Social Coding Platform as Digital Enclave:
A Case Study of Protesting "996" on GitHub

LICHEN ZHEN[1]
University of Southern California, USA

This article examines how Chinese netizens are responding to the widespread phenomenon of mandatory overwork amidst the Chinese state's crackdown on dissenting opinions. Drawing on Squires' conceptualization of enclaved public spheres, this article theorizes a social coding platform (GitHub) as a digital enclave (for Chinese software developers). A critical discourse analysis was performed on comments retrieved in 2019 from GitHub. GitHub users are found to discursively create a white-collar yet working-class identity to fight for their labor rights and rely heavily on media exposure to expand their influence. This case study extends Squires' notion of enclaved public spheres to digital space and provides a critical lens to understand the communicative functions and collaborative potential of the social coding platforms.

Keywords: enclaved public sphere, China, overwork, GitHub, social coding platform

China has placed the development of its ICT industry as critical to its overall economic development plan (Chen, 2018; Hong, 2017; Hughes, 2002). However, the rapid development of the ICT industry has resulted in an urgent shortage of highly trained knowledge workers. According to a white paper published by China Academy of Industrial Internet (2020), the Chinese ICT industry needs 7.65 million more ICT workers. The gap between supply and demand has increased the pressure on currently employed ICT workers, most notably in the form of compulsory overtime, with or without compensation. Against the background of a hegemonic national discourse about technology innovation and ICT development, alongside the fast expansion of the ICT industry, Chinese software developers and programmers (hereinafter, developers) are forced to normalize high pressure, long working schedules, and companies' "panoptic control" (Sun & Magasic, 2016, p. 324). Long and difficult working hours have led many developers to deprecatingly refer to themselves as "code farmers" (*ma nong*; see Sun & Magasic, 2016, p. 324).

This article studies one case of Chinese developers' "connective action" on GitHub. Connective action (Bennett & Segerberg, 2011, p. 743) refers to the ICT-enabled collective action rising from individuals who share similar interests. Specifically, this article uses critical discourse analysis to examine the comments

made by Chinese developers on one GitHub repository, "996.ICU," in response to the issue of overwork. I illustrate how an enclaved public sphere (Squires, 2002) is formed by the developers through their discussion in the repository.

Examining Chinese developers' creative use of a social coding platform draws attention to the new discussion spaces and connective actions made possible by digital platforms that facilitate group collaboration. The emergence of GitHub as an online enclaved public sphere illustrates the important role social coding platforms can play. In the case of 996.ICU, knowledge workers not only raise awareness of labor rights but also put ideas to action and devise tactics for protecting developers from further exploitation. I conclude by highlighting that Chinese developers' success in fostering connective action on GitHub is due not just to the technological affordances of the platform but also to the unique and prioritized place of the software industry within China.

The technical interface of GitHub, alongside (1) the developers' dissent against working overtime and (2) the political and cultural context in China, together result in the phenomenon of using a social coding platform (GitHub) as an online discussion space. This case study thus sheds light on the potential of nonsocial media platforms to function as alternative discussion spaces for Chinese citizens.

The Rise of 996

Dissent against the common practice of mandatory and oftentimes underpaid overtime work (hereinafter, overwork) in the Chinese ICT industry boiled over in January 2019, when a photo of a presentation slide taken at the annual all-hands meeting of a prominent e-commerce company went viral on the Chinese social media. The slide read: "Usual work hour: 9:30–21:00, Wednesday is the family day (so you can leave at 6 p.m.). Urgent projects: Work 6 days per week and the hours will be longer." In the wake of the photo's viral spread, a new slang word appeared: "996." The term refers to a working schedule that requires developers to work from 9am to 9pm, six days per week. "996" quickly became a catchword in China to describe the prevalent overwork culture in and beyond the ICT industry.

In March 2019, a wider discussion about overwork culture was triggered when a GitHub repository named "996.ICU" was created and shared among Chinese developers. The addition of "ICU" after 996 was an implication that workers would end up in the intensive care unit (ICU) as a result of overwork. In the "996.ICU" repository, Chinese developers expressed and organized their dissent: They cowrote and published a manifesto online, which they translated into multiple languages; crowdsourced a list of companies that violated labor laws; and collected legal regulations to support possible lawsuits initiated by developers who experienced compulsory overwork. In April, the list of companies that the developers compiled on the repository was widely shared on social media and gained attention from some of the biggest figures in the Chinese tech industry. To justify the prevalent overwork culture, Jack Ma (CEO of Alibaba) and Richard Liu (CEO of JD.com) openly praised the people who chose to work overtime, asserting that young people should strive for their future (Zhang, 2019). These comments from private sector CEOs triggered further complaints from the public. A few days after Ma and Liu made the comments, the state media published a commentary criticizing compulsory overwork ("Chong shang," 2019). The commentary directly responded to Ma's and Liu's comments by saying young people striving should not equal compulsory

overwork. Further, the state media commentary highlighted (printed in boldface text) that companies should introduce more "civilized, efficient and personalized" working schedules to reflect and contribute to the national economic development transitioning from "high-speed growth to high-quality development" ("Chong shang," 2019, para. 4) The ostensible opposition between capital (e.g., CEOs like Jack Ma) and the state media (e.g., *People's Daily*) revealed an important rift and created the opportunity for developers to organize on GitHub.

Enclaved Public Spheres

The notion of the public sphere, as conceived by Habermas (1962/1991), is an idealized model of how private individuals can come together to discuss public affairs and influence political decisions. However, Habermas's theorization treats public spheres as naturally inclusive and does not take into consideration the differences in individuals' cultural or political identities (Fraser, 1990). As a result, differentials in power between dominant and subordinated social groups are neglected. In particular, assuming a singular and comprehensive public sphere overlooks the challenges subordinated groups face to participate in and negotiate with dominant discourses, as well as the "histories of inequality" that constrain their participation (Squires, 2002, p. 450). To address these limitations in Habermas's notion of the public sphere, Fraser (1990) developed the concept of "counterpublics" (p. 67). The notion of counterpublics describes the discursive space subordinated publics form in order to create and spread discourses counter to dominant discourses. Following Fraser's critique, scholars writing on counterpublics have highlighted how subordinated social groups adopt different sites to create alternative forms of knowledge and provide "oppositional interpretation of their identities, interests and needs" (Fraser, 1990, p. 67; Jackson & Welles, 2015).

