiwan Creative Content Fest (TCCF) in Taipei, Taiwan, Ars Electronica has curated video-based artworks that allow us to take a different look at the festival theme “Metaverse.” The exhibition was on view from November 10 to 14 2021.

Digital technologies have made many things possible. They enable and evaluate complex data, the design of informed materials, forms and reactions, and open up new methods of production and representation that bring about social and cultural changes. Digital technologies are capable of constructing complex inter-relationships from gigantic amounts of data and

making them presentable to us in such a way that logic, information, and knowledge emerge from them. The gift of human to develop technologies to meet the desire to exceed their own limits, constructs at the same time always new realities that need to be recognized and understood.

The exhibition part of this collaboration is dedicated shows three different artistic positions by Refik Anadol (TR/US), Alexandra Daisy Ginsberg (GB/ZA) and Memo Akten (TR/US) addressing these topics. In addition to the artworks, members of the Ars Electronica team share their knowledge in an online lecture series called Ars Electronica Future Thinking School.



Artwork by Memo Akten @ TCCF_3

Proyecto Hàbrido. Ars Electronica en Facyl 2021

Exhibition / Festival

For FACYL 2021 Ars Electronica curated video-based artworks which speak directly to the visitors and allow them to get a glimpse into the perspective of the technology itself. How does digital technology access our data, what does it see and hear? These are the questions the artist address. Lauren Lee McCarthy's *SOMEONE* let the visitors look and listen through the "eyes" of a digital home assistant service, like Alexa. Cosima Terrasse, Moritz Rieseewieck and Hans Block from the Group Laokoon explore if they can recreate the life of an unknown person only through their google data. With *Generation Y* by Anna Kaufmann and Sonja Groiss, a from youth for youth game about data ownership and online activism will be introduce. A speculative IPA, intelligent personal assistant, tells us about what it hears, sees and knows in *Not Allowed for Algorithmic Audiences* by Kyriaki Goni. Halsey Burgund and Francesca Panetta explain what deepfake is and how it can have irritating outcomes around historic facts with their artwork *In Event of Moon Disaster* and accompanied short documentary *How to Strand Astronauts on the Moon*.

Besides these artworks, Ars Electronica team members and some of the artists share their expertise and insights around the question of the role of festivals in a city's cultural life. Gerfried Stocker, (Co-CEO and Artistic Director), Veronika Liebl (Managing Director Festival, Prix, Exhibitions) and Laura Welzenbach (Head of Export) are the speakers. The interview with Cosima Terrasse and Moritz Rieseewieck two of the three members of Group Laokoon for the Ars Electronica Festival TV Station 2021 as well as the presentation and interview with Anna Kaufmann and Sonja Groiss allow us to dive deeper into their projects.



Artwork by Lauren Lee McCarthy
© Alice Brazzil-Facyl 2021

EXCHANGE program

Hiroshima Animation Season (JP) x Ars Electronica (AT)

The Hiroshima Animation Season and Ars Electronica have jointly launched the *EXCHANGE* program to create future education through art for the next generation. What is *EXCHANGE* that stimulates participants' curiosity and encourages spontaneous and active exploration? Aiming to bring together and inspire people with similarities but different backgrounds, *EXCHANGE – High School* and *EXCHANGE – Creating City through Culture* were organized. In the *EXCHANGE – High school*, students from BORG Bad Leonfelden (AT) and students from Hiroshima Municipal Motomachi Senior High School (JP) exchanged ideas online. As a result, the students became more motivated to learn English, learned more about their counterparts' countries, cultures, and educational systems. *EXCHANGE – Creating*

City through Culture featured a talk from Austria about the Ars Electronica ecosystem in the city of Linz and talks by young entrepreneurs who are actually involved in city development projects in Hiroshima. Detailed and lively discussions were held on such topics as how to promote cooperation between the public and private sectors.



Akiko Isonaga

IN TRANSFER A NEW CONDITION

Esch2022 — European Capital of Culture

Ars Electronica Exhibition

3.9. — 27.11.2022

Esch-sur-Alzette, the cross-border area in the south of Luxembourg, is in transformation: a former steel industry region will transform into a center for future-oriented knowledge and innovative creativity. Esch2022 — European Capital of Culture invited Ars Electronica Export to become part of this transformation through curating an exhibition in the *Möllerei*. The exhibition will invite visitors to explore art as a tool for us humans to understand and envision the future.

