





CASE STUDY. Title: INTERPRETATION OF CASA MILÀ IN BARCELONA INTO ARTISTIC AND ARCHITECTURAL SPACE FOR VIRTUAL REALITY.

Type of results: digital 3D model textured in Rhinoceros, renderings, digital collages, 3D model textured in NEOS VR. Static functional virtual reality world with the possibility to fly around the model and through the 3D model. NEOS VR is a creative social VR platform, that anyone can create account and visit online in the body of avatar virtual reality worlds and create own virtual worlds.

Topic: To test static complicated 3D structures inspired by the existing architecture by Antoni Gaudí, Casa Milà and site in Barcelona, the site is Passeig de Gracia in Barcelona. This case study is about shapes and colours in different spaces that we normally in human life rarely get the chance to experience. We cannot inhabit spaces that are floating in the air without floor or ceiling, spaces that are coloured and shaped organically. Now it is possible all that in virtual reality.

Dimensions: The whole 3D model has a rectangular base about 786m to 514m large. The 3D model of the interpretation of Casa Milà has 59m width, 95m length and 31m height. For exact measurements please see attached images.

Technique: I designed spaces as interpretation of Casa Milà. I used floor plans as a reference for shapes of my spaces. I deleted the spaces that are not needed in virtual reality like stairs, corridors, lifts, kitchens, toilets, bathrooms. I deleted bearing structure, windows, doors, ceilings and somewhere also the floors. Spaces that remained were spaces where avatars can meet, relax, work or even shop in NEOS VR. I built a 3D model from lines that I copied from Gaudí's plans, coloured in orange, I also used voids coloured in yellow on the picture. I used loft command in Rhinoc-

eros to create spaces from different sections according to inspiration by famous chimneys on the rooftop. I used shapes of voids to design roof too. I created double layer floating roof. In 2019 I exported 3D model from Rhinoceros in FBX format into NEOS VR. I had to set up the position and rotation of the model in my new virtual world in NEOS VR. I had to upload new the textures again in NEOS VR and place them on the 3D model in NEOS.

Year of creation: 3D model in Rhinoceros is from 2018. Functional static 3D model in virtual world of NEOS VR is from 2019.

Task: To test complicated static spaces in 3D model with exciting colours and organic shapes. In 2019 I used NEOS VR program and I created with virtual world with new textures in VR.

Location of the Project: Passeig de Gracia in Barcelona interpreted into a new neighbourhood in virtual reality in NEOS VR. My 3D object has similar size and height like Casa Milá, but it is extended to the whole block, so it is not just the building on the corner like the building Casa Milá. The architectural and artistic space for virtual reality is also inspired by historical urban plan Ildefons Cerdà. In original plan from the year around 1860 Cerdà proposed open blocks of houses with inner gardens. Almost all houses were constructed as closed blocks and only in some of them are now trees or gardens in recent conditions.

Reference in history of VR:

1787 The Panorama

The English painter Robert Barker, he had this idea of 360 paintings, for example created the city of London, a cylindrical space containing a 360 panoramic image end-to-end the prints stretched 3.25 meters. His goal was to produce “the perfect Illusion of a real scene.” In my case study, I interpret also a part of the city, I create mathematical construct and illusion of the virtual city.

Reference to the Books:

1984 Neuromancer

Is a novel of William Gibson where main protagonist, Henri Dorsett Case lives in near future when brain computer interfaces move people through „MATRIX” a global virtual network. For Case the virtual reality is 3-dimensional network of data nodes. “People have been on the internet for years, and what takes place seems more fantasy than reality at times, especially the virtual reality, which is something people have strived for, but still is unsatisfactory in practical application. I say yes; not due to the description of future technology, which science fiction authors will never get completely correct (though Gibson is a better futurist than most writers), but because of the engaging plot and the intriguing characters. The host of characters includes regular humans, modified humans, clones, computer constructs of people, and AI (artificial technology) “. Christopher Fried

This exactly how NEOS VR works like global virtual network.

Inspirations by fantasy worlds in films:

1995 Strange Days

A film about experiencing other people’s life through a special head set and mini-disc, this produce drug like effect. In NEOS we use also headset that can take you to virtual worlds, experience in VR can be drug like effect too.

1999 eXistenZ

A film where people are immersed with virtual world with “Bioport” on their back. The inventor of NEOS VR “Frooxius” is so immersed with the virtual worlds that he communicates with others almost only in VR.

2011 Black Mirror

TV Series shows some possible future scenarios with AR and VR. For example, with eye implants. We don't have eye implants yet, but we have Hololens and google glasses now similar to devices from Black Mirror.