Scholarship on counterpublics also notes the plurality and complexity among counterpublics (Asen, 2000; Breese, 2011). Although sometimes bracketed under the label "counterpublics," individuals and social groups who form off-line or online collectives often use different methods to speak against the dominant discourse, and each collective may or may not interact with each other. Squires (2002) offers a typology of counterpublics to complicate the catchall term "counterpublics." The typology is an attempt to differentiate the dynamic and sometimes discursively competing collectives within the counterpublics. The typology proposes three types of subaltern public spheres that are differentiated by the ways each public responds to the "social pressures, legal restrictions, and other challenges from dominant public and the state" (Squires, 2002, p. 457). One of the three categories, enclaved public sphere, refers to a public that "hides counterhegemonic ideas and strategies in order to survive or avoid sanctions, while internally producing lively debate and planning" (Squires, 2002, p. 448).

Unlike some counterpublics, which openly challenge the hegemonic discourses, enclaved publics are collectives that need a safe place to voice opinions and discuss political issues. Thus, enclaved publics differ from counterpublics in that they do not openly contest dominant discourses. Enclaved publics choose to hide themselves because they face strong sanctions if they openly debate with dominant publics. The formation of enclaved publics is connected to the fact that many subordinated groups have few institutional resources, such as political connections or media outlets, that can help advocate their goals or publicize their agenda (Squires, 2002). Thus, compared with other counterpublics, an enclaved public has fewer interactions with the dominant publics. However, the boundary between an enclaved public and other types

of counterpublics is fluid, and Squires (2002) points out that when enclaved publics obtain enough resources and support, they can transform into counterpublics who publicly promote their agendas and oppose dominant groups. Similarly, counterpublics may enclave themselves if the state or the dominant publics sanction or punish them.

The rise of the Internet provides the technological infrastructure (Poell, 2014) for counterpublics to form without the limits of physical contiguity. Increasingly, studies have examined how counterpublics emerge in various digital spaces—such as social media, newspaper comment sections, video comments— and argue that these digital counterpublics challenge and reconfigure the dominant discourse (Agarwal, Bennett, Johnson, & Walker, 2014; Jamil, 2020; Lu, Chen, Li, & Zheng, 2018; Toepfl & Piwoni, 2015). These studies demonstrate counterpublics' important role in facilitating democratic discussions and the power they hold to influence mainstream discourses. However, little scholarship has applied Squires' (2002) work to discuss the influence and potential of digital enclaved public spheres. I argue that the functions and influences of digital enclaved public spheres should not be overlooked, especially in the context of China, where most if not all publicly accessible online platforms are under some forms of censorship (see King, Pan, & Roberts, 2014). Within highly censored contexts, there is little space for individuals to form collectives that can openly challenge the dominant discourses online. As a result, counterpublics may seek other digital communicative spaces for expressing dissent against the dominant discourses.

The communicative space formed by Chinese developers on GitHub resembles an enclaved public sphere, as conceptualized by Squires (2002). In this space, overworked developers discuss unfair working conditions, store evidence against employers, and plan innovative strategies to prevent themselves from being subjected to overwork. Because the GitHub platform is a non-Chinese company and hosted overseas, it becomes a "safe space," ostensibly free from state surveillance and in which developers can store public memory and nurture a culture to support their efforts at protesting overwork.

There are two reasons why Chinese developers would try to enclave their discussion and organizing activities. First, even though the state did not censor general discussion of compulsory overwork on online forums or social media, the state does censor posts that have the potential to organize off-line protests (King et al., 2014). Second, with the growing importance of the ICT industry to China's economic development, the state and tech companies need tech labor to meet their development plans. Although the state (via party media) voices its disapproval of compulsory overwork and framed the overwork culture as an illegal practice ("Chong shang," 2019; "Xin shi ping," 2019), it was unclear to developers whether their specific complaints and lawsuits would be supported by the government. In addition, developers also had to consider that companies might not be sanctioned for potential vengeful actions against those voiced complaints about the "996" phenomenon.

Online Public Spheres in China

Yang and Calhoun (2007) identify online public spheres as having an identifiable public, medium, and discourse. The discussion space on GitHub meets the criteria of a broadly defined "online public sphere." The 996.ICU repository has a consistent discourse about working overtime, grounded in labor rights; a

public that mostly consists of developers who are tech-savvy professionals who experience overtime work demands; and a medium that primarily focuses on coordinating coding in group projects.

Previous research on online public spheres in the Chinese context has primarily examined the discussion spaces on social media platforms (Rauchfleisch & Schäfer, 2015), with Weibo as the primary site of research. While important, such research has overlooked alternative digital communicative spaces—like GitHub—that also have the potential to facilitate public discussion. Moreover, the Chinese state's censorship of popular Chinese social media platforms weakens the potential of forming connective action on social media, as posts that represent and/or reinforce social mobilization are often censored (King et al., 2014). The idea of connective action (Bennett & Segerberg, 2011) is based on the argument that digital technologies have facilitated collective action to arise from individuals who share similar interests, and that this can happen without forming conventional organizations to facilitate those actions. The activities observed on GitHub can be described as a form of connective action. Thus, it is important to understand why GitHub has been able to successfully function as a space where developers can organize their dissent, and to understand how this dissent is discursively different from mainstream discussions.

One key question among studies of the Chinese public sphere revolves around whether Habermas's (1962/1991) notion of the public sphere can be applied to the many quasi-open-discussion spaces in China. Scholars who question the potential of the public sphere in the Chinese context highlight the overarching power of the Chinese state and its strict censorship of online platforms. With strong censorship, it is questionable whether there is a truly open discussion space available online (MacKinnon, 2011) and whether these forums provide equal access to every individual. Further, scholars have noted that discussion on Chinese social media is mostly apolitical. For instance, Sullivan (2012) observes that popular topics on social media platforms center around entertainment. Finally, the majority of the topics and discussions can be easily manipulated by bots and paid posters, like the famous "50 cent army" (Fang & Repnikova, 2017, p. 2165). Thus, it appears questionable whether China truly hosts rational critical debate of the type associated with a Habermasian public sphere. Given the specific conditions of Chinese social media platforms, it is necessary to pay special attention to alternative communicative spaces where Chinese citizens may have more freedom in voicing their opinions and latitude in organizing collective actions.

