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ARTIFICIAL INTELLIGENCE and SOCIAL CREDIT SYSTEM in CHINA

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TERM PROJECT

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Introduction

The world we are living in today feels lots of similarities to wonderlands. As American author Marshall Brain's utopian novel, *Manna*, which touches upon information technology, automation, differentiating user interfaces, robots and so on, humankind has been experiencing technology and extraordinary processes. It has been more and more common to have self-driving cars, image recognizing mobile phones, and self-cleaning vacuums. All of these developments in different fields that make everyday life easier are the blessings of the artificial intelligence (AI), which is commonly defined as "imitating intelligent human behavior" (Kok, Kusters, Boers, Putten, & Poel, 2021, p.2). This concept, defined in its most general form, is essentially the ability of a system to interpret external data accurately, learn from it, and use these learnings to achieve specific goals and tasks through flexible adaptation (IBM, 2020).

Emerging as an academic field starting in the 1950s, AI has been an area of limited recognition as well as practical unusefulness for a long time. Yet, its use has started to rise by the turn of the century as a result of the advancements in computing power. Today, it is easy to see the use of AI in the business environment, in public field, and in personal space due to its cognitive, emotional, and social types (Schröder & McKeown, 2010). Looking at the rapid developments in the field of AI and its use in casual life, although it is hard to describe future's portrait, the road already traveled provides some hint what can be accomplishable. As British science fiction author Arthur C. Clarke's famous three adages, also known as Clarke's three laws, (i) it is wrong to assume something as impossible, (ii) discovering the limits of the possible depends on the road to impossible, and (iii) "any sufficiently advanced technology is

indistinguishable from magic” (Clarke, 1984, pp.32-39). Thus, the borders of AI and technological advancements have been becoming more and more blurred and magic disappears as the technology takes the possession of stages. In this sense, the term “artificial” would also be gradually strange since it is used to separate it from natural or biological one that is incidental to humankind. Through recent developments, there are systems that think like humans and act like humans, and thinking and acting rationally. Hence, the impossible can only be related to the limits of human brain. Because of the immensity of the machine learning, even the unimaginable can become perfectly plausible in a few decades, maybe even less.

Artificial Intelligence

A Brief History of AI

Throughout human history, the idea of ascribing meaning to inanimate objects and giving them life has been one of the most important efforts of mankind. Even centuries ago, people invented machines that would make their work easier and actually imitate themselves in a way. In this sense, even in the earliest periods of history, people have been trying to develop ways, methods and somewhat artificially intelligent stuff that will make their daily lives easier or make the geography they live in more livable. The ancient Greeks had myths about robots. For example; The giant robot called Talos, actually a bronze statue, guarded the island of Crete. Likewise, it is possible to come across similar legends in ancient Egypt, India and China. However, it can be said that the first real use of AI in history started with automata that can sing and dance in 10th century

BC China. Egyptians have also created mechanical automaton puppets which moved by mechanical means in the stage shows (Reeves, 2015, pp.42-50).

However, AI, whose history can be traced back so far, did not become a recognized field until 1950s. Until then, even though it is hard to pinpoint the modern origin of the AI, American writer Isaac Asimov's science-fiction novels such as *Runaround* (1942) including three laws of robotics inspired many scientists, such as Joseph F. Engelberger, who established the first robotics company in the US (Schrage, 1992). About the same time, English mathematician Alan Turing has created The Bombe, a code-breaking computer for the British government, with the goal of cracking the Enigma code employed by the German army during WWII. Turing, afterwards, released his landmark work "Computing Machinery and Intelligence" in 1950, in which he detailed how to build intelligent machines and, more importantly, how to test their intelligence. This Turing Test is still used today to determine an artificial system's intelligence: "if a person interacting with another human and a machine is unable to tell the distinguish machine from the human, the machine is deemed to be intelligent" (Turing, 1950, pp. 440-41).

Yet, the term AI was coined at a conference, Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI), in 1956. The aim of the participants of the conference was uniting to build machines that imitate human brain. As DSRPAI was pursued to have successful objectives, approximately two decades later ELIZA ¹ and General Problem Solver ² were developed (Finlay & Dix, 1997). Following these inspiring stories, the funding to AI research has

¹ A natural language processing tool capable of simulating a human conversation and one of the first algorithms capable of attempting to pass the Turing Test.