References to Architecture:

Antoni Gaudí Casa Milà

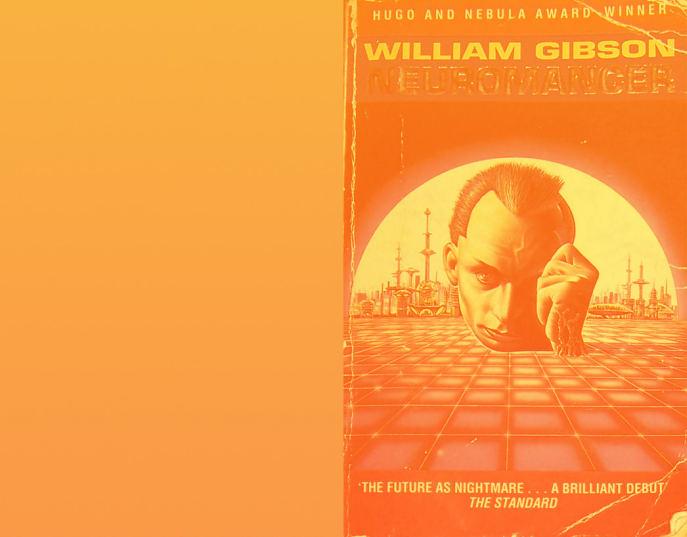
“For Gaudi, La Pedrera represented the most advanced approach to a building on a chamfered street corner in the Eixample in Barcelona. It consists of two blocks of apartments, each with its own entrance, structured around two large interconnected courtyards with ramps down to the garage for vehicles. The façade of La Pedrera is not a structural element: rather than serving the traditional function of load-bearing wall, it is instead a curtain wall. The blocks of stone (numbering more than 6,000) are connected to the structure by metal components, thereby making the large windows in the frontage possible. The distribution of a typical floor is notable for its irregular geometry and its well-defined internal organisation, intended to make the most of the south-facing main façade.”

For me the most important thing was to get inspired from the irregular geometry of the floor plans and shape of the voids. I love the organic shapes of chimneys too.

Zaha Hadid Architects Serpentine Sackler Gallery 2009-2013

“The Serpentine Sackler Gallery consists of two distinct parts, namely the conversion of a classical 19th century brick structure- The Magazine – and a 21st century tensile structure. The Serpentine Sackler Gallery is thus- after MAXXI in Rome- the second art space where Zaha Hadid Architects have created a synthesis of old and new.” Text description provided by the Zaha Hadid architects.

Zaha Hadid Architects created new gallery spaces and added a curving café also an events space that extends from one side. This building that I visited in person was truly amazing, because it gives the feeling to the visitor that the roof is floating in the air.



Yonna Friedman

“The theory of mobile architecture, conceived by Friedman in 1950s, called into question the Modernist vision whereby the inhabitants are required to adapt to a building and not the reverse: through sketches, models and animations the exhibition (in MAXXI in Rome) recounts the development of this theory while at the same time exploring the theme of improvisation as a “possibility” in the world of architecture, as theorised by Friedman from the 1970s.” Gong Yan and Elena Motisi

Yona Friedman represents for me architect and artist at the same time. He works freely, he creates collages, visions and models that have ambition to be mobile architecture. This idea reacts on the catastrophes of Second World War.

Reference to Urban Plan:

Ildefons Cerdà - Eixample

“Spanish / Catalan engineer Ildefons Cerdà (1815-1876) won the competition with his Plan Cerdà in 1859 with a grid design of blocks and straight lines. Cerdà’s love of straight lines shows in his design of a 1300 hectar grid pattern of blocks of residential buildings which have chamfered corners- blocks are called illes in Catalan and manzanas in Spanish. The Eixample (means extension) blocks in the Plan Cerdà measure 113 x 113 m and covered 14% of the total municipal area.” Barcelonayelow.com. What is interesting for me, is that the original Eixample had in plan rich gardens and blocks were opened, not closed. I used that feature in my interpretation of the virtual plan.

Reference to the Architectural Material:

Chromatic Skins

Chromatic Skin is a research project about architectural application of Color Changing Materials, namely Photochromic Pigments, inspired by Cuttlefish and its incredible ability to change color and pattern at unbeatable rate under different conditions.

This project was created at the Institute for Advanced Architecture of Catalonia by the team: Stephanie Bashir, Carlos Bausa Martinez, Hristo Kovachev

in 2014. This concept of colourful façade is very interesting also for me and the virtual reality worlds. I was thinking about the possibility that the walls of my virtual architecture will change colour during the daytime and in different seasons. I wanted to simulate some feeling of warm water, sun, night time, or winter time. I showed that concept only in digital collages and renderings but not in virtual reality yet.

Reference to Experimental Architecture:

M. Casey Rehm - Augmented Space 2011

“I have begun developing interactive digital environments utilizing inputs from spatial sensors to extend the utility and experience of designed space beyond the material. The video below is an example of a “dummy” environment used to explore methods for optimizing relationships between high populations of interactive geometry with large data inputs. In this case a sample set of inputs is loaded every frame, reduced using voxel logics to manageable quantities, and then used as charge points for a magnetic field system. the example below utilizes spiral driven wires to enwrap the occupant and simulates moving inputs. “ M. Casey Rehm

I admire the work of Casey Rehm and his ability to transform his concepts into interactive digital environments. In fact in my next case study for Lisbon, I will try to design interactive environment in NEOS VR.

References to Art:

Joan Miró - paintings

Joan Miró was born in Barcelona in 1893, but the emotional landscapes that shaped him as a person and an artist were principally those of Mont-roig, Paris, and Majorca, and later those of New York and Japan. The small town of Mont-roig in the Baix Camp region of Catalonia was a counterpoint to the intellectual ferment of his life

with the surrealist poets in 1920s Paris, and to the stimulus of discovering Abstract Expressionism in New York in the forties. Some time later, in the midst of World War II, Joan Miró returned from exile in France and settled in Palma de Mallorca, which became his refuge and workplace and where his friend Josep Lluís Sert designed the studio of his dreams.

