The Net Wanderer - A tour of suspended handshakes
Project introductin & background

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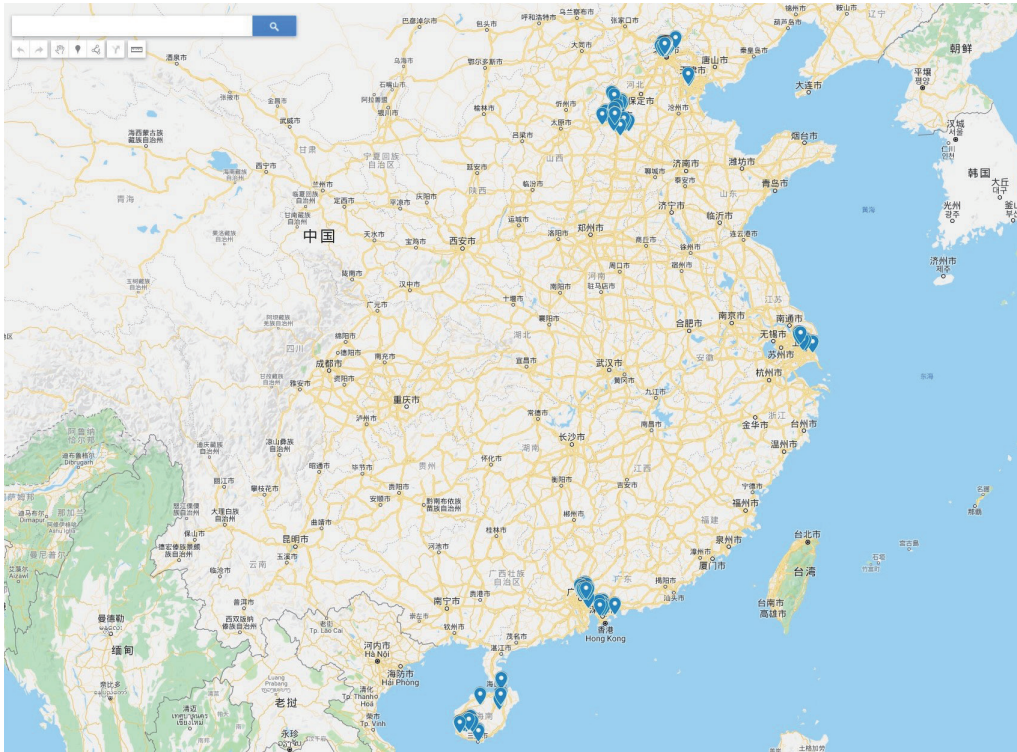
Geolocations of the Great firewall IP address that I have been visited

Hyperobjects

How can we recognize the real face of Lu mountain, we who wander here so deep in it.

Su Shi, Written on the wall of Xilin temple, 1085

From late 2018 to early 2019, I have traveled to many cities in China to visit the various geolocations of the gateway IP address of the Chinese Internet barrier (A.K.A. the Great firewall). Attempting to investigate the relationship between virtual IP address, Internet infrastructure, and activities of the society in these geographical locations, as well as finding the geopolitical borders of the of the Chinese Internet. The project has had an exciting and smooth start. Based on papers and experiments done by previous researchers and programers [1], I easily obtained the IP addresses of these critical gateways and then got their geographic coordinates by IP location finder. Hereafter, converting the WGS-84 coordinates(GPS standard) to GCJ-02 coordinates (encrypted Chinese standard) [2]. However, soon after the journey began, it has turned into one of confusion.

There are two reasons for my feelings of being lost. Firstly, the opacity of the technological structure of the Internet. When Chinese users access foreign servers the data needs to go through three network layers: Access Network, Metropolitan Area Network, and Backbone Network whilst being censored by the gateway within. However, geolocations of gateway IP addresses may not be accurate or reveal the exact position of the infrastructure which may be due to the distribution of public IP address in subnet, encryption of IP geolocations, and possible inaccuracy of IP geolocation library. Secondly, the information about the geolocation is incomplete. The coordinates can only lead me to certain locations but it does not indicate further information such as street number or room number, therefore, my judgment is subjective. Besides, most of these locations are in the areas of agencies, research institutes, authorities, and schools. I was unable to verify that the IP-related infrastructure equipment actually exists since I don't have direct access to these places.