² A program that is able to solve simple problems such as checkmating the opponent in chess.

increased and such Expert Systems³ operating with if-then statements have become more developed. To illustrate, Deep Blue chess playing program, an expert system developed by IBM, was able to perform over 200 million possible moves in a second, beat the world chess champion Garry Kasparov in 1997 (Campbell, 1999). Nevertheless, these Expert Systems are unable to process without cause-and-effect formulation. In that vein, Expert Systems are almost unable to distinguish one object from another and cannot be easily learnt external data correctly. For such activities like processing human intelligence, a system must be able to accurately understand outer input, learn from it, and use what it has learned to achieve specified objectives and tasks through flexible adaptation—all of which are qualities of AI (Kaplan & Haenlein, 2019).

Toward Today's AI

Due to the fact that an expert system does not have abovementioned features or abilities, Artificial Neural Networks (ANN) have reemerged⁴ in the name of Deep Learning as a result of increased computing power thanks to the performing processors. In 2015, AlphaGo, a program that plays the *go* developed by Google, beat world *go* champion. It was surely a significant development, because, *go* is acknowledged as more complex than chess and, until then, it has long been believed that computers would not be able to beat humans in such a complex game (Granter, Beck, & Papke, 2017). Indeed, ANN and Deep Learning are currently at the heart of the majority of AI applications. With many others, they are the core of Facebook's image recognition algorithms, personalized advertisements, and autonomous cars. Today, AI has come to a point

³ An Expert System is a software that can handle mixed problems and provide solutions through extracting knowledge from its database.

⁴ Researches on ANN halted in the late 1960s since computers did not have enough processing power needed to perform activities of ANN.

that understanding external data correctly and interpreting it to reach specific goals. Such that, with the use of metadata, directing or manipulating users by taking advantage of their specific information showed itself even in the 2016 the Presidential election in the United States or Brexit referendum in the UK.

Cambridge Analytica, a data science company, ran a large advertising effort during the 2016 US presidential election to target persuadable voters based on their unique psychology. To affect people's emotions, this extremely sophisticated action used big data⁵ and machine learning. Based on estimates about their receptivity to certain arguments, each voter was given different messages: ads with fear-based texts were sent to the paranoid and different ads with arguments based on tradition and community were sent to those who are conservative (Hinds, Williams, & Joinson, 2020). This was made possible by the availability of real-time data on voters, ranging from their social media activity to their purchasing habits and connections. In other words, their online footprints were utilized to create behavioral and psychographic profiles that were unique to each individual (Kamarck, 2019). Not only that, but also political bots were active in the 2017 general election in the UK to spread misinformation and fake news on social media. Being autonomous accounts that have been designed to aggressively distribute one-sided political messages in order to create the appearance of widespread support, these bots tried to influence public opinion together with distorting political mood (Gallacher, Kaminska, Kollanyi, & Howard, 2017).

⁵ Big data is a meaningful and processable form of data obtained from observations, researches, search engines, blogs, forums, social media and many other sources, provided by internet users voluntarily or involuntarily.

As a country, making technological strides in the field of AI, is started to be seen as a national threat as well. Such as the Russian interference in the US elections, potential cyberattacks in a splendid secrecy started to make a lot of sense because of stealing trade and government secrets for example. Rather than using the hard power as a means of conventional armies and weapons, military superiority has been measured by “intelligentized” warfare methods as Pentagon says, which can be considered as algorithms colliding with each other (SoD, 2020). With the rapid development of computing power, systems will be linked via battle networks, and armed drones with autonomous features will be used (Hsu, 2021). Soldiers will be taught in AI-enabled real and virtual situations. Because of improvements in intelligence gathering and transmission, AI will speed up the process of identifying and hitting lucrative targets.

Considering these developments, AI and technology, in general, can be used in different ways, apart from tasks such as facilitating daily life or serving humanity. From this perspective, AI has also become the focus of the soft power—the ability to attract, cooperate, or persuade the addressee without any coercion in any context (Nye, 1990). Soft power manifests itself in different strata and in different fields with the development of AI. Individuals, groups or even countries with technological superiority have more influence over others to drive social transformation through big data and, ideally, to reach their goals. In the current era, technology and more so with soft power has the ability to affect societal change in this regard. The argument here is that ideology, defined as systematized beliefs that, if followed in a specified manner, would result in a chosen end. In this sense, rather than struggle and using hard power in the

conventional sense, the superpower that masters AI, data analytics, and supercomputing will ultimately triumph (Castro, Chivot, & McLaughlin, 2019).