Open Collaboration on the Social Coding Platform GitHub

GitHub, now owned by Microsoft, is a platform that provides hosting services using the tool Git (a version control system). GitHub allows more efficient management of source code for developers, especially when they are engaged in a collaborative project. Simply put, GitHub allows users to create a local copy of computer codes based on which users can make changes and, with the permission of the owner of a central repository hosted on GitHub, integrate their local changes with the central repository. Every permitted updated version of source code is saved in the central repository, and locally revised versions are always be saved in local repositories. These characteristics allow multiple collaborators to work on the same projects without interrupting each other's progress.

As defined by Forte and Lampe (2013), open collaboration projects are collaborative and distributed efforts made possible and facilitated by ICT. A typical open collaboration system is an online

environment that (1) supports the collective production of an artifact, (2) through a technologically mediated collaboration platform, (3) that presents a low barrier to entry and exit, and (4) supports the emergence of persistent but malleable social structures (Forte & Lampe, 2013). GitHub is essentially an open collaboration system, but with relatively stricter barriers in terms of entry compared with other open collaboration systems such as Wikipedia. GitHub allows users to create repositories. Repositories are collaborative spaces where developers can curate, edit and organize coding files. The organizing structure in each repository might differ, but usually consists of at least one owner of the repository (most of the time, the initial creator of the repository) and any number of contributors who propose changes to the codes saved in the original repository.

In addition to its open collaborative dimension, GitHub also functions as a social platform for its users. For instance, GitHub provides each user a personal profile page, and developers can choose to display their affiliated institution, repositories created, and contribution history to other repositories. Similar to other "socializing" functions on popular social media platforms, GitHub users can "star" a repository that they find useful; "follow" other users, so they can keep up with their updates; "comment" under lines of code to brainstorm, make suggestions, or simply voice admiration; and propose changes to a repository by "pulling a request." It is because of these characteristics, that GitHub and its counterparts are favored by developers for learning from and working with each other. By conceptualizing GitHub as a "social" coding platform, researchers stress the public nature of collaborative coding on GitHub (Dabbish, Stuart, Tsay, & Herbsleb, 2012; Kollanyi, 2016). Several articles have specifically looked at GitHub in terms of providing a space for connecting remotely located users (Dabbish et al., 2012; Storey, Singer, Cleary, Figueira Filho, & Zagalsky, 2014). Other scholars have constructed developer collaboration networks based on the follower–followee relationship (Y. Yu, Yin, Wang, & Wang, 2014) and collaborating history (Lima, Rossi, & Musolesi, 2014).

However, while the above works highlight the social aspect of GitHub, they generally overlook the content, style and implication of the messages being shared on the platform. The content of these messages can be separated into three categories: (1) the conversation/discussion developers are having over the direction of a project, such as general social issues that are pertinent to the project; (2) the technical discussion through which developers execute the plans and achieve project's goals; and (3) the code, including the function of the code, the language (programming language as well as spoken language) in which the code is written, and the programming style. All three levels of messages are crucial texts to understand why and how developers are using this platform. This is especially true in the case of 996.ICU. The creator of 996.ICU invited and attracted other developers to participate in the discussion of the prevalent working overtime issue, while typical repositories mainly use GitHub as a digital storage space that could potentially benefit other developers' technical needs. In the case of 996.ICU, it is important to understand the conversation developers are having about overwork culture, and to interpret and decode the meanings developers attach to their codes and coding practices. The 996.ICU repository de facto functions as a discussion forum for Chinese developers (rather than a coding space) and programmers are primarily use plain-text format files to communicate (rather than other advanced programming languages). Therefore, I treated the conversations, as well as the documents, as texts in my analysis. In other words, I only focused on the first category mentioned above ("the conversation/discussion"). Specifically, I used "pull request comments" (defined in the following section) as my unit of study. In doing so, I highlight how the platform's

ostensible function as a repository of technical knowledge can be superseded by its role as a tool of connective action.

To summarize, I conceptualize Chinese developers' discussion space on the social coding platform surrounding the overwork issue as an enclaved public sphere (Squires, 2002). Therefore, I pose the following research questions:

RQ1:   *How does the interface of social coding platforms facilitate the formation of an enclaved public sphere?*

RQ2:   *What discursive topics can be found in this digital enclave?*

Method

Data on GitHub

To explore the issues introduced above, I conducted a critical discourse analysis on purposefully sampled posts from GitHub. Several important pieces of clarification regarding the data are provided below.

Repository essentially refers to an online folder that contains a coding project's files, revision history, and discussion history among collaborators. As of November 2019, 996.ICU repository had 613 contributors, who collaboratively made more than 3,000 changes to the repository. Contributors are users who make an addition or deletion to the repository contents. The users who leave comments under pull requests do not count as contributors.

Pull Request Comments

Before users can contribute to the repository, they need to open a request and propose the change so other users can review and comment. This process is called "open pull requests" on GitHub. Other users can leave comments under the user's pull request. While initially designed for discussing project goals and coding issues, in 996.ICU, the "pull request comments" turned into a discussion board for users. Each pull request can be considered as a thread in a discussion forum, and pull request comments are comments in that thread. I purposefully sampled the top 22 most commented pull requests posted between March 25 (the date the GitHub repository was created) and April 30. April 30 was chosen as the cutoff date for data collection for two reasons. First, there was a drop-off in comments and requests in May. Second, collecting data over a relatively short period of time allowed me to more thoroughly analyze the data collected over this period.