<https://www.fmirobcn.org/en/joan-miro/>

I loved the way how Miró used the combinations of colors. I love the abstract surreal objects floating in the space. I learned from shapes and colours as well when I was designing my virtual environment.

Salvator Dalí - 1931 The Persistence of Memory

This image for me represents the essence of virtual time less world. When time doesn't matter, when time is melting in heat. Time in virtual reality exist only when someone is wearing VR headset and mathematical construct in computer is on. When VR is not used, the illusion disappears. It is similar with the reality. Our reality exist only when we live and our reality is construct of our brain. Dalí was thinking about time, questioning reality of our life.

References to Cyber Art:

Jeffery Shaw, Dirk Groeneveld - 1988 Legible City

Cities like Manhattan (1989), Amsterdam (1990), Karlsruhe version (1991) made up from letters and words that can be viewed by a visitor by cycling on a fixed bike. Computer graphic installation by Jeffery Shaw, with Dirk Groeneveld. This project is especially interesting for me, because it shows a vision of an interpretation of different existing cities in computer graphic installation.

Michael Naimark - 1995 Be Now Here

Michael Naimark presents installation where visitors with 3D glasses can visit cultural heritage sites for example Jerusalem, Dubrovnik, Timbuktu, and Angkor, Cambodia. It is similar idea like mine, but Naimark's project shows existing conditions, not the interpretations of these places.



Bodies® INCorporated Shares: Rules & Policies

1: Everytime you login
as a "member" you receive
1 share.

3: Everytime you submit
a "dead philosophers
quote"
that meets with the approval
of the Bodies INCorporated
Board of Directors and
Advisory Board you
receive a minimum
of 10 shares.

2: Everytime you create a new
body part
that meets with the approval
of the Bodies INCorporated
Board of Directors and
Advisory Board you
receive a minimum
of 10 shares.



1996 Bodies Incorporated

Was community of body ownership, to join the prospective member had to create body out of prescribed textures, body parts and sounds. This sounds pretty much like designing an avatar in virtual reality worlds.

Emilio Galiacho - 1997 Able Skin

“The Able Skin is a media structure designed by architect Emilio Galiacho to hide any emblematic building that is not allowed to have a natural death, that is kept alive artificially through restoration, citation and simulation. A virtual reality installation allows participants to tour the first Able Skin, which covers Palladios Villa Rotonda. The participant’s motion controls the point of view in the projected environments on the wall and the floor..“

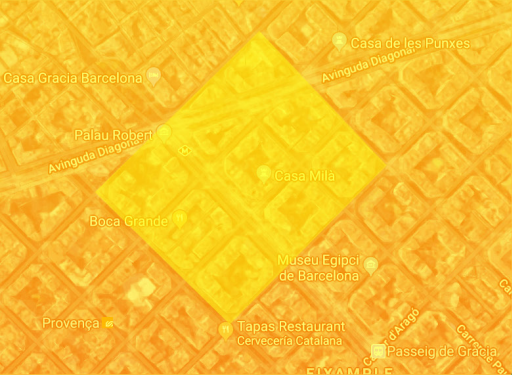
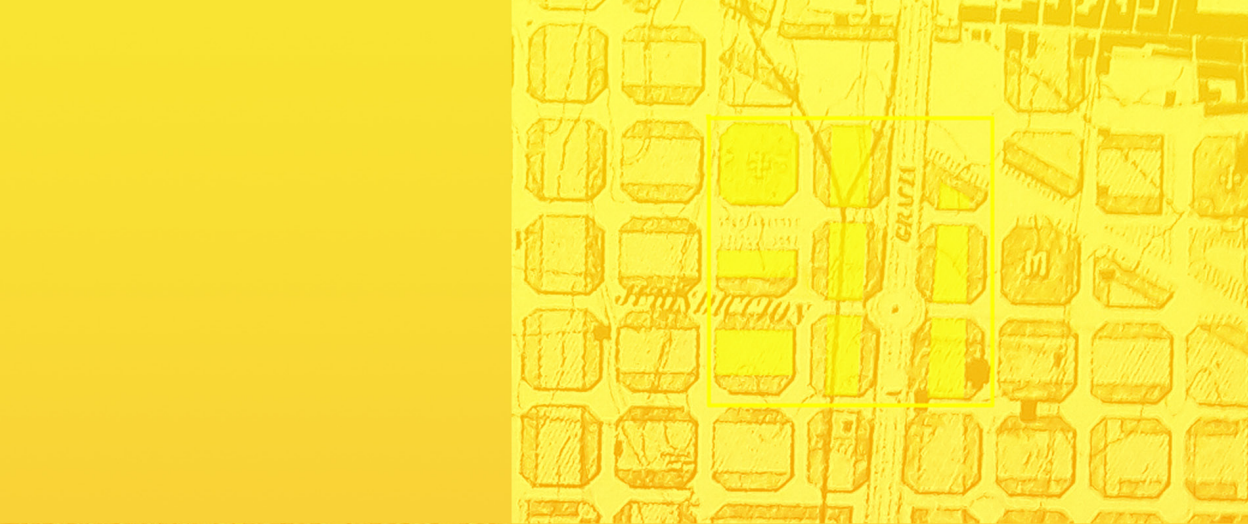
It is a project that works with architecture, that existed in the past. It is also an interpretation of architecture, but it is construct very close to existing Villa Rotonda.

