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# Human-automated collectives: Automating communication for social movement mobilization

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## Abstract

Central to algorithmically mediated activism is the politics of algorithmic (in)visibility. Activists must consider how they can increase the visibility of their claims. Bringing together critical data studies and social movement studies, this study introduces the concept of human-automated collectives to capture how activists strategically make collective claims about and through algorithms and mobilize algorithmic tactics on social media. Using Hong Kong's Anti-Extradition Bill Movement as a case study, this study explores how activists interpreted social media algorithms, mobilized others to use various tactics to amplify their voice to gain algorithmic visibility, and contested counter-movement algorithmic strategies. We primarily drew upon a qualitative analysis of two pro-movement Facebook pages that shared algorithmic tactics published between July 2019 and January 2020 ($n = 694$). The study contributes to theorizing the role of activists in decoding and contesting automated media for their practical purposes in connective action.

## Keywords

Algorithmic politics, algorithmic resistance, automated communication, data politics, human-automated collectives

In July 2019, Pocari Sweat—a Japanese sports drink brand—reportedly pulled advertisements from Television Broadcasts Limited (TVB), one of the major free-to-air television broadcasters in Hong Kong, after calls to boycott TVB's advertisers on social media and a

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Reddit-like online forum called LIHKG (Sum, 2019). The political campaign targeted TVB and its advertisers because TVB was regarded as a pro-government news media, which reported the Anti-Extradition Bill (Anti-ELAB) Movement in a biased manner. Public Facebook Pages and LIHKG threads mobilized movement supporters to leave "angry" emoji reactions and comments to TVB's advertisers. This practice is known as "settling an old score" (i.e. "qingsuan" in Cantonese)—which aimed to expose and shame pro-government actors and compel them to action (e.g. withdrawing advertisements from TVB).

Central to the social media campaign, we argue, is the politics of algorithmic visibility on social media (Bucher, 2012; Milan, 2015; Treré and Bonini, 2024). Visibility, explains Milan (2015), refers to "the digital embodiment and online presence of individuals and groups and their associated meanings, which are (and need to be) constantly negotiated, reinvigorated, and updated" (p. 6). Visibility is connected with power relations because social media algorithms can determine which content and when such content can be seen by others (Bucher, 2012). Scholars have examined how social media users and content creators face a "threat of invisibility" (Bucher, 2012: 1171) and learn to play the visibility game (Cotter, 2019). A social movement's success depends significantly on whether protestors can mobilize public support. In connective action (Bennett and Segerberg, 2012), this becomes an issue of how well protestors can increase the visibility of pro-movement protest frames while lowering the visibility of counter-movement frames. Activists must consider how they could make protest claims not only algorithmically recognizable (Gillespie, 2014) but also visible on social media to facilitate mobilization and consolidate solidarity (Milan, 2015). This raises questions about how activists strategically interpret and utilize automated media (i.e. algorithmic operations of social media) to amplify visibility and strengthen their narrative agency (Treré and Bonini, 2024).

This study sits at the intersection of critical data studies and social movement studies. With the increasing reliance on data-driven and algorithmic technologies in social and political spheres, automated communication has created emergent forms of control and resistance by facilitating automated decision-making (Andrejevic, 2020), reconfiguring the distribution of information (Flaxman et al., 2016), and formation of networked publics (Bennett and Segerberg, 2012). As Treré (2019) noted, the "rapid diffusion of networked devices . . . coupled with the massive adoption of social media as platforms for political engagement constitute a landscape within which new algorithmic agents proliferate" (pp. 168–169). Yet, little work has developed an account to highlight the agency of individuals in strategically interpreting the automated algorithmic process to make collective claims and form collectives.

Accordingly, this qualitative study asks the following questions: How did activists articulate their understanding of automated media (i.e. algorithmic operations of social media)? As activists' interpretations may shape the repertoire of contention (Treré and Bonini, 2024), how did they strategically appropriate and utilize automated media to strengthen the visibility of their collective claims? Indeed, counter-movement camps could also rely on the very same logic of automated media to spread counter-movement claims. How, then, did activists respond to these counter-movement strategies, if any?