From a certain perspective, this bottom-up investigation of Chinese cyberspace barriers seems to be a tracing of hyperobjects (Timothy Morton, 2013). As a netizen inside the Chinese net, I am following the public information that is accessible, trying to get through the boundary between the online and offline world with help of network technologies, and attempting to glimpse the whole from inside. I am like K as written by Kafka, tracking down 'the castle', struggling between different identities and places. It leads me only to fall into the maze that is composed by the opacity of the ever-growing technical structure, incomplete information, and information capitalism.

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The Dynamic Barrier

"But there aren't wild dragons in Britain?" said Harry.

"Of course there are," said Ron. "Common Welsh Green and Hebridean Blacks. The Ministry of Magic has a job hushing them up, I can tell you. Our kind have to keep putting spells on Muggles who've spotted them, to make them forget."

J.K. Rowling, Harry Potter and the Philosopher's Stone, 1997

The barrier of cyberspace is dynamic due to its correlation to information filtering and censorship. The limits of the barrier and geopolitical boundaries do not completely overlap, although, infrastructures of cyberspace are located within the traditional geopolitical space. Its functionality is strongly related to domestic and international political, economic, and cultural environments as well as unexpected incidents [3]. In addition, this dynamic is also correlated to the mobility of its users. Since 2018, if a customer from abroad uses cellular data provided by Chinese mobile network operators, the data will be led back to the mainland and sent out after censoring, which means, with a Chinese sim card (without wifi), the customer cannot visit Google Maps, Facebook, Twitter etc. Even when "we physically across the Great (fire)wall, we cannot reach every corner in the world" [4].

In the early stage of the Chinese Internet, cyberspace barriers gave Chinese Internet companies less competition and greater living space. Starting with OICQ in the late 90s, which mimics ICQ, almost all foreign Internet companies can find their replicas in China. These Chinese companies quickly seize the market by virtue of language, technology, and user base. Nowadays, the 'barrier' model of information capital is appearing more and more among Chinese Internet companies. For example, search engines of WeChat and Baidu do not include the information from each other's data. WeChat also restricts numerous external links. For example, for sharable links Taobao has to use encrypted 'Tao Code' to evade the

censorship of WeChat. The mobility of information is greatly limited which makes information surveillance, control, and elimination easier [5]. Just like "societies of control", which Gilles Deleuze presciently termed.

It is undeniable that the convenient life created by the products and services of Chinese e-commerce companies is unmatched by most countries in the world. If only a person has a cell-phone, cash and cards (bank card, membership card, etc.) are no longer essential and stepping out of the house is unnecessary since almost everything (goods and services) can be bought online and delivered. It had led the vast majority of users gradually becoming accustomed to long-term coexistence with cyberspace barriers and habitually ignoring it while celebrating the convenience of the Chinese Internet. Let alone the generation born after the 90s who grew up in the cyberspace after the barriers were already established. It parallels the words of Emmanuel Goldstein, "Indeed, so long as they are not permitted to have standards of comparison, they never even become aware that they are oppressed" [5].
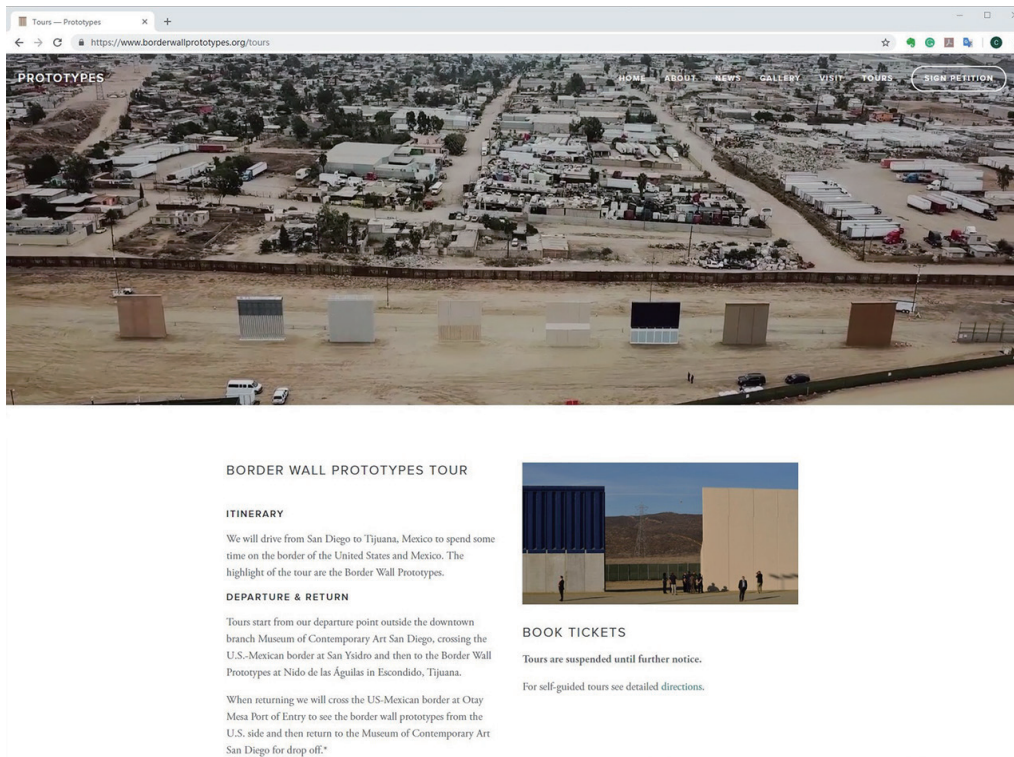

