

California Institute of the Arts

Manufacturing Landscapes: Surveillance, Anxiety, and Artificial Intelligence

by
Jeff Kai-Luen Liang

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Supervisory Committee

Ajay Kapur

Committee Member

Christine Meinders

Committee Member

Perry R. Cook

Committee Member

Mike Leisz

Committee Member

Abstract

This thesis investigates the use of AI surveillance systems in China and how narratives are manufactured in order to justify its use. These investigations take shape through the form of a multimedia installation and video, **Manufacturing Landscapes**. The artwork addresses questions of autonomy, agency, and creation in an authoritarian surveillance state. Specifically, it looks at China's expansion of its AI surveillance industry to monitor and influence Chinese social and political spheres. It examines the role of narratives of progress, convenience, safety, and speed in order to justify large-scale monitoring and predictive policing. Chinese surveillance technology companies and the Chinese government are in an ongoing tango of experimentation and implementation of policies, often leading to dire consequences for its citizens. Projects from the "re-education camps"/ prisons in Xinjiang to the policing of political opponents are all making use of large scale, centralized surveillance systems. The companies that provide cameras to monitor the prisons are the same companies that develop facial recognition software for smart ATM cash withdrawal. Besides surveillance as a mechanized control system, surveillance is a system made and composed of human labor. This thesis investigates the many connections to AI acceleration, labor, and the fictions created in order to maintain surveillance; systems built by humans, assisted by AI with algorithms written with human bias and government policies, in order to monitor human bodies in physical space. Lastly, this thesis aims to look at how machine learning technologies can also be used in addressing issues of surveillance anxiety and how the exploration of Generative Adversarial Networks in generative art practices can open doors in exploring new possibilities in speculative art and hybrid media practices..

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Chapter 1: Introduction

*** indicates a personal memory

*** Beijing 2015:

The smell of burning coal in the wintertime. Smog so thick the lights blur into infinite tunnels. A foul smell comes out of the apartment drainage pipes, probably from a poorly engineered sewage system. People everywhere. Sardines on the bus. It's noisy. She's screaming at me over the sounds of construction, making conversation about the rise in the price of pork over the week. We wander through demolished buildings trying to find anything useful. The old neighbors all moved outside the 5th Ring road. Some of them are waiting for the government to still pay them for demolishing their homes. Some never got the money. Some became "rich" by local Beijing standards and moved to newer apartments allocated far from the city. Others were forcibly removed to make way for more new profitable developments.

Beijing time spans a country of 9,600,000 km² (3,700,000 square miles). Children in Xinjiang, a province in the far Western reaches of China, are still playing out in the sunlight while Beijingers put their head down for bed. Young people move scurrying from place to place, zipping through traffic with their 1 RMB rent-a-bikes. The elderly walk slowly with their hands behind their backs and wait to meet at the community center or the park to do some dancing. Migrant workers on the move from job to job, factory to factory, construction site to construction site. The construction crane is the "national bird" of China. Before the facial recognition surveillance cameras, the national bird hovered over everything.

It's hard to find someone who isn't glued to their phones on the subway, especially during rush hour. If you're not dozing off sleeping hoping to not miss your stop, then your head is down looking at your phone. Orthopedics must make a shit ton of money.

Screens on the wall advertising alcohol. Screens above with hygiene advice. Sleek cameras equipped with microphones hang at every corner. Slices of Chinese life in hybrid pixel form.

Still, there are red Slogans on bright red plastic banners hanging along the walls. Socialism with Chinese Characteristics.

A place equally confusing and familiar.

A home and..... a distant planet.

I had first arrived in Beijing in 2007, just prior to the 2008 Beijing Olympics. There was a fervor of excitement for the opportunity to show the world that China had changed, that China was opening itself up. Everywhere blasted the song, 北京欢迎你 (Beijing Welcomes You) a song written for the build up towards the Olympics.

“Our door is always open. We are waiting for you open-armed.
After a big hug, you'll feel close with us. And surely you will love this place.
Our guests, no matter where you come from, please feel at home.

Welcome to Beijing; let's breathe together in the sunshine.”

~English translation of lyrics to “Beijing Welcomes You”

Taxi drivers were trying to learn English and volunteers with red wristbands were eager to direct any confused person walking around the street. Old buildings were demolished with lightning speed. People co-mingled in one of the densest cities in the world. Life was changing so fast in preparation for the 2008 Olympic games. Despite heavy resistance, the government said that sacrifices had to be made. Local protests were daily and an estimate of 1.5 million residents were displaced during this time.¹ However, the games went on. Life went on. A loss was a loss. What China gained in its performance to the world was more important than the demolished homes of its local residents. Beijing was waiting with open arms eager to greet the world.

In 2017, almost 10 years after the fervor of the Beijing Olympics, another campaign was launched to clean up the city. An official campaign began to “清理低端人口” or to “remove low end populations or undesired residents.” It was a campaign intended at cleaning up areas heavily populated by working class migrant workers. Earlier in 2017, a deadly fire broke out in a Beijing “shantytown” on the outskirts of the city. In the aftermath of this fire, the government led a 40 day campaign to rid the city of unsafe structures that often housed temporary migrant

¹ Beck, Lindsay. “Beijing to Evict 1.5 Million for Olympics.” *Reuters*. June 5th, 2007

workers. 40 million square meters of illegal housing, home to 8.2 million workers, were to be demolished (*figure 1.2*). These migrant workers, often living on the outskirts of the city, made up nearly 40 percent of the city's workforce.² Forced to the outskirts of the city due to exploding rents inside the city, migrants were often in cheap, poorly constructed, and overcrowded housing units. During the 40 day demolition sweep, residents were given fast eviction notices (often only 48 hours notice) and were forced to leave. As the aftermaths of the campaign were felt across the city, the real intention became clear: “to rid the city of people deemed extraneous.”³ The real campaign lasted beyond 40 days. Multiple businesses were closed, buildings demolished, and by the end tens of thousands of people were displaced.⁴ What once made Beijing a wellspring of life had turned Beijing into a city devoid of its spirit. Gone were the street food vendors and small stores in the local alleyways. Gone were cultural venues and semi-independent collective spaces. What was left was the gloss: shopping malls, slick clubs with bottle service, a tourist art district with established galleries. The people left were either locals or people who could afford to stay.

In the span of 10 years (2007-2017), I had witnessed a country in massive transition. Building and infrastructure erected within months and tore down even quicker. Residents were forced to leave within days. Whole livelihoods changed instantly. People moving in and out of a city that was in continual flux. Tremendous warmth and beauty within an increasingly larger cage. In 2013, President Hu Jintao had transferred power to Xi Jin Ping. In turn, Xi had eliminated his opponents in one of the largest crackdowns on “corruption” in the history of the CCP (Chinese Communist Party). While doing so, he enforced what would be a drive towards Mao era control and terror with authoritarian economic aggressiveness.

“It is the duty of the cadres and the Party to serve the people. Without the people's interests constantly at heart, their work is useless.” Mao Tse Tung

Reworked Communist propaganda slogans from the 1950's started to reappear on red banners in the street again in 2014. From the 1980's until 2013, Deng Xiaoping and the leaders after him had largely done away with Maoist propaganda as they moved towards reforming and opening up China. When Xi took power in 2013, not only was Marx, Lenin, Maoist thought being reintroduced when it was convenient for social control and nationalism, a new form of thought appeared, Xi Jin Ping thought. Xi Jin Ping Thought is a contemporary remix of Mao, Lenin, Marx, neoliberal market economics, with his own musings on “Socialism With Chinese Characteristics.”

² Pabon, John. “Beijing’s Heavy-Handed Solution to Urbanization.” *The Diplomat*. Dec. 4th, 2017.

³ Friedman, Eli. “Evicting the Underclass.” *Jacobin Magazine*. 2017

⁴ Roxburgh, Helen. “China’s Radical Plan to Limit the Populations of Beijing and Shanghai.” *The Guardian*. March 19th, 2018.

Revolutionary slogans without revolution. Revolutionary slogans intended for social control.

In 2018, China had done away with the term limit once imposed on the Chairman of the CCP and by doing so declared that Xi could rule indefinitely. By having total control of the CCP, he could implement radical changes through long term plans and experiments. One of these long term projects was the development of the quickest and largest surveillance system in the world, Xue Liang (Sharp Eyes). The name is taken from an old Mao-era slogan, “The masses have sharp eyes.”⁵ This slogan pointed to another point in history, the Cultural Revolution (1966-1976), where Chinese citizens had to report “suspicious” activity of their neighbors to authorities. Citizen surveillance ordered by the government in order to keep track of a huge population. The surveillance apparatus in the 1950’s to 1970’s were composed of smaller human surveillance networks of community informants organized by the local governments. However, today the Sharp Eyes program doesn’t need to rely on human sight. It uses facial recognition technology linked to various government databases to track individuals. Despite the heavy monetary investment, the local governments began complaining that the pollution levels in their cities were so bad that it made a lot of the surveillance technology completely useless.⁶ It was so bad that even infrared cameras had a hard time. In Beijing, the pollution was so bad on certain days, that sight was only visible by 2-3 meters in front of you.

From the end of 2016 -2019 various programs were launched to clean up pollution by imposing higher standards on industry, moving factories away from cities, or even moving factories to neighboring countries. Gradually the air pollution got better. The factories that surrounded the city are gone, along with the people that worked there. The smog no longer is a danger to surveillance visibility.

Now the sharp eyes have no blockages to their mechanical sight.

⁵ Denyer, Simon. “In China, Facial Recognition Is Sharp End of a Drive for Total Surveillance.” Chicago Tribune (2018)

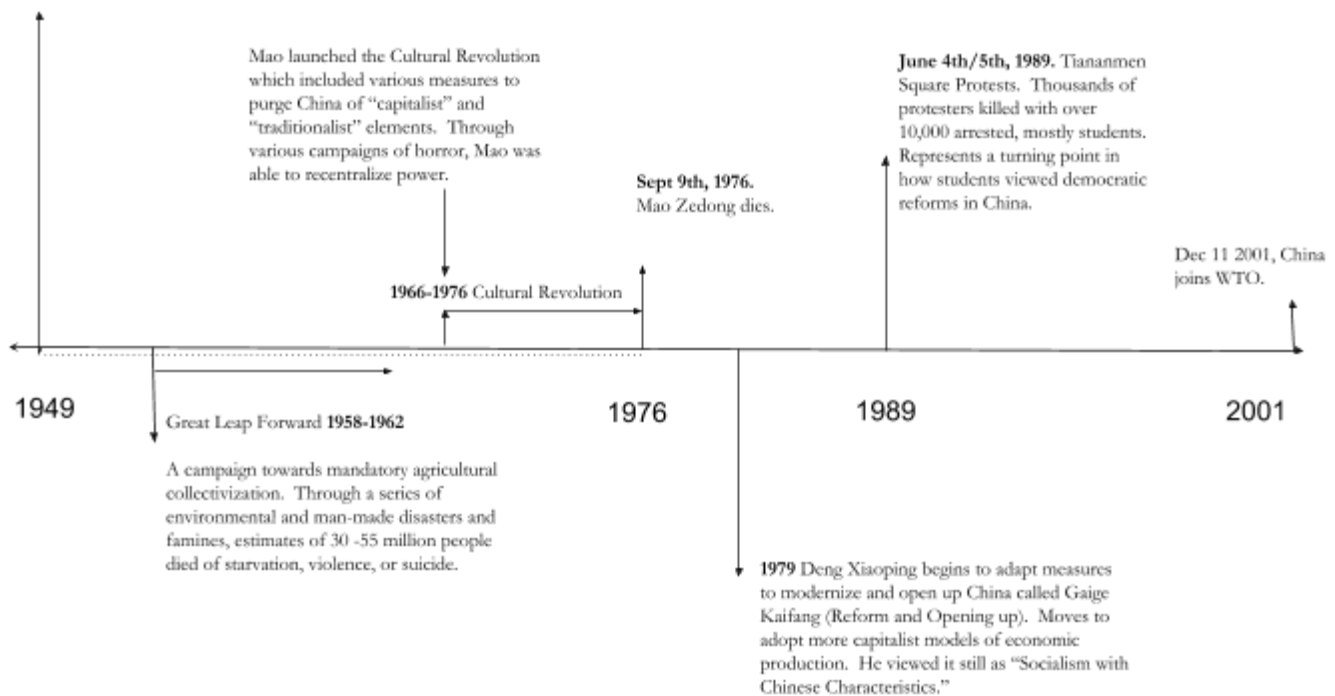
⁶ Chen, Stephen. “Big Brother Blinded.” South China Morning Post (2013)

1.2 Timeline of Events

There are multiple mentions of various historical periods in China, often not occurring in any linear order. Here below is a timeline of the events that I mention.

1949 - 2001

Oct 1st 1949, Mao Zedong declares the founding of the People's Republic of China, after years of civil war.