To address these questions, we examine how the social media campaigns concerning the practice of settling an old score constructed discourses about algorithms and their

protest tactics during the 2019 Hong Kong's Anti-ELAB movement. This practice was one of the routinized, everyday protest tactics that was diffused into political consumerism (Fong and Lee, 2023; Lee and Fong, 2023; Poon and Tse, 2022) and data activism (Li and Whitworth, 2023). Protestors differentiated the "yellow" businesses (i.e. pro-movement business entities) from the "blue" ones (i.e. the pro-government ones). By encouraging supporters to buycott the "yellow" businesses and boycott the "blue" ones, protestors aimed to "put the pro-government camp under economic pressure" and "maximize financial support for the movement" (Poon and Tse, 2022: 7). Such information was circulated, deliberated, and materialized through social media, online forums, and service-based platforms (Poon and Tse, 2022). Previous research has shown that the "yellow" and "blue" labels were loosely defined and had interpretive flexibility (Fong and Lee, 2023). We argue that the Anti-ELAB movement and, in particular, these social media campaigns serve as a compelling case study for two reasons. First, the Anti-ELAB movement affords opportunities for understanding the struggle for visibility in connective action. Second, the social media campaigns were concerned about how activists discursively constructed who should be the boycott targets, articulated how automated communication could help to achieve these goals, and mobilized supporters to engage in such everyday practices of political consumption.

We drew upon a qualitative analysis of a sample of posts from two relevant Facebook pages published between July 2019 and January 2020 ($n = 694$), supplemented by the relevant LIHKG forum discussions. We introduce the concept of human-automated collectives to capture the centrality of algorithmic interactions in activists' sustained campaigns of claim-making on and through social media. We explicate how activists discussed their algorithmic tactics and contested counter-movement algorithmic strategies initiated by opposing camps and institutions. Such discussions ascribe meanings to what the underlying logic of automated media could do for and against themselves in the Anti-ELAB movement.

This study contributes to understanding social movements and automated communication in two ways. First, following the recent call for re-humanizing machines and automation (Natale and Guzman, 2022; Pink et al., 2022), we foreground the role of activists in decoding and contesting the underlying logic of automated media (Bucher, 2017; Lomborg and Kapsch, 2020) for their practical purposes. Second, the analysis shows how activists constructed an alternative vision of automation, allowing them to make collective claims, construct themselves into automated subjects that count in automated media for collective claim-making and confront the pro-government actors.

## Three approaches to algorithms and activism

Broadly, algorithms "are encoded procedures for transforming input data into a desired output, based on specified calculations" (Gillespie, 2014: 167). One central through-line of communication studies and critical data studies is that we must consider the complex entanglement of individuals and algorithms (Gillespie, 2014; Natale and Guzman, 2022). As Van Dijck (2013) noted, "human and technical agents, rather than being hierarchically ordered entities, are mutually intertwined in determining a platform's *usage*" (italics in original, pp. 146–147). While non-human elements, such as algorithms, may make

more or less automated decisions regarding what information is made visible and how such information is circulated through social media, users can also "reshape their practices to suit the algorithms they depend on" (Gillespie, 2014: 168). Klinger and Svensson (2018) have noted that the input step of algorithmic calculations is heavily shaped by humans such as programmers. While scholars have debated the distinction between human and algorithmic agency (Klinger and Svensson, 2018), we follow Treré and Bonini (2024) in considering "the user's 'reflexive ability' to make the algorithms work to their own needs" (p. 4). Put differently, we must consider how activists' claim-making processes are not only dependent upon non-human elements but also how they strategically utilize them for claim-making purposes.

Studies on the relationships between activism and algorithms can be categorized into three approaches. First, the political machinery approach emphasizes the importance of bots' intervention in the political processes and their negative impacts on digital coordination among protestors. Second, the cloud activism approach suggests activists' practices are conditioned by the materiality of social media and a "politics of visibility" (Milan, 2015). Third, the disciplinary approach highlights the disciplinary potentials of the datafication structure and the role of opaque algorithms in fostering such disciplinary power. In this section, we sketch out these three pivotal approaches and reflect on their conceptual weaknesses.

## *Political machinery approach*

Following the political machinery approach, politically motivated bots are used to complicate the algorithmic procedures that govern the communicative channels (Woolley and Howard, 2016). Such manipulation of the digital public sphere creates additional barriers to activists' claim-making. As digital communication reconfigures human interactions and modes of coordination, new agents have been created to intervene strategically in the communicative and coordinating processes (Barry, 2001). Political bots are "the algorithms that operate over social media, written to learn from and mimic real people to manipulate public opinion across a diverse range of social media and device networks" (Woolley and Howard, 2016: 4885; see also Treré, 2019). Examples of political bots include programs designed to boost followers, attacking political opponents on social media platforms, reposting or retweeting political candidates' content, and drowning out activists' discussions and conversations on Reddit (Woolley and Howard, 2016).

Scholars have attended to the consequences of bots in political campaigns (Murthy et al., 2016; Woolley and Howard, 2016). A noteworthy example is what Treré (2019) terms "the techniques of attention hacking" (see also Treré and Bonini, 2024). It refers to the techniques of confusing and deferring potential connections among online activists and diverting the activists' claim-makings by diluting the main content that activists attempt to spread. Apart from using bots to target influential activists and journalists' online accounts to disable them from effective communication, tactics such as manipulating hashtags on Twitter by posting critical messages are developed against a particular movement (Treré, 2019; Treré and Bonini, 2024).