The 22 most commented pull requests each had at least 40 comments at the date of data collection, and the most commented pull requests had 612 comments. Using GitHub API, I collected all the comments posted under these 22 pull requests. I also selected the comments that were created between March 25 and April 30. In total, I obtained 3,605 comments, which were closely read and analyzed using critical discourse analysis. The reason for sampling the most commented pull requests was twofold. First, among all the pull

requests created since March 2019, the majority of the pull requests are dealing with minor and technical issues such as fixing grammar for a document. The pull requests that focused on technical issues had only a few short comments. In comparison, the most commented pull requests often directly addressed the overwork issue and also discussed the connective actions in the repository. The most commented pull requests de facto function as discussion threads where the pull request creators intended to start a wider discussion. Secondly, under the sampled pull requests, users' comments not only addressed the pull request creator's original question or comment, but were also replying to each other's comments. It is in these most commented pull requests that the liveliest conversations about the overwork culture were observed.

Critical Discourse Analysis

Critical discourse analysis (CDA) is an approach that dissects how social reality is reflected in discourses and how discourses shape the context from which they derive. CDA allows researchers to understand the "opaque as well as transparent structural relationships of dominance, discrimination, power, and control as manifested in language" (Wodak, 2001, p. 2). Here, discourses can refer to both an overarching meaning system or quotidian language use through which social reality is constructed and maintained (Alvesson & Karreman, 2000). Discourse as an overarching system assumes the existence of a universal and institutionalized discourse that shapes and governs the individuals who live under it (big-D Discourse). In contrast, discourse as everyday interpersonal communication focuses more on the power dynamics in specific communicative interactions among individuals (little-d discourse; Alvesson & Karreman, 2000). Communicative activities observed on computer mediated platforms, such as social media and social coding platforms, blend the former and latter meanings of the term discourse (Khosravinik & Sarkhoh, 2017).

There are at least two steps in CDA data preparation and analysis. The first step is to picture the thematic structure of the text, and one step to dissect the "context, text surface and rhetorical means" (Meyer, 2001, p. 25). Thus, compared with other qualitative methods that look at the topic-level of the text, CDA analyzes aspects such as the form of the argumentation, the logic of texts, implicit implications, and the collective symbolism (Siegfried Jäger, as cited in Meyer, 2001). When applied to new media platforms, CDA has been further developed to take into consideration the interaction between technological practices and the discourse created by users (Brock, 2018). Brock (2018) highlights the need to examine not only text but also "the artifact and the program (or protocol) through which these texts are generated" (p. 8). Although I mainly focus on analyzing the discursive feature of the discourses on the repository, I also examine the specificity of the GitHub interface and the ways it is structured (i.e., one user as gatekeeper/manager), as well as how this context is affected by the specificity of the Chinese Internet context.

Analysis

Enclaved Public Sphere

Based on Squires' (2002) typologies of public spheres, I identified the 996.ICU repository on GitHub as an enclaved public sphere. To explore the question of how the interface of social coding platforms

facilitates the formation of an enclaved public sphere, I analyzed the features of the 996 enclaved public sphere and compared it with the thematic public sphere (Rauchfleisch & Schäfer, 2015) that has often been identified in the Chinese social media context (see Table 1).

The length of active discussion in 996.ICU repository is short. The code frequency (the frequency of content additions and deletions in a repository) was highest when the repository first created (more than1,800 additions or deletions per week), but this number dropped drastically after May (see this information on the repository' insights page). This fast decrease in GitHub comments could be explained by the fact that there were tensions among the repository's users about how to transform the dissent into off-line action. For instance, one GitHub user wrote pessimistically in mid-April, "The organizer and participants [of 996.ICU] are using the most timid and meaningless actions in exchange for the best outcome," highlighting how some users grew disaffected with the ability of the group to effect change.

In addition to the longevity of the discourse about 996, other important distinctions exist between the public sphere on GitHub and other Chinese social media platforms. For example, on GitHub, users can post anonymously, whereas most Chinese social media platforms ask users to provide real names to the platform if users want to post and comment. Also, the number of GitHub users participating in the discussion about 996 was limited. The small number of participants is not surprising (1,689 unique GitHub user IDs found in the comments analyzed, considering that GitHub is mostly known as a coding sharing platform among coders and developers). Users who want to contribute to the codes in a GitHub repository need at least some coding literacy and an understanding of the working flow of GitHub.

It is important to note that one major functional difference between a social coding platform and a social media platform is that even though both can facilitate knowledge sharing and social interactions, social coding platforms are used by developers specifically for software development and facilitating team collaboration. For instance, when writing code for a project, GitHub users can review and build on each other's code by using pull requests. The comment section under the pull request, which looks like the comment section of a Tweet, is mostly used for better facilitating the code review process, rather than chatting with friends. If simply treating the comment section under the pull request as a site for daily conversation, researchers risk overlooking the multilayered functions these comment sections can have on social coding platforms.

Table 1. A Comparison Between GitHub and Weibo's Public Sphere on 996 Discussion.

	GitHub	Chinese social media platforms (here, using Weibo as an example for comparison)
Type of public sphere	Enclaved public sphere (Squires, 2002)	Dominant public sphere
Time frame (longevity)	Short	Long*
Anonymity	Users who want to post and comment are required to register a GitHub account; identity remains anonymous	Users who want to post and comment are required to use legal names when registering their accounts
Number of participants	Small	Large*
Community guidelines and policies	GitHub community guidelines	Social media platforms follow state policies and China's Internet censorship rules; specific community guidelines published by the platforms
Information production	Coding/commenting on codes	Blogging
Information curation	Users propose what the group should do next and gather related information to the project	Reposting, commenting, and "liking" the posts that agree/disagree with their own
Information integration	Users self-classify the information and post accordingly to the preestablished structure of the information within the group; the repository owner screens the coding and decides whether to include the information	The most reposted/commented/liked posts will be pushed to the top of users feeds by an algorithm

*Depending on the issue, a discussion's longevity and number of participants varies on Weibo. Here, I only consider the characteristics for one type of the public sphere: thematic public spheres as described by Rauchfleisch and Schäfer (2015).

