



Data Power and Counter-power with Chinese Characteristics

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INTRODUCTION

How to make sense of the People's Republic of China (PRC) as a global data superpower? Conventional wisdom dictates that China is viewed as the mystical Other, so much so that it has become a fetish—much like Japan used to be a while ago as exemplified by the “Japanese school girl watch” column in *Wired* Magazine. I argue, however, that China represents a very different kind of fetish, full of contradictions, caught between the iron fist of the Chinese Communist Party (CCP) on the one hand and the invisible hand of free-wheeling high-tech capitalism on the other. For some, China is fetishised as the ultimate “Black Mirror” writ large with one-fifth of the world's population being subjugated as if they are 1.4 billion guinea pigs being captured in a gigantic panoptic lab (Roberts, 2020; Strittmatter, 2020). For others, it is fetishised as the utopia of a neoliberal data economy, smart cities, artificial intelligence (AI), and miraculous rates of market expansion (Tse, 2015; Nylander, 2017; Lee, 2018).

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Both these fetishised visions are, however, partial and misleading. My task here is to argue against both of them by sharing an analysis that is more holistic and historicised than conventional approaches, considering China's internal conflicts and its relations with the external world. Such an attempt would bring us closer to the multifaceted reality of data power and counter-power in China (Lindtner, 2020; Wang, 2019, 2020), which is an essential part of the evolving global internet that critical scholars are grappling with (Qiu, 2019). In this chapter, I shall borrow from primary sources and secondary materials in Chinese and in English, in addition to fieldwork and interviews that I have conducted along with colleagues and students from Hong Kong in the past few years.

This chapter will begin by introducing and problematising the popular discourse of China as an "AI superpower". It then argues for a new critical approach that interrogates the complicated reality of Chinese data industries and a holistic framework that is historicised and conflictual, both along geopolitical fault lines surrounding China and within the country along social class cleavages. Providing illustrations from the continual history of Chinese computing in the 1950s to contemporary struggles along datafied picket lines in recent years, I propose that this new holistic approach has four novelties, which are particularly noteworthy.

First, both conventional views on China's data industries, whether utopian or dystopian, are etic observations from external parties, whereas the approach suggested in this chapter emphasises emic perspectives and innate logics from the inside out. This subverts the usual assumption about a unified, global system of data science that prevails over local, national, and regional systems. It also departs from the tendencies of techno-orientalism (Roh et al., 2015) that exoticises and dramatises China as fundamentally different, if not incomprehensible, as do Japan, Korea, and other Asian societies.

Second, a common practice among China specialists is to see the computing and data industries as a recent development that belongs exclusively to the post-Mao era since 1978. Similarly scholars examining data structures of the twenty-first century tend to conceptualise their subject matter as confined to the digital era. This chapter, however, argues otherwise: scholars today ignore the Maoist era before 1978 at our peril; ditto for pre-digital, analogue, even vacuum tube-based computing. While there is change and transformation over time, our holistic

approach highlights historical continuity in understanding data power formations.

Third, contemporary analysts often construe Chinese data industries in the shadow of Silicon Valley, although now the former is emerging to challenge the latter. This view fails to see other possibilities of collaboration and symbiosis between China and the US while ignoring other regional dynamics, for example, between Japan and China since the 1960s, or the new development of Chinese IT companies going overseas, for example, and becoming major players in Africa. This chapter situates China in a network of global and geopolitical relationships that is dynamic and multifaceted. Most importantly, I do not presume any predetermined trajectory. The path of development is context-contingent, shaped by institutional inertia, while the major turning points tend to be moments of precarity, when Beijing perceives existential threats and would use data industries, among other instruments, to ensure survival.

What can threaten Beijing? Or more precisely, what can influence the CCP's perceptions of existential threats? Externally, there are geopolitical competition and regional conflicts that can be traced back to the Korean War. Internally, there are social class antagonism and struggles between elite-led and grassroots-driven models of developing the IT industry. Both constitute national security concerns that are central to China's top-level policy decision-making. To fully understand it, we have no choice but to confront key statist forces such as the Chinese military and the formation of counter-power in Chinese factories, IT companies, online and offline. This entails a conflict-oriented framework that differs greatly from neoliberal analysts who insist on viewing data industries as nothing but corporate, private entities, as showcased in Kai-Fu Lee's bestseller *AI Superpowers* (2018).