Recently, together with the increasing use of ‘the internet of things’ (IoT) and ‘the internet of everything’ (IoE), as aforementioned US or UK elections interference with manipulation of voters, people are skeptical about election frauds, so their electees. Not only that, but we are also in a transformation in the context of evaluating the performance and productivity of ordinary employees in a small office through computer use or data surveillance in general. Along with IoT—network of physical objects which are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet— and IoE—the intelligent connection of people, process, data, and things— emergence in the second decade of the 21st century as a result of “the proliferation of networks and an expanding universe of peripherals” (Chitty & Dias, 2017), major businesses across a wide range of industries have also started to substantially invest in AI in order to remain competitive in the decades and years ahead. As a result of these investments, people prefer carrots over sticks because they know they are being recorded or tracked in most cases (McParland & Connolly, 2020). As mentioned, since the balance of power has been started to shape according to the use of AI, policies are also affected in the same way along with AI’s ability to determine policy direction in a way. Indeed, it is possible to say that today’s AI works as a post-panopticon⁶ in Foucauldian terms. As such, using Foucault's concept of surveillance to enforce discipline and control, AI may be an excellent example of why the governments no longer need to employ

⁶ Derived from panopticon, post-panopticon refers to digitalizing surveillance.

violence or force to gain compliance. As the concept of panopticon, originally coined by Jeremy Bentham (1785), was thought of as a correctional center or a prison, and a design was envisaged where the people inside the building would feel that they were being watched all the time, and in this way, they would tidy up their behaviors. Today's surveillance and tracking mechanisms form a new type of biopolitics⁷ for the states as Foucault claims in his lectures on *Security, Territory, Population* (1977–78) and *The Birth of Biopolitics* (1978–79) that contemporary state gets its power through gathering knowledge about people's lives (as cited in Gutting & Oksala, 2018).

Along with these techniques of observation, normalizing judgment and examination (Foucault, 1977, p.170), AI provides many opportunities to create a novel form of governmentality⁸—a rationality of governing connected with specific technologies of power. As a result, looking at the state's coercive capabilities is insufficient to understand the inherent power relations. What has to be examined is how people act on themselves in response to situations that have been identified as problematic. Individuals rely on systems of thinking known as rationalities of government to deal with complex situations. These rationalize the use of power by establishing the principles that guide governance. In this manner, power becomes an element of the bodies that form subjectification and of how a person shapes themselves on a daily basis. In this sense, what is imposed from the outside is self-discipline itself. In this regard, AI provides

⁷ Biopolitics is a political reasoning that takes the administration of life and populations as its subject.

⁸ Governmentality can be defined as the capacity to shape others' potential fields of action through shaping subjectification (Foucault, 1991).

not just a method, but a governmental form that is directed toward specific objectives, regulating itself through continuous reflection, and, essentially, aims to ensure that state works.

AI in China

China is one of the countries which greatly rely on and invest in AI. China's desire to master AI extends far beyond the realization that this set of technologies will be the most important engine of economic progress in the following years. In this sense, AI is vital to the purpose of the Chinese Communist Party (CCP) as it takes a tremendous effort for a Party-controlled authoritarian government to rule over 1.4 billion people. Thus, AI helps govern the people and sustain the regime in today's China. In that vein, an authoritarian government with a great support of AI looks like having the ability to live with a set of mechanisms, carrots (rewards) and sticks (punishments) in contemporary world.

Americans have believed that authoritarian countries are bound to fail—at some point—after the demise of the Soviet Union. However, technology may be used to create perfect operating authoritarianism today. As it is claimed by former Google CEO Eric Schmidt, “if the Soviet Union had been able to leverage the kind of sophisticated data observation, collection and analytics employed by the leaders of Amazon, an American multinational technology company focused on e-commerce, cloud computing, digital streaming, and AI, today, it might well have won the Cold War” (Allison, 2020, p.3). In this context, today's companies and countries such as China are playing for leadership in their sectors or in the world by giving importance to AI and of course by learning lessons from the past.

China's experience in the field of AI actually does not go back too far. In the year of 2015, American AI firms such as Google, Microsoft, Facebook and Amazon were leading the field while Chinese companies following. Nevertheless, everything started to change in 2016, when Google created a computer that was able to beat world *go* champion Lee Sedol (Deepmind, n.d.). Even when computer programs from multiple American firms defeated the world's greatest chess players, most Chinese believed that AI software could never beat Go champions as it has millions of different combinations, thus, million times more complicated than chess. After that, it is assumed that the breaking point was realized through the decisiveness of President Xi Jinping. For him, AI was the technology that the Chinese had to lead, and the goals had to be tightly regulated accordingly.