112.66.0.204, China Telecom(ISP),109.51119, 18.29385(GCJ02), Sanya, Hainan province

On the road, Nada, Hainan Province

A Tour of Suspended Handshakes

Geolocations of gateway IP address that I have visited are not as attractive as expected. Most of them are in ordinary urban areas, surrounded by residential areas and traffic lanes. Although the genuineness or accuracy of these locations cannot be verified, there seems to be a correlation between the network operator of gateway IP address and the situation of the located area. For example, some gateways run by China Education and Research Network are located in a school area, and some gateways run by China Science and Technology Network are located in an area of research institutes. The rest of the geolocations confused me. They are at riversides, intersections, or at a small square in the greenbelt. But who knows if they are truly irrelevant with the gateway IP addresses? The antenna of a base station can be disguised as a tree, a well, or a street lamp. Maybe I'm just a Muggle standing in front of Platform 9 3/4.

112.66.3.121, China Telecom(ISP), 109.51588, 18.25875(GCJ02), Sanya, Hainan province

would like to name this tourist route that is being studied as "A tour of suspended handshakes"

References:

[1] https://ensa.fi/active-probing/
https://github.com/fqrouter/qiang
https://github.com/mothran/mongol/

[2] Part of the gateway IP geolocations: https://www.google.com/maps/d/u/1/viewer?hl=zh-CN&ll=39.938505931005146%2C116.21986820633242&z=10&mid=1nsIwWq8PaoJSVWseEccWmZjY_24F33Yu

[3] Bobbie Johnson, China relaxes internet censorship for Olympics, The Guardian(1 Aug. 2018), https://www.theguardian.com/world/2008/aug/01/china.olympics

[4] "Across the Great Wall, we can reach every corner in the world" is cotent of the first email sent out from China, https://en.wikipedia.org/wiki/Internet_in_China

[5] Article 47 of China Internet Security Law: Network operators shall strengthen management of information published by users and, upon discovering information that the law or administrative regulations prohibits the publication of transmission of, they shall immediately stop transmission of that information, empoly handing measures such as deleting the information, prevent the information from spreading, save relevant records, and report to the relevant competent departments, http://www.npc.gov.cn/npc/xinwen/lfgz/flca/2015-07/06/content_1940614.htm, https://www.dezshira.com/library/legal/cyber-security-law-china-8013.html

[6] George Orwell, Nineteen Eighty-Four, Secker & Warburg 1949

[7] Joe Wong, The Late Show with Stephen Colbert(15 Dec. 2018), https://www.youtube.com/watch?time_continue=22&v=36v9GSOFMFc

Webpage of the Border wall prototypes tour

From another perspective, my field trip of tracking the geolocation of China's cyberspace barriers can be seen as tourism. Joe Wong, a Chinese-American talk show actor, commented on Trump's 'wall' during a performance "... since it's later, it's just going to become a huge tourist attraction" [7]. It's true that the Berlin Wall and the Great Wall of China now receive millions of visitors each year, and the Trump Wall project has been presented as a land art exhibition with eight border wall prototypes and opened for self-guided tours. Thus, my barriers visiting trip might be seen as a study and rehearsal of a possible tourist route.

Interestingly, many technical terms of the Internet borrow from common expressions. For instance, 'port' as the endpoint of communication, 'cookie' that stores user's stateful information, 'handshaking' for establishing the communication between network participants, and 'conversation' for the passing of commands, etc. The cyberspace barriers filter the 'handshake' between certain nodes and present 404 pages sometimes. Therefore I

On the road, Sanya, Hainan Province