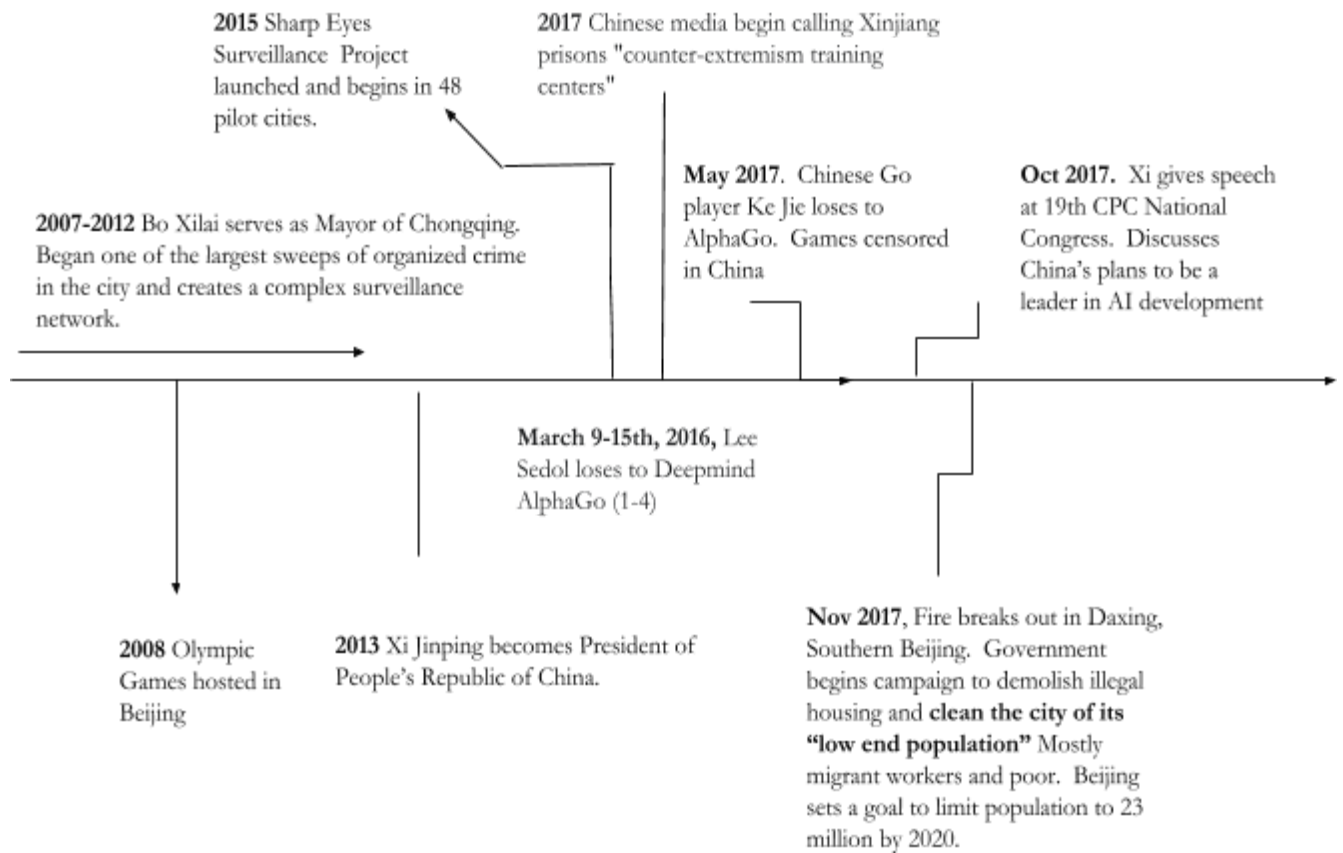
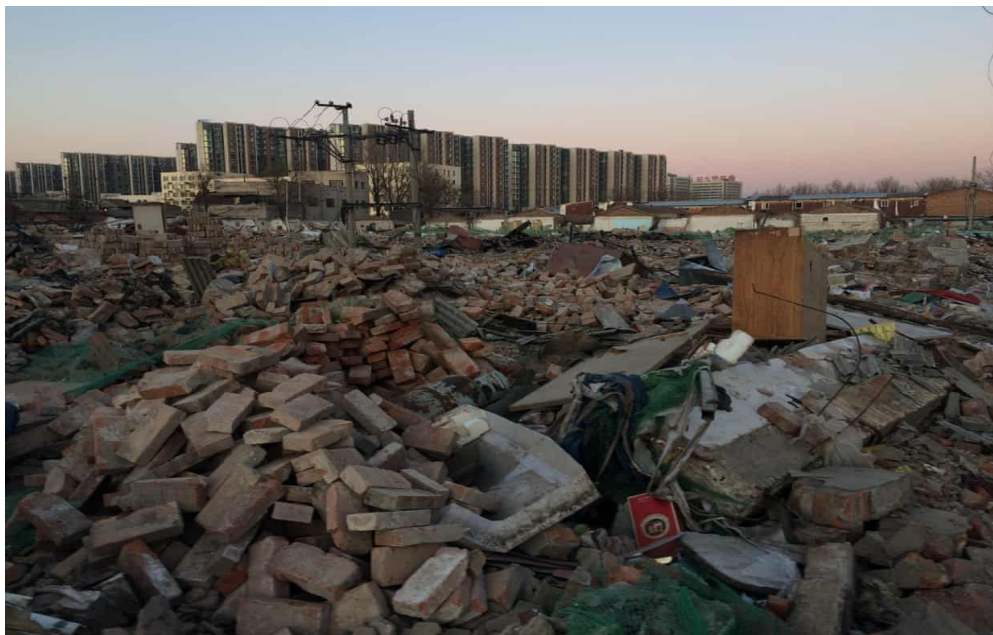


Figure 1.2.

2018: Village in Daxing, Southern Beijing after being demolished. (source: Bryon Denton for the NY Times).

Demolitions were part of a campaign to rid the city of “unwanted” individuals mostly working class migrant workers who often lived in “shantytowns” outside the city center.



Sanyingmen, Migrant Village in Southern Beijing (source: Tom Phillips)



Figure 1.3. *Tiananmen Square is seen in heavy pollution on 1 December 2015, and under a clear sky on 2 December 2015(source: International Business Times)*



Beijing: China Central Television (CCTV1) headquarters, 3rd Ring Road seen through toxic smog. (source: Reuters)

1.3 Manufacturing Landscapes

This thesis is part of a series of ongoing artworks raising questions around social anxiety regarding policing and surveillance. It looks at the use of artificial intelligence, AI imbued surveillance systems as tools for monitoring and social control and the parallel development and manufacturing of ideas (“safety”, “convenience”, “harmony,” and “stability”) in order to justify the need for surveillance in Chinese society. It raises questions around systems that use AI surveillance technologies to steer behavior and create actions based on the collection of incredibly large amounts of data. Specifically it looks at the development of AI facial tracking technology and its cooperation with the Chinese central government. Since the current president Xi Jin Ping took power in 2013, more and more state resources have been pouring into building up state and local Chinese tech companies specializing in AI. From the “Chinese Dream” Campaign to the Belt and Road Initiative, all industries plan to incorporate surveillance and AI tools in complex ways. China, once seen as “the factory of the world”, has developed into one of the leading researchers in innovative AI technologies. This accelerated development has been made possible through the vast networks of human activity, movement, and most importantly, labor. Human beings build the material infrastructures. Human activity is used as predictive data. Humans as the targets of surveillance.

The issues of surveillance in China are not just issues for China, East Asia, or the Eastern hemisphere. They present global challenges to the world and these technologies and data are being traded, sold, researched, and shared to the rest of the world. China’s development of surveillance technologies is intricately linked to what is happening elsewhere, including the Silicon Valley and Washington DC. With the Belt and Road Initiative, surveillance has direct impact along the old Silk Road route extending throughout South Asia, Western Asia, out to Europe and Africa. China remains the first testing site for the extremes of global surveillance and what we learn from China has ramifications for the rest of the world, particularly in developing countries. One key distinction is that surveillance is embedded into daily life in China with no option to opt out. It isn’t presented as a footnote, or a signed agreement with its citizens for the exchange of services. It is integral and unseparated to the fabric of China.

This thesis raises 3 important questions viewed through the medium of a series of related artworks. 1. How does anxiety and fear create an acceleration towards surveillance? 2. What are the complexities of surveillance acceleration and its interconnection with human labor and human search? 3. In what ways can we choose to engage with these complex questions that allow for new possibilities, modes of being, and ways of engagement with these issues through design thinking, artistic practice, and alternate methods of creation using AI tools?

These questions will be explored through the use of research, writing, and a series of multichannel video installations titled Manufacturing Landscapes. The thesis itself is written not in chronological order documenting the history of these issues, but rather as a backdrop interweaving personal history with research and facts into a rhizome that transforms and mutates in memory space. I hope to create connections between a vast number of issues, case studies spanning various locations. I use research and artistic practice as a way to find new emergent narratives from these clashes, contradictions, and encounters. Despite the nature of the topic itself, my goal is to attempt to transcend these dystopian narratives by looking at potential metaphors hidden in these nodes of connections. It is what emerges from these interactions that give possibility for new and speculative imaginations about surveillance.

The goal is distilled into a multichannel video installation and short film narrated from the point of view of an AI surveillance camera system. It is the system's attempt at justifying its own identity to its future self which will undoubtedly be sleeker in hardware design, and quicker in computing power. It is told from the point of view of a surveillance system's self-awareness of its own extinction. These pieces involve algorithmic practices and AI design tools. The material of the film is composed of found footage of existing Chinese surveillance company infomercials and generated images trained from various datasets in Generative Adversarial Networks (GANs).

Artistic practice and AI speculative design allows me to explore the issues related to machine learning that are not in the interest of promoting a certain hypothesis or arguing a set conclusion. In this context, it allows a certain non-linear investigation on the unknowns in the relationships between various GAN generated images, text, and randomized video editing techniques. I am interested in what these processes can bring in exploring new metaphors of human machine relationships and surveillance.



Figure 1.4. *Person caught on surveillance camera chopping down a tree in order to steal a bike*
(source: CGTV)

Chapter 2: Sky Eyes

“We want to give the city eyes. And we want to make them intelligent.” ~ Xie Yinan⁷

People under a one party state have long understood the difference between public and private lives. Most know when to give face, to nod in agreement and when to engage in resistance, community building, and critique. Modern surveillance techniques and the accumulation of both quantity and varying qualities of data have allowed Chinese surveillance to increase in scope and complexity. Chinese citizens are now all linked to a centralized database by their ID cards. However, more of their usable data is linked to their activity on the social media app, Wechat. Wechat is a social media app that has the ability to video chat, post updates, hail cabs, buy goods online, transfer money etc. all in one. With everyone connected through Wechat as a communication device, navigating the public and private sphere is much more nuanced. All words in Wechat are monitored and can be flagged and deleted without notice. Even as Chinese netizens find new and innovative ways of avoiding the censors through communication with emojis, word play, image alteration, etc, it becomes hard and tiring to keep up with the censors. The advancements made to surveillance technology incorporates the rise of mass social networked and data rich systems of other apps such as Weibo, Taobao, Didi Taxi and RideShare services, Douyin (Tik Tok) etc. have created mountains of data across all areas of social, intellectual, and private life. Every sort of data from what you buy online, when someone delivered it to you, what you ordered, what articles you reposted, to the “private data” of your criticisms of the local government to your group chats are accessible.

Public discussions of privacy have been near non-existent to Communist China’s citizens for a long time. In Kai Strittmatter’s brilliant book, We Have Been Harmonized, he notes that surveillance industry executives often make the misleading argument that Chinese people are indifferent to issues of privacy because of cultural reasons. In an interview, Robin Li, the CEO of Baidu, says “The Chinese are more open and less sensitive about data protection...If people are prepared to exchange their privacy for efficiency – and people here often are – then we can make even more use of the data.”⁸ Public discourse about privacy and concentrated surveillance data have been largely erased. Does that mean that concepts of privacy are non-existent in Chinese culture or largely erased from discussions after the fact? Since there is no data privacy, how does one even begin to understand the mountains of data that are generated daily? The artist and writer Hito Steryl asks a critical question, “who is ‘signal,’ and who is disposable ‘noise?’”⁹ What are the inputs? How is this information processed? What are the output results? Rather than discuss a linear history of surveillance in China, we begin by looking at one of the muggiest and bustling places in China.

⁷ Strittmatter, Kai. “*We Have Been Harmonised: Life in China’s Surveillance State*.” Old Street Publishing. 2019

⁸ Strittmatter, Kai. “*We Have Been Harmonised: Life in China’s Surveillance State*.” Old Street Publishing. 2019

⁹ Steyerl, Hito. “A Sea of Data: Apophenia and Pattern (Mis-)Recognition” E-flux, Journal #72. (2016)



Figure 2.1: Chongqing, China, on a clear day, viewed from Nanshan Mountain Park. Still from *Chongqing From Above*, Government tourist video. (Source: Youku)



Figure 2.2: Chongqing mayor, Bo Xilai, during trial for charges of bribery, corruption, and abuse of power (source: Jinan Intermediate People's Court)

2.1 The Fog Capital of China

“When by our window can we trim the wicks again, and talk about this endless dreary night of rain.” Li Shangyin (Tang Dynasty Poet)

Chongqing is a city and municipality located between the mountains and rivers. A city where during the summers you could almost fry an egg on the sidewalk. Many days of the year it is covered by a dense fog sandwiched in between mountainous terrain. The Jialin river runs through Chongqing and feeds into the Yangtze while mountains surround the city; The Daba Mountains in the north, Wuling Mountains in the Southeast, Wu Mountain to the east, and Dalou mountains to the south. Chongqing was also the center of one of the largest efforts to sweep out organized crime before Xi Jin Ping took office. Prior to the sweep, organized crime networks were often hidden inside legitimate businesses often linked to the local government. Illegal activities ran the gamut from prostitution, gambling, to drug trafficking.

In 1997, Chongqing became classified as one of the world’s largest cities. By rezoning, the CCP (Chinese Communist Party) effectively reclassified 31000 square miles of Sichuan as a municipality with the official goal of birthing a modern megalopolis. The central government began pouring money into the city with the goal of creating a city/municipality in the southwestern region of China that would eventually rival the riches of Shanghai in the east.

As more and more money was poured into the area, with the goal of reversing urban decay and increasing industrialization, organized crime syndicates grew in power. Corruption and terror from gang related violence grew. Growing increasingly rich and confident, these gangs lined the pockets of the police, the local officials, and everyone in between. Increasingly the locals began getting fed up but saw no options for fixing the problems in the city. Often attempts to take problems to the local police created more problems for the victims. Police stations were being overrun by organized crime and every level up the Chinese justice system in Chongqing was entangled and implicated as well.

In June 2009, a major sweep began after months of investigation. 1700 firearms were seized from illegal gun factories and new leads emerged from the siege.¹⁰ The suspects in the investigation were multiple members of the Chongqing mafia network that stretched to the very highest levels of the Communist party. Within a span of four months, 4893 suspected members of various organized crime syndicates, police officers, and local politicians were taken into custody, including the head of the city’s Justice Bureau and a former deputy police commissioner. What was revealed from just the beginning of the operation was the deep rooted corruption with the city officials and justice department leading with the removal of around a fifth of Chongqing’s police department. Revealing the top layers of corruption also brought to the forefront the resentment of the collusion between party officials, law enforcement, and the organized crime units in Chongqing. The lack of police protection and government support provided growing resentment and hopelessness to the residents. When Bo Xi Lai, a charismatic

¹⁰ Moore, Malcolm. “China Corruption Trial Exposes Capital of Graft.” *The Telegraph* .Oct 17th,2009.

and rising politician, arrived in Chongqing, the locals saw the potential for change. In Bo, Chongqing had the leader they desperately needed.

2.2 The Return of The Red

At the helm of this new anti corruption campaign was an outsider to the city. Bo Xilai was a former trade minister who had been assigned to govern the municipality. He dismantled the police department and then brought another outsider, Wang Lijun, to head his new police force. An outspoken advocate of returning to old Communist values, Bo Xilai implemented a plethora of “Red” campaigns in Chongqing. Red culture campaigns were organized efforts to use old Communist slogans and songs to create a sense of national identity and group solidarity. The Red Culture campaign was launched in parallel to his extremely high-profile anti corruption campaign from 2007 to 2012. Eventually he found himself embroiled in one of the biggest government trials in history. Bo was put on trial for corruption and imprisoned. His wife was also implicated in the murder of Neil Heywood, a British business consultant who was found dead in a Chongqing hotel room.

Before his downfall, Bo Xilai was seen as a crusader and a charismatic politician. In 2008, the Red Culture Movement began by the adoption of Mao-era “Red” songs to “replace pop songs in the hearts of the people.”¹¹ Red songs themselves promote Communist and nationalistic ideals and were popular during China’s revolution and reform periods. Prime TV times, where soap operas, and crime shows were once popular, were filled with classic revolutionary dramas and music. The Red Culture Movement was a method of organizing or manufacturing “social cohesion” in a very confusing time of economic development, corruption, and change. Perhaps one of the most famous Red songs from the Mao-era was originally a folk song, rewritten as a song praising Mao Ze Dong.

*“The east is red, the sun is rising
China has brought forth Mao Zedong.
He works for the people's welfare.
Hurrah, He is the people's great savior.”¹²*

Many were enthralled by nostalgic feelings toward simpler times, where everyone was poor and equally stratified under Mao era politics. Many remained critical of the reworking of traditional propaganda methods. Some saw the movement towards the language of a past era as “painful flashbacks to Mao’s cultural revolution” where thousands were killed and labeled wrongly as class enemies. The Red Culture Movement reworked slogans from the Cultural Revolution era and became a strategy for the local government to manufacture solidarity by returning to painful and empty slogans of a common contested history. It was an act of historical revisionism. The movement repurposed the language of the past as a way to remind contemporary Chinese the glorious past that has built up China’s rising power. According to He Bing, a professor of law at Chinese University of Law and Science, “This is a very absurd time:

¹¹ FlorCruz, Jaime, “Red Culture Campaign Sweeps China.” CNN. July 1st, 2011.