AI SUPERPOWER?

Kai-Fu Lee, former Google Vice President, now Chairman and CEO of Sinovation Ventures based in Beijing, is known for his *AI Superpowers: China, Silicon Valley, and the New World Order* (2018). As I write in September 2019, this book leads Amazon listings in the US: #3 in AI & Semantics, #2 in Robotics & Automation, and #1 in Automation Engineering. Brought up in Taiwan and educated in the US as a top AI researcher, Lee held executive positions at Apple and Microsoft before becoming the President of Google China. After Google left China in

2010, Lee started his own tech venture capital business in Beijing, and he remains upbeat about the future of data industries in the country. Although the genre of fetishising China as a dreamland for AI technology and business was already established (e.g., Tse, 2015; Nylander, 2017), Lee's 2018 book did more than any other volume in simplifying and romanticising China as an emerging AI superpower that has challenged the global supremacy of Silicon Valley and even started to surpass it.

Lee juxtaposes the Chinese model with the US model of AI development. While the US has Google, Uber, Amazon, and Facebook, China has Alipay and WeChat Pay, the ubiquitous mobile payment systems, TikTok the addictive short-video app, Pinduoduo the Chinese version of Groupon, but more powerful, and the food delivery and sharable bike sectors that Lee celebrates. This is in spite of notable efforts from within the industries, be they labour disputes among food-delivery couriers (Sun, 2019) or environmental concerns for abandoned shareable bikes or even the lack of sustainability for the business model itself (Zheng, 2019).

Despite China's AI underbelly, which Lee should be fully aware of, he presents a rosy picture from the perspective of a data scientist who craves more data and the perspective of a business entrepreneur who dreams about constant market expansion. He also contends that the rise of China as an AI superpower will benefit the world because it shakes up the unipolar world dominated by US tech giants. More competition shall work to the advantage of AI developers in both countries, maintains Lee. Americans should learn from the Chinese, or they risk losing their leading edge. "I've spent decades deeply embedded in both Silicon Valley and China's tech scene", wrote Lee, "I can tell you that Silicon Valley looks downright sluggish compared to its competitor across the Pacific" (2018: 15). According to him, American tech companies need to try harder to get more abundant data, more hungry entrepreneurs, and better AI scientists, while US government agencies need to learn from the CCP to improve its policy environment for AI technology.

Lee categorises AI into four types (ibid.: 136), out of which China is starting to take the lead in "Internet AI" and "perception AI", while becoming equal to the US in "autonomous AI". Silicon Valley will only be able to retain leadership in "business AI". China is catching up, even surpassing the US, so rapidly because, as Lee claims, it has more data. This is due not only to the much larger population size of the PRC, but Chinese entrepreneurs are also more tenacious, and they use a "go heavy" approach that is much more labour-intensive than Silicon Valley's typical "go light"

approach to product development (*ibid.*: 70). Lee's argument centred on the sheer quantity of data that unifies the two China fetishes because its logical inference would be to recognise the panoptic surveillance state due to the permission it grants and/or the encouragement it provides for tech companies to collect even more data. The Big Brother can be the best alliance for the Big Other (Zuboff, 2019: 376). This is a key characteristic of China's fledgling data power en route to becoming a superpower.

There is some truth in Lee's assessment. But he is wrong with his fixation on the binary opposition between the US and China while forgetting other players, a common tendency among policy analysts and critical scholars of platform economy. In so doing, he ignores the interplay between Beijing and Washington DC that shapes technology on the ground. Moreover, Lee underestimates the internal diversity of the Chinese model from its historical origins to its present state, both full of ambiguities and self-contradictions. He sees China as a single, coherent, and more-or-less insular system while failing to consider the data power of the Chinese military and its associates, as well as the resisting counter-power of Chinese workers and programmers. This mode of thinking is, again, a fetish, a myth repeated daily in commercial media. It does not, however, hold up to scrutiny.

COMPLEX REALITY THROUGH HISTORICAL AND CONFLICTIVE LENSES

Myth conceals. A duty of critical scholarship is to reveal. This section offers a cursory overview of what is missing in conventional thinking on China as the ultimate paradise for state-sponsored surveillance capitalism. The goal is not a detailed analysis, but to introduce facts and findings that would unsettle the established China-as-data-superpower discourse, thus preparing ground for a more structured discussion in the next section that shall introduce the new critical approach of this chapter.

