Aug.16th, Liyuan Rd, Beijing. / Photographer: Youchen Zhang

Price of Privacy: Jaywalking, Facial Recognition, and Social Credit System

The Experimental High School Attached to Beijing Normal University

Chinese Jaywalking

Li Yuan Rd, Tong Zhou District, Beijing.

A telescreen with the size of about two or three orthodox televisions was set up at the crossroad quietly around June, 2018, and soon caught sights of wondering and pondering from local residents passing by.

Guofeng Zhang and Youchen Zhang, two young journalists from the Experimental High School Attached to Beijing Normal University, were intrigued and went up to the spot for further investigation. As it turned out, a new way of reducing, if not eliminating, the infamous "Chinese Jaywalking" was being experimented. The screen at Li Yuan Rd displays a real-time scenario of the crossroad and circles out the jaywalkers that are being caught in act. An alarm is also set up near by, letting off warnings including "do not cross the road when the lights are red" loudly as the system spots any potential "criminal."

Beijing is not the only city equipped with such technique in China; the list is rather long as a matter of fact. Shanxi, Jinan, Xian, Chongqing, Fuzhou… The "Shame Game" ploy, as described by a reporter of the New York Times, was popping up and springing over the fertile land of the big nation. There are certain places at which the system is relatively advanced: take Shenzhen for example, the system there manages to connect to a large national database in which most, if not all, Chinese citizens are documented. The screen could thus display the photo, name, and even the government I.D number of the rule-breakers (the information are, of course, properly pixelated). Local police stations in Shenzhen even went so far as to setting up a website on which one can type in the I.D number of a citizen to check his/her "record." The website, however, has stopped functioning as to now. Some say it was due to the vehement opposing voice from the public which stated adamantly that the system was an intrusion of privacy, but no official explanation was given up to now.

(Above is a comparison of the same website between how it was at its first release and how it looks like nowadays. They have the same appearance in a general way, displaying photos, names, government I.Ds and even "crime scenes" that are, again, properly blurred. The title reads "Jaywalkers Exposed." Nonetheless, an interesting observation to notice is that the latest case stopped at Mar.16, 2018. Also, the "searching" function that the website once provided has been taken off.
The screenshots were taken by Yuchen Zhou. The first was from a piece of news back in April on Sohu, a Chinese media, and the second one was taken at the official website https://www.stc.gov.cn/facei/ on Aug.09)

Social Credit System, or Big Brother?

Let us pause here a bit and reflect upon the background information that led to the embark of the system before we proceed.

On Jun.14,2014, an outline named "State Council Notice concerning Issuance of the Planning Outline for the Construction of a Social Credit System (2014–2020)" was put up on the official site of the Chinese government, a fact that did not spark much controversy as it did nowadays. Part of this was due to the ambiguity of any bureaucratic documents; the rapid development of China in terms of top-tech including facial recognition and a nation-wide security camera system also took a modest portion of credit. There were rumors going about (especially from western media) that the combination of such system and technology would lead to the end of the word "privacy." *Wired* of U.K and *France 24* of, obviously, France went so far as to depicting the circumstances using phrases like "Chinese Big Brother System" or "Orwellian Society Coming True."

Big data meets Big Brother as China moves to rate its citizens

The Chinese government plans to launch its Social Credit System in 2020. The aim? To judge the trustworthiness – or otherwise – of its 1.3 billion residents

Asia-Pacific

Big Brother is coming: Inside China's plan to rate its 1.3 billion citizens

(Screenshots as to the rather radical depiction of the Chinese Social Credit System
The screenshots were taken by Yuchen Zhou)

Interesting observations— but before diving right in let's first take a look at what a Social Credit System really is.

The name itself is actually rather self-explanatory: through all the specious bureaucratic terms we were able to extract its essence, being that the government (or its private contractor) would standardize the reputation, or credit, of their citizens basing on a certain model that may or may not exist by now. For instance, debtors who fail to repay the loans lose point and face the possibility of being put on a "blacklist" which prohibits them from taking trains, airplanes, or living in fancy hotels; the first bunch of "blacklisters" were already on file as early as 2013. How the punishing and rewarding policy would be generalized to the society as a whole remains unclear; still, it is rather safe to infer that jaywalkers, like debtors, are also losing points, only on a smaller scale. Saving a

girl from a smuggler might as well add points to one's "personal account"; again whether a "blacklist" would exist remains unclear, but we can imagine how this could be applied to all fields in daily life including attending colleges, finding jobs, and probably even getting married.