Projects on GitHub in general have clear goals and are solution based. Unlike other social media platforms, the ostensible goals of most GitHub interactions involve software development. This gives rise to unique community norms. Developers come to GitHub to collaboratively build, test, and fix problems in the software. This goal-oriented community culture influences the direction of conversations in the 996.ICU repository, which tended to be dedicated toward finding a solution to the social issue of overwork. That is, even in their discussions about overwork, the developers followed the same type of goal-oriented discussion for which GitHub was designed. For instance, the most publicized solutions were developers' efforts in creating a short manifesto against overwork, and, based on crowdsourced evidence, listing all companies that require overwork. Many other proposed solutions were suggested to transform developers' technological

skills and their influence in the GitHub communities to have real-life impact. One of the proposed solutions asked developers to draft new terms of agreement for software. The proposed terms of agreement would require "an individual or legal entity" wishing to use new software to promise to strictly follow labor laws, with no tolerance for any type of mandatory overwork (996.ICU, 2019, para. 3). Other solutions proposed included developing an application to allow developers to record and share their working hours, as well as the reasons/compensations for potential overworking. The community culture, as well as the technological features of the platform, lead the users to focus on curating solutions rather than merely sharing opinions or personal bad experiences with overworking.

Unlike other Chinese social media platforms, GitHub is not heavily censored by the Chinese state administration. Comments on other Chinese social media platforms that involve a discussion that have the potential to trigger social movements are more likely to be censored (King et al., 2014). GitHub, however, has been largely spared from government censorship, and it has avoided being added to the list of blocked websites in China (which includes platforms like Twitter and Facebook). GitHub is spared censorship mainly due to the confluence of two interrelated issues: (1) the importance of the platform in aiding developers in the execution of their technical jobs and (2) the Chinese state's heavy emphasis on developing its ICT industry (Hong, 2017). The Chinese state's reticence to censor GitHub is likely due to Chinese developers' reliance on GitHub as their workspace, as well as a resource for learning coding from highly skilled developers. GitHub is also a place for developers to develop their coding experience (developers have even started to include their GitHub profiles on their resumes when seeking jobs). GitHub has thus emerged as a site that can facilitate learning and practicing the technical skills that the Chinese state sees as necessary to China's economic progression. Thus, due to the platform's importance to China's national goal of developing its ICT industry, blocking the platform is not an option the state wants to embrace. Further, when the state experimented with blocking GitHub earlier, in 2013, large-scale online protest erupted from not only developers but also senior managers of technology companies, including the prominent technologist Kai-fu Lee (2013), the former executive of Google China and a household name in China (Stein, 2018). Shortly after an online protest, GitHub was unblocked in the same year. Despite the state's lack of direct censorship, developers in 996.ICU carefully consider the tone of their comments and practice self-censorship on each other, out of fear that aggressive political speech will lead to GitHub's crackdown within China. Many of the repository's users are worried that the state may decide to block GitHub in China. This can be seen directly in comments like "I am afraid GitHub is going to be blocked" and also witnessed through calls for self-censorship. One GitHub comment warns people against making overly political comments: "I don't think we should mention politics . . . only peaceful and lawful protest against capitalists can obtain help from society."

The Discursive Construction of "White-Collar Working-Class Developer" Identity

In the 996.ICU repository, Chinese developers repeatedly refer themselves as working class and/or proletariat while referring to technology companies as exploitative capitalists. Through referring themselves as exploited working-class labor, developers frame the overwork issue as a class conflict between working class and capitalists exemplified by technology companies. Such discursive construction can be found in comments like, "Any individual who are not capitalists but are supporting overwork are idiots"; "Developers of the world, unite!"; and "We have to realize the fact we are just workers who are exploited by capitalists."

In addition, developers also discursively construct the working-class-and-capitalist conflict by relating themselves to the international labor movements in history such as the eight-hour workday movement that originated in Britain during the industrial revolution. This is exemplified by comments such as "eight-hour day system is the result of hundreds of years of labor movements and is justified by history." The American labor song "Eight Hours" was also adapted in the repository.

Developers in 996.ICU repository also discursively differentiate workers who are willing to work for long hours regularly if they are well-compensated from those who are completely opposed to the idea of overwork. The former developers are often criticized by discussion participants. Developers who imply that they agree to compulsory overwork are referred by other developers as strikebreakers or scabs (*gongzei*). The term *gongzei* specifically refers to people who betray the working class in the Chinese context (see Perry, 2008, p. 1154). The use of *gongzei* discursively implies that the unjust working conditions faced by developers are caused not only by rich capitalists but also fellow workers who are submissive to the capitalist system.

The discursive construction of what I summarized as "white-collar working-class developer identity" reflects complex issues facing Chinese developers. First, developers are not considered to be unskilled or cheap labor in the Chinese dominant discourses. Compared with the poor working conditions other Chinese laborers live under (see Li, Li, Wu, & Xiong, 2012; Qiu, 2017), developers' relative high salary and status as white-collar workers makes developers appear petulant and ungrateful in the dominant discourse. In the dominant public sphere, developers are often blamed for being complaining and not hard-working. Illustrating the dominant public sphere's relative acceptance of the practice of overwork, the popular Chinese television debate show *Qipashuo* chose as a topic for one episode "The job I am interested in always requires working 996, should I quit?" (G. Yu, 2019). In general, many companies and individuals in the dominant public sphere frame overwork culture as an issue of personal choice rather than an issue that potentially violates labor rights. By discursively referring to themselves as working-class laborers in opposition to capitalists, developers attempt to discursively subvert the dominant discourse that 996 is a personal choice, and instead reframe the overwork issue around an illegal and antiworker system that needs to be modified.

By purposefully constructing overwork issues as a problem resulting from class conflict, developers are calling attention to an economic reality that is inconsistent with mainstream political discourse. In the official political agenda, the Chinese state is defined as a state led by the proletariat and which follows Chinese Marxist philosophy. However, as Lin (2011) observes, if capitalism is defined as "a set of social institutions that sustain the production, accumulation, and reproduction of capital" (p. 64), many social institutions found in China today resembles that of a capitalist system. Certainly, the booming Chinese private technology industry aligns with the logic of the capitalist system. Through discursively constructing tech companies as "evil capitalist" (*Wan e de zi ben jia*) and themselves as working class, developers adopt the referential categories found in national discourse to legitimize their quest. At the same time, by using these referential categories, the developers also discursively cast doubt on the relationship between the state and the tech companies, and thus question the validity of the national discourse. In the dominant public sphere, discussions that are at odds with the dominant political discourses are often either censored or self-censored. Thus, the antitech company discussion observed

within GitHub repository indicates that the platform provides an enclaved space for developers to voice what would otherwise be an antistate discourse.