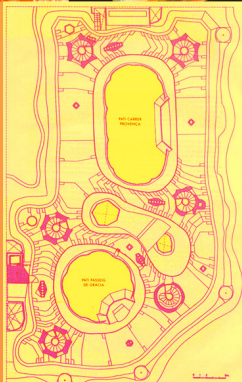
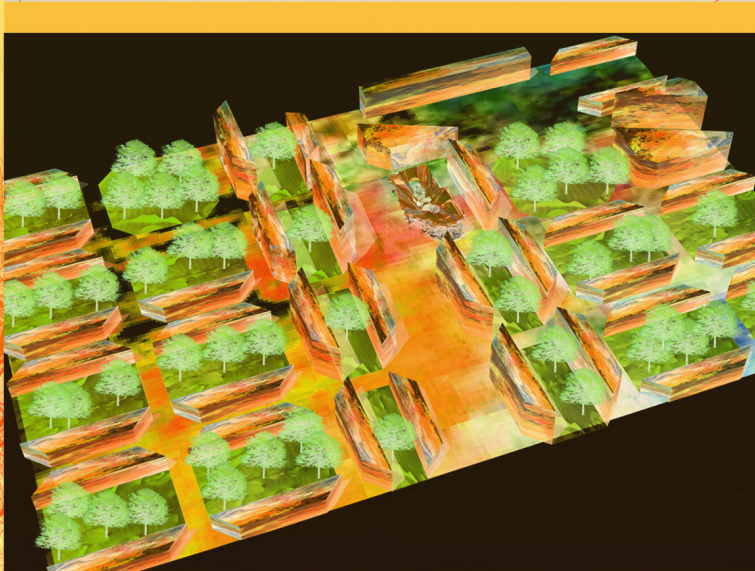
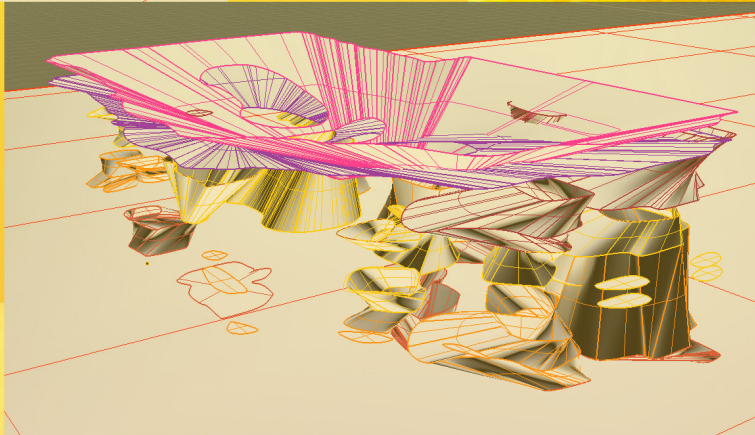
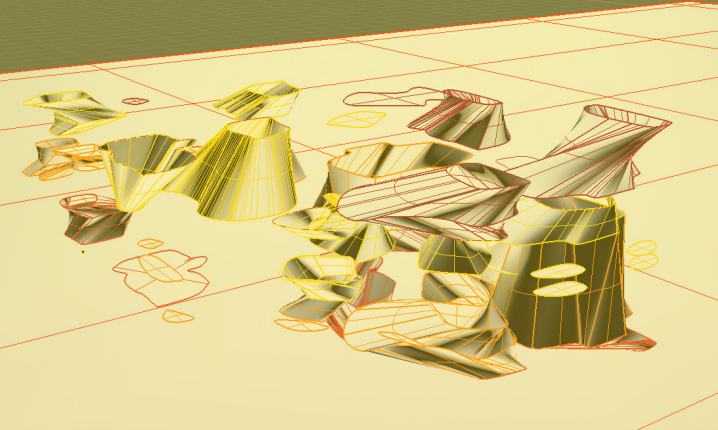
Design:

Design Process: My design process tested complicated static spaces in 3D model from Rhinoceros with exciting colours and organic shapes inspired by architect Antoni Gaudí and artists Joan Miró and Salvador Dalí. In 2019 I used NEOS VR program and I created virtual world with new textures in VR.

Step one- I was inspired by the shapes of Casa Mila. I deleted spaces that are not needed in VR, because in VR avatars move in different way than people move, avatars fly like insect. The type of the gravity must be set in VR. Basically in VR it is possible to teleport yourself from one place to another. That defines different type of architecture, where some ordinary spaces like corridors, lifts, stairs are not needed. In VR you don’t need to count with bearing structure of the building. You don’t need to fight with gravity. Spaces can float, they don’t need to have windows or doors, floors or ceilings. In virtual reality we don’t use bathrooms, kitchens because avatars don’t do such activities.

Step two- I marked spaces that were left in orange colour at the floorplan and voids in yellow colour. I redrew outlines of those spaces in Rhinoceros, I created closed





splines.

Step three – From this point I was working with those shapes like an artist, freely to design interesting spaces inspired by chimneys on the roof top of Casa Milà.

Step four – I designed the roof floating above all the spaces, I used shape of the roof plan of Gaudí.