By what means is the Chinese government going to build up the system? One might ask.

The official document, as always, remains rather dubious as to the sensitive matter and only indicates that the system will be built up via "basic internet software"; Baidu, China's predominant searching engine ever since Google's "retreat", says "a strong government-based supervising system" would be the foundation. Wikipedia, however, puts it more bluntly as do most western media: "The system is a form of mass surveillance which uses big data analysis technology." The aforementioned huge screens that captures jaywalkers are commonly viewed as a try-out regarding the system that is supposed to be accomplished by the year of 2020, a fact that seems to be corroborating the "mass-surveillance" theory.

Exactly how advanced is China's surveillance system? Yuchen Zhou, a researcher from the Experimental High School Attached to Beijing Normal University, did his "homework". An article named "Inside China's Dystopian Dreams: A.I., Shame and Lots of Cameras" from the New York Times caught his attention. It briefly introduced a recently adopted technique in Zhengzhou called "facial recognition glasses" that were utilized by police officers to identify criminals at large. Another focus of the story was the on-built of a national surveillance system and facial recognition technology, two of the most predominant elements on which the aforementioned Jaywalking System was built. A line from the article intrigued Yuchen.

"Even so, China's ambitions outstrip its abilities."

But how so?

Facial Recognition, Mass surveillance and Skynet

Yuchen managed to locate a researcher at the New York Times who contributed to the reporting of the article, in hope to learn more. (Out of the researcher's personal concern I'd refer to him/her as Tom for anonymity)

"It is hard to say if the Jaywalking System will function as they hope it will." Says Tom. "In the article, the facial recognition glasses aren't as perfect as it seems like; they are connecting to the local database only and is not able to recognize any faces who isn't from Henan province. " Tom commented. "The Jaywalking System is connected to the national database alright; yet there are still

problems behind the scene. For instance, the A.I that processes the images aren't that advanced; a lot of human work are needed to make sure no error will be made. The facial recognition technology itself is also an issue: a margin of error of around 1/10000 still exists even among the best companies in the field. Thus again, a mass amount of human work is needed behind the scene to eliminate the wrong results." Tom says. "As a result, there could be a delay as to the I.Ds the Shenzhen system displays." Tom concluded.

To dig deeper into the problem and to check out Tom's story, Yuchen later talked to two "insiders" who themselves are experts regarding A.I and facial recognition technology. The first person Yuchen interviewed was Mr. Cai, an employee of an A.I company that focuses on developing A.I engines and models. Mr. Cai is a product manager as well as an analyst; he has "a moderate amount of knowledge regarding facial recognition technology that may or may not help you," according to his modest self when Yuchen first called.

As it turned out, he has more than simply a "moderate" understanding of the technology. He first explained briefly how A.I and facial recognition technology is related: "A.I is basically a learning machine whose model is based on human brain. In the case of facial recognition, the 'brain' processes visual information mostly. To enhance the precision of the results, people insert large databases consisting of human faces for the "brain" to study. The faster the brain learns, the more advanced the facial recognition technology is. When the capability of the "brain" is set and remain immutable, as in the case of the Jaywalking System, human power and the quality of the system's hardware become the most relevant factors. A second round of verification by human employees could be crucial." Said Mr. Cai. "The resolution of the cameras are also important." He then added.

The quality of cameras in China, however, isn't exactly what one may expect.

DeepGlint is a Chinese company that is known for its expertise in facial recognition technology and A.I. Standing in front of the world trend, it combines facial recognition technology with security needs, and has been cooperating with the Chinese government under a certain project, according to its official website. It held a online course on such topic recently, which the young researcher Yuchen Zhou spotted and listened through carefully.