The Möllerei is starting point of our story and a monument of a world order in transition. This former steelwork is transforming itself into a place for culture and art. The surrounding industrial area right on the border of Luxemburg and France is becoming a new district, a place for people. It is about transformation and change. These are the attributes that Ars Electronica is highlighting in the exhibition IN TRANSFER — A New Condition. It approaches these concepts and wants to explore the nature of change. If we take a brief look at the daily press, it quickly becomes clear how great the everyday complexity of existence has become and what contradictions result from it: the cruel war against Ukraine initiated by Russia, the increasingly dramatic climate change, the pandemic, the issue of exclusion and minorities, the question of distribution, energy, and resources; also, the question of culture in the digital realm, the digital transformation and ethics for artificial intelligence. The dramatic need for action inherent in all these issues requires a renegotiation of the

present that makes commonality and collaboration indispensable. How can we recognise change not as compromise, provocation, or personal limitation, but as quality, skill, and empowerment? Can art play a role in this? Certainly not in the sense of overall responsibility. But art can try to offer a space, in which change in its contradictory complexity can be experienced. Art and culture can thus represent an offer to society, an artistic, social laboratory in which reality and the future are simulated. In this way, it offers a space of experience that takes on the issues that force us to make fundamental changes, but which also has the quality of being a guide for change itself. In the exhibition IN TRANSFER — A New Condition, we present artists operating in the space where art, technology and society intersect, artists who are always in the places where transformation is happening. In the exhibition, you will meet a generation of artists who, as citizens of this world, wish to contribute a perspective that can help us make farsighted decisions. — Martin Honzik



masharu (NL/RU)

The Museum of Edible Earth

2017 – ongoing

Geophagy is the scientific name for the practice of eating earth and earth-like substances such as clay and chalk. Eating earth is an ancient practice and is an integral part of many cultures all over the world. *The Museum of Edible Earth* is a cross-disciplinary project with a core collection of earth samples which are eaten for several reasons by different people across the globe. It invites the audience to physically question our relationship to the environment and the Earth as well as to review our knowledge about food and cultural traditions. The project addresses questions like: What stands behind earth-eating traditions? Where does the edible earth come from? What are the possible benefits and dangers of eating earth? What engagement are we as humans establishing with our environment and non-humans? *The Museum of Edible Earth*

consists of more than 400 samples originating from 34 countries, for example many types of clay, such as kaolin and bentonite. Eating earth is not recommended by food authorities and is at your own risk.

Founder: masharu / Project management (2020-2022): SasaHara / Photo and video (2021-2022): masharu, Anna Zamanipoor, Luuk Van Veen, Jester van Schuylenburch, Jhalisa Rens / Graphic design (2021-2022): Olga Ganzha, Jhalisa Rhens, Luuk Van Veen / Web and database design: Raphaël Pia, William Ageneau, Marina Pankratova, Andrew Revinsky, Pan Vanitcharoenthum / Product design: Basse Stittgen

Find the full documentation of the project and online archive here: museumofedible.earth

The Museum of Edible Earth is supported by the Creative Industries Fund NL, Stichting Niemeijer Fonds, Pauwhof fonds and Prins Bernhard Cultuurfonds Tjil Fonds. The work of masharu is supported by the Mondriaan Fund.

© masharu



Collaboration with the Pasirputih Foundation, Lombok



© masharu

© Tanya Sushenkova



Exhibition at Center for Creative Industries Fabrika in Moscow, Russia



© Tanya Sushenkova

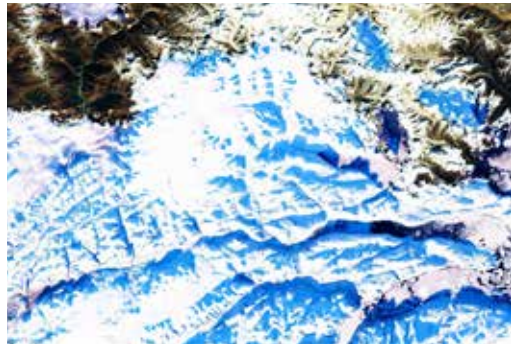
Exhibition at Center for Creative Industries Fabrika in Moscow, Russia

Tega Brain (AU), Julian Oliver (NZ), Bengt Sjölén (SE)

Asunder

2019

Asunder intends to question assumptions of computational neutrality, our increasingly desperate reach for technology-driven fixes to planetary challenges, and the broader ideological framing of environment as a system. More specifically, it responds to the growing interest in the application of artificial intelligence to solving critical environmental challenges. Taking this approach literally, the project combines state of the art climate and environmental simulation technology, a super-computer and machine learning techniques. The result is a fictional “environmental manager” that proposes and simulates future modifications to the planet by using data on climate, geology, biodiversity, and topography for a series of regions. Although the intention is to prevent harm and stay safely within planetary boundaries, the suggestions are often completely unacceptable, even absurd.