Despite talks of automation, data industries in China, like elsewhere, depend on humans for software development and data processing. A quintessential type of "self-programmable labor" (Castells, 1996), Chinese software developers have resisted the exploitative powers of tech giants, most notably, through the "996.ICU" incident (Li, 2019). The code word "996" refers to working every day from 9 a.m. to 9 p.m., 6 days a week. After working such long shifts in the tech industry for a few years,

one would end up in ICU, the intensive care unit, when one's life is endangered. As such, "996.ICU" is a campaign among programmers in China against excessive overtime in IT companies. Launched on 26 March 2019, it first appeared as a lengthy document of legal analysis that was posted to GitHub, calling on IT companies to abide by Chinese Labour Law, which stipulates a 40-hour workweek and a maximum of 36 hours of overtime each month; total work time should not exceed 49 hours per week. The 996 arrangement would, however, require employees to work 60–72 hours per week. While most companies see this as a violation of Chinese labour law as a feature of their organisational culture, hence refusing to remunerate extra work, a few tech firms even tried to formally institutionalise it and penalise employees who hope to stick to 8-hour workdays. The post received more than 200,000 "stars" in a few days, turning GitHub into a site of labour struggle which then had a cascade effect through not only social media but also *Worker's Daily*, the party organ newspaper of China's official trade union (ACFTU), which published an editorial in early April expressing support for programmers to protect their legal rights. Within a week, Jack Ma, the boss of Alibaba, fired back, saying that doing excessive overtime is a blessing for the workforce, thus escalating the controversy into the most significant clash of words regarding Chinese programmers working conditions. Who would anticipate such a clash, were China either the utopian or dystopian myth?

It is erroneous to simplify and fetishise China because the recent history of the PRC, including its computing sector as well as social imaginaries of ICTs, has been extraordinarily rich and full of ambiguities. A recent breakthrough is *Information Fantasies: Precarious Mediation in Postsocialist China* by Xiao Liu (2019), which analyses science-fictions, avant-garde cinema, and *qigong* traditional meditation practices in China during the 1980s, the first decade of PRC's post-Mao marketisation reform. These were cultural and social imaginations about technology that reflected "the advent of postsocialist conditions" (Liu, 2019: 26), characterised by ideological incoherence and an ambivalent situation between capitalism and "actually existing socialism". During this period of transition, Chinese "information fantasies" and their "precarious mediation" were powerful and creative, arguably more so than today in terms of its sociopolitical dimensions. And they were joined and promoted by top scientists such as Qian Xueshen, a key figure in China's nuclear programme, who in the 1980s devoted himself to studying "somatic science" of the body and supernatural forces. Will data science and the computing industry pave the

way for a socialist future, or will it lead to de-politicisation, rampant marketisation, and terminal alienation? Such inquiries about technology and society were full of paradoxes prior to China's embrace of the internet and its neoliberal data power formation in the mid-1990s. In retrospect, it is apparent that there was nothing preordained about China's emerging data prowess.

Tracing further back to the roots of PRC's IT industry, we cannot ignore some of the groundbreaking achievements of the Maoist era. Scholarly accounts often trace the beginning of computers in China to a November 1955 article in the *People's Daily*. But internal documents show that as early as 1951, the CCP already began making plans to build its own electronics plant based on Soviet scientific literature, in response to the pressing military needs of the Korean War (Lu, 2016). This was the context when, in the early 1950s, the USSR transferred 1942 MiG fighter jets to China in three batches, along with submarines and radars. China took up the task of maintaining these military tools and manufacturing electronic parts for them domestically. A leading example at the time is Factory 774, a.k.a., Beijing Electronic Tubes Factory, home to Asia's largest electronics production line in the early 1960s (Lu, 2016). The following section delves deeper into the Maoist era. For now, it suffices to highlight the need to historicise China's data power all the way back to the early years of the PRC.