According to Mr. Zhao Yong, the CEO of the famed company, there are more than 2 million cameras in the city of Beijing right now. There are two types of cameras: "police" and "orthodox". The "police" cameras are those with high resolution and thus the capability of adopting the facial recognition technology. The "orthodoxes", however, are merely surveillance cameras that are unable to capture a clear face of pedestrians walking by. Most of the cameras fall into the "orthodox" category, leaving only a few equipped with the fancy technology, including those used

for the Jaywalking System. "It is possible for the orthodox cameras to capture a general perception like the color of the clothes, the type of hat one wears… But please be rest assured that you are not yet living in a world where all cameras know who you are and what you are doing. That's what happens in movies. (laugh)." Said Mr.Zhao. Obviously, the "mass-surveillance" system is still on its way.

Mr. Liu, another expert regarding security cameras and facial recognition technology, provided extra information."The mass-surveillance system has a name." Said Mr. Liu. "Skynet was built to capture criminals, or at least that's what the official says." He goes on. "Whether the social credit system is sharing the same system I don't know, but what I can tell you is that skynet is upon completing. The technology it boasts is way advanced than normal citizen's perception. It not only scans freeze images to identify people now— the way a person walks, how someone usually moves his arm… The skynet is working on taking personal characteristics that could be displayed in videos into account, meaning that face-covering or even plastic surgery could be useless in front of such system."

However, Mr.Liu is also concerned with the precision of the results: "A lot of human work is still needed to eliminate mistakes."

Yuchen never found any information about "personal-behavior-scanning" anywhere during his research, so he decided to take Mr.Liu's word with a grain of salt; still, he decided it is rather safe to draw a conclusion. China's facial recognition technology and surveillance system are advanced indeed; they haven't, however, reached the standard of the so-called "big brother society" as some western media declares.

The Media

What's local Chinese media's view toward the policy? Yuchen Zhou sought for further answers.

Weirdly enough, state media are unusually "unquiet" regarding the issue. A news report about how a BBC reporter was caught only 7 minutes upon being placed on the "criminals-at-large" list at Guizhou went viral around December, 2017. "The ubiquitous surveillance cameras and the world-front facial recognition system are what contributed to the swift arrest." Some articles concluded. " Justice has

long arms." (天网恢恢，疏而不漏 ） As if it wasn't enough, an old Chinese saying were placed as the title of several among the reports, enhancing the notion that criminals will never get away with the sins they committed. Reports regarding the "Jaywalker-

Capturer" system were also prevalent, as are rumors now and then contending that China is building the world's largest and so far the best facial recognition technique. The atmosphere is that of propagandising. Mr. Cai and Mr. Liu, two of the aforementioned interviewees, all commented on the "7-minute-swift-capture" case, saying that the news could be true technologically speaking (especially at modernized cities); still, both expressed doubt of over-exaggeration.

China's mass surveillance system is not the first of its kind around the world. A similar project was already embarking in the United States on as early as 2007. It stopped on June.6th, 2013 when Edward Snowden, a former NSA contractor, fled to HongKong and revealed the project to the general public. Known as "PRISM", the infamous program guaranteed the U.S government full clearance to personal data on several big companies including Microsoft, Yahoo, Google and Apple. In the name of "anti-terrorism", it ignored the term "privacy" and intruded whichever phone call, email, twitter no matter who made or sent. Outraged, U.S citizens stood up and opposed the program vehemently, leading to the ruling of the unconstitutionality of the project eventually.

Skynet; PRISM. A notable distinction of the two program is, while the U.S government went great length to ensure the program remain a secret, the Chinese government seems to be doing just the opposite. As ironic as it sounds, there was a switch-of-roles between the so-called model of "liberal" and "democratic" nation and the "totalitarian" "conservative" "hell" according to a certain group of critics.

We may refer back to the "Shame Game" reference for a better understanding as to why the strategies utilized were radically different. Differences between cultural background might explain the phenomenon— in traditional Chinese view, one's reputation is viewed as one of, if not the most important element when evaluating a person. Just the idea of losing "credit point" might scare off pedestrians who would have jaywalked, let alone being placed on a huge screen and let everyone else know how he/she just committed a "crime." To some extent, the news report helped push forward the process, not pulling it back.