Discursive Themes: Request for Labor Rights Without Being Political

A dominant topic in the 996.ICU repository is the legitimacy—in the Chinese context—of the existence of such a discussion forum, as well as which strategies developers can employ to make discussion about overwork culture more "legitimized" in China. The most salient discourse that emerged from the comments about legitimacy was the argument that developers should use legally and politically acceptable means to address their dissatisfaction and dissent. Legally acceptable means, for instance, include filing cases against companies, attracting attention from the media, and influencing online discussion. Comments that suggested off-line organized collective actions or unionization were discouraged by other users and considered as not feasible.

To legitimize the discussion space, many developers on GitHub display trust in the domestic legal system. Developers seem to believe that, overall, the legal system is fair and just. For instance, one comment reads, "Please speak with rationality . . . to protect rights we should first obey the laws. We have to find correct ways to let the public power intervene, don't break the laws because of your anger." As one of these "correct ways," developers are collecting evidence about companies that force overwork. In doing so, they often quote domestic labor laws. For instance, some developers comment, "Labor law made it clear that every month you can't work overtime for more than 36 hours, even though it's paid overtime. Illegal is illegal, it's not about whether you are willing to overwork." Developers' focus on domestic labor law highlights the degree to which they see domestic law (including lawsuits) as a way of solving the problem of overwork. For instance, one user posted their process of filing a labor arbitration suit. The original post reads, "Tomorrow I will go through the labor arbitration process and I want to share the process for friends who are also suffering from the unfortunate [situation of overwork]." Under the user's post, more than 80 comments voiced support for the user. There is another post titled "why we need overwork evidence," with the poster writing, "This phenomenon will only stop when the cost to companies of illegally requiring employees to overwork is higher than the profits. We need to increase the costs to companies of requiring illegal overwork through legal channels." However, no posts indicated the success of any of the legal filings, and several comments on other social media suggested that the lengthy legal process was unlikely to directly help most individuals in overwork circumstances. These comments indicate that the legal system in which the developers placed their faith may be unable to help them succeed in their goal of fining/financially sanctioning companies that require overwork.

Another key reoccurring strategy to legitimize the discussion space is through media exposure. Even though developers themselves did not reach out to mainstream media (primarily out of fear of censorship or reprisal), they were elated whenever the 996 issue was picked up by the media. The repository's users' belief in the importance of this publicity can be identified through both direct calls for publicity, as well as a metadiscourse around the urgency of seeking publicity. Users express the belief that traditional journalism reports on developers' actions on GitHub are a crucial way to legitimize their actions and secure potential changes to the status quo. As mentioned in the literature review, in April, the People's Daily (the official newspaper of the Chinese Communist Party) publicly criticized the practice of demanding

compulsory overwork. The comments made by People's Daily may have been interpreted by developers' as a sign that the overwork problem was on its way to being solved and that thus connective action on GitHub was no longer necessary. This is supported by posts like the following: "[People's Daily offers] an official denial of 996," and "[People's Daily reporting 996 issue shows] the state does not support violation against labor law."

In addition, users are actively curating a corpus of domestic and international media reports to build the discussion space's legitimacy. Further, developers are concerned with not just domestic but also international media. During the period of data collection, users were actively translating the documents into English and various other foreign languages, and many commits are specifically focused on the importance of providing foreigners with not only linguistically correct but *impactful* translations. For example, under a commit adding commentary from the official state media, *People's Daily,* there are comments saying, "Now it seems that an official media outlet is supportive of our actions!" and "This [overwork] issue is not trending anymore, no one will be paying attention to it if it's not trending!!" These two comments highlight two important and related concerns for the developers. The first comment highlights the developers' sense of accomplishment when an official media source recognizes and documents their plights. The second comment highlights one of the developers' biggest fears: that their plight will fade from public attention.

Another example of users seeking publicity in the international media can be found in a commit titled "Adding English translation to part of regulations [regarding labor laws], and adding public traded companies' stock symbol for companies supporting 996." Through these translation efforts, the developers actively seek potential support from business people in English-speaking countries. The developers expressed great joy when foreigners recognized their plight, as illustrated by having placed a remark made by Guido van Rossum (founder of the computer programming language Python) on the repository's homepage. Guido van Rossum had said, "The 996 working schedule is inhumane" and this recognition from a foreign luminary clearly encouraged the group.

As illustrated above, enclaved publics constantly struggle with how they can legitimize their discussion space. Unlike counterpublics, which actively connect with the mainstream media to voice their standpoints (Jackson & Welles, 2015), the enclaved developers curated materials while passively waiting for the media to pick up their issue. However, the repository's users were deeply aware of the need for the mainstream media's amplifying power in order to leverage pressures on the dominant public spheres.

Discussion

Digital technologies provide opportunities for individuals who share similar interests to engage in collective action without forming conventional organizations to facilitate these actions (Bennett & Segerberg, 2011). Although GitHub is mainly a site serving developers who work on open-source projects, in the case of 996.ICU repository, it de facto facilitates users to discuss the compulsory overwork culture and organize protests against tech companies. The 996.ICU repository becomes a digital collection of evidence, legal support, as well as a discussion forum. Importantly, it is also a space where protestors/participants can (re)visit and contribute anonymously. Thus, the discussion sphere observed in 996.ICU repository can be conceptualized as an enclaved public sphere (Squires, 2002). This is

important because the Chinese state's ability and willingness to censor the Internet have been assumed to ostensibly preclude these types of connective actions (King et al., 2014), and a large-scale organized off-line protest against overwork culture would be highly likely curbed in its initial stages. GitHub thus not only offers a space where developers can brainstorm solutions to the issue and organize evidence against companies, but the anonymity it provides also protects them from potential political warnings from the party or layoff from the companies they are protesting.