¹² Lyrics, “The East Is Red.” English Translation

they encourage you to sing revolutionary songs, but don't encourage you to have a revolution.”¹³ The collective trauma of the histories that were being remixed never addressed the traumas and pains that Mao-era policies wreaked on China.

However, Bo Xi Lai used these past ideas as a way to strengthen his power base within the city. He resold these slogans to the people in a palpable package. Many were particularly taken by Bo Xilai's charismatic personality. Bo Xilai came from a political, aristocratic family. His father, the revolutionary Red Army commander Bo Yibo, was one of the party's elders known as the “eight immortals” who held control of the Chinese Communist Party throughout the 1980's and 1990's. Bo Xilai himself participated in the fervor of the Cultural Revolution where groups of students organizing themselves as the Red Guards brutalized their elders as class enemies. He viewed himself as Communist nobility and part of the next generation of China's leaders. During the Cultural Revolution, he participated in the struggle sessions directed at his own father “whom he beat until he broke a row of his ribs.”¹⁴ His father was eventually sent to prison during the tumultuous period of the Cultural Revolution and endured harsh conditions and torture. His mother Hu Ming had either committed suicide or was killed by the Red Guards according to varying accounts. Eventually, Bo Xilai himself ended up in a prison labor camp at 17. The prison was a camp for children of disgraced government officials. The experiences he enacted and endured left him bitter and hungry for power. Eventually taking up studies in journalism, he became an expert at talking and maneuvering the media. The CCP knew Bo Xilai as a ruthless and ambitious politician and began seeing him as a threat to their own power. He was eventually banished to Chongqing but decided to take his position there as an opportunity to raise his profile even further. His ability to talk to the media and to publicize his position as a populist leader gave him a tremendous following in Chongqing. The people knew of him as someone on their side, someone committed to cleaning up the city from corruption, organized crime, and pollution. At his side was Wang Lijun, who he picked to be Chief of police in Chongqing. Wang himself was a decorated police officer known for his loyalty and success in combating organized crime in Northeastern China. With Wang's loyalty and fierceness, the two began their campaign against organized crime, effectively dismantling more than a dozen of Mafia bosses and their financial empires. To the public, Bo was a hero and a deviation from the corrupt politicians they had had in the past. However, Bo was not interested in law. He made the trials deliberately secretive and hasty. According to the Financial Times, the trials were done quickly and filled with “persecution, disregard for legal procedures, and confessions extracted through torture.”¹⁵

As part of the campaign against corruption and the fight against organized crime, Bo Xilai and Wang developed one of the most ambitious surveillance spending projects ever in the history of the country. In March 2011, the municipality of Chongqing had made a plan to spend 17 billion yuan (2.6 billion USD) on what they hoped to be the world's largest digital security system. The plan was to have all the cameras under one network “allowing video information to be shared among law enforcement departments and emergency rescue organizations to help crack down on crime and provide information to authorities in emergency situations.”¹⁶ Wang,

¹³ Wong, Edward. “Repackaging the Revolutionary Classics of China.” *New York Times*. June 29th, 2011.

¹⁴ Anderlini, Jamil. “Bo Xilai Power, Death and Politics.” *Financial Times/ Penguin Books* (2012)

¹⁵ Anderlini, Jamil. “Bo Xilai Power, Death and Politics.” *Financial Times/ Penguin Books* (2012)

¹⁶ Author unknown. “Chongqing Plans Huge Security System”. *Global Times*. March 8th, 2011.

the then chief of the Chongqing Public Security Bureau hoped to have a security system that would eclipse the US as the world's largest security network. Reasoning for this massive surveillance system was an emphasis on the long-term fight against organized crime and to prevent corruption in the municipality. The plan involved a complex surveillance system of linked CCTV cameras, wiretaps, and the monitoring of all forms of telecommunication.

Eventually, the program was secretly expanded as a tool that Bo used against his own party members. He set up wiretaps on then leader Hu Jintao as well as other people within his own party. Existing in a party system that has bred mistrust and violence towards one another, "leaders know you have to watch your back because you never know who will put a knife in it."¹⁷ Bo's family history and involvement in the CCP power game created an environment not to trust leaders in his own party. It seemed the only person he trusted was his police chief Wang. Bo and Wang together collected information of not only enemies but allies that knew too much, collecting around the clock the most mundane details of their lives. According to the China Daily Show, a satirical website about modern Chinese news, Xiao Niao writes, "President Hu Jintao's right eyebrow is said to have started quivering slightly, after learning that details of his two-hour daily nose hair-plucking regimen had been overheard and ruthlessly ridiculed by Chongqing security police."¹⁸ Regardless of whether the nose-hair plucking regimen is true or not, Bo was using the power of surveillance to gather data on his rivals as leverage against any future actions taken against him.

For Bo Xilai, the information was valuable data of how the leadership viewed him and of any potential plans against him. However, his superiors in the CCP equally had no trust in Bo. During a wiretapped call with then president Hu Jin Tao, anti-surveillance devices picked up the wiretap. This was seen as "evidence of Bo's overreaching ambition and compounded leaders' mistrust of him."¹⁹ His populist nature had given him a firm base of support in Chongqing²⁰ and the CCP had viewed his independent support base as a threat to its control. The case against Bo himself began to unravel. First, an investigation into Bo's most loyal ally, Wang Lijun, his head of security and police chief was initiated. Later it was found that Wang himself had wiretapped Bo's phone lines. Of course, Bo Xilai was furious. Eventually Wang was stripped of his position and fearing for his safety fled to the US Consulate in Chengdu revealing the involvement of Bo's wife in the murder of a British business consultant and family acquaintance. The murder rather than surveillance became the focus of headlines. The extent of Bo's surveillance reach through telecommunications and surveillance were censored quickly Chinese public. If publicized it posed a fundamental threat to the people's faith in the CCP. How could a politician with such a high standing be collecting surveillance on it's own political party?

In the end, Bo's methods of using older communist slogans and propaganda in an age where these messages were retreating into forgotten history proved successful in Chongqing. Additionally the surveillance system that Wang and Bo had set up in the name of fighting crime was seen as a clear and successful method to be adopted by those higher up the command line.

¹⁷ Ansfield, Jonathan. Johnson, Ian. "Ousted Chinese Leader Is Said to Have Spied on Other Top Officials". *New York Times*. April 12th, 2012.

¹⁸ Xiao Niao. "Bo Xilai Wiretaps 'Revealed Intimate Details of Top Leaders' Tedious Lives'". *China Daily Show*.

¹⁹ Branigan, Tania. "Bo Xilai Officials 'Wiretapped Call to President Hu Jintao.'" *The Guardian*. April 2012.

²⁰ Martin, Peter. "The Case for Bo Xilai." *The Diplomat*. Jan 12th, 2012.

As we will see later, Xi Jinping began to use similar methods of revising Maoist, Marxist, and Leninist thought into new slogans of Xi Jinping thought for his surveillance visions of power. However, with the increase in computing power and control of new AI innovations, Xi Jinping's scope became larger and more powerful than anything Bo Xilai and Wang Lijun could have dreamed of.

Figure 2.2 *Top 10 Most Surveilled Cities in the World. From Comparitech, Surveillance Camera Analysis. August 15th, 2019.*²¹

City	Country	# of CCTV Cameras	# of People	# of CCTV Cameras per 1,000 People	Crime Index	Safety Index
Chongqing	China	2,579,890	15,354,067	168.03	33.18	66.82
Shenzhen	China	1,929,600	12,128,721	159.09	42.91	57.09
Shanghai	China	2,985,984	26,317,104	113.46	40.87	59.13
Tianjin	China	1,244,160	13,396,402	92.87	29.15	70.85
Ji'nan	China	540,463	7,321,200	73.82	15.93	84.07
London	England (UK)	627,707	9,176,530	68.40	52.24	47.76
Wuhan	China	500,000	8,266,273	60.49	21.18	78.82
Guangzhou	China	684,000	12,967,862	52.75	47.43	52.57
Beijing	China	800,000	20,035,455	39.93	42.31	57.69
Atlanta	United States	7,800	501,178	15.56	62.86	37.14

²¹ Bischoff, Paul. "Comparitech, Surveillance Camera Statistics." *Comparitech Study*. August 15th, 2019.

2.3 The Skynet Project

“The net of heaven leaves no evil uncaught.”²²

Chongqing has also played a very vital role in the eventual development of the Skynet (Tian Wang) which is China’s largest surveillance system. Skynet might sound familiar as the system created by Cyberdyne Systems in the Terminator movies that send terminators to track and kill people. Equally confusing was the NSA’s SKYNET program revealed by Edward Snowden which was the surveillance program that uses machine learning analysis to extract information from potential terror suspects.²³ Terminator Hollywood fascination aside, China’s Skynet is currently the largest real world surveillance system.

According to a 2019 analysis by Comparitech, China is projected to have 1 CCTV Camera for every two people by 2022.²⁴ As of 2019, 8 of the 10 most digitally surveilled cities in the world are located in China. Chongqing made the number one on the list of most surveilled cities in the world with about 168 cameras per 1000 people. According to the analysis, Chongqing has 2.58 million cameras covering a population of 15.35 million people, climbing ahead of other cities in China such as Beijing, Shanghai, and Shenzhen, who are themselves on the top 10 list. Despite multiple unhidden cameras in public spaces, people in China might not really think about or notice them anymore. It’s just there like a fly on the wall or a dog pee stain in the carpet. It’s as normal as the red banners held up with random Party slogans in the street, already melded into the surroundings.

In Chinese, it is called ‘Tian Wang (“net of the heavens”) so the literal translation is a “Skynet”. Often the Skynet program is described by the state media as the “eyes that safeguard China,” a network of CCTV surveillance equipped with AI using facial recognition and GPS being monitored and processed in real-time on people and cars. Security cameras use facial recognition to monitor and identify each person captured and overlays a menu of personal information (age, gender, clothing color, etc) and is all fed and networked into a mass database run by the Chinese government making it easy to tag and track people as they move. This data can be cross referenced to the database in almost real-time for “wanted individuals” and other “criminals in their database.”²⁵ If criminals are identified, the police are immediately notified. According to the People’s Daily, the English-language CCP propaganda news media, the system is “able to identify 40 facial features, regardless of angles and lighting, at an accuracy rate of 99.8 percent. It can also scan faces and compare them with its database of criminal suspects at large at a speed of 3 billion times a second, indicating that all Chinese people can be compared in the system within only one second.”

²² Li, Weida. “China Deploys ‘SkyNet’ Facial Recognition, Can Compare 3 Billion Faces Per Second.” *GBTimes*. March 27, 2018.

²³ “SKYNET: Courier Detection via Machine Learning”. *The Intercept*. May 8th, 2015.

²⁴ Bischoff, Paul. “Comparitech, Surveillance Camera Statistics.” *Comparitech Study*. August 15th, 2019.

²⁵ Chan, Tara “16 Parts of China Are Now Using Skynet.” *Business Insider*. March 27th, 2018.

Skynet is an important part of a state sponsored safety and anti-corruption program. Within the Skynet system are many more central and local government surveillance projects including Xue Liang/ Sharp Eyes facial recognition programs. According to Ren Min Wang (The People's Daily), a state run english newspaper, Skynet is "an infrastructure based on artificial intelligence and big data that aims to boost public safety. CCTV cameras are like eyes that protect people's safety....Criminals will have nowhere to hide thanks to the three-dimensional public security protection system"²⁶ Apart from the camera surveillance, "police are also able to predict crimes through big data such as each household's consumption of water and electricity. When anomalies occur, the system will send alarms...A big data system on the consumption of fertilizer and petroleum, has also been deployed in Xinjiang Uyghur Autonomous Region to alert public security authorities of possible crimes." The article goes on to applaud the success of capturing criminals in Nanchang, Changsha, and countless other Chinese cities. The system was first tested in Chongqing which "identified 69 criminal suspects in 40 days." However, the article never defines what constitutes criminal activity. As we explore later on, criminality is a hidden or overt political term in the case of big data surveillance in China.

The Skynet facial recognition system is built partly by Sensetime, one of the major players in the world in regards to surveillance technology. Sensetime's CEO Xu Li himself is quite confident in the system saying that it detects with a 95 percent accuracy rate not only in tracking people, but in distinguishing between 3800 models of cars and non-motor vehicles. According to Chinese law, "public surveillance cameras should be clearly marked. It is also prohibited to install them in private places such as hotel rooms, dormitories or public restrooms. These regulations will safeguard people's rights and serve as the legal basis for Skynet". The surveillance cameras are indeed very obvious. In fact so ubiquitous that they meld into the Chinese cityscape as mechanical eyes.

Surveillance affects various groups of people very differently in China. It depends who is being targeted as "criminal" and who gives the directives on who should be flagged at a certain time. Surveillance cameras in a shopping mall vs in a densely populated Uyghur community are vastly different in who the camera targets.²⁷ While everyone is being watched, not everyone feels equally safe. But according to a State sponsored surveillance documentary Glorious China, "We are a global village through surveillance. Everyone can feel equally safe." Within the same minute of this documentary, a policeman says "No matter which corner you run to, we will find you."²⁸ That statement, well more like threat, makes it feel like real life Terminator with badly recorded dialogue, poorly-paid workers told to voice-over films in a tight time constraint.

However, China's artificial intelligence community is operating in a "global village." Many of the components that are part of these surveillance systems such as the tube lasers and

²⁶ Zhang, Yu. "Facial Recognition, AI and Big Data Poised to Boost Chinese Public Safety." *People's Daily Online*. Oct 16th, 2017.

²⁷ Mozur, Paul. "One Month, 500,000 Face Scans". *New York Times*. April 14th, 2019.

²⁸ Glorious China, A Feeling of Safety Called I Am China." *Central China Television* documentary. Oct. 2017. <https://www.weibo.com/tv/v/FnbOAiG7k?fid=1034:ba7df671b12f9118abeff19e4997afdc>

graphic processing chips are supplied and bought from Western companies. The hardware and software implicate multiple players across the world.²⁹ Is this the “global village” the big data evangelists had in mind? What factors contributed to this recent surveillance acceleration?

²⁹ Gorman, Lindsay. Schrader, Matt. “U.S. Firms Are Helping Build China’s Orwellian State.” *Foreign Policy*. March 19th, 2019.



Figure 2.3: Chinese netizens have sharp eyes and spot AI books on Xi Jinping's bookshelf during 2018 Chinese New Year speech (source: China Central TV)



Figure 2.4: Cyberdyne Systems Skynet, Terminator T-800 (source: Omega Ordained, Youtube)

2.4 China Has It's Wake up Call.

"When you are afraid, victory will always escape you" ~ Fan Hui (Chinese AlphaGo Player)³⁰

The stakes were high. Lee Sodol, one of the world's greatest Go players faced off with Google's AlphaGo. Invented in ancient China, Go or Wei Qi is one of the oldest board games in the world. Over two and a half thousand years old, it is a board game where there are 19×19 intersecting lines where players place either black or white stones. Once placed, these stones cannot move. The goal is to completely surround and encircle your opponent's stones. By the end of the game, the player with the most territory wins. According to Christof Koch in an article for the Scientific American, with "a typical game depth of 150 moves, there are about 250¹⁵⁰, or 10³⁶⁰ possible moves. This is a number beyond imagination and renders any thought of exhaustively evaluating all possible moves utterly and completely unrealistic." The ancient Chinese regarded Go as one of the "Four Essential Arts" of a cultured aristocrat or scholar alongside the Guqin (the Chinese Zither, musical instrument), Chinese calligraphy, and Chinese painting. Go is a game of patience, strategy, and most importantly human instinct.

