

Demystifying the Chinese Social Credit System: A Case Study on AI-Powered Control Systems in China

Vishakha Agrawal

Dayananda Sagar College of Engineering, Bangalore, India
vishakha.agrawal09@gmail.com

Abstract

In recent times, the social credit systems (SCS) and similar AI-driven mass surveillance systems have been deployed by the Chinese government in various regions. However, the discussions around the SCS are ambiguous: some people call them very controversial and a breach of human rights, while other people say that the SCS are very similar in structure to the company rankings or background checks on individuals in the United States. In reality, though, there is no monolith and there are different forms of SCS deployed in different regions of China. In this paper, I review the different models of the Chinese SCS. Then, I compare how the different systems are upholding or breaching China's own AI Ethics guidelines.

Introduction

There are around three-dozen different SCS run by local governments in China. In this study, I investigate the implementations across 5 Chinese regions. Finally, I show how these SCS violate China's AI Ethics guidelines.

I conducted one round of data collection between November 2020 and January 2021. I collected data on 16 Chinese SCS and downsampled to 5 SCS comprised of 3 sub-provincial cities, 1 autonomous region and 1 municipality under the direct administration of central government. I selected the 5 most diverse SCS in terms of the inputs going into the system.

There is varied detail of information on the different SCS because of limited publicly available data. My data collection and analyses were intended to understand SCS implementation with regard to three research questions, as follows:

- RQ1: Are there differences in the modes and types of inputs collected between the different SCS platforms?
- RQ2: How do the SCS platforms differ in the types of rewards and penalties?
- RQ3: How do RQ1 and RQ2 determine the privacy or control in a SCS platform?

Different AI-enabled Control Systems

In this section, I present the inputs going into the 5 SCS, and state each one's positive and negative reinforcements.

Copyright © 2022, Association for the Advancement of Artificial Intelligence (www.aaai.org). All rights reserved.

Xinjiang: Data is collected from a wide array of situations like when buying knives, filling the tank at the gas station, and visiting private residential compounds (Human Rights Watch 2018). The government has also mobilized citizens as informers. These informants are rewarded with discounts, such as, at coffee shops (Hansen and Weiskopf 2019). Details on punishments for low credits or rewards for high credits are not available.

Shanghai: The Honest Shanghai app draws on 3000 items of information from 100 government entities to calculate credit scores (names of the items of information and government entities are not publicly available) (Schmitz 2017). Non payment of taxes, social insurance fees, etc. leads to restrictions from accessing government funding, etc. and increased surveillance (China Law Translate 2017). Rewards include incentives like discounted airline tickets (Schmitz 2017).

Xiamen: The input to the system includes: basic data (education, employment status, etc.), positive credit, notices (overdue loans, utility payments), bad credit (legal violations). Data from the private sector is not collected. Rewards for good credit includes deposit free, discounted, or priority access to services (no comprehensive list is available). Citizens receive no penalty for a low score (Lewis 2019).

Fuzhou: e-Fuzhou, a multi-purpose e-government services app is used for managing the credit scores. Fuzhou has listed 50 offenses from 16 ministries (such as Traffic Police) that affects the credit scores. There is no penalty for a low score. Private sector data such as social media posts is not used. Citizens gain scores through activities such as donating blood but details on rewards are not available (China Law Translate 2017).

Shenzhen: The Shenzhen police has launched a public website to collect data on traffic violations such as jaywalking and drunk driving (Xu and Xiao 2018). Traffic violations affect the credit profiles of the drivers. There is no information regarding rewards but a frequent traffic violation leads to restrictions in consumption and loans.

Maximizing Privacy vs Maximizing Control

In this section, I present the different systems from very limited surveillance (maximum privacy, minimum control) to high surveillance (maximum control, minimum privacy).

Xinjiang: People can't opt out of the system. There is no

Guideline	Xinjiang	Shanghai	Xiamen	Fuzhou	Shenzhen
harmony & friendliness		✓	✓	×	×
fairness & justice					
inclusiveness & sharing	×	✓			
respect for privacy	×	✓	✓	×	×
security & controllability					
shared responsibility	×		✓		
open collaboration		✓			
agile governance					

Table 1: Comparison of the different social credit systems and China's AI ethics guidelines

information regarding the requirement of consent (Human Rights Watch 2018).