Another counter-example is the large-scale social movement in Hong Kong against the Extradition Bill proposed by the authorities in 2019. If Kai-Fu Lee was correct about China's superpower status, if the "go heavy" approach did help foster an omnipotent "Black Mirror"-like system of surveillance, how did the pro-Beijing forces fail to foresee the incoming avalanche of uprising? Despite all the big data, supercomputers, and AI capacity Beijing possesses, why was the Chinese party-state so ineffective in gauging public discontent in Hong Kong? As political scientist John Burns writes, "[W]ithout a fundamental reform of the way intelligence is collected within the [Communist] party to permit more diversity, the party will continue to repeat the mistakes of the past". It is not just the incapacity of AI-powered Chinese authorities, though. Equally important is the ingenuity of Hong Kong's tech-savvy youngsters using a wide range of digital tools (such as Telegram, Bridgefy, and map jams) to coordinate protests, coordinating among themselves, while evading surveillance and bolstering political messages through humour (Dynel & Poppi, 2020). Although activists generally failed in their attempts to produce change,

they continue to defy authoritarian control using data as an instrument of large-scale resistance. The case of Hong Kong directly falsifies the myth of China: state-sponsored surveillance capitalism is not invincible. To fully understand China's data power as the thesis, we have to also take into account counter-power as its antithesis before arriving at a synthetical view of the system as a whole.

To debunk the myth of a single Chinese model, I argue that we need to look at it through at least two lenses: one being historical, and the other conflictive. Conceptually this implies we shall deem data power and counter-power as historical products in their technological materiality, and in their sociopolitical meaning, both at moments of radical change triggered by critical existential threats and at mundane times of banal nationalism and cosmopolitan consumerism. Meanwhile, data power and counter-power constitute a conflictive reality at the global, geopolitical, national, and subnational levels, which extends from the hot wars of Korea, Vietnam, and the Taiwan Strait to Cold War confrontations and the ongoing animosity that exists between the US and China today. It is not just external threats but also internal class struggle between farmers, workers, and the underclass on the one hand and the cadres and the super-rich on the other, through data infrastructures, ownership and political-economic arrangements, and contentious issues of distributive justice. The class struggle over data power is fundamentally conflictive (Qiu, 2016a, 2016b), although it also involves negotiations and compromises between the elite and the grassroots—trading co-optation in exchange for recognition; legitimacy in exchange for social security—as observed in other societies and in earlier periods of Chinese history.

At the very bottom of the evolving and conflict-ridden Chinese puzzle are basic questions about power and counter-power. For what goals are the data technologies designed and developed in the PRC? Through what structural performance? Using what division of labour? Under whose control? And, at whose expense? Not only socially, economically, culturally, and politically, but also in terms of environmental costs? At any given time, there are no predetermined answers to these questions. This includes our current era of the so-called AI Superpowers when the answers are still in a formative stage. They remain to be articulated, to be performed and actualised, to be institutionalised.

CHINESE DATA POWER AND COUNTER-POWER

What then is power and counter-power? They are a pair of concepts central to Castells book *Communication Power*, where power is “the relational capacity that enables a social actor to influence *asymmetrically* the decisions of other social actor(s) in ways that favour the empowered actor’s will, interests, and values” (2007: 10, emphasis added). Defined as such, power is the institutionalised, “structural capacity” of imposition. Castells went on to point out that “media are not the holders of power, but they constitute by and large the space where power is decided”. The media institutions here would include the computing and data industries.

By counter-power Castells understands “the capacity by social actors to challenge and eventually change the power relations institutionalized in society” (ibid.: 248). He continues: “[I]n known societies, counter-power exists under different forms and with variable intensity, as one of the few natural laws of society, verified throughout history, asserts that wherever is domination, there is resistance to domination, be it political, cultural, economic, psychological, or otherwise ... opposed to what they often define as *global capitalism*” (ibid., emphasis added).

Observing from the level of global capitalism, we gain a more holistic view of Chinese power and counter-power, which can be at the same time more nuanced, reflecting the internal complexities of PRC’s power formation that are in constant interplay with external forces, as shown in Fig. 1. First, the CCP-led party-state is at the same time a Leninist hierarchical power and a counter-power to the US since the 1950s (and to the USSR during 1960s–1980s). If traced back further, the establishment of the PRC was in itself a revolutionary, anti-imperialist, and anti-capitalist reaction to global capitalist expansion in China prior to 1949. Since then, both the global powers and the PRC itself have triggered counter-power formations, not only resistance but also creative divergence and alternative formations, which borrow selectively from the powers that be at national, regional, and global levels, as can be observed in Chinese computing and data industries. Meanwhile, both Chinese data power and counter-power draw from China’s traditional culture, its collectivism and nationalism, its moral values, and translocal networking based on shared identity. The more China globalises technologically, the more distinct values can be drawn from its cultural traditions, be they Confucianist or state-communist.