Photographs Courtesy of the artists

As cities are relocated, nations combined, or rivers moved, the work shifts from humorous to preposterous, and from uncannily eco-fetishistic to tediously bureaucratic.

Commissioned by the MAK for the VIENNA BIENNALE 2019 / <https://asunder.earth/>

Cod.Act, André Décosterd (CH), Michel Décosterd (CH)

Cycloid-E

2009

The starting point for *Cycloid-E* was a desire to approach the undulatory movements of pendulums and how they could be set against the development of sound waves. But what if this “pendulum” was made up of horizontally articulated segments? What if a motor replaced the gravitational effect? The segments of the pendulum became metallic tubes equipped with sound sources and measuring devices to enable them to resonate according to their rotations. This sets off a series of unexpected movements. The balance in the energy exchanges between the segments is almost perfect. Also, the trajectories are surprisingly right and natural. Together, this creates harmony. Through its fascinating and hypnotic dance, *Cycloid-E* delineates the space of sound orbits and creates a unique kinetic and polyphonic work.



Ville de la Chaux-de-Fonds, Etat de Neuchâtel, Loterie Romande, Fondation culturelle de la Banque Cantonale Neuchâteloise, Tech-Laser Sandoz SA, Stürm AG, Hydrel GmbH

Quayola (IT/GB)

Remains

2018

Remains is an ongoing project focusing on nature and the tradition of landscape paintings. High-precision laser scanners are used to capture natural landscapes at vast resolutions, resulting in complex digital renderings printed on large-format archival paper. The combination of highly detailed geometric reconstructions and the imperfections of the 3D-scanning process create hybrid formations, somewhere in between the real and the artificial. While recreating similar conditions to “en plein air” (outdoor) painters of the late 19th century, the natural landscapes are actually observed and analyzed through extensive technological apparatuses, and re-purposed through new modes of visual synthesis.



© Quayola

Agnes Meyer-Brandis (DE)

One Tree ID – How To Become A Tree For Another Tree

2019–2022

One Tree ID condenses the identity of a specific tree into a complex perfume that can be experienced by human visitors to apprehend the tree’s communication system at a biochemical level. By applying it, people can invisibly wear characteristics of the tree they are standing next to. They can also use parts of its communication system and potentially have a conversation. Although invisible and inaudible by nature, the conversation might still take place on the biochemical level plants use for information exchange. The piece is based on the fact that plants emit and communicate via Volatile Organic Compounds (VOC) — gases and molecules that contribute to cloud formation, which we recognise as the fragrance of a forest. These emissions are specific to each individual plant.

The artist aims at creating empathy and suggests an exploration of how to question the way we use our senses to generate new connections and interactions between species. Like humans, trees and plants also have their individual odour.



One Tree ID © Agnes Meyer-Brandis, VG-Bildkunst 2022

One Tree ID’s perfumes offer alternative ways to exchange information with the plant kingdom upon which humankind depends.

One Tree ID — *Larix kaempferi* was realized in collaboration with Jean-François Hausman and Kjell Sergeanten of the Plant Biotechnologies research group of the Luxembourg Institute of Science and Technology (LIST) and Marc vom Ende, Senior Perfumer, Symrise. In the scope of the Ars Electronica exhibition—Esch Cultural Capital 2022.