Statistics also corroborates the theory. According to *Beijing Evening News*, during the half of year the Jaywalking system was operated at the crossroad in Shenzhen, 13930 people were caught for

breaking traffic lights; as a result, the frequency at which jaywalking takes place decreased from as many as about 150/hour to as little as 8/hour. It was a unprecedented success as regard to declining the notorious "Chinese Jaywalking" — previous strategies utilized, even with involvement of police, were never as effective.

"The Shame Game"

Are those actually what Chinese citizens think? There's only one way to find out.

On Aug.16, Youchen Zhang and Guofeng Zhang showed up at Liyuan Rd with pen and papers in their hand and started asking people questions.

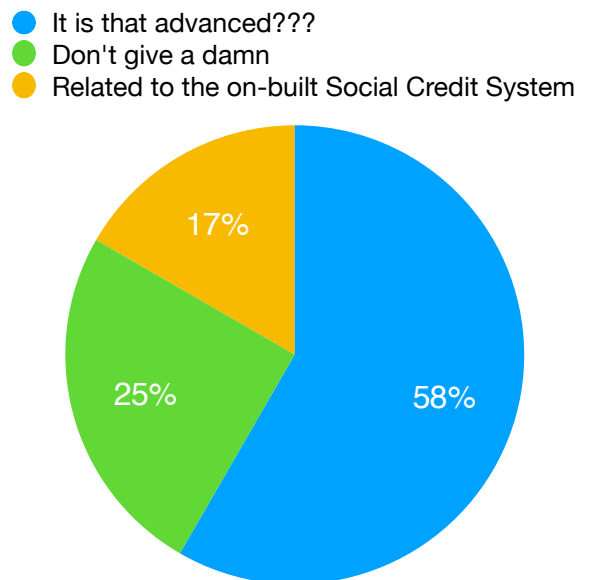"Sir, mind if you tell me what this big screen is here for?"

"Sure… Umm… commercial adds, I presume?"

……

The first conversation ended rather awkwardly, but by the end of the day they still managed to accumulate a substantial amount of effective data.
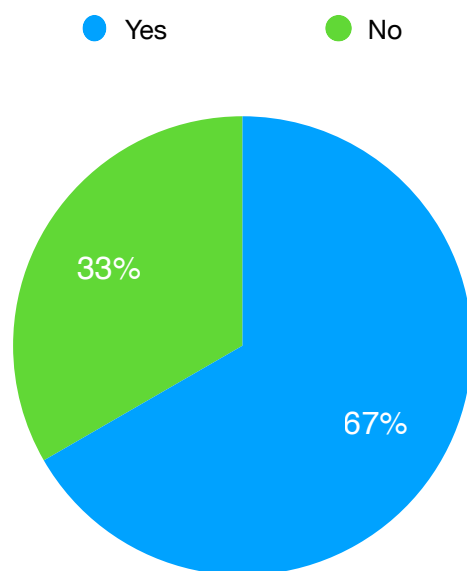
Q1: Do you know what the screen is used for?

Q2: The facial recognition technology enables the Jaywalking System to identify you by person. What do you think of that?