Being aware of that AI would have to be driven by private sector rather than mere government organizations, President Xi has chosen five high-technology businesses as Baidu, Alibaba, Tencent, iFlytek, and SenseTime, which have a great potential on AI sector. Investments in Chinese AI companies have surpassed investments in American AI startups 12 months following Xi's instruction (Allison & Schmidt, 2020, pp. 4-10). By 2018, China has submitted 2.5 times as many AI patents as the United States (Okoshi, 2019). Not to mention, China has graduated 3-4 times the number of computer scientists as the US until today (Allison, 2020, p.5). Baidu (a Google-like tech company), Didi (Uber-like vehicle hire company) and Tencent (creator of popular messaging and purchasing application WeChat) all constructed their own AI labs which use millions of internal users' data to train AI systems (Zhang, 2017).

The Chinese government's total funding in scientific research at its institutions has aided the country's AI achievement. Over the last decade, government research funding has increased

by double digits on an annual basis (UKRI, 2021). Science and technology research funding remains a top focus, as indicated in the Five-Year Plan⁹ released in 2017. Chinese tech companies are part of the infusion of research dollars to universities, too. As such, Baidu and Tencent collaborate with students to get improvements on their AI systems as students get access to encrypted data coming from these applications (Zhang, 2017). Chinese customers use their software applications for a wide range of activities, from paying bills to contribute to charities. They create a wealth of detailed data on individual customer behavior in the process, which AI systems may use to improve judgments of creditworthiness, interest in items, ability to pay for them, and other behaviors (Chen & Cheung, 2018, pp. 280-82). In the following section, AI in China will be examined through China's famous Social Credit system (SCS).

⁹ A series of social and economic development initiatives issued by the CCP since 1953.

Social Credit System

A Short Glance

The Social Credit System in China (社会信用体系-*shèhuì xìnyòng*¹⁰ *tǐxì*-SCS) is one of the most interesting manifestations of the AI in the sense that its striking and formidable aspects. This system, together with its features and purposes, clearly reveals the point that AI has reached today as well as its engagement with daily life. Although it is viewed as fearful by some, others consider the system to be extremely appropriate and useful. As it is also known as ranking system of China, it is a moral rating system that would track the conduct of population and entities and rate them all based on their "social credit." Indeed, this system is a collection of methods and databases for monitoring individuals, businesses, and government organizations in the country, with the goal of generating a trustworthiness algorithm based on the activities of the entities in question (State Council, 2014). In this utopian (for the state) or dystopian system (for its citizens), data is gathered and analyzed from a variety of sources in order to create a safe and so-called trust-led society in which individuals are constantly evaluated for their behavior.

Unlike Amazon, Facebook or Google having limited access to users' data allowed; an AI system intended for social control is able to collect data from the wide range of gadgets with which a person interacts on a regular basis. In fact, if the context in question is governed by an authoritarian regime, such data may be collected from tax returns, medical and criminal records, sexual health clinics, bank statements, genetic scans, physical information (such as location,

¹⁰ "Trust" is same term in Chinese as "credit" - *xìnyòng*, 信用.

biometrics and CCTV monitoring), family and friends (Schaefer, 2020). With these mechanisms and many others, SCS is a system that is closely related to the fact that AI offers a third way that can change the world in the context of governing, apart from dichotomies such as good or bad, oppressive or emancipatory. Not only would this enhance social control, but it will also change people's minds and attitudes (Wright, 2018, p.2). Furthermore, by allowing governments to watch, analyze, and keep their populations under control more intimately than ever before, AI has the ability to provide authoritarian countries with a credible alternative to liberal democracy. This may rekindle rivalry between systems on a global scale.