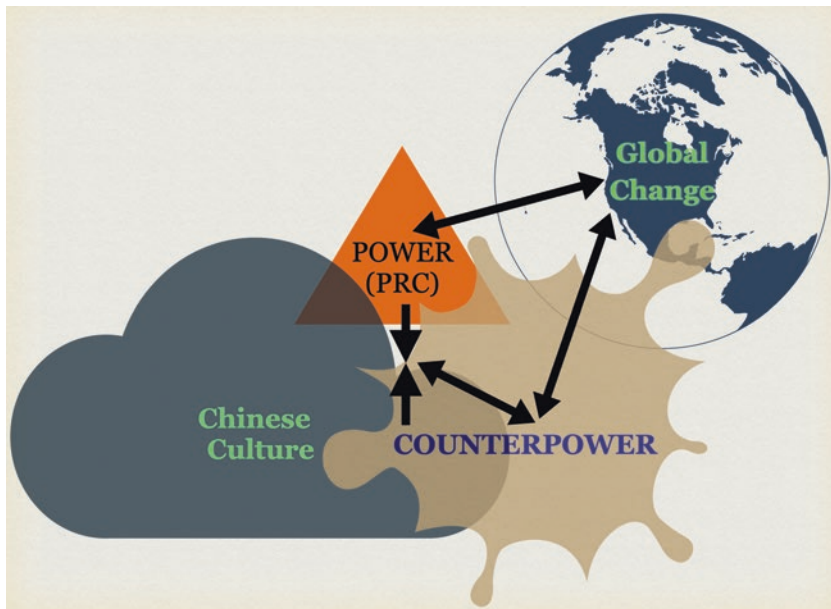


Fig. 1 Chinese data power and counter-power between the national and the global

Seen as such, the Chinese experiences are multi-dimensional and often self-contradictory, leading to the hard question: How did the counter-power end up becoming yet another hegemonic power? This question deserves serious contemplation by all critical data scholars, regarding not only the history of computing in the People's Republic but perhaps the present and future of the various data industries we study as well. After all, distributed computer networks were supposed to decentralise the global economy and serve as a counterweight against mass media empires in the 1990s. Yet, the tech giants of Silicon Valley have further centralised global capitalism into their own hands and Sunstein's dream for "republic.com" (2001) has become more distant than ever in the age of disinformation. Is Silicon Valley's trajectory, from its countercultural origins to its dominant power position today, analogous to that of the PRC? How to make sense of, and even prevent, such regressive movements of a counter-power growing into a dominant power, which then suppresses other

counter-powers? This is likely to remain a thorny, yet essential, question for critical data studies in the future.

The case of China, if understood holistically through a historicised perspective that is sensitive to internal and external conflicts, would offer some insights into the aforementioned question. In the following, I illustrate the dynamic model in Fig. 1 with a few selected examples from the PRC's history of computing and the data industries. Together they would inform a more comprehensive and more systematic understanding that traverses both the Maoist and the post-Mao periods while offering an opportunity for us to observe the dialectics of data power and counter-power, within China and beyond.

A good volume to begin with Edward Feigenbaum's *China's Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age*. It documents how, from the horrors of the Korea War, the global superpowers of the US and the Soviet Union were instrumental in breeding Chinese counter-power, institutionalised in the Mao-era's strategic weaponry R&D before the 1980s, whose legacies were influential in the post-Mao era as well. Counterintuitively, Feigenbaum points out: "[T]his structure [of China's hi-tech weapon programs] included comparatively flat hierarchies; extensive horizontal coordination across bureaucratic boundaries; competition; networking; the open exchange of information; peer review; standards-based performance metrics; encouragement of risk-taking behaviour; and the political acceptance of failure" (Feigenbaum, 2003: 6). He also explains how "[o]rganizationally, this national security approach to technology depended on innovative management institutions that coupled top-down Stalinist-style mobilization to structures and incentives more akin to those in contemporary Silicon Valley, based on initiative, personal incentives, risk-taking, and networks of cooperation among experts" (ibid.: 3). In other words, Mao-era's high-tech weaponry research (including computing and telecommunications) was more akin to Silicon Valley in its organisation; yet, this emerging global counter-power was situated at the domestic power centre of the military, avoiding the failure of the civilian-led Soviet computer networking experiments (Peters, 2016).