REMIX EcoDesign (ES)

Remix EcoDesign

2021–2022

REMIX EcoDesign works with natural dyeing, molding, 3D-printing, laser-cutting and other digital fabrication techniques, through co-creation and design-driven material innovation. Beyond the exhibition, *REMIX EcoDesign* has transformed into a collective that explores circularity, not only by creating materials with olive pits and avocados, coffee peels, vegetable and fruit skins or restaurant waste, but also by exploring collaboration, inclusivity and self-management towards shared knowledge with local actors. The collective behind this project believes that mapping the local neighborhood resources, socializing technologies and empowering citizens with open knowledge and horizontal co-creation methodologies, are the solution for closing circular waste streams that add value while educating people



DIHUE MIGUENS, KOFI POSTER, WE DESIGN, HANDMADE, FRONT

on environmental impact. The project created a local impact in district scale through the synergies and connections of diverse stakeholders and a global impact through the knowledge transfer and open-source culture promoted through the online tutorials.

en(des)uso by Lara Campos, KOFI paper by Dihue Miguens, reOlivar by Nailfactory Lab, Squeeze the Orange by Susana Jurado & Elisenda Jaquemot, Biopantone by Anastasia Pistofidou in co-creation with Fabricademy Alumni

Špela Petrič (SI)

Institute for Inconspicuous Languages: Reading Lips

2018

Photo @ Miha Fras — presented @ Kersnikova



The journal *Science* recently published an article in which scientists described the first meaningful exchange between a ficus tree and a human being that could, in a broader sense, be considered a conversation. The visionary experiment required utmost patience and full commitment from both parties: over the course of eighteen years (2025-2043), the young ficus tree (*Ficus benjamina*) and the linguist M.L. had to negotiate a shared code of signs. Like all plants, ficus trees maintain rigorous control over the amount of water they absorb

through the roots by opening and closing leaf pores. Each ficus leaf has thousands of such tiny openings, called stomata. M.L.'s idea was to read stomata just as people with hearing loss read lips to comprehend speech. First, M.L. taught the ficus tree the basic signs for “more,” “less,” and “stop,” adjusting the level of light according to the openness of its mouths on the underside of each leaf. They perfected the code over time and established the first scientifically recorded conversation between a plant and a human.

Institute for Inconspicuous Languages: Reading Lips is an attempt to repeat this experiment.

Author: Špela Petrič | Programming and sensor integration: Bart Peeters | Programming of the computer vision: Klara Nosan, Tim Oblak | Expert advice: Luka Šajn, Žiga Emeršič, Miha Turšič | Technical execution: Scenart | Special thanks: Faculty of Computer and Information Science at the University of Ljubljana and Waag, NL | The project is a part of 'European ARTificial Intelligence Lab'. Co-funded by: Creative Europe programme of the European Union, Ministry of Culture of the Republic of Slovenia and Department of Culture of the Municipality of Ljubljana.

h.o (INT)

What a Ghost Dreams Of 2019

What is a “ghost”? Generally, it is understood as an inner “soul” and a mysterious outward appearance. *What a Ghost Dreams Of* grapples with a new “ghost” of our time: digital surveillance in our society. Here in the booth, visitors are recorded by computer vision and the images are fed directly into a “ghost” that creates new digital faces of people who do not exist in the real world. These “new” faces are subsequently displayed on screen in the hall. We must ask ourselves as humans, what we are projecting into the digital counterpart we are creating with artificial intelligence (AI). After all, it is getting to know our world without prior knowledge and generates data that never existed. Furthermore, *What a Ghost Dreams Of* raises questions like: What are the effects of using AI to produce works of art?



© vog.photo

Who holds the copyright? What is AI, the “ghost,” dreaming about when doing so? And ultimately, how are we intending to use AI and what effects will it have on our self-image as human beings?

AI system: John Brumley / Surveillance application: Hiroshi Chigira / Technical direction: Hiroshi Chigira, John Brumley, Taizo Zushi / Art direction, concept: Hideaki Ogawa, John Brumley, Hiroshi Chigira, Emiko Ogawa, Taizo Zushi / Eye blinks editing / Directing: Martina Sochor / Eye blinks cinematography: Jonatan Salgado Romero / Eye blinks model: Andressa Miyazato / Photograph: Florian Voggeneder / Face photo booth: Ali Nikrang

DISNOVATION.ORG (FR/PL/CA)

LIFE SUPPORT SYSTEM

[ECOSYSTEM SERVICES ESTIMATION EXPERIMENT]

2020 ongoing



LSS, Domen Pat, Akstoma

This artistic provocation seeks to estimate the orders of magnitude of critical ecosystem services that are fundamental to all planetary life processes. It is common to describe our relationships with society, the world, and the biosphere with metaphors from economics, which has specific understandings of value. Today’s prevailing

economic conventions are unable to recognize the inherent value of the ecosystems on which all life depends. In cultures overdetermined by concepts from economics, we are left without adequate discursive instruments to address the importance of ecosystem contributions to life on Earth socially or politically. This experiment consists of 1 square meter of wheat, cultivated in a closed environment. Critical inputs such as water, light, heat, and nutrients are measured, monitored and displayed for the public. This procedure makes the immense scale of ecosystem contributions palpable and provides a speculative reference for a reckoning of the undervalued and over-exploited “work of the biosphere.”