Development of Current SCS

Despite the fact that SCS is considered as a new phenomenon, one can find its antecedents. The SCS has deep historical origins; they may be found in imperial personnel archives, the *Dang'an* (档案—personal dossier) system that began under Communist China's control and still continues (Yang, 2011), and a recent attempt to construct 'morality files' on Chinese individuals in the early 2010s. The SCS was first mentioned in President Jiang Zemin's annual report to the 16th Party Congress in 2002, in which he stated that China needed to "create a social credit system fit with a contemporary market economy" (Ministry of Foreign Affairs, 2002). The original goal of such a system was to help state banks assess the creditworthiness of people applying for mortgages and businesses seeking financing.¹¹ The Chinese government continued to prioritize financial creditworthiness in its 2007 Guiding Opinions Concerning the

¹¹ The planned SCS looked a lot like Fair Isaac Corporation (FIC) scores in the United States (FICO, 2015) or SCHUFA ratings in Germany (SCHUFA, 2019), which are the systems in order to measure people's financial creditworthiness.

Construction of a Social Credit System issued by the State Council of the People's Republic of China (State Council, 2007).

Yet, the biggest shift occurred in 2014, when the State Council (2014) broadened the idea of 'social credit' beyond the financial to the social domain. In that context, civil judgment, intellectual property, environmental protection, and food and medicine safety became an element of social credit. In 2019, China's highest internet regulating agency, the Cyberspace Administration of China (CAC), proposed a new legislation that expanded the definition of social credit to include online material and speech (Credit China, 2019). In progress of time, the SCS, consisting of an immense list of matters, has started to be seen as a "cure-all solution" of China's socio-economic problems (Ohlberg, Ahmed, & Lang, 2017, p.2).

Pre-SCS Period

The SCS is not a new development for Chinese civilization, since archiving by keeping files on officials and citizens has a long history. It is possible to find personnel archives in the Western Zhou Period (1045-771 BC) (Kern, 2007). Personal identifying information such as name, age, birthplace, education, employment, judgments of superior officials, incentives, and punishments were documented in a more comprehensive personnel archiving system created during the Han Dynasty (202 BC–220 AD) (Deng, 1989). During the Tang Dynasty (618–907 AD), the *Jiaku* (甲库—library) System charged authorities with overseeing the system and punishing anyone who stole or destroyed documents (Luo & Cheng, 2018). This tradition was carried on throughout the Song, Yuan, Ming, and Qing dynasties, who kept increasingly organized and precise records.

During the Qing Dynasty (1644–1912 AD), for example, officials were graded on four different criteria: morals, skills, diligence, and age (Fan & Li, 2020).

Taking advantage of abovementioned previous practices, the CCP established a considerably more complex Dang'an system for personnel administration differing from its precedents. The Dang'an system, originally used during the Mao period (1949-76), broadened the scope of personnel profiling and management beyond government bureaucrats to ordinary individuals. These documents, as their former equivalents, keep track of each individual's records such as family, work history, accomplishments, failures, activities, and more (Manion, 1985). Keeping in extreme secrecy by the government and regulating by China's National Archive Law, these data recorded throughout people's lives. As the significance of these files were preeminent for career advancement, they also had the potential to make a person enemy of the state (Manion, 1985). In this sense, the Dang'an system had the ability to (re)produce of state power (Yang, 2011, p.508).

In the period after Mao, the Dang'an system become more flexible as the country's growing market economy required flexible labor as well. People from different strata and different backgrounds, benefitted from *rencai zhongxin* (人才中心—talent centers) through flowing individual records. Civil servants, students, and immigrants have more freedom to travel around in pursuit of work and opportunity. Overall, the move from a socialist to a capitalist economy demanded this change in personnel file management (Yang, 2011, pp. 507-10).

As the Dang'an system was very much related to the SCS, the morality files were the last antecedent of it. Morality files, which began in 2011 in Wuhan, Hubei Province, were an initiative

by residents of Community 121 to record and promote positive actions such as gifts to ill neighbors in order to create or enhance good ties with community. The initiative grew over time and over 50,000 citizens in Qingshan, a district in Wuhan, possessed citizen morality files, which served as a sort of local self-governance (Bray, 2006, p.542). However, the absence of the county's one of the superior's morality file led to public critique which in turn was one of the causes of the downturn of the system. After that, some proposals such as opening morality files to public to create a sense of shame raised lots of questions and criticisms about legitimacy of the system.

According to the 2014 Planning Outline, many of the problems caused by a lack of trust and severe supervision of individuals who breach social trust. To address these issues, a SCS was required that gathers data on each person's and institution's creditworthiness and trustworthiness in a systematic manner and may serve as the foundation for a robust sanction system. In that sense, SCS was intended to be vital for all elements such as ordinary citizens, businesses and government agencies to change or regulate their behaviors.