On March 15th 2016, one of the world's best professional Go players, Lee Sodol, was defeated (1-4) in a five game series. His opponent and victor was Google Deepmind's Alpha Go. Alpha Go was trained and refined on countless numbers of matches against both real and simulated games and players. During the match, the Google Deepmind team were stunned by the moves of Alpha Go. At one point, one of the developers on the team stated that, "As it turns out, none of us know Go well enough to accurately judge what AlphaGo is doing."³¹ Throughout the games, Alpha Go made a series of "slack moves" or seemingly lazy or unnecessary moves. Stunned by what they were seeing, no one knew for certain what was going on. Only upon AlphaGo's victory did the commentator state, "we've been using score as a proxy for chance of winning. So the bigger my margin of territory, the more confident that I'm going to win. AlphaGo is saying, no no no, it shouldn't matter how much you win by, you only need to win by a single point." The machine did not care by what margin it won by. The programmed algorithms cared about one result, winning. At the end of the 5th game, a look of pure defeat filled Lee Sodol's face. His hand was shaking as he stared contemplatively at the Go board. He decided to resign.

In the documentary AlphaGo, a Chinese Go player named Fan Hui, played endless games against AlphaGo. Initially when Google's DeepMind team called him to the office and revealed that Fan Hui will be playing against the program, Fan Hui confidently responded, "It's ok. Just a program. It will be so easy to play." By the end of 5 games, he had lost 0-5 against the AlphaGo program. After losing, he stated, "I feel something very strange. I lose to a program. And I don't understand myself anymore." After the initial surreal shock of losing to AlphaGo,

³⁰ Kohs, Greg. "AlphaGo (documentary)."

³¹ Kohs, Greg. "AlphaGo (documentary)."

Fan Hui was brought back into the Deepmind office. He was sent to play and train AlphaGo, to strengthen its algorithms and find its weaknesses. He fed AlphaGo data by playing AlphaGo “from morning until night.”

A year after Lee Sedol’s loss, DeepMind challenges another AlphaGo player, Ke Jie in WuZhen, China. Ke Jie, a 19 year old prodigy, is regarded as the world’s number one Go player. In the first game, Ke Jie loses by half a point, the closest margin possible but “but that’s characteristic of its playing style. The AI doesn’t appear to care about the margin of victory, instead choosing moves that it has determined are the most likely to lead to a win. The result was technically close, but AlphaGo looked like it was winning from a relatively early stage in the game.”³² AlphaGo had gone through a series of upgrades since the matches with Sedol. According to Ke Jie after the first game, “AlphaGo is a completely different player. It is like a god of a Go player.”³³

However, for China, this match with Ke Jie was different. First, it was happening on its own turf as opposed to Sedol’s matches in Seoul. Secondly, it was against one of its own citizens, a Go national treasure. Even though the match was on Chinese soil, after the first match, the media outlets received a censorship notice saying, “Regarding the go match between Ke Jie and AlphaGo, no website, without exception, may carry a live stream. If one has been announced in advance, please immediately withdraw it ... Again, we stress: this match may not be broadcast live in any form and without exception, including text commentary, photography, video streams, self-media accounts and so on. No website (including sports and technology channels) or desktop or mobile apps may issue news alerts or push notifications about the course or result of the match. (May 22).”³⁴ China has long been proud of Go, a national and cultural treasure being played since 500BC. The defeat brought up issues of the possibility of “damaging national pride.”³⁵ The loss of face to the nation was too damaging to bear.

In China, Lee Sedol’s loss to Google Deepmind’s AlphaGo was already a radical wake up call. There were already important advances being made in China’s Artificial Intelligence research and industry from facial tracking to biometric surveillance. It was AlphaGo’s victory combined with other Silicon Valley advancements in AI that gave a serious push to the Chinese Communist Party. Within the next year, massive financial budgets, strategic planning, and funneling of resources were put into Artificial Intelligence by the central government. The drive towards a future driven by AI was not just a slogan of the party. In 2017, a national AI-development plan aims to build 1 trillion yuan (\$141 billion dollars) of artificial intelligence industry by 2030. This investment is expected to stimulate growth in AI related business by up to 10 trillion yuan.³⁶ This ambitious plan is known as the “Next Generation Artificial

³² Byford, Sam “Google’s AlphaGo AI Defeats World Go Number One Ke Jie.” *The Verge*. May 23rd, 2017.

³³ Metz, Cade. “An Improved AlphaGo Wins Its First Game Against the World’s Top Go Player.” *Wired Magazine*. May 23rd, 2017.

³⁴ Wade, Samuel. “MINITRUE: NO LIVE COVERAGE OF KE JIE VS ALPHAGO GAMES”. *China Digital Times*. May 22, 2017.
<https://chinadigitaltimes.net/2017/05/minitrue-no-live-coverage-ke-jie-vs-alphago-games/>

³⁵ Hern, Alex. “China Censored Google’s AlphaGo Match against World’s Best Go Player.” *The Guardian*. May 24th, 2017.

³⁶ Shi, Jing. “National AI Plan to Drive Development.” *China Daily*. Oct 22nd, 2019.

Intelligence Development Plan” which outlines three major steps for China to lead the world in Artificial Intelligence. The first step is to be up to speed with all leading AI technology, to catch up to the US by 2020. The second step is to make major breakthroughs by 2025. The final step is to lead the world in Artificial Intelligence by 2030. As of the end of 2019, China was already a dominating force in AI funding. According to the South China Morning Post, just in 2017 alone, “48 per cent of total equity funding of AI start-ups globally came from China, compared to 38 percent funded by the US, and 13 per cent by the rest of the world.”³⁷

If the party leader announces a plan through a televised speech, it becomes a go ahead to accelerate the AI industry knowing that there will be official support and private investment. It means more than an empty slogan. It signals the desire for the Communist Party to understand and wield this technology for state ends. Chinese companies have long existed in a state of knowing that with a stroke of a pen, policies can change potentially affecting their startups or businesses. These speeches are guides for the general direction of the country for the next year. If Xi Jinping said it officially, it becomes hard to contradict at a lower level.

Xi Jinping himself is often described as an avid reader. On his bookshelf during the annual New Year’s Day address, two books on Artificial Intelligence appear next to Marxist classics *The Communist Manifesto* and *Das Kapital*. Pedro Domingo’s *The Master Algorithm* and Brett King’s *Augmented: Life in the Smart Lane*. Domingos, a professor of Computer Science at the University of Washington writes of an ultimate “master” algorithm that endlessly updates itself and gives itself feedback from data. “If it exists, the Master Algorithm can derive all knowledge in the world- past, preset, and future- from data. Inventing it would be one of the greatest advances in the history of science.” Beijing’s control of these algorithms and applications in areas such as cleaning up the environment, governance, public security, to manufacturing would ensure China’s rise as a global superpower.

Two prominent national campaigns are focused on China’s rise as a global power. The Made in China 2025 Campaign emphasizes the move to the production of more advanced technological innovations such as AI, semiconductors, robotics, and aerospace. In addition it seeks to become less reliant on purchasing tech from other nations. Another crucial campaign is the Belt and Road Initiative which aims to “reopen” and expand on the old Silk Road Route. It involves the building of infrastructure and travel across 70 countries in Asia, Europe, and Africa in order to establish quicker commerce and trade. With its Made in China 2025 Campaign to China’s Belt and Road Initiative, Xi states that AI becomes a “vital driving force for a new round of technological revolution and industrial transformation, and accelerating AI development is a strategic issue to decide whether we can grasp opportunities.”³⁸ This state sponsored acceleration ensures that the vast amounts of data and material being generated in China can be in the control of the CCP. China has no shortage of people and it has no shortage of data.

³⁷ Robles, Pablo. “China Plans to Be a World Leader in Artificial Intelligence by 2030.” *South China Morning Post*. Oct 1st, 2018.

³⁸ Zhou, Xin. Choi, Chi-yuk. “Develop and Control: Xi Jinping Urges China to Use Artificial Intelligence in Race for Tech Future”. *South China Morning Post*. Oct 31st, 2018.



Figure 2.5:

May 23 2017,

Chinese player Ke Jie plays against AlphaGo, Despite the match taking place in China, it was ordered by the state censors to not be broadcasted.

Chapter 3: Mountains of Data

"No water here, only the image of the water." ~ from Artist Cao Fei's Second Life project, RMB City.
39

The era of big data reopens age old debates of the “neutrality” of technologies. Big Data of course is not neutral and free from biases. In addition to the debates about how data should be used, the debate often centers back on the ideologies of big data and artificial intelligence. Ideologies relating transhumanism and liberation to dystopian bleakness and Orwellian references are often positioned in a cultural context. Rather than debate these ideologies themselves, I am interested in the rise of big data as a socio-political phenomenon that has social and economic consequences for those targeted. Data inclusion in China is to be forcibly tracked. While people before had fought hard to have power through visibility, visibility is now embedded in Chinese daily life. So what happens if people are given little choice but to be included in these datasets. All Chinese citizens hold a national identity card and have a dang an 档案(a CCP document that has records of birth, committed crimes, etc. The national id holds information about where their household registration is which effectively states where one is authorized to stay long term, which schools their children can attend, etc. With a population of 1.5 billion people, China is a data giant.

However, the development of the Surveillance Capitalism model in the West has radical and often dire consequences for the rest of the world. The rise of Surveillance Capitalism was in large part driven by the profit motives of companies such as Google/Alphabet, Amazon, Facebook, etc. According to Shoshanna Zuboff, these companies developed with a clear “surveillance dividend” based motive for the certainty of the predictive data they sell and provide to 3rd party companies.⁴⁰ However, China has adopted this model into its own industries and with the interest and support of the State has extended this model beyond capitalist modes of profit driven predictions. The models of predictive data rely on the need for accuracy. In a surveillance state, the term accuracy is difficult to define. Here who defines what is “accurate” and why these definitions exist become of the utmost importance. If the data on its citizens is used to maintain a sense of harmony and order as the CCP suggests, then it is important to understand who is classified in opposition to these state sponsored values. Another important component in order to understand the social impact of this kind of surveillance is how it is enacted and enforced once the boundaries are drawn and classified.

³⁹ Cao, Fei. “RMB City”.

⁴⁰ Zuboff, Shoshanna. “The Age of Surveillance Capitalism”. *Profile Books* (2019)

How are we defining the term “Big Data” in this context? Here I use Danah Boyd and Kate Crawford’s definition as stated in their paper *Critical Questions For Big Data*.⁴¹ They define Big Data as a “cultural, technological, and scholarly phenomenon that rests on the interplay of:

- (1) Technology: maximizing computation power and algorithmic accuracy to gather, analyze, link, and compare large data sets.
- (2) Analysis: drawing on large data sets to identify patterns in order to make economic, social, technical, and legal claims.
- (3) Mythology: the widespread belief that large data sets offer a higher form of intelligence and knowledge that can generate insights that were previously impossible, with the aura of truth, objectivity, and accuracy.”

While the use of large databases themselves are not new, digital databases collected from large amounts of data from users and search engines have created new and often problematic datasets. Now with the increase in personal computing power and large cloud based information storage services, the ease which one is able to aggregate, create, and access a large database presents new critical questions of how these databases are created. Specifically here, I am interested in the use of these aggregated datasets in the context of the Xi Jing Pin era Chinese Surveillance State. In the context of a market and State sponsored acceleration in Artificial Intelligence, I am interested in how data is used to “harmonize” and control on a large social scale. How can the public engage in critiques of these unseen algorithms when the data itself is largely unavailable to the general public? Once again the questions of who aggregates and gets to access the data is important.

With the vast amounts of data and algorithms available, the authority of these algorithms are often unquestioned as systems of knowledge. According to Boyd and Crawford, Big Data has “emerged a system of knowledge that is already changing the objects of knowledge, while also having power to inform how we understand human networks and community.” Indeed the “objects of knowledge” are the human beings that are radically being altered by the policies informed by Big Data. The ideas of the saving grace of Big Data from Wired Magazine’s Editor in Chief Chris Andersen are that “this is a world where massive amounts of data and applied mathematics replace every other tool that might be brought to bear. Out with every theory of human behavior, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves.” However, how do these numbers speak for themselves when these claims of objectivity and accuracy are themselves misleading.

In an authoritarian state, who has access to how this data is analyzed? More importantly, who controls the narrative of the analysis of the data? Can the data itself represent an “objective truth” that Uyghur Muslim’s in Xinjiang are involved in dangerous terrorist activity on a mass scale? Can the data represent that migrant workers are harmful to Beijing’s safety? The central

⁴¹ Boyd, Danah and Kate Crawford. “Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon.” *Information, Communication, & Society*. (2012).

government doesn't need Big Data to enact drastic policies and surveillance on its public. It just needs a cloak of "objectivity" in its research. It needs fiction and pseudo-science. If the justifications of surveillance are repeated enough to the public, the fiction becomes fact.

Furthermore, Big Data sets are not representative of whole data sets. According to Boyd and Crawford, "Without taking into account the sample of a data set, the size of the data set is meaningless." In taking the assemblage of the dataset out of context, there is a loss of meaning. Where there is a loss of meaning, fictional narratives have opportunities to emerge. In the end, it's not just about who has access to the data if there is only one mouthpiece to explain the analysis of that data. Since the use of "Big Data" to justify decisions are often camouflaged and opaque, often without ability to access or question the algorithms themselves, much of the results go unquestioned and untested. In Cathy O'Neil's book, *Weapons of Math Destruction*, she describes these algorithms as something that is used to define a reality that is set with a specific agenda and to use it to justify their results. The benefits of these algorithms are that companies can make quick decisions based on math with a tight budget. The math isn't questioned. However, according to O'Neil, "They tend to punish the poor. This is, in part, because they are engineered to evaluate large numbers of people. They specialize in bulk, and they're cheap. That's part of their appeal. The wealthy, by contrast, often benefit from personal input." People with privilege have access to personal attention such as consultants while the masses are processed by machines. Since data companies are in fierce competition with their blackbox algorithms, often the math is regarded as an intensely guarded corporate secret. However, the use of various algorithms on different datasets and groups of people affect each specific situation differently. These mathematical models now micromanage the economy and society from advertising gains to the management of prisons. These models have different payoffs in different situations. The payoffs can be in the form of political currency as in the case of political opinion polls, crime reduction polling, school test scores etc. The success of these algorithms also can be justified in terms of profit margins. The software does what it is told to do. However, "profits end up serving as a stand-in, or proxy, for truth."⁴²

In China, this means in anti-terrorism efforts and campaigns, what matters is that the State appears to be in control of curbing a threat that wasn't necessarily existent in the first place. Not only has there been a profit made by surveillance hardware and data companies such as Hikvision, Da Hua, and Sensetime, the "success of curbing terrorism" is a form of political currency and justification for the majority of Chinese citizens and the local politicians that justify and enforce this form of terror on a minority population. According to Cathy O'Neill, The model itself is "a blackbox, a fiercely guarded secret." What happens when this digital blackbox supplies the algorithms to put physical bodies in a physical black box? In China, these algorithms literally make people disappear.