Conception: DISNOVATION.ORG, Baruch Gottlieb / Web Developer: Jérôme Saint-Clair / Prototype Developers: Vivien Roussel, Thomas Demmer / Production: iMAL (BE) | Coproduction: Biennale Chroniques (FR)

Danielle Brathwaite-Shirley (DE/GB)

BLACKTRANSARCHIVE.COM

2020

Traditionally Black Trans people have been misrepresented or absent within archives. *BLACKTRANSARCHIVE.COM* also known as "We Are Here Because Of Those That are Not" is an archive built and designed by and for Black Trans people. The archive's aim was to find a way to more accurately store Black Trans existence, an archive that would erase us as it attempts to remember us. Culminating in an 3D animated game the project preserves the stories of Black Trans people generating a space where our existence cannot be ignored. The piece was designed alongside the artists Eburn Sodipo, Tobi Adebajo and Jacob V Joyce and the contributors. It is assembled and developed from the ground up by a team of Black Trans people drawing on their own lived experience. From these conversations, all characters, landscapes and stories were enflashed into a breathing resemblance of themselves. In the style of a "Choose Your Own Adventure" and influenced by PS1 games, visitors are required to reveal their own identity in order to access the work. Depending on how you treat the archive,



© Kai Werner Schmid

your journey through the work will mirror your treatment of it. WELCOME TO THE PRO BLACK PRO TRANS ARCHIVE.

Directed by Danielle Brathwaite-Shirley / Coding: Emily Martinez / Contributors: Danielle Brathwaite-Shirley, Marikiscrycrycry, Pacheanne, Tobi Adebajo, Eburn Sodipo, Bernice Mulenga, Ornella Ospino Blkmoodyboi, Jacob v Joyce, Shay P-W, Zamy, Camus-Doughen, Elijah Che, Travis Alabanza, Raks, Arthur Kibet, Vik, A Marlowe, Christopher / Special thanks to METRO Transcend Commission by Science Gallery / www.danielle-brathwaiteshirley.com / You can play the game online at home too: blacktransarchive.com

Simon Weckert (DE)

Google Maps Hacks

2020

In *Google Maps Hacks* 99 second-hand smartphones in a handcart are used to generate a virtual traffic jam in Google Maps. With this method, it is possible to turn a green street red on the virtual map, indicating there is a traffic jam in the location in question. But it also has a very real impact on the physical world: cars are navigated on different routes to avoid being stuck in traffic. With its Geo Tools, Google has created a platform that allows users and businesses to interact with maps in a novel way. This means that questions relating to power in the discourse of cartography must be readdressed and raised differently. What is the relationship between the commendable art of enabling people and the techniques of super-



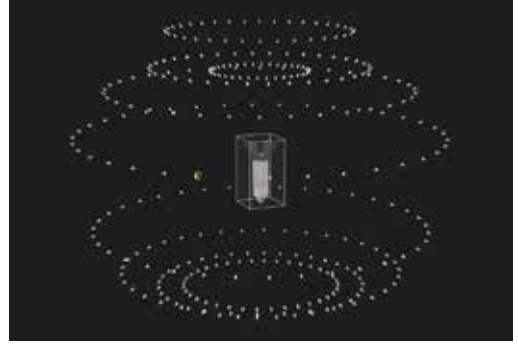
© Simon Weckert

vision, control, and regulation in Google's maps? Do these maps determine the behavior, opinions, and images of living beings by exercising power and control through knowledge?