Utopian or Orwellian: Modern Version of SCS

As mentioned before, China's current SCS as one of the foundations of the Chinese party state's drive for data-supported, efficient control, reached the completion of a crucial development phase in 2020. Several studies and planning documents have been prepared to steer the SCS into the next phase, which corresponds to the 14th Five-Year Plan (2021–2025). Yet, despite the fact that 2020 was focused on giving the idea that the SCS will be operational as one integrated system as the end date of the key policy blueprint released by the State Council in

2014, the SCS is not yet a uniform system. It is rather a policy framework that includes a huge number of projects, or a 'system of systems' (Liu, 2019, pp. 22-31). As the lack of definition about the concept social credit, documents and terms such as financial creditworthiness to broader trustworthiness, law-abiding behavior, and even moral ideals like honesty and integrity varies as well (Zhang, 2020). Having said that, the system has rapidly been developing and attempts to standardize the definition have been made. Several social credit information catalogues were released in 2020 in an attempt to standardize data gathering procedures in certain industries and areas (Reilly, Lyu, & Robertson, 2021).

The SCS is now a network of national and local initiatives run by governmental and commercial players, linked by shared data platforms which have a common objective of regulating business and individual behavior in China. Data aggregation, evaluation, and a joint system of punishments and rewards make up the network's overall structure operating with an assigned ID-like credit number. The system is now being shaped by approximately 50 institutions with AI development as a means of fostering an honest and sincere culture across society, including the government, the courts, private businesses, and social groups (Chorzempa, Triolo, & Sacks, 2018, p.2). The State Council serves as the cross-ministerial coordinator, while the National Development and Reform Commission and the People's Bank of China are in charge of the initiative. The Supreme People's Court and National Enterprise Credit Information Publicity System are also among the top bodies in SCS. Some of the institutions such as Sesame Credit by Alibaba are also in charge of putting the system in place by creating and administering systems to measure social credit in particular policy sectors. Financial regulators and supervisory agencies are examples of organizations that monitor legal compliance in areas such as environmental

protection, food safety, and, most recently, pandemic prevention. Other than these bodies, local and regional governments are heavily involved with different mechanisms as well.

Yet, according to a recent research, comparing to just 10.3 percent for people 73.3 percent of mentions in official documents between 2003 and 2020 focused on the companies which are the biggest targets of SCS (Drinhausen & Brussee, 2021, p.8). Thus, focusing on companies rather than individuals, corporations look like SCS' major targets at least in the first phase considering the growth rates and the size of the economy in China. In that vein, compliance of firms with law and regulation is ensured by a patchwork of sector- and region-specific rating systems, as well as centralized tracking of breaches recorded in the National Credit Information Sharing Platform (NCISP) (SinoInspection, 2020). Foreign legal entities with a registered presence in China, too, are included in the SCS system on the same footing as their Chinese equivalents. In terms of numbers, social organizations (i.e., any non-governmental entity) are a tiny category, but their inclusion is significant since it impacts international NGOs having headquarters in Chinese soil (Drinhausen & Brussee, 2021, pp.6-8).

Considering the conditions that are important in the rating, the most important ones for the businesses and individuals are paying taxes on time, the necessary documents (such as licenses, certificates), and complying with nature protection criteria, quality standards, and the rules specifically determined for that sector. Not only these but it's worth noting that a company's score may drop by means of their local partners' actions. As a result, companies must carefully consider who they do business with in China. Although the main focus is companies, individuals are of course under constant monitoring and surveillance as a proof of both the functioning and reliability of the system.

As mentioned before, although the system does not seem to be fully integrated with lots of fragmentation at the moment, individuals are also kept under surveillance using big data and other mechanisms. This data is gathered from a variety of sources, including private companies and government agencies. Hence, a person's social score, like their private credit score, can rise and fall based on their actions, such as reckless driving, smoking in prohibited areas, buying an excessive amount of video games, and spreading false information online, particularly concerning terrorist threats or airport security. Spending too much time playing video games, squandering money on unnecessary purchases, and posting on social media are all potentially penalized crimes (Lee, 2020).