Step five – I created surroundings of the interpretations of Casa Milà. I used original plan of Ildefons Cerdà, I created opened blocks with gardens.

Step six- I experimented with the textures. I used only 3 textures for the whole project. I manipulated renders in 2D to express the different kind of weather, night and day conditions too.

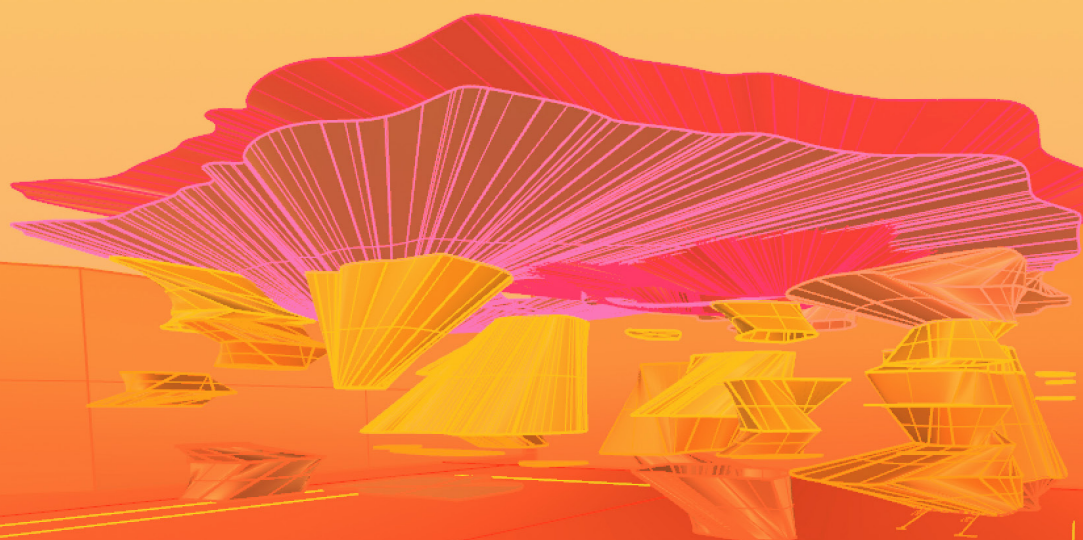
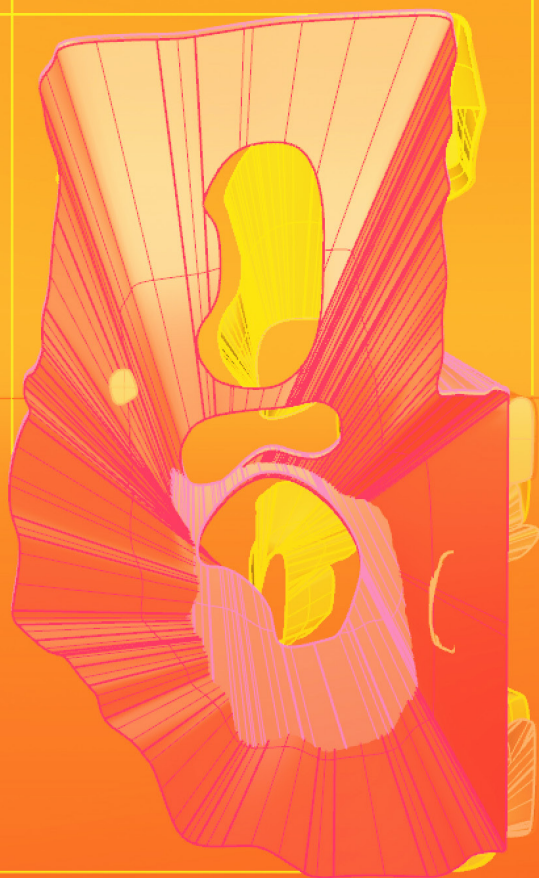
Structure and Colors: Structure of the model are floating levels, floating 2 layered roof and “chimney spaces” under it. I used textures, photos from the real site, facade of the Casa Milà. Phot of the ceiling in the restaurant and ceiling in the inner court yard. Then I manipulated in 2D the colours of the renders with the intention to express different weather and light conditions.

Composition: I intuitively played with the compositions of the chimney spaces. My method was test and try, I rendered about 40. Images in the process of designing interpretation of Casa Milà. For the surroundings I used ideas from the Ildefons Cerdà master plan. Size of my architectural and artistic spaces for virtual reality are derived from real sizes of Eixample blocks and the Ildefons Cerdà master plan. Inner spaces of my architecture for virtual reality are inspired by sizes of the rooms in Casa Milà.

Evaluation: I wanted to design my interpretation of real site and architecture and use information from reality and transform them into architectural and artistic space for virtual reality. I wanted to work with NEOS VR and test the complicated shapes in static environment. Also, the next challenge was to explore different textures on organic shapes in NEOS VR. Also, in normal life we don't fly in spaces without floors and roofs, spaces without gravity. I tried to interpret and reinvent new type of spaces: Architectural and Artistic Spaces for Virtual Reality. My floating structure can behave as environment where avatars can meet, interact, work and in future in NEOS VR also to shop.

58

95



Summary:

It is a small step in designing a Metaverse, I wanted to invent the new type of architectural virtual reality worlds. In fact, now the IT professions are taking over the architectural design in VR.