Adam Harvey (US/DE)

VFRAME: Visual Forensics and Metadata Extraction 2017–2022

VFRAME is a computer vision toolkit designed for human rights researchers. They often rely on videos shared online to document war crimes, atrocities, and human rights violations. Manually reviewing these videos is expensive, does not scale, and can cause vicarious trauma. As an increasing number of videos are posted, a novel approach is needed to understand these large datasets. Therefore, *VFRAME* makes state-of-the-art artificial intelligence used in the commercial sector accessible to the needs of human rights researchers and investigative journalists. Most recently, *VFRAME* designed a computer vision algorithm to analyze videos from Ukraine for evidence of cluster munitions. To detect this munition a computer vision algorithm was trained using a 3D-rendered synthetic dataset. For that, a virtual 3D model of the munition was 3D printed



© Adam Harvey

and photographed in staged scenes to create a benchmark dataset. Together, the training and benchmark datasets were used to forge a new algorithm, which detects the cluster munition and helps the conflict zone researchers analyzing war crimes in Ukraine.

Bjørn Karmann (DK), Tore Knudsen (DK)

Project Alias 2018/19

Alias is a teachable “parasite” designed to give users more control over their smart assistants, both in terms of customization and privacy. Using a simple app, users can train *Alias* to react to a custom wake word and, once trained, it can take control of the home assistant by activating it for users. Until *Alias* is activated with the custom wake word it makes sure that the assistant is inactive and unable to listen by interrupting the microphones. In this way, *Alias* acts as a connecting element that can communicate with the smart assistant and manipulate it when placed on top of it. The entire process works disconnected from the internet, as *Alias* is equipped with a Raspberry Pi that operates locally to detect the wake word. This project demonstrates how maker



culture and open source can be used not only to redefine our relationships with smart home technologies, but also to transfer power and control from companies to end users.

Climate Action Tech (EU/Global)

Branch Magazine: Sustainable and Fairer Internet for Everybody

ongoing

Branch is an online magazine written by and for people who dream of a sustainable and just internet for all. The internet is the world's largest fossil fuel-powered machine. If we continue business-as-usual, the IT sector will be responsible for 14% of the world's carbon emissions by 2040. We believe that the internet must instead serve our collective liberation and ecological sustainability. That is why we created *Branch Magazine*. The magazine is a space for personal reflection, critical engagement with technology, and experimentation. *Branch Magazine* articles strive to connect sustainability to root causes and to inequalities experienced at different intersections — gender, race, class, ability, and so on. Creating change requires all kinds of practices, so our contributors include climate activists, open-source technologists, indigenous leaders, artists, energy scientists, and degrowth experts, who are

reflecting on the many possible paths towards a sustainable and fairer internet for all. The online magazine is itself a model of this mission — it was not only developed in a resource-saving way, but also adapts its appearance to the current share of renewable energies.

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Read their articles online branch.climateaction.tech

With support from EIT Climate KIC, Mozilla Foundation, Climate Action Tech, and the Green Web Foundation

Mimi Onuoha and Mother Cyborg (Diana Nucera) (US)

A People's Guide to AI

2018

Systems that use artificial intelligence (AI) are quietly becoming present in more and more parts of our lives. But what does this technology really mean for people, both right now and in the future? Written in 2018 by Mimi Onuoha and Diana Nucera, the founders of the non-profit press A People's Guide to Tech, *A People's Guide to AI* is a comprehensive beginner's guide to understanding AI and other data-driven tech. The guide uses a popular education approach to explore and explain AI-based technologies so that everyone — from youth to seniors, and from non-techies to experts — has the chance to think critically about the kinds of futures automated technologies can bring. The mission of *A People's Guide to AI* is to open up conversation around AI by demystifying, situating, and shifting the narrative about



Mimi Onuoha and Mother Cyborg (Diana Nucera)

what types of use cases AI can have for everyday people.

Published by A People's Guide to Tech, written by Diana Nucera and Mimi Onuoha, illustrated by And Also Too

Download for free:

mimionuoha.com/a-peoples-guide-to-ai

tranxxeno lab (US)

TX-1

2020

The enchanting Earth is too-often made inhospitable to those marked as transgender. To survive we xenomogrify ourselves through social and biological technologies, altering our surfaces, our viscera, our molecular balances. None of us have been to space even if we possess somatic knowledges of deep bodily transformations, experiences that are necessary for extraterrestrial environments. TX-1 launched bits of my hormone replacement medications to the International Space Station (ISS), marking the first-known time that elements of the transgender experience orbited the Earth. TX-1 includes a fragment of my spironolactone pill, a slice of my estradiol patch, and a miniature handmade paper sculpture included to gesture towards the absent-yet-present xenoentities of the cosmos. A symbolic exodus to an orbit high above, the return of TX-1 to Earth was also a sign of resilience, of not being disposed of, of coming back to thrive once again. While space is, in many ways, one of the most inhospitable places for life, it simultaneously holds an aura — naïve, perhaps



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— as a place of transformation where the usual constraints of life on earth can be refashioned, where those who are tranxxeno can exist without earthly prejudices.