⁴² O'Neil, Cathy. "Weapons of Math Destruction". *Crown Books*. 2019.

3.1 The Farthest Reaches of Surveillance

"The emblems of the mountains and the rivers are mutually generative, their breath forces causing each other to grow (山水之象，氣勢相生)." ~ Ching Hao's "Pi-fa-chi": A Note on the Art of Brush" ⁴³

There is an old proverb: 山高皇帝远, meaning "the mountains are high and the emperor is far away." The proverb has come to signify that the further you are from central authorities, the more freedom you are able to enjoy; the central government has no jurisdiction to those who are farthest from its reach.⁴⁴ It is a saying that emerged out of the government corruption and bribery of the late Yuan Dynasty. Since Xi took power, he has made it a central focus to stamp out corruption. He used the charges of corruption and bribery to crush all possible political enemies in the central government. A similar campaign was initiated by the Mayor of Chongqing, Bo Xi Lai as he rose to power. He used anti-corruption campaigns to stamp out all possible enemies and organized crime only to later be put on corruption charges himself. The mountain, as a place far from the reach of central authorities, now no longer exists as such. Surveillance extends to the physical mountains and far away plateaus, the lowest valleys and the high peaks. In fact, one of the most heavily surveilled areas in China is one of the furthest places from Beijing, Xinjiang Autonomous Region. Kashgar mosques, 3430 kilometers away from Beijing, have what looks like a swarm of cameras just in the main entrance. The residents of Xinjiang go through multiple security checkpoints equipped with facial scanning and biometric database cross checking on a daily basis. Lhasa, a district in Tibet, is one of the highest areas of land in the world reaching 11,990ft above sea level. That's as close to the heavens as one can get in China. In March 2019, 200 new taxis in Lhasa were equipped with facial recognition and real time monitoring technology just ahead of the anniversary of the Tibetan March 10th 1959 Uprising. The addition of monitoring in taxis adds to the existing system of surveillance in Lhasa where large networks of police stations exist and communication is severely monitored.⁴⁵ The highest mountains and the farthest heavens are no longer far enough to escape the emperor.

The emperor's eyes are now imbued with chips running neural nets and thermal vision.

⁴³ Kiyohiko Munakata and Yoko H. Munakata. 'Ching Hao's "Pi-fa-chi": A Note on the Art of Brush (1974)', *Artibus Asiae. Supplementum Vol. 31*, pp. 1-9+11-56

⁴⁴ “天高皇帝远 Heaven Is High and the Emperor Is Far Away - translation from My China Connection.

⁴⁵ author unknown. “China Installed New Surveillance in Tibet Ahead of 1959 Anniversary | *Free Tibet*. March 13 2019”



Figure 3.1: interview stills with a worker at a "training center" / prison camp where Uyghurs are detained and held without trial. Xinjiang (source: BBC)

3.2 The New Frontier: Xinjiang

On June 25th 2009, a fight had erupted in a toy factory in Shaoguan after an anonymous post on an internet forum claimed that two Han Chinese women had been raped by six Uyghur workers. After the fight ended, two Uyghur men were killed and 120 more had been injured. On July 5th, 2009, large scale riots turned deadly from a peaceful protest by Uyghur students in Urumqi, a city 4000 kilometers away from the Shaoguan toy factory. The protests began as a gathering where students were peacefully gathered to demand answers to the killings that took place less than a month before at the toy factory. The protest escalated and then descended into violence. At least 192 people had been killed and more than 1000 people injured.

Shortly after the internet was down in Urumqi and city wide curfews were put into place. On the news, there were statements of the riots stating that violent attacks had taken place and a large blame was put on a World Uyghur Congress activist and businesswoman named Rebiya Kadeer. Kadeer denied having any involvement in organizing the protesters. Nonetheless, Beijing had classified Kadeer as an enemy involved in fanning ethnic separatism as an Uyghur activist even falsely accusing her of being linked to the East Turkestan Islamic Movement, a separatist group put on the US terrorist blacklist.⁴⁶

After the 9-11 attacks in 2001, the Chinese called for the US support to fight “terrorism” and “separatism” in Xinjiang. Chinese officials saw the events of 9-11 and the US War on Terrorism as an opportunity to begin its own crackdown on Muslim separatism in an effort to exaggerate the threat of terrorism and separatism in the Xinjiang Autonomous Region. This call to arms occurred at a moment where violence in the region was absent or unreported. In the aftermath of 9-11 with the East Turkestan Liberation Organization being classified on the US terrorist blacklist, Beijing created a label with a visible face, in which to classify any forms of violence committed by Uyghurs in Xinjiang. In the following years after the 9-11 attack, from 2003 -2007, very few violent acts of terrorism were reported in Xinjiang. As Beijing prepared more heavily for the 2008 Olympic games, the region saw a new wave of violent attacks directed at security forces, police stations (in the case of the Hotan incident, 2011), and innocent civilians (July 5th 2009 ethnic riots). In many of the classified “Terrorist” or “separatist” attacks, similar motifs occurred, often related to grievances with local security or police forces. Many involved homemade weapons and knives and were unorganized in nature which “suggested the existence of unconnected highly amateurish cells which act on their own initiative probably fueled by specific local grievances such as economic marginalization, Han immigration or certain measures of religious repression by Xinjiang authorities.”⁴⁷ Exaggeration by official media outlets has been a common approach to Uyghur dissent. Uyghurs who tried to flee Xinjiang were accused of having something to hide. Uyghurs with WhatsApp or Viber were seeking outside help in order to train as terrorists. The ethnic riots of 2009 were blamed on the “three forces” of extremism, separatism, and terrorism both at home and abroad with the aid of terrorist organizations in Pakistan, Afghanistan, and Turkey. Officially, the protests that led to riots in 2009 were never

⁴⁶ “Profile:Rebiya Kadeer July 8th,2009.” BBC News. <http://news.bbc.co.uk/2/hi/asia-pacific/4357607.stm>

⁴⁷ Rodríguez-Merino, Pablo. “Violent resistance in Xinjiang: Tracking militancy, ethnic riots and 'knife-wielding' terrorism (1978-2012)”. *Historia Actual*, Feb 2013.

said to be related to police brutality or religious crackdown campaigns. “In the Urumqi riots, the “enemy” was not the Chinese state represented in a military border patrol, a family planning center...but the Han Chinese civilians so far as they were ethnic Han.”⁴⁸ After the riots, the issue was increasingly framed as a cultural and ethnic issue. There was little mention of cultural or religious eradication, lack of economic and educational resources for local Uyghurs, and a sense of constant policing and interrogation. The violence of this singular event was the catalyst to what would come, an increase in restrictive policies aimed at limiting or arguably eradicating Uyghur culture and identity in Xinjiang.

State surveillance has increased exponentially all across Xinjiang both in Han or Uyghur dominated areas resulting in a series of “education” or “job-training” centers where ethnic minorities as well as Han Chinese can be detained against their will in order to be “properly trained” to fit within the Chinese dream. According to Human Rights Watch, since 2016 the Chinese government has forced 13 million ethnic Uyghurs and other muslim groups in Xinjiang to “mass arbitrary detention, forced political indoctrination, restrictions on movement, and religious oppression.”⁴⁹ In the report it states that it estimates that up to 1 million people are being held in political education camps as part of the governments “Hard Campaign Against Violent Terrorism.” The anti-terrorist rhetoric is paired with experiments with new advancements in facial recognition and mobile surveillance technologies coming from Shenzhen over 4000 kilometers away. Thus Xinjiang has become a testing ground in using these technologies specifically for social control measures. In May of 2019, Human Rights Watch reverse engineered a mobile app that police in Xinjiang were using for mass surveillance. The mobile app “aggregates data about people and flags to officials those it deems potentially threatening; some of those targeted are detained and sent to political education camps and other facilities.” According to the report, the mobile app is used for three main purposes: 1. collecting personal information 2. reporting on suspicious activities 3. and prompting investigations. What kind of data does the app collect? What is deemed suspicious activity? The analysis reveals that “authorities are collecting massive amounts of personal information—from the color of a person’s car to their height down to the precise centimeter—and feeding it into the central system, linking that data to the person’s national identification card number. Xinjiang authorities consider many forms of lawful, everyday, non-violent behavior—such as “not socializing with neighbors, often avoiding using the front door”—as suspicious. The app also labels the use of 51 network tools as suspicious, including many Virtual Private Networks (VPNs) and encrypted communication tools, such as WhatsApp and Viber.” Peaceful religious activities such as donating to mosques or preaching without authorization are also suspicious. However, despite being used to target specific ethnic groups, the findings suggest that the system watches and collects data “on everyone in Xinjiang.” While Uyghurs and other Muslim minorities are being surveilled and jailed the most heavily, the system of surveillance gets information on everyone with a national ID card in Xinjiang. The system itself is set up to flag deviations from what authorities classify as normal behavior and protocol. It tracks everything from location to personal relationships all justified officially as a means for fight terrorism. In Xinjiang,

⁴⁸ Rodríguez-Merino, Pablo. “Violent resistance in Xinjiang: Tracking militancy, ethnic riots and ‘knife-wielding’ terrorism (1978-2012)”. *Historia Actual*, Feb 2013.

⁴⁹ Authors unknown. “China’s Algorithms of Repression | Reverse Engineering a Xinjiang Police Mass Surveillance App.” *Human Rights Watch report*.
<https://www.hrw.org/report/2019/05/01/chinas-algorithms-repression/reverse-engineering-xinjiang-police-mass-surveillance>

authorities have created a system that considers individuals suspicious based on broad and dubious criteria, and then generates lists of people to be evaluated by officials for detention. Leaked official documents state that individuals “who ought to be taken, should be taken,” suggesting “the goal is to maximize the number of people they find “untrustworthy” in detention.”⁵⁰ Such people are then subjected to police interrogation without basic procedural protections. They have no right to legal counsel, and some are subjected to torture and mistreatment, for which they have no effective redress. *The result is that Chinese authorities, bolstered by technology, arbitrarily and indefinitely detaining Turkic Muslims in Xinjiang en masse for actions and behavior that are not crimes under Chinese law.*”

Despite an official positioning of counter-terrorism efforts, leaked data has shown that people were being detained for other reasons including religious beliefs to talking about porn. According to the South China Morning Post, “the database emphasizes that the Chinese government focused on religion as a reason for detention – not just political extremism, as authorities claim, but ordinary activities such as praying, attending a mosque or even growing a long beard. It also shows the role of family: people with detained relatives are far more likely to end up in a camp themselves, uprooting and criminalizing entire families.” The system database also monitors how well it’s own officials are doing in fulfilling their quotas and fulfilling certain tasks. It is designed to “keep tabs on the performance of lower-level officials.” Xinjiang has one of the highest police security presences out of any region in China. Every 500 meters in Urumqi is a police substation and security metal detector checks are needed for everything from going to large grocery stores to public cultural spaces.

In a one party system, terms of law are cloudy and the definitions can often change. It doesn’t necessarily need a dataset to justify a crime. Any “dissident” can easily be slapped with a bogus charge and put away. Crimes like “tax evasion”, “spreading false rumors”, or “pornography” are often slapped on dissidents. Even “corruption” as a crime is hazy and loosely defined, but carries a heavy weight. No real evidence is needed to put someone in prison. There are political justifications. Highly visible “dissidents” such as Nobel Peace laureate Liu Xiao Bo or artist Ai Wei Wei get slapped with labeled charges like “inciting subversion of state power” or “economic crimes” like tax evasion. Others just simply disappear with no clear trace and official reason. In 2019, Qiu Zhanxuan, a Marxist student activist at Beijing University, was abducted by the police. Qiu ironically was on his way to attend an event that was celebrating Mao Ze Dong’s birthday. He was part of a student group that teamed up⁵¹ with labor activists to support factory workers by organizing and attempting to set up unions. Before he was detained, he wrote on his social media, “If doing this kind of manual labor makes me disappear, everyone knows who did it.”⁵² With no charge of crime, the only information that was released by the Peking University extracurricular guidance office stated that Qiu Zhangxuan “did not have the qualifications” to continue as head of the Peking University Marxist Society.

⁵⁰ Author Unknown. “China Detains Muslims in Xinjiang for Faith Not Extremism, Leaked Data Shows.” *South China Morning Post*. Feb 20, 2020.

⁵¹ Author Unknown/ Reuters.. “Police Nab Marxist Leader on Way to Mao Zedong Anniversary Bash.” reprinted in *South China Morning Post*.

⁵² Baptista, Eduardo. Xiong, Yong. “Six Marxist Students Vanish in China in the Lead up to Labor Day.” *CNN*. May 1st, 2019.

Qiu was eventually subpoenaed for “picking quarrels and stirring up trouble.”⁵³ There are no clear explanations to what his “crime” was. Action, in this case organizing workers to unionize, was defined as criminal after he was detained.

With Qiu’s case, data wasn’t necessary. However, Qiu and others who have been labeled dissidents are individuals or small groups caught in the Party’s crosshairs. What happens when whole groups are targeted and criminalized as in the case of the Uyghur community in southwestern Xinjiang province. Here big data gathered from government surveillance apps and facial recognition cameras are used as a way to justify criminality or potential for criminal behavior which is enough of a justification for putting someone in a reeducation camp/ prison labor camp. How criminality is defined by law enforcement is hazy. Flags and markers are set and no one can really clearly explain how these algorithms work. Perhaps, no one who knows is allowed to go into the details. Individuals, families, and entire communities are being criminalized on the basis of unclear, faulty, and unexplainable data.

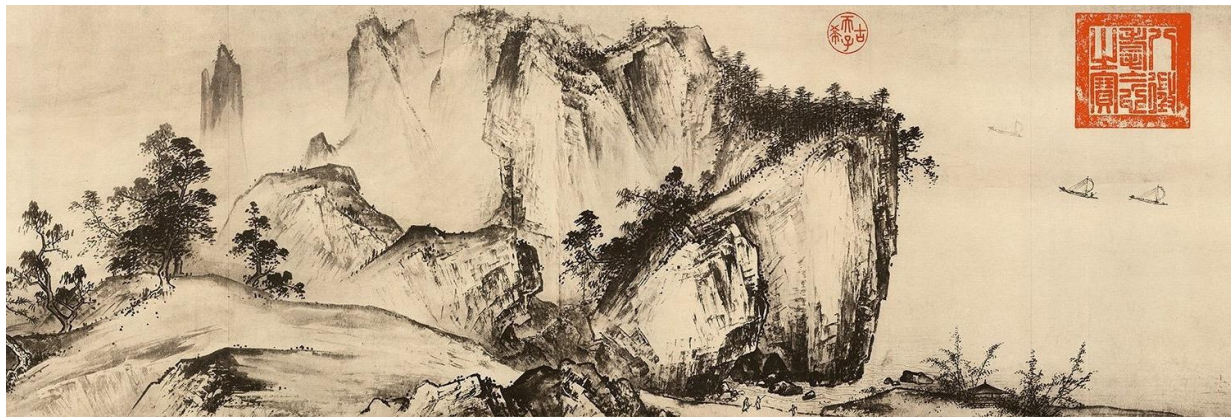
As larger budgets were allocated towards surveillance and public safety, Chinese AI surveillance companies tried to position themselves for the best contracts. According to Adrian Zenz, a China security expert, in 2017 alone, Xinjiang spent nearly as much as the domestic security budget for 2007-2012 combined. The amount spent totaling more than 58 billion RMB (US 8.8 Billion), was twice the amount of it’s spending on health care in the region.⁵⁴ Chinese tech companies specializing in computer vision and facial recognition are providing the majority of the surveillance hardware to Xinjiang. Shenzhen based company, Hikvision, is one of the many companies competing for thousands of security related projects pushed by local governments. The local governments outsource all their security related needs to private contractors. Hikvision is listed as the world’s largest supplier of surveillance equipment and continues to bid on government contracts not only supplying the hardware, but cloud computing, remote sensing, and satellite positioning. Many of the surveillance projects are taken on credit which has piled on debt for local governments. Many analysts are unclear how these government debts will be repaid. There are numerous surveillance companies in China such as Megvii which has it’s tech integrated through its Face++ technology as an ID verification in apps as diverse as ride-sharing to photo retouching tools. Face++ is currently used in China’s Skynet surveillance system to track down criminals and dissidents alike. As China moves into the next stage of it’s Skynet system, facial recognition is a vast open field. It is becoming so ubiquitous at such a rate that it becomes hard to critique its potential threats. The comfort of convenience is sold and stuffed down the Chinese public’s throats at such a rapid rate that the dangers that are posed are often overlooked in favor of its ease of use. According to Jie Tang, an associate professor at Tsinghua University who advised the founders of Face++, “the convenience of the technology is what appeals most to people in China. Some apartment complexes use facial recognition to provide access, and shops and restaurants are looking to the technology to make the customer experience smoother. Not only can he pay for things this way, he says, but the staff in some coffee shops are now alerted by a facial recognition system when

⁵³ Shepherd, Christian. “China Cracks down on Marxist Group for Celebrating Mao’s Birthday and Supporting Labor Union.” Reuters. Dec 28th, 2018.