Travel restrictions, slowing down internet speed, and being barred from further education are all possible punishments. People in China have already begun to be punished by limiting their travel options such as preventing them from flying (Jia, 2020, p.115). According to the NCISP, authorities have prohibited people from purchasing flights 17.5 million times by the end of 2018 (Jia, 2020, p.115). They can also restrict access to high-end alternatives; many people are denied access to business-class rail tickets, while others are denied access to the best hotels (MacSithigh & Siems, 2019, pp. 1035-38). People may also miss out on the best jobs and schools since, according to Beijing News, seventeen persons who refused to serve in the military were prohibited from enrolling in higher education, applying for high school, or continuing their studies (Xueying, 2018). In 2018, a Chinese university refused an incoming student's application because the student's father had a poor social credit score due to a loan default (Chan, 2018).

Another strategy is to name and shame people in public. Companies are encouraged to examine the blacklist before employing or awarding contracts, according to a 2016 government

notification (Kostka, 2018, p.1567). People will be notified by the courts before being put to the list, and they are able to challenge the decision (Creemers, 2018, pp. 13-19). Some records are automatically erased once a specific amount of time has passed, whereas significant offenses necessitate the offender's participation in a "credit restoration" process. Serious offenders may be placed on lists indefinitely and may be barred from participating in specific industries (Drinhausen & Brussee, 2021, pp. 10-11).

On the other hand, contrary to the "blacklist", there is a "redlist" are also established by SCS to reward cooperative behavior in which individuals with high credit scores are given benefits such as quicker credit loan approval, discounts on car and bike sharing services, expedited visa applications, and free health check-ups and preferential treatment at hospitals (Kostka, 2018, pp. 1580-88). Discounts on energy bills, hotels without a deposit, improved interest rates at banks, tax advantages, and free gym memberships are among the other potential benefits (Mistreanu, 2018; Engelmann, Chen, Fischer, Kao, & Grossklags, 2019, pp. 75-77). Thus, sanctions and incentives are dispersed in a more uniform and consistent manner under the SCS; not everyone who engaged in the same positive actions will be placed on the red list, but those with equal social credit standings will still be eligible for the same advantages. Individuals on the blacklist and redlist, in turn, help the government's instructions spread by serving as role models from which others might learn (Cho, 2020, p.7).

For all of the abovementioned good and bad behaviors, China mostly relies on AI with a specific focus on facial recognition (FR). In China, it is believed to be using FR in conjunction with around 170 million surveillance cameras with an additional 400 million to be installed by 2020 in this regard (Kostka, Steinacker, & Meckel, 2020, p.6). Some say that the goal of large-scale

monitoring is to allow Chinese officials to follow its citizens in every aspect of their daily lives, resulting in massive amounts of data that may be used to assess if an act worthy of being blacklisted has occurred. In addition to physical monitoring, the Chinese government continues to monitor internet activities (Kostka, Steinacker, & Meckel, 2020, p.6) and follow data coming from social platforms or smartphone applications (Kshetri, 2020, p.15) while blocking the dissemination of anti-government views. In this sense, AI can censor the content as well as notify officials once there is a violation occurs (Arena et al., 2020, pp. 4-15). Indeed, the technology has progressed to the point that AI can recognize anti-government demonstration films and prevent consumers from seeing them (Xu & Albert, 2017).

Figuring out CCP's aims is essential for gaining insight into the SCS. Although, SCS's goal in China is the combination of *homo economicus*¹² and *homo moralis*¹³ as founder of Alibaba Group Jack Ma noted "let the trustworthy get rich first", it is possible to evaluate China's SCS strategy is to enhance economic development and governmental control (see Appendix). It is clear that one of the CCP's major goals is to retain the party's power monopoly. As a result, the CCP is interested in utilizing contemporary AI technologies to preserve its political supremacy while preventing the opposition from potential resistance. In this light, the SCS may be regarded as the CCP's attempt to leverage advances in computers and telecommunications, as well as advanced technology like AI, in order to tighten its hold over the population. Despite the fact that it is fragmented at local and regional levels, complete implementation of SCS is projected to have

¹² Homo economicus, or economic man is the depiction of a human who is continuously rational and strictly self-interested pursuing of his subjectively defined objectives.

¹³ Homo moralis is a person who bases her existence and life purpose on moral foundations and defines herself on these foundations.

a much broader influence on people's lives and businesses than Western-style credit systems. Thus, the SCS may be viewed as a vehicle for an overarching philosophy that merely reflects the CCP's leaders' objectives.