Concept and fabrication: Adriana Knouf / TX-1 box design and modeling: Felipe Rebolledo / TX-1 was selected through MIT Media Lab Space Exploration Initiative's first international artwork open call to the ISS and the launch opportunity was provided by the initiative. / Additional support: Northeastern University / Special thanks: Claudia Pederson, Špela Petrič, Miha Turšič

Another Farm (JP)

Modified Paradise: Dress

2018

Another Farm works with genetically modified glowing silk to create surreal sculptures that incorporate textiles and traditional handcraft. Glowing silk is created by inserting the GFP gene into silkworms. Advancements in genetic modification today often raise ethical questions and inspire dystopian science fiction. However, silkworms, domesticated animals, livestock, and flora among many other examples, have been genetically modified through controlled or selective breeding for centuries and are often not associated with this topic and its ethical implications. *Modified Paradise* is a series of sculptures that aim to integrate new and radical technologies



© Another Farm

with traditional industries that have exploited nature to rethink the boundaries of ethics and humanity's interaction with nature.

Exhibition Partner & Venue

Esch2022, European Capital of Culture

In 2022, Esch-Alzette, the second largest city in Luxembourg, holds the title of European Capital of Culture together with the 10 municipalities of the Pro-Sud and the 8 French municipalities of the “Communauté de Communes Pays Haut Val d’Alzette” (CCPHVA). Each year this label is awarded to a different city or area within the European Union.

To this day, the goal of the European Capitals of Culture is to highlight the diversity of European culture, promote encounters and communicate European values. Cultural aspects of a city, a region or even the entire country are to be made more accessible to the European public. The title is intended to support sustainable cultural initiatives and contribute to the development of the places through increased national and international attention.

esch2022.lu/en/

The Möllerei is a large industrial building originally used to store raw materials (coke and iron ore) before they were fed into the blast furnaces to produce cast iron and slag. With a total length of about 160 meters the Möllerei is a characteristic feature of the former Belval steel plant and local area. Opened to the public in 2018 after extensive transformation work, the North section is now home to the Luxembourg Learning Centre. The South section has recently undergone thorough restoration work. It now connects to the Blast Furnace A via a metal footbridge and accommodates a 500 square meter exhibition space over 3 floors.



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Producer: Veronika Krenn (Ars Electronica)

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Exhibition Graphic Design: Cropmark

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SPECIAL THANKS TO

The artists of the exhibition and their assistants and supporters

Univ.-Prof. Mag.art. PhD. Manuela Naveau

EU-Japan Fest Japan Committee — supporting Japan-related programs in European Capitals of Culture

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Le Fonds Belval: Daniela Di Santo, Stephane Frieres, Charlotte Moulaert, Elisabete Nuno, Lucio Wercollier

ESCH2022 — EUROPEAN CAPITAL OF CULTURE

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The exhibitions are organized by Esch2022 — European Capital of Culture in collaboration with ZKM | Center for Art and Media Karlsruhe, HEK (House of Electronic Arts) and Ars Electronica.

Welcome to Planet B

A different life is possible! But how?

Neither naive escapism into virtual worlds, nor the technological ultra-topia of space colonization will save us from facing the big, uncomfortable questions. How will our life on this planet have to look to prevent ecological super disaster? What actions must we take and what consequences must we accept? How much persuasion, how much effort, how much pressure, how much coercion will be necessary, and what “collateral damage” will be involved?

Planet B is not the second chance for another place where we can continue as before, it is the cipher for the indispensable, new and in many forms completely different life and action on this only planet that exists for us. It is the chance for coexistence with the unique ecosystems of this planet, a chance for a new and fair coexistence of humans on this planet.

Ars Electronica 2022 takes on the challenging search for answers to the contradictions of our time.

<https://ars.electronica.art/planetb>

ISBN 978-3-7757-5363-0



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