The political machinery approach recognizes the negative consequences of the rising level of human–machinery interactions for contentious actions coordinated within social

media (Tufekci, 2014). Algorithms as procedures transforming input into output grounded on metrics and formulas designed by social media companies provide room for political bots to intervene in the communicative process. Tufekci (2014) suggests that we are moving toward "computational politics" in which computational methods are combined with insights from behavioral sciences to intervene in the political processes. Wolley and Howard (2016) further claim that the "bulk of digital communications are no longer between people but between devices, about people, over the Internet of things" (p. 4882).

Although the political machinery approach highlights the distinctive role of algorithms in the distribution of information, the formation of collectives in the online sphere, and the potentially destructive role of political bots in sustained campaigns of claim-making, its understanding of the algorithmic affordances is one-sided in that it fails to theoretically provide a comprehensive picture of the political opportunities in such environment.

### *Cloud activism approach*

The rise of social media reshapes communication and reconstructs social and political action (Milan, 2015; Tufekci, 2017). In contrast to traditional social movement organizational logic, the cloud activism approach highlights that the networked public is diverse, decentralized, and much more personalized (Bennett and Segerberg, 2012; Beraldo and Milan, 2019; Milan, 2015). Given the declining centrality of traditional social movement organizational logic, two alternative forms have emerged to fill the gap. The first was the Internet, which provides agents with a digital public space where they can produce their narratives and structure informal networks (Milan, 2015). The second is the "networked public," where connecting and coordinating actions through digital public space has been significantly facilitated by the existence of central social media platforms (Milan, 2015).

This approach situates contentious politics within the context of datafication—the context in which human interactions are increasingly mediated by data and relevant datafication structure (Van Dijck, 2014); it signals the "cloud environment," which is algorithmically led and individually dispersed (Bennett and Segerberg, 2012). Cloud activism, therefore, constructs and maintains the shared identity and networks among protestors in ways that are less oriented toward simple deference but more attentive to co-creating meanings (Milan, 2015; Tufekci 2017). Milan (2015) identified four central mechanisms in the politics of visibility in relation to social media and contentious politics: (1) the centrality of performance; (2) the interpellation to fellows and opponents; (3) the expansion of the temporality of the protest; and (4) the reproducibility of social action. Taken together, social media generate cloud actions centering on the online performance of digital connective actions, such as live streaming, to gain attention from dispersed users, and they also enable asynchronous interactions, which tend to expand the temporality of the protest (Milan, 2015).

The cloud activism approach provides a conceptual tool to understand the distinctive role of algorithms in the cloud environment (Treré, 2019). Nonetheless, the processes

through which activists actively interpret, utilize, and even contest algorithms remain largely unknown.

### *Disciplinary approach*

The disciplinary approach provides handy theoretical tools to understand, especially from activists' perspectives, dispersed agents' (sometimes internalized) concerns over the potential disciplinary power of platform algorithms and political authorities in the expanding datafication structures. Datafication enables real-time tracking, triaging, nudging, and valuating (Christin, 2020). The massive amount of data collected and stored from individual users' actions and interactions sparks worries about its surveillance potential (Van Dijck, 2014; Zuboff, 2019). Zuboff (2019) argues that users' behavioral surplus is essential to the business model of big tech firms due to big data's ability to predict and modify individuals' behaviors. Such new logic of accumulation exemplifies what she terms "surveillance capitalism" and big tech companies are "big others" who constantly exercise surveillance power over individuals.

The surveillance potential of the datafication structures also intensifies concerns over surveillance in political activism. Beraldo and Milan (2019: 1) have argued that activism has increasingly taken the form of "contentious politics of data," meaning that data have become the center of contention, as "objects of struggle in their own right." Scholars have focused on what datafication implies for the demobilization and disciplinary threats to social movements (Kwok and Chan, 2024) such as the potential of algorithmic censorship on social media platforms (Tufekci, 2017). The emergence of social media has resulted in the burgeoning of online civic spaces whose importance was highly notable in authoritarian contexts such as Egypt and Myanmar (Tufekci, 2017). As Tufekci (2017: 163) contends, currently "the function of gatekeeping for access to the public sphere is enacted through Internet platforms' policies, algorithms, and affordances," and, as a result, social movement activists' "significant and important stories can be silenced by a terms-of-service complaint or by an algorithm." There is a fear of being individually identified in a protest and on social media platforms (Kwok and Chan, 2024) and being ranked by the authority's algorithmic risk-assessment tools (Christin, 2020).