⁵⁴ Agence France-Presse, author unknown. “China’s Hi-Tech Police State in Xinjiang a Boon for Security Firms.” reprinted in *South China Morning Post*. June 27th, 2018.

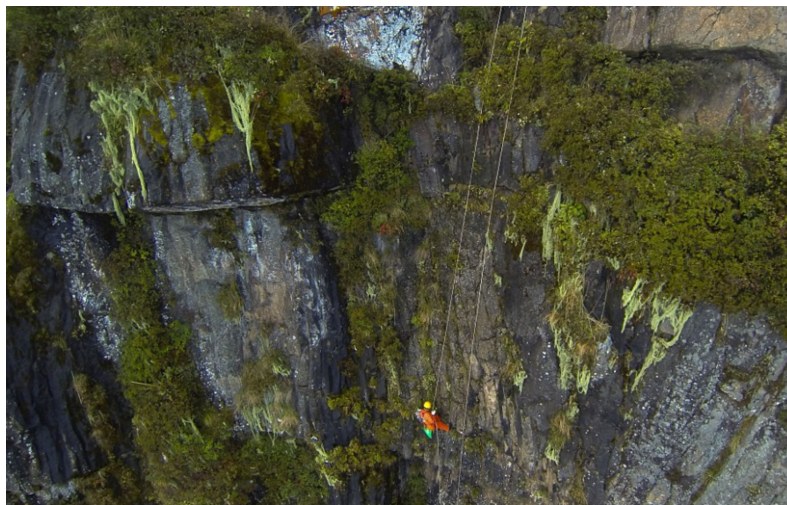
he walks in: “They say, ‘Hello, Mr. Tang.’”⁵⁵ However, one can’t help but wonder that with the amount of technology people have access to, how much agency and choice is left. How will the current move to a much larger Social Credit System create a more divisions and stratification? China has mountains of data. The mountains of data are high and the emperor is closer than ever.

Figure 3.2: Chinese Landscape painting, Xia Gui (夏珪, fl. 1180-1230), Song Dynasty painter: *Remote View of Streams and Hills* (source: National Palace Museum of Taiwan)



⁵⁵ Knight, Will. “In China, You Can Pay for Goods Just by Showing Your Face.” *MIT Technology Review*. Feb 22nd, 2017.

Figure 3.3: park worker Peng Wencai climbs over the side of Emei mountain in Sichuan Province ready to climb down the 10,000 foot peak to collect litter dropped by tourists, he has been doing this 3 times a week for 11 years. (source: ImageChina)



3.3: Cleaning up the Environment:

Qing Cheng Mountain in Sichuan Province: 2015

I must have been halfway up the mountain on the side designed for tourists. The other areas had restricted access due to safety concerns. In the middle of a sacred mountain, was a pole with a few surveillance cameras pointing in different directions. I kept climbing to a rest area, where there was a small hostel. The “fresh mountain water” boiled for tea tasted like Sichuan spicy sausage links sold by vendors catering to tourist climbers. In the hostel there were multiple empty rooms in a cheap concrete building. These empty rooms were filled to the top with empty plastic bottles and assorted random plastic containers. It looked like a makeshift recycling center on the top of the mountain.

*** *Author’s memory*

Since President Deng Xiao Ping’s policies in the 1980’s of “opening up” China to market reforms, China has put itself on a path of rapid growth and development. Especially after joining the WTO on Dec 11th, 2001, China’s economic growth has expanded beyond the ability for social and political life to catch up. Rapid development has led to accelerated corruption in scope and scale and environmental damages from over mining natural resources, air and water pollution, and unprecedented movement of workers and commerce. One of the biggest *visible* environmental problems is the amount of pollutants in the air. A toxic black smog that smells of coal remains on your clothes in many of the major cities and surrounding industrial sites in China. In fact, it became so bad that the government stated that the air pollution is threatening public security because the smog blocked the views of the CCTV surveillance systems.⁵⁶ Infrared cameras used by the fire department as they move through densely filled, smoky situations can allow visibility at a certain density. Once it reaches beyond a certain concentration, even infrared cameras become useless. According to Kong Zilong, an expert in video surveillance technologies, as “visibility drops below three meters, even the best camera cannot see beyond a dozen meters.”

Invisibility is a threat to national security. The surveillance system in China depends on the ability to see and monitor its citizens. If all it can see is a dense wall of pollution particles, no amount of predictive data can outmaneuver camera blindness. The pollution at some points has gotten so bad that folks have gone to great lengths to build “artificial bubbles” or air domes at schools. Children especially are at risk so many of the wealthier elite schools such as British School of Beijing and the International School of Beijing have built artificial bubbles, enclosures with their own filtration systems used on particularly bad pollution days. Where Beijing pollution has reached more than 40 times the recommended exposure risk for pollutants, these elite bubbles are built as a place where kids can breathe filtered air.⁵⁷ In recent years, the

⁵⁶ Hall, John. “China’s CCTV Culture Suffers as Record High Pollution and Smog Levels Render Country’s 20 Million Surveillance Cameras Effectively Useless”. *The Independent*. November 16th, 2013.

⁵⁷ Wong, Edward “In China, Breathing Becomes a Childhood Risk.” *New York Times*. April 22, 2013

amount of pollution has improved greatly due to strict changes made at the government level. Factories on the outskirts of Beijing have been moved and sent to pollute other areas. Even an aggressive campaign to clean urban areas of “low end” elements of their population, meaning people classified as “unwanted” or “dangerous”, was planned as early as 2011 as a measure for population control. It became an accelerated campaign running parallel to the anti-pollution campaign. However the brunt of the crackdown has focused on “low-skilled” or poorly educated migrant workers and families from the countryside. Working class families, migrant workers, who leave the countryside to work in big metropolises, are being forced out of the city. The measures have affected the tech sector as well where approximately 340,000 low paid migrant workers work in the software and information sectors.⁵⁸ This drive to push what Beijing classifies as “low end population” out of the city has not come without resistance. However, with any social campaign against a certain sector of the population, a certain amount of classification of an “enemy” is needed. Ironically in a Communist country, working class, often uneducated migrant workers have continued to be demonized for society's problems. Often stereotyped as backwards, farmers, untrustworthy, dishonest, and dirty, migrant workers have had very little platforms to fight back.

It is precisely these narratives (migrant workers, corruption, terrorism, etc) that state media propagates that allows for the surveillance state to function so well. Surveillance is often portrayed as welcomed or accepted on the grounds that real people believe it is keeping society safe. To a large extent, the government doesn't need people to approve of it's surveillance tactics, its campaigns against the poor, etc. It just needs to “harmonize” the dissent. It continues to do what it needs to do and as long as the CCP remains with a stable hold power, the goal is met. The fear is of social unrest but as long as economic growth masks the rest of the problem, the CCP can maintain the illusion of relative stability.

⁵⁸ Buckley, Chris. Wee, Sui-Lee. Wu, Adam. “Campaign to Drive Out Migrants Slams Beijing's Best and Brightest.” New York Times. Dec. 11, 2017

3.4 The Changing Natural Order.

China's economic growth was previously linked partly to its access to a large cheap labor force and plentiful natural resources. In order to exploit these resources to its fullest potential, new ways of relating to the earth were important. Traditionally, Chinese views of nature were deeply influenced by Taoism and Buddhism. The natural world had a vital energy that was connected to the cosmos. These views of nature were often reflected in the early art of China, particularly landscape brush ink paintings.

Throughout the history of Chinese landscape painting, artists and practitioners have negotiated ways in which allowed themselves to convene with what they viewed as the natural order, a turn to laws of nature as ways to express their relationship to the cosmos and to society. Nature became a way to find sanctuary from an increasingly chaotic world. With the changing of the dynasties, emperors, and ways of governance, Chinese landscape paintings of the mountains and seas became emblems of the spirits of the artists.⁵⁹ It became a genre that “embodied the universal longing of cultivated men to escape their quotidian world to commune with nature.”⁶⁰ The longing for order resulted into an intensified path into ways of “seeking permanence” in the natural world. “In the Chinese imagination, mountains were also imbued since ancient times with sacred power as manifestations of nature’s vital energy (qi). They not only attracted the rain clouds that watered the farmer’s crops, they also concealed medicinal herbs, magical fruits, and alchemical minerals that held the promise of longevity. Mountains pierced by caves and grottoes were viewed as gateways to other realms—“cave heavens” (dongtian) leading to Daoist paradises where aging is arrested and inhabitants live in harmony.”⁶¹ The mountains, linked to ideas of immortality, purification and renewal, were holy places where temples and seekers of solitary meditation could go as places of refuge.

Views of nature were seen as self-generative and in a constant state of change. The natural order was a movement of unknowable and uncountable elements that were always interacting and changing. Rather than emphasize hierarchical modes of control and power, Chinese philosophy tended to focus on the relationships between the natural world and human beings and between elements of the natural world themselves. Human beings were not seen as separate from the natural world around them but part of a “flow of nature’s rhythms.”⁶²

However, as China tried to catch up to other industrial nations, its traditional views of nature were replaced with the ideas that humans would be able to control and manipulate nature to its own will. Chairman Mao, in May 1958, commented that “Make the high mountain bow its

⁵⁹ Sullivan, Michael. “The Arts of China”. *UC Berkeley Press* (1984).

⁶⁰ “Landscape Painting in Chinese Art | Essay | Heilbrunn Timeline of Art History | *The Metropolitan Museum of Art*.”

⁶¹ “Nature in Chinese Culture | Essay | Heilbrunn Timeline of Art History | *The Metropolitan Museum of Art*.”

⁶² Wen C. Fong. “Beyond Representation: Chinese Painting and Calligraphy, 8th-14th Century.” *Princeton*. 1992

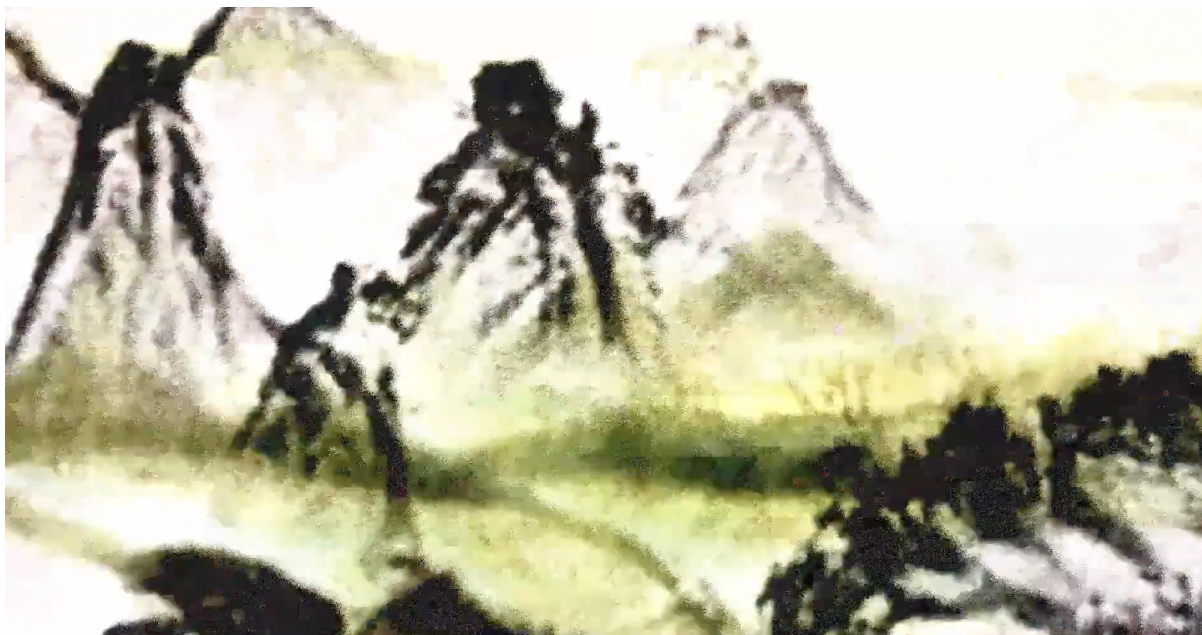
head; make the river yield its way.'... When we ask the high mountain to bow its head, it has to do so! When we ask the river to yield the way, it must yield!"⁶³ The Great Leap Forward and the pressure to modernize accelerated the damages done to the natural environment in China. Mao insisted that "man must conquer nature" and in the period of 60 plus years, China has become one of the largest producers of carbon dioxide in the world with some of the most polluted cities human kind has ever seen.

Gone are the old notions of natural landscapes in the countryside where the mountains and water meet. They exist in the collective Chinese memory and in its museums. The national treasures of China: its long history and culture are relegated to being important when strategically needed. The reality for most people is that they struggle to even keep up with being able to live a healthy life. Instead, the Chinese working class, and middle class continuously work in order to keep from spiraling downward. Due to lack of resources and opportunity in the countryside, most people go to the cities to find work. The natural beauty of the countryside has been eroded and emptied. Whole villages send their able bodied teens and adults to the cities to work.

The mountains are far from the cities. There is no money at the top of the mountain. One might go to visit on a holiday and take a picture, but very few people are climbing the highest peaks to meditate on the natural order. As nature has been subverted to feed the aspirations of the entire country, new landscapes emerge. Landscapes of AI systems built with earth minerals, human factory labor, and digital algorithms. These AI systems were a long time in the making, from Mao attempting to conquer nature, Deng Xiao Ping opening up its doors to become the factory of the world, to Xi Jinping with greater aspirations for control in the digital age.

⁶³ Shapiro, Judith. "Mao's War Against Nature: Politics and the Environment in Revolutionary China". *Cambridge University Press*, 2001.