Conclusion

As the technology enhances so does the computing power and AI gains new insights to create and provide new opportunities in everyday life. While the automata are seen as the first use of AI in the ancient period, it is possible to see today's smart phones, autonomous cars and other devices as a part of developing AI world. These devices are used to ease people's lives in various ways on the one hand, yet, big data can also be there for governing purposes. In China, SCS having the goal of generating a trustworthiness algorithm based on the activities of the entities in question, monitors individuals, businesses, and government organizations in the country. Using the data coming from smart phones, social networks and video surveillance as a means of facial recognition, deep learning and voice recognition, individuals and businesses are evaluated and get a social credit.

It is incorrect to think of the Social Credit System as a single, uniform entity. Rather, the phrase refers to a vast ecosystem of disparate projects that share a common set of goals, operational procedures, and policy language. The government's two main goals are to advance legality and compliance, which is the primary goal of the criminal justice system, and to expand the financial services industry. This provided chances for the commercial sector to establish its own scoring systems, which combine the functions of user ratings on platforms with a loyalty program. Despite the fact that social credit began as a way to solve the problem of lack of trust in the marketplace, it is now used to struggle with fraud, incentivize domestic consumption, and develop new economic activities as part of a broader strategy to rebalance China's economic development process.

The critical issue is if the SCS is, or has the probability to be, the Orwellian incubus that gathers the massive amounts of data to judge every Chinese. Without a doubt, CCP believes in social engineering in which individuals can be changeable and flexible. The increasing presence of data-based systems for social control is clearly shows the intention not only behind SCS, but countrywide big data and AI projects as well. These technologies should be used to inform decisions, automate internal governmental discipline, anticipate economic and social trends, and create a government-controlled society, according to CCP publications. Nonetheless, the SCS is still a rudimentary instrument for social classification at the moment. To some extent, this is due to the fact that the Chinese government does not believe in the necessity to monitor the behavior of its population by covert or invisible techniques. SCS is part of an obviously proclaimed and extensively disseminated attempt to inculcate public morality, which is accompanied by propaganda operations to enhance individual awareness of their acts.

The SCS provides us with a unique chance to see the possibilities of the growing reputation state by governmental actors' determinedly controlling position of the country's AI and governmental revolution. Current version of the SCS has a good possibility of helping the Chinese government achieve some of its progressive goals, such as expanding and upgrading the market and reforming (big) data procedures. However, achieving revolutionary improvements in market and governmental institutional efficiency is fraught with difficulties that need not only technological solutions but also tough policy and political decisions. Yet, when the existing practices as well as the potential future developments in China are evaluated, world politics and systems may gain a new form in addition to the already existing systemic breaks.

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Appendix

Category	Explanation	Some possible examples of data (positive/negative impact on social credit)
Political activity and ideology	Negative attitudes towards the ideology of the CCP and behaviors that go against the norms of the CCP are penalized.	<ul style="list-style-type: none"> • Criticizing the government on social media (-) • The nature of books read (+/-)
Engagement in criminal, illegal, immoral and socially deviant lifestyle and behaviors	The rule of law is an important factor in determining the CCP's legitimacy. Also a stated goal of the plan is to contribute to constructing a harmonious socialist society.	<ul style="list-style-type: none"> • Engagement in fraud and embezzlement (-) • Running a red light (-) • Selling contaminated and tainted food to consumers (-) • Using expired tickets, occupying reserved seats, smoking or playing music too loud on trains (-)⁶ • False advertising (-) • Generation of excessive pollution by companies (-) • Walking dog without a leash (-) • Causing public disturbances (-)
Social engagement, interactions and nature of social networks	These factors can contribute to construction of a harmonious socialist society, reward trustworthy behaviors and punish untrustworthy behaviors	<ul style="list-style-type: none"> • Taking care of parents (+) • Giving to charity (+) • Engaging in volunteer activities (+) • Being friends with "untrustworthy" individuals (-)
Role as a productive citizen	Citizens that engage in productive economic activities contribute to the CCP's goal of economic modernization and promote socialist core values.	<ul style="list-style-type: none"> • Spending too much time playing video games (-)
Responsible consumer behavior	A goal of the CCP is to promote positive economic behaviors that support socialist values.	<ul style="list-style-type: none"> • Spending money on unnecessary products (-) • Avoiding extravagant consumption (+)
Responsible financial behaviors	Responsible financial behaviors can promote the well-being of citizens.	<ul style="list-style-type: none"> • Paying bills on time (+)

Table: Some major factors evaluated in the SCS

Source: Kshetri, N. (2020, p.16). China's Social Credit System: Data, algorithms and implications. *IT Professional*, 22(2).