Shanghai: Public voting is used to decide what data should be collected (China Law Translate 2018). Collecting data on socioeconomic and biological characteristics is illegal (Liu 2019). Participation is voluntary. There is no facility for challenging the scores (Schmitz 2017).

Xiamen: Xiamen is not using AI-based technologies like predictive scoring so controversies around AI blackbox decision making are not applicable (China Law Translate 2017). There are customer service helplines people can reach out to in the event of issues with the data (Lewis 2019). Participation is voluntary. Only brief descriptions of the variables used in calculating the scores is available on the apps (China Law Translate 2017).

Fuzhou: Fuzhou is keeping the negative indicators of its SCS a secret (China Law Translate 2017; Trivium China 2019).

Shenzhen: The SCS is limited to public shaming of individuals violating traffic rules (Blomberg 2018).

China's AI Ethics Guidelines

Table 1. shows which social credit systems violate China's AI ethics guidelines (Laskai and Webster 2019). For example, Shanghai's SCS respects privacy because participating in the SCS is voluntary. On the contrary, Shenzhen's SCS is built around publicly naming and shaming individuals and there is no facility for opting out of it.

Future Work

I intend to continue this work as follows:

- The impact on political science and how nations' control systems might effect transitions, once in place.
- How to mitigate the ill-effects of AI based control systems?
- Mini-experiments to test different scenarios of AI surveillance and see the effectiveness and ethics of AI.

Acknowledgments

I would like to thank Akshaj Jain, Thomas Williams, and the anonymous reviewers for their helpful input.

References

- Blomberg, M. V. 2018. The Social Credit System and China's Rule of Law. <https://mappingchina.org/wp-content/uploads/2019/01/MCJ-No-2-2018-Blomberg.pdf>. Accessed: 2022-01-03.
- China Law Translate. 2017. Giving Credit 2: Carrots and Sticks. <https://perma.cc/V9FL-H6J7>. Accessed: 2022-01-03.
- China Law Translate. 2018. Giving Credit 3: Inputs and Outputs. <https://www.chinalawtranslate.com/en/giving-credit-3-inputs-and-outputs/>. Accessed: 2022-01-03.
- Hansen, H. K.; and Weiskopf, R. 2019. From Universalizing Transparency to the Interplay of Transparency Matrices: Critical insights from the emerging social credit system in China. *Organization Studies*, 42(1): 109–128.
- Human Rights Watch. 2018. China: Big Data Fuels Crackdown in Minority Region. <https://www.hrw.org/news/2018/02/26/china-big-data-fuels-crackdown-minority-region>. Accessed: 2022-01-03.
- Laskai, L.; and Webster, G. 2019. Translation: Chinese Expert Group Offers 'Governance Principles' for 'Responsible AI'. <https://perma.cc/V9FL-H6J7>. Accessed: 2022-01-03.
- Lewis, D. 2019. All Carrots and No Sticks: A Case Study on Social Credit Scores in Xiamen and Fuzhou. <https://www.digitalasiahub.org/2019/10/11/all-carrots-and-no-sticks-a-case-study-on-social-credit-scores-in-xiamen-and-fuzhou/>. Accessed: 2022-01-03.
- Liu, C. 2019. Multiple Social Credit Systems in China. *Economic Sociology: The European Electronic Newsletter*, 21(1): 22–32.
- Schmitz, R. 2017. What's Your 'Public Credit Score'? The Shanghai Government Can Tell You. <https://www.npr.org/sections/parallels/2017/01/03/507983933/whats-your-public-credit-score-the-shanghai-government-can-tell-you>. Accessed: 2022-01-03.
- Trivium China. 2019. Understanding China's Social Credit System. <https://socialcredit.triviumchina.com/reports/>. Accessed: 2022-01-03.
- Xu, V. X.; and Xiao, B. 2018. Chinese authorities use facial recognition, public shaming to crack down on jaywalking criminals. <https://www.abc.net.au/news/2018-03-20/china-deploys-ai-cameras-to-tackle-jaywalkers-in-shenzhen/9567430>. Accessed: 2022-01-03.