Sara Eloy wrote on social network: "Fed up with computer scientists doing architecture research without architects. The amount of bullshit in papers about what is architecture design is annoying and killing of what is a quality designed space. While most architects are still in an autistic way away from this development, computer scientists, alone, will take over and the consequences are unpredictable, starting by automatically design buildings becoming badly designed. All this current talk about multidisciplinary and, at the end of the day, no multidisciplinary. Too much speed in these times and few want to take time to think well."

I must agree with this strong opinion. Architects should take a part in designing the Metaverse. Because the Metaverse is a new type of illusion of space where people will spend time in the near future.

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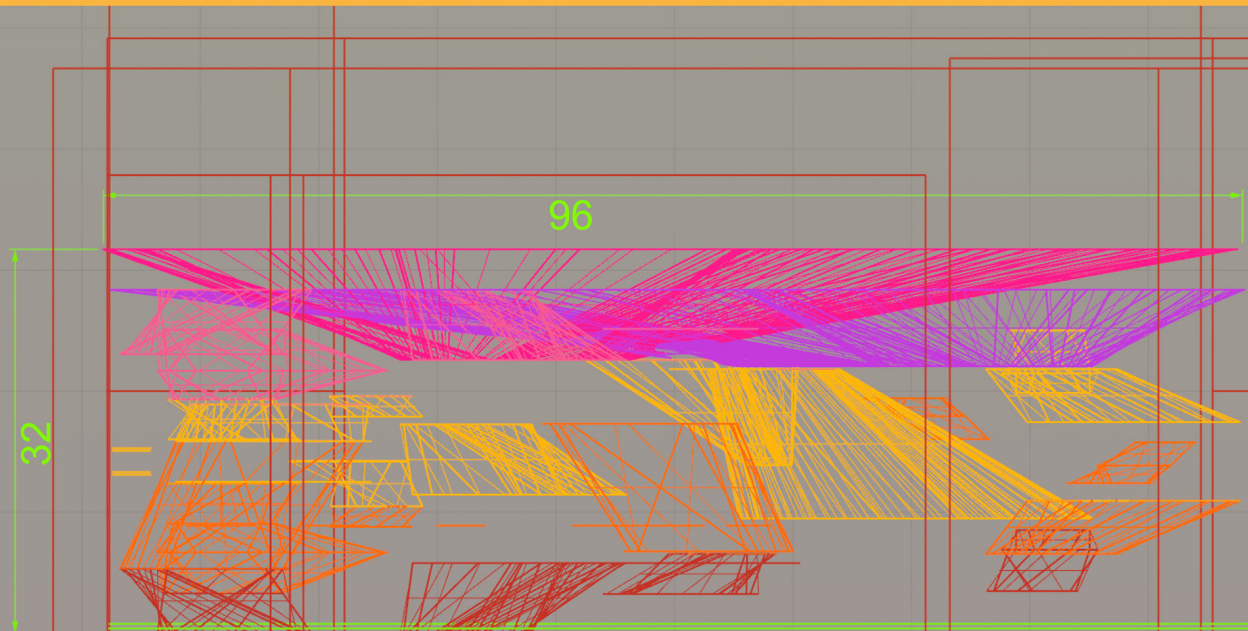
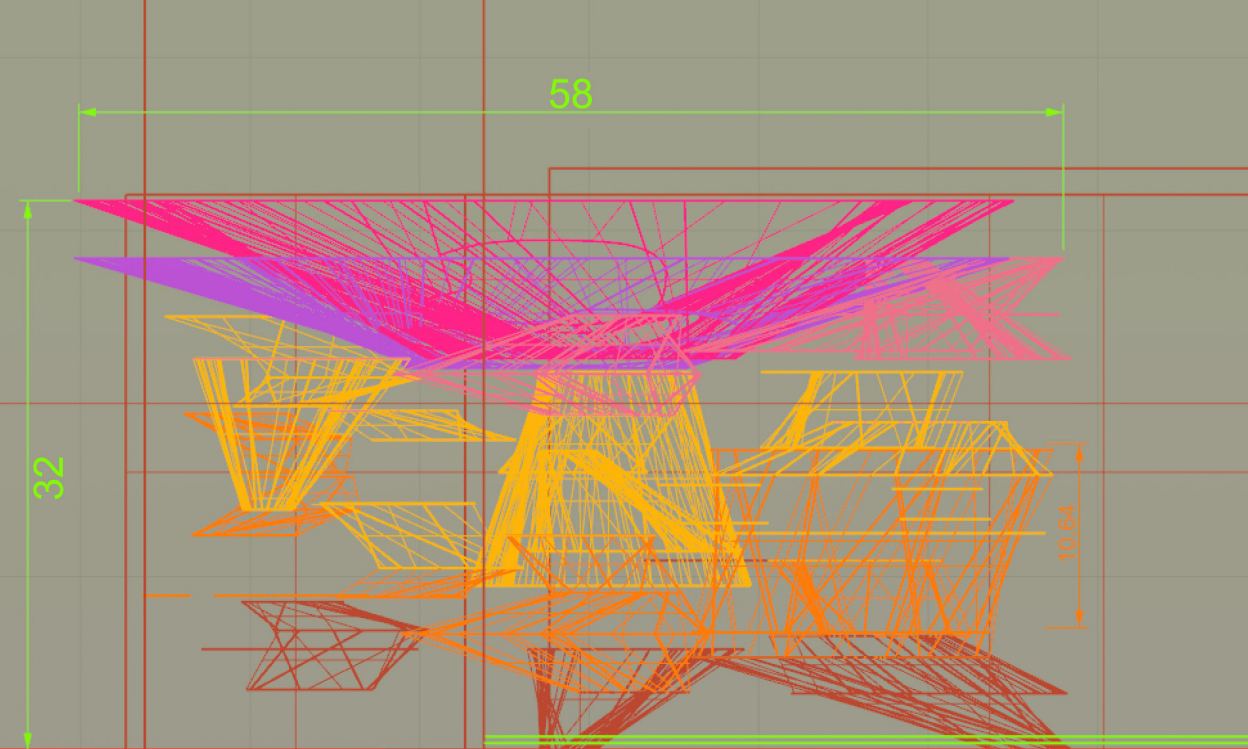
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IMAGES FROM THE TOP: DRAWINGS IN RHINOCEROS, TOP VIEW, PERSPECTIVE VIEW.