Established power engenders fledging counter-power, as could be seen in the case of BOE, one of the world's leading display makers for smartphones, laptops, tablets, and televisions, and probably the most well-studied IT company in Chinese-language literature due to the groundbreaking work of Lu Feng (Lu, 2016). Although international

media focuses on the likes of Huawei and ZTE, the value of BOE lies in its straddling of the Maoist and post-Mao eras, in both military and civilian sectors. The company's roots lie in the early 1950s when China learned from the Soviets in building vacuum-tube computers. But around the turn of the 1960s, they entered the semiconductor business while emulating the US as well as Japan. In 1963, the first Japanese semiconductor exhibition in Beijing attracted huge crowds and China began importing Japanese semiconductor fabrication machinery in 1968. This was followed by China's "electronic Great Leap Forward" (Wang, 2015) in the early 1970s when about 6000 electronic factories sprung up all over the country. Most of these were civilian and organised along the Maoist principle of the "mass line (*qunzhong luxian*)" stressing the involvement of ordinary workers, farmers, and soldiers in technology development and deployment. Employing more than half a million workers, most of these were grassroots-level computing and data-processing units utilising semiconductor parts from BOE, which by now had changed gear to support both the military and civilian sectors (Lu, 2016). The most important Maoist principle is "autonomy and self-reliance (*dulizizhu ziligengsheng*)", which united the military-led high-tech R&D and grassroots-driven electronic "leap forward", and its influence lasts to this day. According to oral histories from BOE, this Maoist spirit was crucial to the company's difficult transformation during the 1980s and 1990s, when it almost went bankrupt, but survived and made a dramatic comeback since the turn of the century to become a dominant global player thanks to the spirit of "autonomy and self-reliance" (*ibid.*).

Unlike the mainstream discourse that China only "opened up" to external influence after 1978, the PRC was embedded in transnational exchange regarding science, technology, and society during the Maoist era. For instance, Dallas Smythe, the prominent Canadian political economist and critical communication scholar, visited China during 1972–1973. After the trip, he wrote the legendary essay "After Bicycles, What?" (1994: 230–244) to introduce his observations in China and proposals for socialist media—such as a two-way television system operating much like an "electronic *tatzipao*" to ensure horizontal and interactive communication to meet collective social needs—that would be fundamentally different from capitalist media, especially commercial television. Arguing along the line of "autonomy and self-reliance", Smythe maintained that we need radical alternative imaginations of socialist technology and its own development criteria while discarding the capitalist yardsticks of individualism,

consumerism, and “planned obsolescence”. This example illustrates an important aspect of international counter-power solidarity, in this case, between Cultural Revolution China and Canada trying to exit from the shadow of Americana.

Smythe’s proposals were grounded in the “electronic great leap forward” at the time nearing the tail end of the Maoist era when Chinese workers (e.g., those working in Shanghai’s garment factories) established their own “barefoot electricians” (Wang, 2015). The expression came from the “barefoot doctors” in the era of the socialist countryside, where self-educated villagers, with some basic medical training, lived with farmers and innovated to meet patients’ local needs. Similarly, in Shanghai, 450 “barefoot electricians” emerged from ordinary workers to help maintain, improve, programme, and de-mythify automated looms, to “control electronics without knowing the ABC” as the saying went, following the Maoist “mass line” principle for electronic technology, also known as the “Shanghai model” at the time. The large-scale grassroots movement influenced Smythe as well as other critical media scholars such as Armand Mattelart and Seth Siegelau, whose edited volume *Communication and Class Struggle Vol.2: Liberation, Socialism* (1983) includes the minutes of a worker-engineer meeting from Shanghai. This suggests that China and the world have always been connected—that the PRC was not only at the receiving end of technology transfer but it was also an exporter and source of inspiration for Western critical scholars to envision alternative models of development all the way back to the Maoist years.