Legend: ● Yes ● No

Legend: ● Embarassment ● Social Credit System
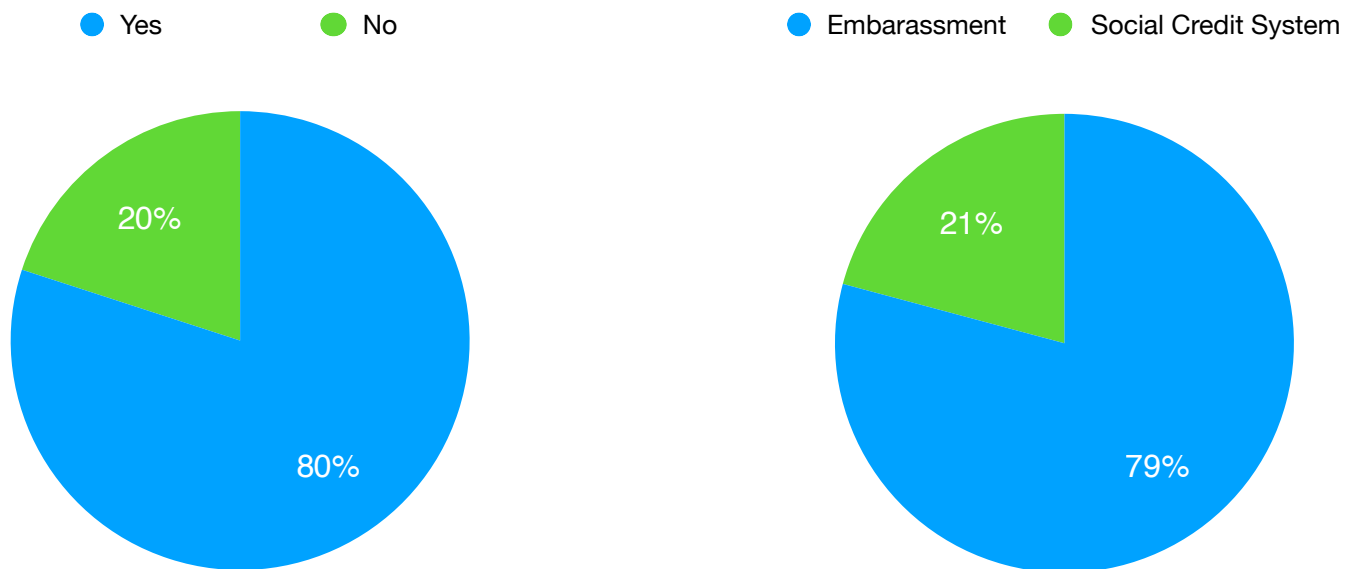
Q3： Do you think the Jaywalking System is effective?

Q4:(From Q3): If yes, why?

*Note: The sample size of Q1, Q2, Q3 are 60. The sample size for Q4 was 60*0.8=48.*

Many people from Tongzhong are obviously not news-lovers, as evident in the fact that many of them don't even know what the screen is used for, let alone the existence of a on-built social credit system. However, after a basic introduction of the background information, 80% of people agreed that the system will, indeed, be effective. Around 79% of the 48 people think so out of embarrassment— as discussed, there would be alarm going off whenever one attempts to jaywalk, bringing the potential "criminal" to the very center of spotlight. " The alarm serves as a deterrent that stops people from jaywalking, especially for those who love keeping up appearances." Said a middle-aged man who was on his way to work. "And most Chinese people do." He then added. The Shame Game ploy is, indeed, indicating a sign of success. The funniest interviewees, according to Youchen Zhang, was probably a group of middle school students from Tong Zhou: "Aren't those exactly the questions on our Government and Politics test?" They laughed as Guofeng Zhang posed the question. "What was the answer to the question then?" Intrigued, Guofeng asked. " The system is effective in terms of reducing the infamous Chinese Jaywalking phenomenon with the capability of identifying each person; it will affect one's account of the Social Credit System and should be carried further forward." The boy replied without a pause. It looks like the propagandism of the system is penetrating through our daily life.

Still, there are people that expressed concern. "If you don't actually punish them, it makes no difference." Indeed, according to Beijing Evening News, there was a "restoration" of the jaywalking phenomenon recently. "When people get used to it, they don't even care anymore." Commented an old lady who was on her way to the supermarket.

She was right— the "Shame Game" only is not enough.

The future

"Big Brother Silences. Social Credit Maintains." Says Patrick Carland, a Literature Graduate as well as an assistant instructor at Amherst College.

While privacy might be an issue Social Credit System will inevitably face, one can not deny the positiveness of its intention, in terms of jaywalking at least. It does maintains.

Will China end up like the totalitarian society as depicted by several radical critics? Probably not. Not recently at least.

Will China's "bluffing" actually make an impact as to how its citizens will behave? Maybe, and maybe not. One thing for sure is that by setting a "moral rule" of sort people are starting to discern its significance.

China has underwent significant changes over the past two decade; it will be harder to predict how this country will be after the next two. But for now, at the moment, it's safe to say the big brother is not, watching us.

Also, in spite of the fact that George Orwell's "1984" is known by more people and is frequently alluded to reflect the fact that, as Internet and Internet-related technology develops, the boundary of our privacies are shrinking… It might not be the perfect analogy.

Personally, a more proper symbolization was presented in Franz Kafka's "The Trial."