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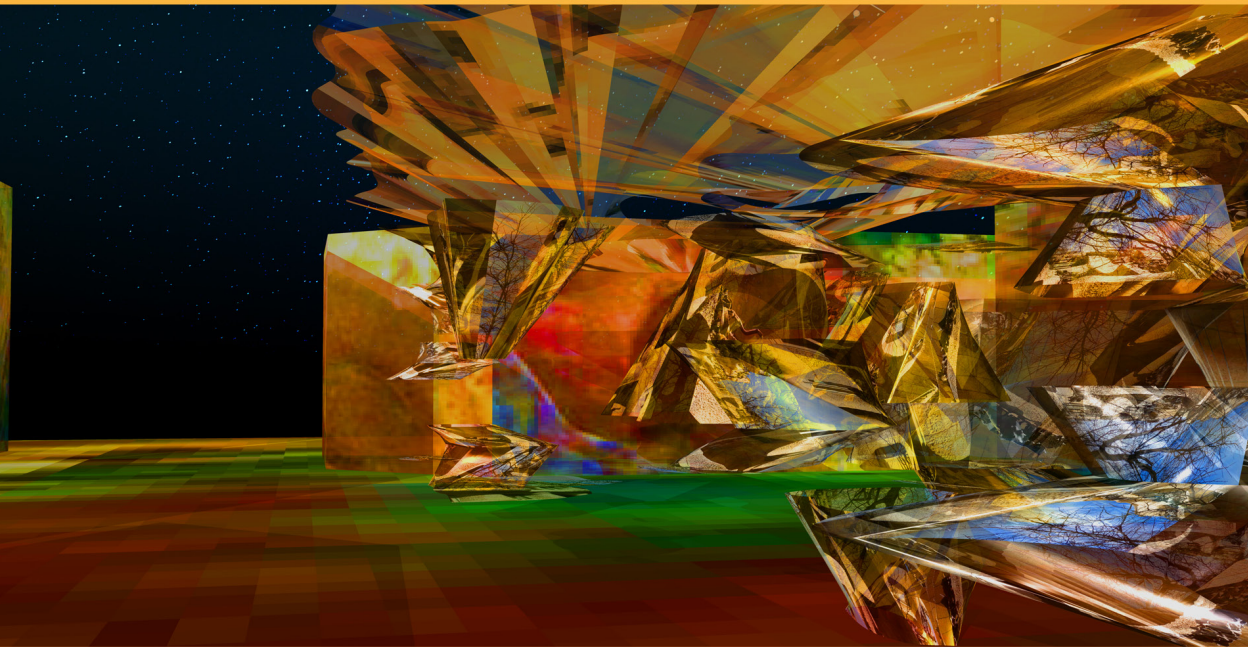
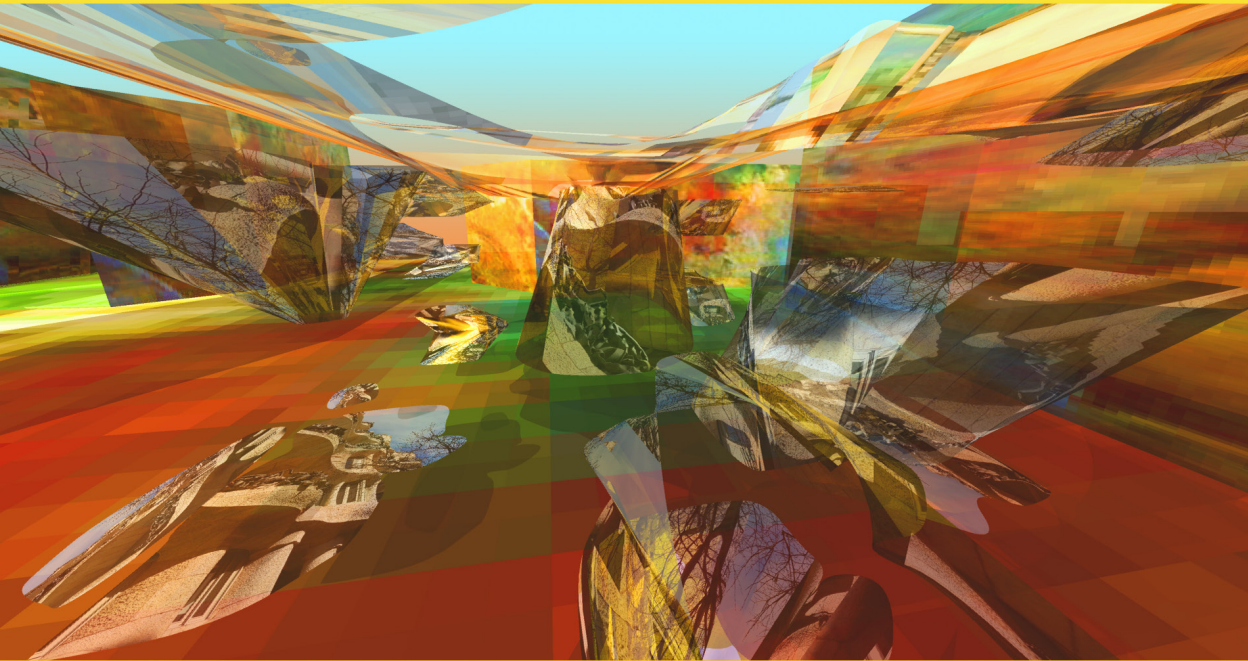