Ironically, a few years later in the early 1980s, “mass line” technopolitics was abandoned in post-Mao China (Wang, 2015). In its place was imposed the power dominance of imported IBM computers that Chinese workers saw as tools of disempowerment. Chinese-style Luddite resistance followed suit, as did subnational conflicts at both city and organisational level. Counter-power formations at subnational levels became more salient than overall national policy. As would be seen later from instances of worker resistance along the assembly line (Qiu, 2016b) to those in the data mine (such as the 996.ICU), the spectre of Maoism, its “mass line” politics and “autonomy” principles, has continued to haunt China’s burgeoning data power projects.

A turning point in the labour-capital relationship within China’s IT industries was the tragedies at Foxconn, where 14 workers committed suicide one after another within a few months in 2010, because they could not bear the inhumane exploitation and alienation at the world’s largest

electronics factory. As Chan and Pun (2010) argue, suicides are an extreme form of protest, and we can consider them an extreme mode of counter-power. The desperate resistance by Foxconn workers spurred a tidal wave of nationwide strikes in 2010 as well as transnational counter-power solidarity such as the “anti-iSlave” campaign (Qiu, 2016a). According to media reports (Motherboard, 2019; Reuters, 2019), many migrant workers have returned from the sweatshops to their home villages in recent years, only to become another type of labour, “tagging labour” as the occupation is now called, for China’s rapidly growing data and AI industries. These are, more precisely, “AAI (artificial artificial intelligence)” (Aytes, 2012: 80), when workers perform repetitive, tedious tasks of tagging online content, training machine learning algorithms, while receiving low pay and working long hours under poor conditions, in ways that are similar to way Amazon’s Mechanical Turk Human Intelligence Tasks system operates, although in the Chinese case this situation emerged as a consequence of the CCP’s infrastructural investments into high-speed internet provision for remote, rural parts of the country.

China’s new data infrastructures also afford new forms of activism by China’s “network labor”, which has become a counterweight to the establishment (Qiu, 2016b). Digital and social media have been used to not only reinforce and extend the picket line but also initiate unexpected campaigns in cyberspace as seen in the 2009 Jinjiang 360-degree sports apparel factory strike when garment workers formed an alliance with hackers to launch Search Engine Optimisation attacks against exploitation and managerial suppression. Digital picket-line struggles have become indispensable and organic to labour movements in the PRC in recent years, partly due to the increasing popularity of short-video sites such as TikTok and Kuaishou among the working classes and partly due to the prevalence of capitalist platforms (e.g., Didi and Meituan) that have become essential parts of the urban infrastructure (Chen & Qiu, 2019; Sun, 2019). Similar to the use of GitHub, during the 996.ICU movement, Chinese activists, gig workers, and factory workers (most notably in 2018 at Jasic, an industrial robot manufacturer) have used novel means to combat censorship by the party-state or their company management using, for instance, innovative data visualisations or zero-value cryptocurrency transactions (so that the censored information will remain accessible on the global blockchain). When top-down power attempts to deactivate alternative networks, grass-roots counter-power from different lineages (re)activate new connections, creating new convergences of resistance forces.

Our final example is Transsion, a Chinese company that now presides over a large share of the African smartphone market. With origins in the *shanzhai* informal-economy innovation system (Lindtner, 2020), Transsion became famous in 2016 due to its facial recognition algorithm developed for the detection and beautification of dark-skin faces, a market need from African consumers that was for long ignored by other phone manufacturers, such as Apple, Samsung, or Huawei (Jiemian, 2017; Lu, 2020). It's not just pretty selfies. Transsion also targets Africa's low-end markets, for instance, through its large batteries designed for rural users. The rise of China's data prowess, in this case, may indeed present prospects for a new form of decolonial technology design. The Chinese counter-power, becoming a dominant player in the developing world, may indeed trigger indigenous development on the African continent and throughout the Global South. It would be premature to dismiss this future possibility of a global counter-power movement, inspired and enabled by the likes of Transsion, against the hegemony of Silicon Valley and new forms of data colonialism (Couldry & Mejias, 2019).

CONCLUSION

This chapter first outlined and debunked the China fetish that either celebrates Beijing's stance supporting surveillance capitalism or demonises it as the worst of Big Brother-type practices. Such conventional thinking fixates either on the CCP party-state and Xi Jinping's "Central Network Security and Informatization Leading Group" or on entrepreneurial success stories and the sheer quantity of data and size of the market as Kai-Fu Lee did (2018). These are important aspects of China's data power but they are oversimplified and can be misleading because they perceive today's reality as natural or predetermined, because they only conceptualise power in the political and economic establishment while forgetting the essential role played by counter-power.