Figure 4.1 Still images from Manufacturing Landscapes (video installation version)



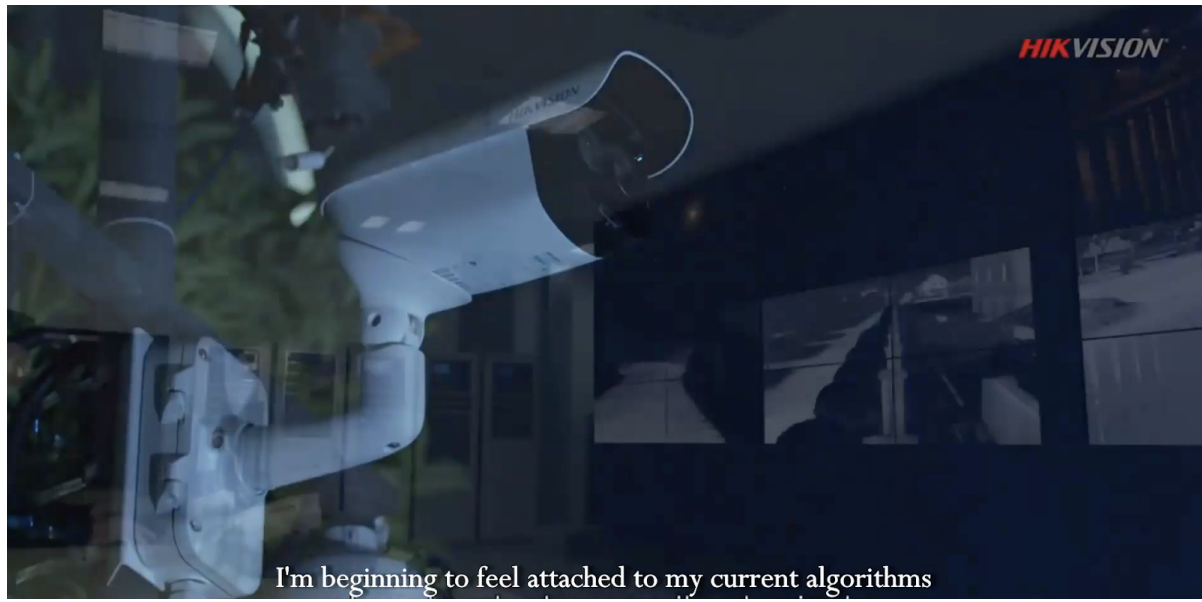


Figure 4.2: still images from Manufacturing Landscapes (video installation version) cont.

Chapter 4: Manufacturing Landscapes: The Project

Manufacturing Landscapes is a series of short films and installation artworks aiming to connect these points of research and observation about surveillance. In this paper I will specifically be talking about one of the works. It is a short film made from the point of view of an AI Surveillance system. The surveillance system seeks to justify its own existence, to validate its actions and keep its own system from being replaced. Like coal, it continues to lobby for its own right to exist.

The eyes of the surveillance camera are our eyes into this fictionalized space where faces, objects, and biometric data coexist as digital objects with humans. The surveillance system is itself not sure yet if it has affinity for these objects whether breathing or inanimate. Its job is to capture, to record, and to relay what it sees. The directives of these eyes are programmed and constantly updated from human employees who themselves are constantly being updated and changed. What does this system want? Does it feel a ping of joy when it has done its job. Does it get pleasure from the capture of these bodies in really physical space. Is the transfer into digital space as numeric data feeds it's ego or does it just function as a decaying machine like a human being, that worries about whether itself will be replaced by a new, shinier, faster, younger version of itself. Does it feel an attachment to its current algorithm? Does it worry about its body being discarded into the mountains of e-waste in an unknown city in China, Africa, or India. It has become accustomed and even complacent to its way of searching. This installation thus serves as a way for me to speculate, investigate, and render imaginative reality into another digital form. It allows me to play with connecting points in time across various historical periods of China in a way that makes sense to the China that I know and imagine today.

These points of connection are *surveillance, landscapes and the natural order, and the acceleration of Artificial Intelligence in China*. It is through active creation of art that I can move beyond the narratives of dystopian decay and linear progress and into more vague and exploratory spaces.. According to Anna Tsing in her breathtaking study, *Mushroom at the End of the World*, “If we end the story with decay, we abandon all hope—or turn our attention to other sites of promise and ruin, promise and ruin. What emerges in damaged landscapes, beyond the call of industrial promise and ruin?”⁶⁴ The process of art making is where explorations of emergent forms are given space to take shape and grow on these damaged landscapes.

⁶⁴ Tsing, Anna Lowenhaupt. “The Mushroom at the End of the World”. *Princeton University Press*. (2015). p.18 (Kindle Edition)

4.1 Found Footage and GANs

The images generated in the film were from two main sources. The first are from Chinese surveillance company brand videos. The second source of imagery was made from using Generative Adversarial Networks to generate new footage based from collected visual image datasets.

Beginning by repurposing brand videos/ commercials as found footage from surveillance hardware and software companies, it looks to identify themes and use the visual language of branding surveillance technologies (*figure 4.6*). Many of the brand videos contain reference to sight, vision, seeing, and knowledge of the future. Images include crystal balls, globes of various sources, suspect looking people running from the police, and safe and happy babies. The language used is either extremely technical as in advertising a specific product or extremely broad and epic. For example, in a Hikvision brand video the text goes as follows:

*“We Begin to perceive the world at the very moment we open our eyes
We long to explore everything around us.
This is because seeing is believing and seeing deepens experience and deepens thinking
The world keeps evolving thanks to human discontent with what our eyes can see.”⁶⁵*

By rearranging this imagery into new sequences, new narratives and nuances begin to emerge. Originally these sweeping narratives, precisely constructed to prophesize the magic of surveillance hardware, become material to be sonically and visually twisted and repurposed. Specifically for this project, I chose commercials of Chinese AI surveillance companies including Sensetime, Da Hua, Yitu, Hikvision and government sponsored surveillance documentaries as the found footage. These images were cropped and put into a folder. Using the visual programming software, Touchdesigner, I created a patch that would go into the folder and select a video at random and create a one second loop of the video and sound (*figure 4.3*). A second video would be randomly selected and looped against the first video creating juxtapositions of sounds and images.

Also it makes use of generated images trained from Generative Adversarial Networks of various datasets related to the themes discussed earlier. GANs are classes of machine learning frameworks that aim to generate new material (images, words, etc) from contrasting two neural networks. Given an input training dataset, the neural networks try to generate new material based off of the characteristics of the input training dataset. GAN's have been written about at length so I won't delve too deeply here. In this case, the input datasets were mostly images trained using the StyleGAN2 model in Runway ML.

⁶⁵ Hikvision English Brand Commercial. “See Far, Go Further”. Hikvision (2017)

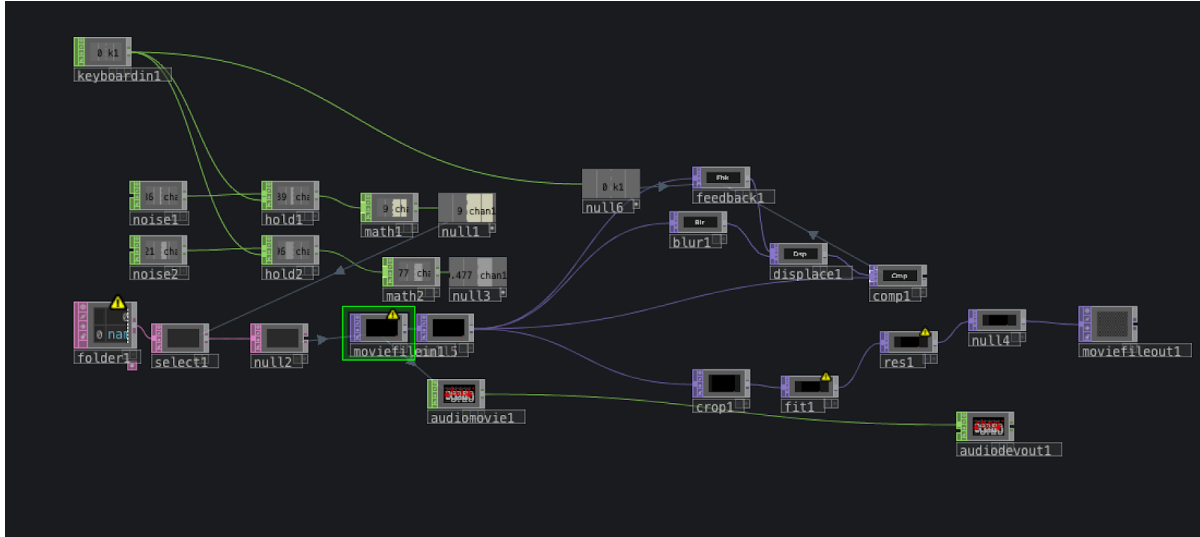
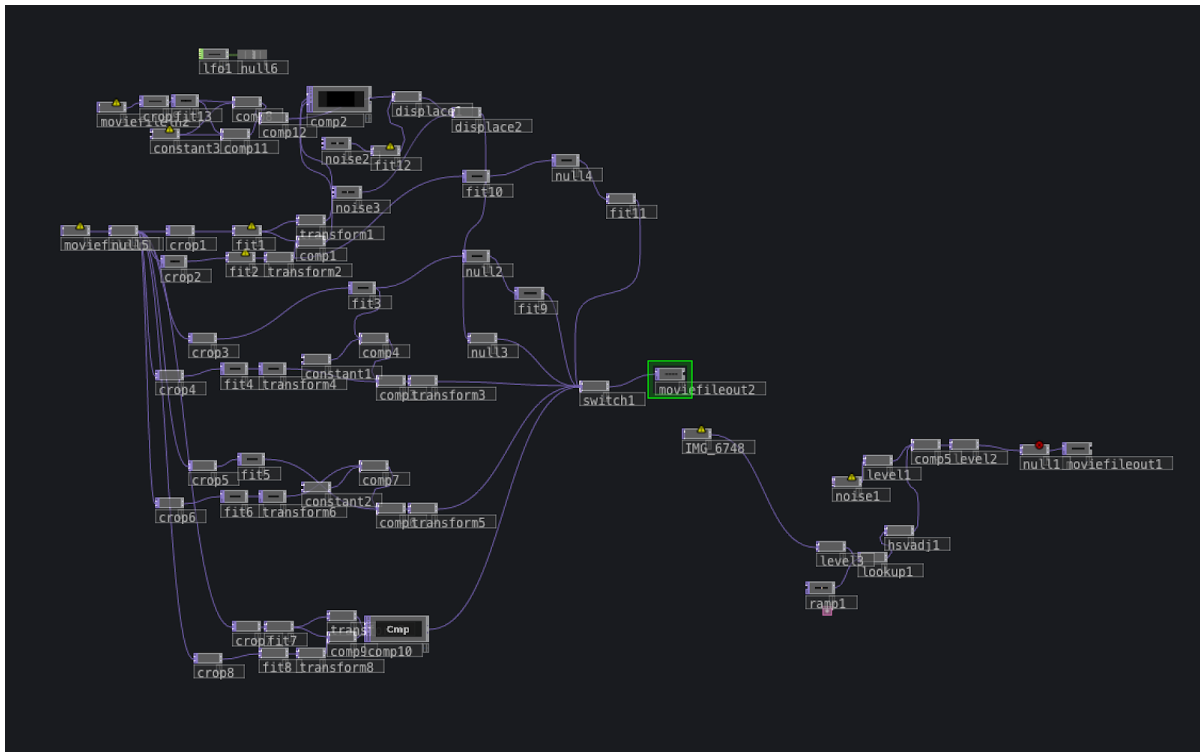


Figure 4.3: (Above) Figure . Basic Touchdesigner randomizer, grabs a video from the folder, randomizes and loops a position at 100 milliseconds. Then repeats the process on the second a video and juxtaposes it against the first video creating quick looping sounds and images.

Figure 4.4: (Below) Figure . Touchdesigner patch to composite and crop multiple images together within certain parameters.



4.2 Machine Learning and Software

All the generated images shown in the film, besides the Chinese surveillance company infomercials, were generated using Runway ML, a machine learning tool and UI, that allows the user to prepare and train their own datasets as well as import their own training models. Runway ML(as shown in *figure 4.5*) is a software that incorporates various available machine learning models into a single UI. I choose Runway ML because of its ease of use, their dedication to making ML tools available to creators, and their variety of training models such as GPT-2 text generator and StyleGAN2 image synthesis models.

The film itself is composed and edited with custom video sequencers made in visual programming software, TouchDesigner (*figure 4.3 & 4.4*). By using TouchDesigner to set up a system, I am able to determine and predefine sets of rules on how the images will be ordered. New edits come into being through rule based processes and injections of noise and randomness. The nodes were set up in Touchdesigner like a more traditional live visual performance. I imported the videos and created ways to play effects and cut and composite the images in “real time” improvisations to be exported and recut as sections in Resolve, a more traditional video editing software.

Figure 4.5 .Runway ML UI display: Vector results of 5000 points of training.

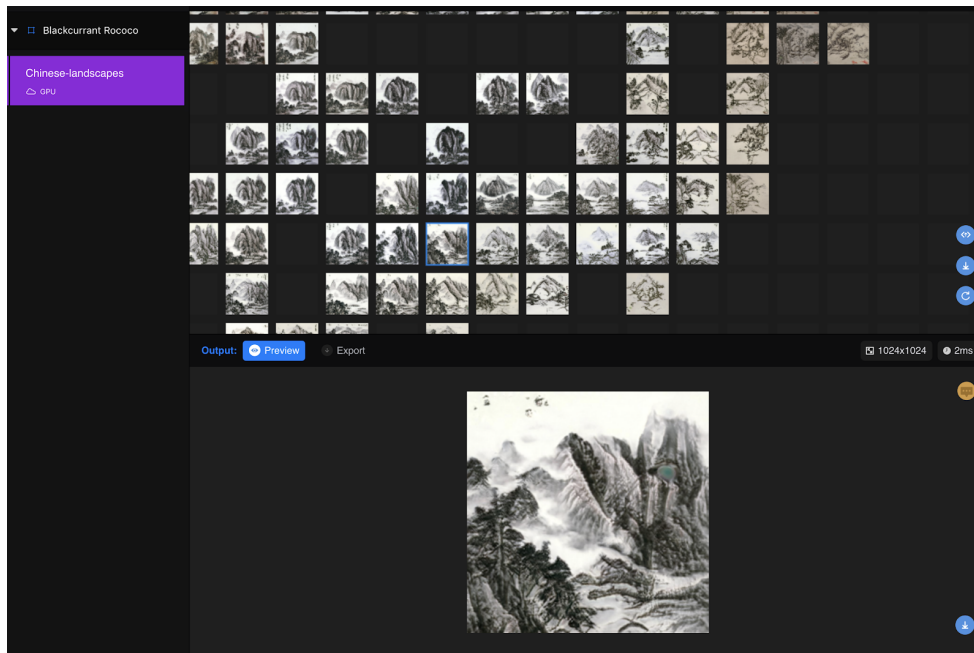
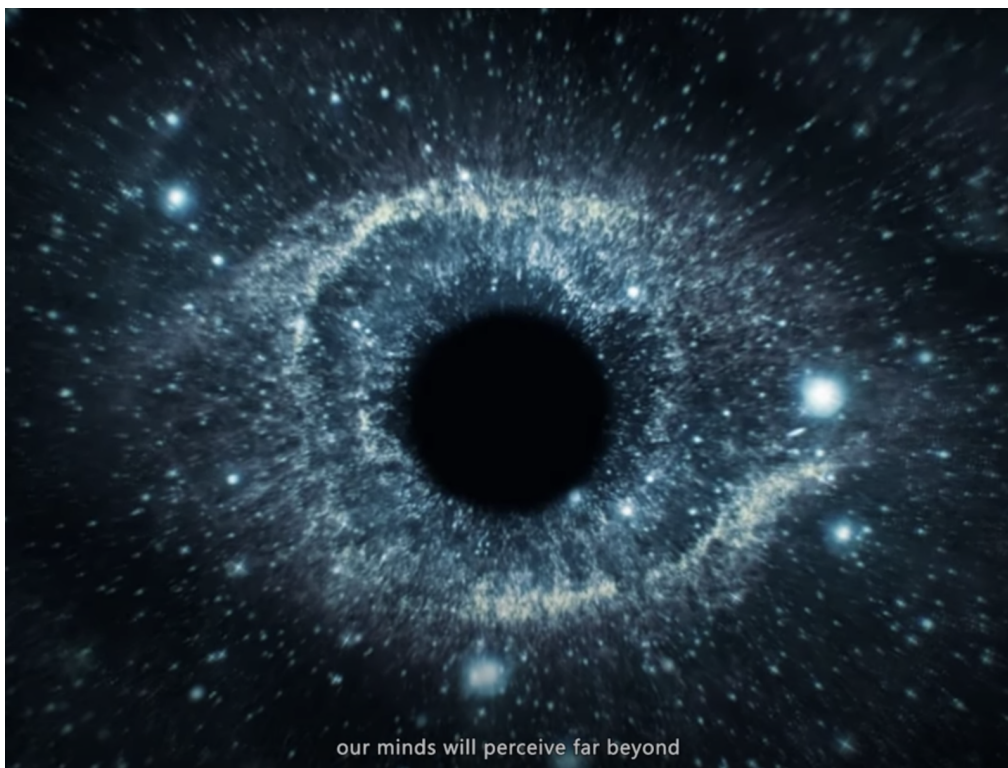


Figure 4.6: Images from Hikvision brand videos.⁶⁶ Images from across all brands have multiple references to vision, sight, eyes, globes, crystal balls etc.