This case study contributes to the conceptualization of enclaved public spheres. Much of the scholarship on enclaved public spheres focuses on the discussion spaces formed by social groups whose social identities were discriminated against broadly. However, in the case of Chinese developers, being a developer is an occupational identity, and developers are often considered as members of dominant publics because they receive above-average wages and are associated with the booming tech industry. Thus, developers enclave themselves only when discussing the issue of working overtime and only because the channels for expressing dissent are blocked in the Chinese context. Thus, this study explicates how even relatively privileged social groups can enclave themselves under certain social-political conditions. Additionally, this study illustrates how an enclaved public seeks to legitimize their arguments by tactically seeking public exposure through the media.

The potential of social coding platforms through connective action needs to be further explored, especially in terms of how these platforms can serve as alternative spaces for users to innovatively express their political opinions, curate digital resources, and organize concrete steps to ameliorate social problems. Importantly, the overwork issue is not the only time in which Chinese citizens have used GitHub to coordinate online activities. In the context of COVID-19's spread in China, developers have created a repository for in-depth articles and personal narratives for users. This project was undertaken because many news articles that pertained to the provincial-level and state-level administration response to the COVID-19 outbreak were censored. In this way, GitHub becomes a digital library where the public can retrieve collective memory on this traumatic event. Considering China's careful censorship of reports about COVID-19, the case of 996.ICU highlights the potential of GitHub as a space for sharing dissenting opinions and viewpoints in the future as well.

Because GitHub requires a somewhat basic understanding of programming languages, it is unlikely to emerge as a go-to digital space for everyday people to participate in public discussions around political issues. However, as I have discussed above, it is worthwhile to discuss the affordances of social coding platforms and how they increasingly can function as enclaved public spheres. One of the most perplexing questions facing communication researchers today is how, and to what extent, everyday Chinese citizens are navigating and negotiating political and social expression amidst the Chinese state's crackdown on dissenting opinions. This analysis of GitHub offers insight into this question, in terms not only of the content GitHub hosts, but also in terms of the underlying logic of dissent. Through GitHub, members of a rapidly growing segment of society have taken advantage of the Chinese state's deep desire for a powerful ICT industry to (somewhat) freely voice their dissent. It remains to be seen how the Chinese state's desire for control of communication will be balanced with GitHub's ostensible role as an important tool in improving the Chinese ICT industry.

References

Agarwal, S. D., Bennett, W. L., Johnson, C. N., & Walker, S. (2014). A model of crowd enabled organization: Theory and methods for understanding the role of Twitter in the occupy protests. *International Journal of Communication*, *8*, 646–672.

Alvesson, M., & Karreman, D. (2000). Varieties of discourse: On the study of organizations through discourse analysis. *Human Relations*, *53*(9), 1125–1149. doi:10.1177/0018726700539002

Asen, R. (2000). Seeking the "counter" in counterpublics. *Communication Theory*, *10*(4), 424–446. doi:10.1111/j.1468-2885.2000.tb00201.x

Bennett, W. L., & Segerberg, A. (2011). Digital media and the personalization of collective action. *Information, Communication & Society*, *14*(6), 770–799. doi:10.1080/1369118X.2011.579141

Breese, E. B. (2011). Mapping the variety of public spheres. *Communication Theory*, *21*(2), 130–149. doi:10.1111/j.1468-2885.2011.01379.x

Brock, A. (2018). Critical technocultural discourse analysis. *New Media & Society*, *20*(3), 1012–1030. doi:10.1177/1461444816677532

Chen, W. (2018). US-China technology competition is about "self-transcendence." *Asia Pacific Bulletin*, 439. Retrieved from https://www.eastwestcenter.org/publications/us-china-technology-competition-about-%E2%80%9Cself-transcendence%E2%80%9D

China Academy of Industrial Internet. (2020). *Gong ye hu lian wang ren cai bai pi shu* [Industrial Internet talent whitepaper]. Retrieved from http://www.199it.com/archives/1075623.html

Chong shang fen dou, bu deng yu qiang zhi 996 [Advocating hard work does not mean compulsory 996 working schedule]. (2019, April 14). *People's Daily.* Retrieved from https://www.weibo.com/2803301701/HpzvEq9l4?type=comment#_0

Dabbish, L., Stuart, C., Tsay, J., & Herbsleb, J. (2012). Social coding in GitHub: Transparency and collaboration in an open software repository. *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work—CSCW '12*, 1277–1286. New York, NY: Association for Computing Machinery. doi:10.1145/2145204.2145396

Fang, K., & Repnikova, M. (2017). Demystifying "Little Pink": The creation and evolution of a gendered label for nationalistic activists in China. *New Media & Society*, *20*(6), 2162–2185. doi:10.1177/1461444817731923

Forte, A., & Lampe, C. (2013). Defining, understanding, and supporting open collaboration: Lessons from the literature. *American Behavioral Scientist*, *57*(5), 535–547. doi:10.1177/0002764212469362

Fraser, N. (1990). Rethinking the public sphere: A contribution to the critique of actually existing democracy. *Social Text*, (25/26), 56–80. doi:10.2307/466240

Habermas, J. (1991). *The structural transformation of the public sphere: An inquiry into a category of bourgeois society*. Cambridge, MA: MIT Press. (Original work published 1962)

Hong, Y. (2017). *Networking China the digital transformation of the Chinese economy*. Urbana: University of Illinois Press.

Hughes, C. R. (2002). China and the globalization of ICTs: Implications for international relations. *New Media & Society*, *4*(2), 205–224. doi:10.1177/14614440222226343

Jackson, S. J., & Welles, F. B. (2015). Hijacking #MYNYPD: Social media dissent and networked counterpublics. *Journal of Communication*, *65*(6), 932–952. doi:10.1111/jcom.12185

Jamil, N. (2020). #depression: Singaporean Muslim women navigating mental health on social media. *International Journal of Communication, 14*, 669–696.

Khosravinik, M., & Sarkhoh, N. (2017). Arabism and anti-Persian sentiments on participatory Web platforms: A social media critical discourse study. *International Journal of Communication*, *11*, 3614–3633.