From the historicised and conflictual perspective proposed in this chapter, we may summarise the Chinese data industry's historical journey as having taken place across four phases: It started with (1) a Soviet birth in the 1950s during the Korean War, followed by (2) the Maoist "Electronic Great Leap Forward", around the time of the Sino-Soviet border conflict in 1969. This was a formative phase supplying the "organisational gene" for China's strategic enterprises such as BOE. Then, there was (3) the PRC's neoliberal turn in the 1980s, which brought with it new internal

conflicts, ideological ambiguities, and external isolation in the aftermath of Tiananmen, when the internet started to become popular in the mid-1990s. Finally, since the mid-2010s, China entered (4) the “New Normal” era, characterised by lower economic growth, heightened social control, the emergence of alternative social movements, and the convergence of contentious factors—including geopolitical frictions between China and the US—in ways that are diverse, dynamic, often unforeseen or unpredictable, within the PRC and globally.

Unique as each phase is, the four periods are also similar in that they are characterised by the interplay between power and counter-power, especially around issues of national security—in terms of geopolitics (e.g., Korean War) or internal stability (such as Tiananmen). The dialectics between power and counter-power is the *yin* and *yang* of the Chinese model introduced in this chapter. Their interplay is not only antithetical to each other, but they also necessitate, reproduce, co-create, and strengthen each other, although in different historical contexts the specific constitution of that interplay would vary.

During the Maoist era from the 1950s to mid-1980s, the dominant power in China was the military-political complex, which, at a global level, worked as counterweight against the bipolar powers of the Cold War: the US and the USSR. Since the late 1980s, the structure has metamorphosed into a political-industrial-military complex, where the goals of the military still matter, but not as much as the IT industry giants such as Huawei; and ultimately it is the CCP political elite who remain at the fore. While data power operates, almost invincibly, in imposing corporeal control over Chinese bodies, the counter-power forces—diverse as they are—are also breaking loose, creating alternative networks and switching on new, unforeseen connections of resistance. The spectre of revolutionary Maoist “mass line” principles remains an important repertoire for activists and startups to grasp, engendering counter-power formations that have become increasingly large scale, multi-sectoral, and trans-border. Meanwhile, they remain collective endeavours, especially among the lower classes that are united by common existential threats, brought about, for instance, by the Chinese gig economy and platform capitalism.

So, what is the final assessment of the rise of the Chinese data industry’s model? Is it the worst dystopia or the most perfect utopia? My conclusion is that neither is the case. It is still too early to tell: Will China represent anti-capitalism or hyper-capitalism at the very end? Is Beijing’s top-down approach going to completely control bottom-up formations and

horizontal networking? Will Chinese programmers stage more effective resistance, or will robots and AI dominate—even the power of CCP?

It is important to reiterate that ours is not a bipolar world of the US vis-à-vis China. It is a multi-layered, conflictive reality that produces power and counter-power with Chinese characteristics, by which I mean historical products that are collective, contingent, and cross-border, involving not only the US and the USSR, but also Japan, Canada, Europe, Africa, and the world altogether. While the impact of Silicon Valley is not to be dismissed, it is erroneous to neglect the multilateral influences upon China by the likes of Japanese IT companies (Steinberg, 2019) as well as China's influence overseas through cases such as Transsion. It is also increasingly common that mutual influence emerges through joint projects, such as the EU-China Co-Funding Mechanism that operates under the Horizon 2020 framework.¹

The new perspective proposed in this chapter is emic, dynamic, conflict-sensitive, and historically holistic. Despite dramatic changes in the PRC since the 1950s, we continue to see continuity from the Maoist through to the post-Mao era, from the time of vacuum tubes to today's big data era. There is no preordained trajectory, for good or for bad. Rather, the development path is contingent, forming precariously at critical moments of national security concerns and depending both externally upon geopolitics and internally upon class struggle. History, in this sense, remains a decisive factor in shaping and explaining the Chinese model of the computing and data industries. And history can only be fully understood when we pay attention to the conflicts therein.

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