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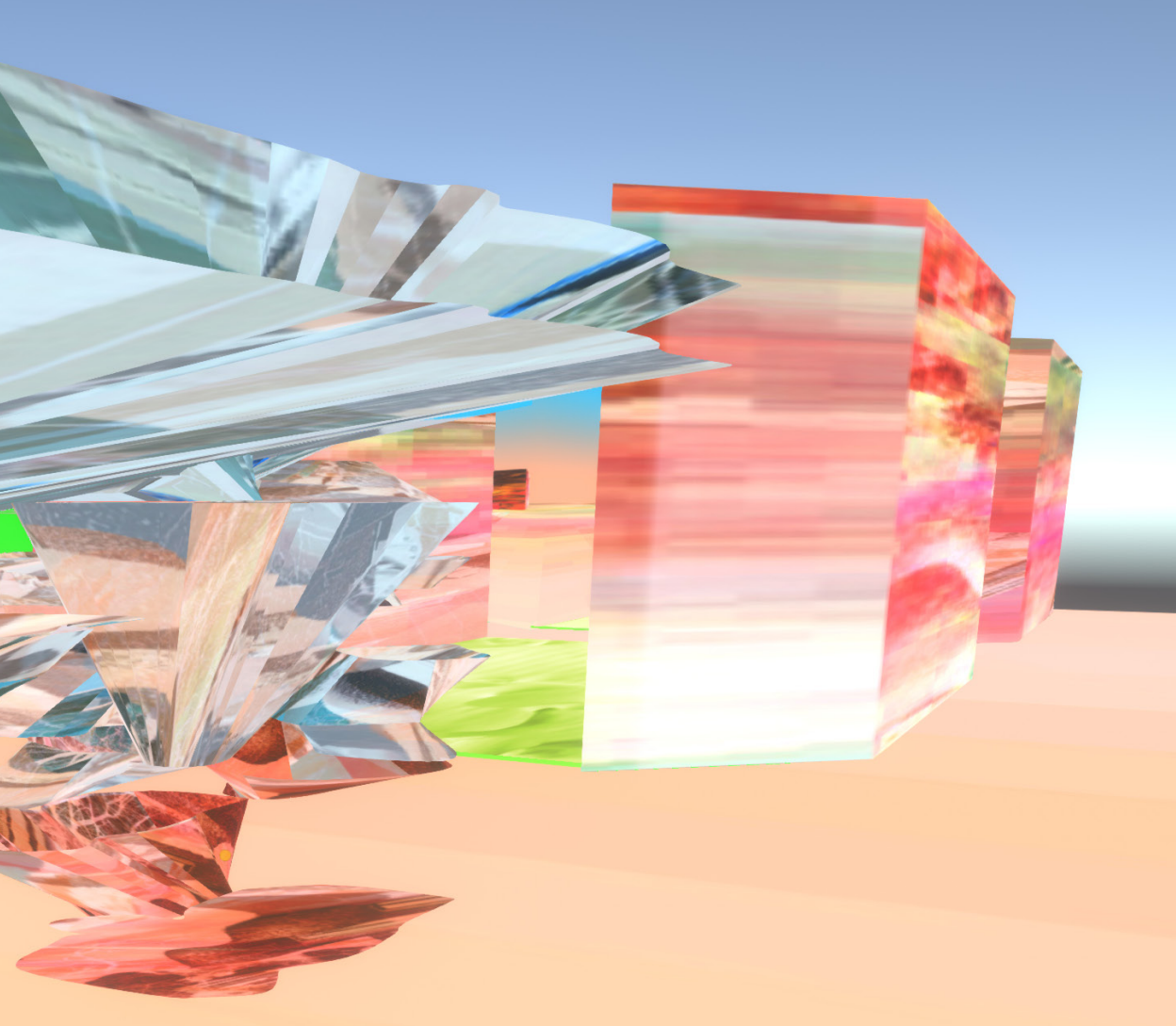


New World

Save

Close





Session



Settings



Friends



Places



In