King, G., Pan, J., & Roberts, M. E. (2014). Reverse-engineering censorship in China: Randomized experimentation and participant observation. *Science*, *345*(6199), 1251722-1–1251722-10. doi:10.1126/science.1251722

Kollanyi, B. (2016). Where do bots come from? An analysis of bot codes shared on GitHub. *International Journal of Communication*, *10*, 4932–4951.

Lee, K. F. (2013). *Strongly against blocking down GitHub.* Retrieved from http://weibo.com/1197161814/zfGjQaBDB

Li, H., Li, L., Wu, B., & Xiong, Y. (2012). The end of cheap Chinese labor. *Journal of Economic Perspectives*, *26*(4), 57–74. doi:10.1257/jep.26.4.57

Lima, A., Rossi, L., & Musolesi, M. (2014). Coding together at scale: GitHub as a collaborative social network. *Proceedings of the International AAAI Conference on Web and Social Media*, *8*(1), 295–304. Retrieved from https://ojs.aaai.org/index.php/ICWSM/article/view/14552

Lin, N. (2011). Capitalism in China: A centrally managed capitalism (CMC) and its future. *Management and Organization Review*, *7*(1), 63–96. doi:10.1111/j.1740-8784.2010.00203.x

Lu, S., Chen, W., Li, X., & Zheng, P. (2018). The Chinese smog crisis as media event: Examining Twitter discussion of the documentary *Under the Dome*. *Policy & Internet*, *10*(4), 483–508. doi:10.1002/poi3.191

MacKinnon, R. (2011). Liberation technology: China's networked authoritarianism. *Journal of Democracy*, *22*(2), 32–46. doi:10.1353/jod.2011.0033

Meyer, M. (2001). Between theory, method, and politics: Positioning of the approaches to CDA. In R. Wodak & M. Meyer (Eds.), *Introducing qualitative methods: Methods of critical discourse analysis* (pp. 14–31). London, UK: SAGE Publications.

996.ICU. (2019). *"Anti 996" license Version 1.0 (draft).* Retrieved from https://github.com/996icu/996.ICU/blob/master/LICENSE

Perry, E. J. (2008). Reclaiming the Chinese revolution. *Journal of Asian Studies*, *67*(4), 1147–1164. doi:10.1017/S0021911808001733

Poell, T. (2014). Social media and the transformation of activist communication: Exploring the social media ecology of the 2010 Toronto G20 protests. *Information, Communication & Society*, *17*(6), 716–731. doi:10.1080/1369118X.2013.812674

Qiu, J. L. (2017). *Goodbye iSlave: A manifesto for digital abolition*. Urbana: University of Illinois Press.

Rauchfleisch, A., & Schäfer, M. S. (2015). Multiple public spheres of Weibo: A typology of forms and potentials of online public spheres in China. *Information, Communication & Society*, *18*(2), 139–155. doi:10.1080/1369118X.2014.940364

Squires, C. R. (2002). Rethinking the black public sphere: An alternative vocabulary for multiple public spheres. *Communication Theory*, *12*(4), 446–468. doi:10.1111/j.1468-2885.2002.tb00278.x

Stein, A. (2018, October 9). A jobless future is coming, says China tech guru Kai-Fu Lee, and we must prepare now. *South Morning China Post.* Retrieved from https://www.scmp.com/magazines/post-magazine/long-reads/article/2166979/jobless-future-coming-says-china-tech-guru-kai-fu

Storey, M.-A., Singer, L., Cleary, B., Figueira Filho, F., & Zagalsky, A. (2014). The (r) evolution of social media in software engineering. *Future of Software Engineering Proceedings* (pp. 100–116). New York, NY: Association for Computing Machinery. doi:10.1145/2593882.2593887

Sullivan, J. (2012). A tale of two microblogs in China. *Media, Culture & Society*, *34*(6), 773–783. doi:10.1177/0163443712448951

Sun, S. P., & Magasic, M. (2016). Knowledge workers, identities, and communication practices: Understanding code farmers in China. *TripleC: Communication, Capitalism & Critique*, *14*(1), 312–332. doi:10.31269/triplec.v14i1.716

Toepfl, F., & Piwoni, E. (2015). Public spheres in interaction: Comment sections of news websites as counterpublic spaces. *Journal of Communication*, *65*(3), 465–488. doi:10.1111/jcom.12156

Wodak, R. (2001). What CDA is about—A summary of its history, important concepts and its developments. In R. Wodak & M. Meyer (Eds.), *Introducing qualitative methods: Methods of critical discourse analysis* (pp. 1–13). London, UK: SAGE Publications. doi:10.4135/9780857028020

Xin shi ping: Fen dou ying ti chang, 996 dang tui chang [Xinhua commentary: (We) should advocate hard work, but 996 should leave (as a working hour system)] (2019, April 15). *Xinhua News Agency.* Retrieved from http://www.xinhuanet.com/2019-04/15/c_1124370790.htm

Yang, G., & Calhoun, C. (2007). Media, civil society, and the rise of a green public sphere in China. *China Information*, *21*(2), 211–236. doi:10.1177/0920203X07079644

Yu, G. (Producer). (2019, November 14). "I Can I BB" (Season 6, Episode 5) [TV series episode]. *iQIYI*. Retrieved from https://www.iq.com/play/19rv6n7v40?frmrp=search&frmb=list&frmrs=more

Yu, Y., Yin, G., Wang, H., & Wang, T. (2014). Exploring the patterns of social behavior in GitHub. *Proceedings of the 1st International Workshop on Crowd-Based Software Development Methods and Technologies—CrowdSoft 2014*, (pp. 31–36). New York, NY: Association for Computing Machinery. doi:10.1145/2666539.2666571

Zhang, C. (2019, April 15). Hu lian wang da lao she zhan 996: Ma Yun, Liu Qiangdong, Zhang Chaoyang, Li Guoqing, ni zhan shui? [Internet tycoon debates on 996: Jack Ma, Richard Liu, Charles Zhang, and Guoqing Li, who do you agree with?]. *National Business Daily.* Retrieved from http://www.nbd.com.cn/articles/2019-04-15/1321328.html