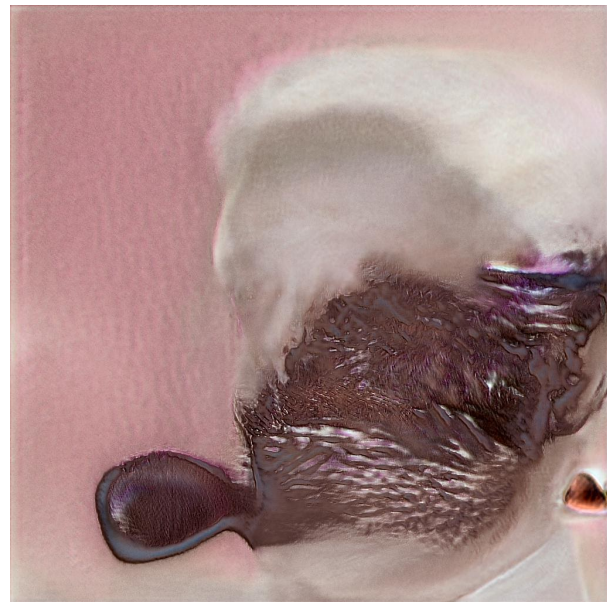
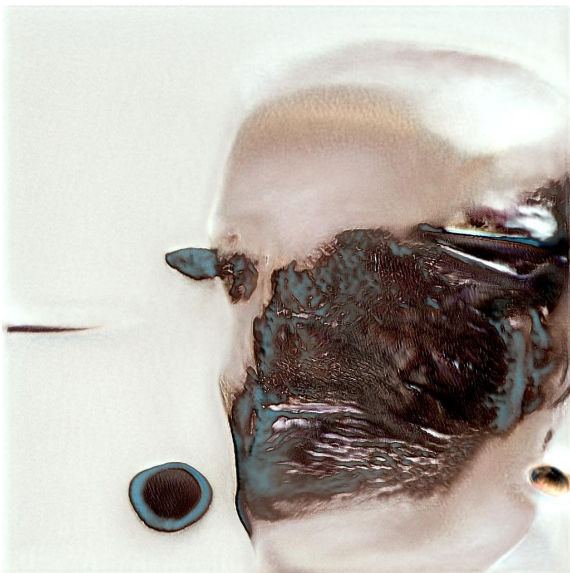


⁶⁶ Hikvision brand video. "Beyond Just Seeing". Hikvision.(2019)

Source #1: StyleGAN2 commercial round surveillance cameras:

In attempting to ask these questions, images of home surveillance camera products scraped from the web, primarily from Baidu Images and Amazon, were trained against datasets of faces from the Flickr HQ dataset using StyleGAN in Runway ML. The images used for input training were the commercial camera products themselves and not surveillance footage. The generated images after training were images where the camera begins to melt into the faces. In an effort to deliberately skew the images, I stopped the training after just 1000 points. The faces are still vaguely distinguishable but their features have been eroded with a sleek black glass or obsidian looking material. This is the surveillance camera dataset beginning to rear in. The dataset was deliberately picked to have only black cameras, mostly home surveillance cameras all with white backgrounds (ie. amazon product pictures). In choosing a small and homogenous dataset, I hoped to make it indistinguishable where the human ends and the surveillance camera begins.

figure 4.7 generated images from StyleGan model



.....
examples of input dataset =>



Source #2: Chinese Brush painting landscape dataset.

The second source of the image training data was a collection of Shanshui Chinese Brush paintings scraped from Baidu images and Google images combined with a very well organized Chinese painting dataset from Ying Chen, Yuan Chen, and Guanyang Wang at Stanford University.⁶⁷ Using their dataset, I selected specifically all the pictures of brush landscape painting disregarding the calligraphy and Guo Hua(National) paintings. The Chinese landscape generation was inspired by the Shanshui DADA project⁶⁸ by Aven Le Zhou as well as the ChipGAN paper for Chinese Ink Brush style transfers.⁶⁹ The organized dataset was then trained at 5000 points using StyleGAN in Runway ML. The goal of generating these landscapes was to focus on it as a material that has been taken out of context of the imbued cosmology of traditional Shan Shui landscape paintings. It thus has its original “spirit” removed and repurposed as a metaphor for the changing landscapes of AI technology created from human labor and earth minerals. Despite the visual inspiration of the projects mentioned previously (Shanshui Dada, ChipGAN), this work conceptually owes much to Kate Crawford and Vladan Joler’s amazing work, *Anatomy of an AI*, in which they look at the production chain, minerals, and human labor of the Amazon Echo.⁷⁰



Figure 4.8: Examples of source dataset.

⁶⁷ Chen, Yuan. Chen, Yuan. Wang, Guanyang. “Chinese Painting Generation Using Generative Adversarial Networks.” Stanford University. <http://cs231n.stanford.edu/reports/2017/posters/311.pdf>

⁶⁸ Zhou, Aven Le. “Shanshui-DaDA (2018) | Intel DevMesh.” <https://devmesh.intel.com/projects/shanshui-dada-2018>

⁶⁹ He, Bin. Gao, Feng. Ma, Daiqian. Shi, Boxin. Duan, Ling-Yu. “ChipGAN: A Generative Adversarial Network for Chinese Ink Wash Painting Style Transfer”. *Peking University/ Tsinghua University*

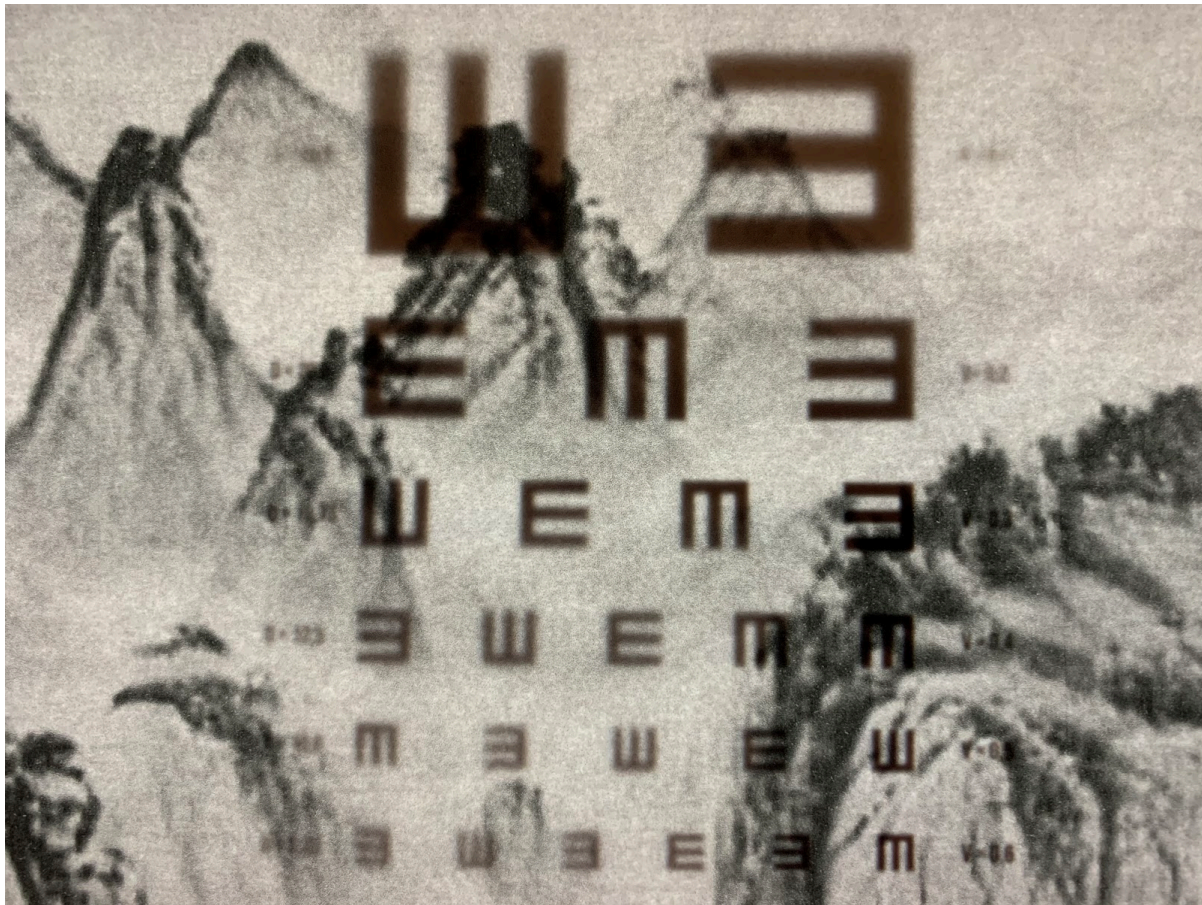
⁷⁰ Kate Crawford and Vladan Joler, “Anatomy of an AI System: The Amazon Echo As An Anatomical Map of Human Labor, Data and Planetary Resources,” *AI Now Institute and Share Lab*, (September 7, 2018) <https://anatomyof.ai>

Figure 4.9: Generated images after training



After the material was generated, I went through a process of filming and refilming the material. Many of the images were printed out in black and white and overlaid on a light box or computer screen with the animation of the generated landscapes underneath. Some of the images used actual Shan Shui paintings which were overlaid on top of the generated image animations and refilmed multiple times with an iphone. Many of the animations were put back into Touchdesigner and edited, played and captured in real time. Thus it was a process of filming and refilming/ sampling and resampling until the lines began to blur and downgrade.

Figure 4.10: still from re-filming computer screen with iphone. Layering a printed image of landscape over screen.



Chapter 5 Conclusion

In looking at AI surveillance systems in China, the problem of watching and being watched is a continual process of being updated by either human hardware or machine algorithms. Hardware is continually becoming more advanced, bypassing pollution and other obfuscations. It becomes impossible to keep track of all the data. In creating these systems, vast production chains are tied together with those at the bottom of the chain directly digging up minerals to melt into computational power or evaporate into the cloud. Surveillance is tied to the earth. It is tied to the materials that make the hardware, the minerals that make up the electronic components, and the human labor that keeps its algorithms fully functioning and up to date. Society's relationship to the earth, its justifications for moving mountains, the stories it creates to justify the surveillance, and the human consequences created from this surveillance are all part of the new cosmic order in China and the world.

In looking specifically at China, the watcher and the watched are integrated into a complex web of signals and noise. It is a society of surveillance with no choice but to be watched. It doesn't ask permission through long term agreements and the data needs no permission to be used despite various "privacy" laws. The ideas of Chinese cosmology seen in traditional landscape paintings are now forever changed by the fact that these mountains are in fact able to be moved. The modern Chinese citizen exists in a society where being watched is standardized and through this standardization is able to develop new relationships and ways of navigating this complex surveillance web. While not all citizens are being targeted as drastically, everyone feels the sky eyes watching. It sees very clearly the gaze of the camera and the ears of the omnidirectional microphones.

Under this gaze, the people are constantly told new stories creating a culture of fear and anxiety. With enough repetition, these stories become more and more a reality. Terrorism, corruption, subversive behavior, and the threats of a migratory working class are constantly mentioned as mantra. They become real only if the State who controls access to information can convince its citizens that they are indeed a threat to their livelihoods. These falsified or exaggerated stories become the talking points for Chinese citizens who defend the surveillance state, especially to the Western world.

As China budgets more and more money into expanding its trade route (Belt and Road Initiative) and advancing its technological powers (Made in China 2025), these cheap hardware surveillance systems will move through the rest of the developing world. As more and more bodies are captured as data, different cultures will have to navigate these surveillance skynets in ways that make sense for them. Each will face the problem of asymmetric data control and confront the control of data in radically different ways.

In addition to looking at China, it is important to have more cross cultural discussions on surveillance as it affects people from all over the world; to draw connections to surveillance as it targets black and brown communities in the US, the poor in the Global South, and for folks

all over the world to engage in order to find creative solutions and alternatives together. It is also important for our critiques of the CCP and Chinese government power to be focused on advancing justice and solidarity with Chinese citizens rather than creating more orientalist or xenophobic narratives of Chinese people as backward, other, or culturally apathetic towards surveillance.

For those who have no choice but to be watched, we must struggle together to find ways to open up discussions around our data and privacy in cloaks of secrecy away from those who control our data. We must continue to create new coded language in order to operate in these surveillance spaces. In opening these discussions amongst ourselves, we can find new ways of exploring and speculating on different modes of moving within these systems. Using artistic practice we can speculate new worlds within and outside these surveillance systems. In ripping it open, we can find ways to subvert these surveillance systems and resist the desire of the surveillance system to change our behaviours without our knowledge. In using generative art practices and AI design tools, we can create more critical and nuanced narratives that bring more varied and nuanced discussions around surveillance. If the role of propaganda is to take lies and make them true, art making can reveal these fictions. It can create new fictions that question the dominant narratives toward surveillance.

Machine learning tools offer artists new ways to engage with these technologies by making alternative uses for these tools. These tools are in no way neutral but embedded with the bias and ideologies of the creators. In using these tools critically, we gain a greater understanding of how our own biases function within these systems. It opens up the possibility of subverting these new technologies for different ends. I just hope that these new paths create more possible doors to explore rather than prisons to hide in.

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