### *Conceptual limitations of the three approaches and conceptualizing human-automated collectives*

Despite the invaluable insights into the entanglement between activism and algorithms, we argue that the three approaches suffer from their respective conceptual limitations. The *political machinery* approach helps understand how political bots can be used to sustain and manipulate collective claim-making, but it may offer an overtly pessimistic picture of human–machinery interactions. Although the *cloud activism* approach presents an empowering dimension, it has not yet articulated clearly why the algorithmically mediated cloud environment could be empowering. Finally, the *disciplinary* approach problematizes the potential disciplinary power of algorithms through the perspectives of activists, but the concrete process through which activists interpret resources and

opportunities mediated by algorithms to overcome the disadvantages embedded in the datafication structures remains largely unclear.

These conceptual limitations necessitate a stronger emphasis on the (dis)empowering potential of activists' dynamic interactions with algorithms on social media platforms. Turning to social movement studies, Earl and Kimport (2011) have coined the concepts of "e-mobilization," "e-movement," and "e-tactics," which denote varying degrees of reliance on the Internet for organizing and mobilizing protests. Nonetheless, these concepts are still insufficient in directly addressing the human–machine dynamics within the algorithmic affordance in social media. Etter and Albu (2021: 68) note that such affordances hold potential and challenges for activists, reshaping interaction and information propagation through "sorting," "filtering," and "ranking" and contending with "information overload, opacity, and disinformation." Hence, there is a need to take seriously the interaction between algorithms and human actions within social media affordances.

Accordingly, we introduce the concept of human-automated collectives to refer to the growing trend that collective claim-making is intertwined with automated media, be it algorithms or bots, in the digital public spaces, coordinating and influencing online and offline actions. These programs are essential to sustaining and diffusing claim-making, especially in connective actions in the cloud environment. An inquiry into concrete processes through which activists encounter, interpret, and potentially contest algorithms, we argue, opens up opportunities for examining the specificity of an algorithmic political opportunity structure—a political opportunity structure in which algorithms play an essential role (Tilly and Tarrow, 2015). Meanwhile, this concept draws insights from emerging theorizations of "algorithmic imaginary" (Bucher, 2017; Kazansky and Milan, 2021), folk theories (Ytre-Arne and Moe, 2021), and "decoding algorithms" (Lomborg and Kapsch, 2020), which highlight how individuals' communicative agency become intertwined with algorithmic logic. Within the context of this study, activists encounter and interpret algorithms as they make collective claims through automated media. Their everyday interactions with automated media introduce both opportunities and challenges to activists' claiming-making process. On one hand, activists may construct what Kazansky and Milan (2021: 376) term "counter-imaginaries," which "oppose dominant imaginaries of datafication as constructed by state and corporate interests." They may also develop innovative tactics to manipulate social media's algorithms to extend the reach of their claims and simultaneously use these metrics as weapons against their opponents (Treré and Bonini, 2024). On the other hand, they need to explore tactics to counter their adversaries' similar endeavors.

Indeed, the growing impact of machines in various fields has gained increasing scholarly interest. For instance, Delfanti and Frey (2021) have demonstrated that the introduction of new machinery into labor processes embodies a form of "humanly extended automation." This is characterized by a production process that sees increased surveillance and constrained work rhythms enabled by machines and yet humans still play a crucial role (see also Delfanti, 2021). Delfanti and Frey (2021: 659) further argue that understanding "complex machinic systems dominated by algorithmic and robotic technology" is crucial to grasp how the advent of computers has revolutionized human activities. In other words, the integration of human labor with machinery, such as automation

technologies, enhances human capabilities while simultaneously posing challenges to labor processes. While we have gained significant insights into human–machine dynamics within labor studies, we know less about the impacts of these dynamics—especially those involving algorithmic factors—on the mobilization and organizational processes in social movements. In this regard, the concept of humanly extended automation highlights the emerging interactive human–machine dynamics that result from the increasing role of machinery in connective action.

However, a dichotomy between humans and machines should not be purported. Instead, the concept of human-automated collectives underscores the intertwined sociotechnical nature of both entities, with each relying significantly on the other to fulfill its role. The concept of interaction is central to comprehending recent advancements in fields such as artificial intelligence, machine learning, neuro- and self-tracking technologies, and social robotics (Schleidgen et al., 2023). In this context, the term "machines" encompasses a wide array of systems capable of performing tasks, processing information, altering forces, or generating outcomes. Conversely, algorithms are perceived as a subtype of machines and are defined as encoded procedures. As Andrejevic (2020) notes, the concept of automation suggests addressing challenges like "uncertainty, unpredictability, inconsistency, or resistance posed by the figure of the subject" (p. 2). We, therefore, opt to use the term human-automated collectives to represent the nuanced interactions and struggles among various stakeholders surrounding diverse algorithmic elements, such as bots or the algorithms powering social media platforms.

## Hong Kong's Anti-ELAB movement

Hong Kong's Anti-ELAB movement began as a public outcry against the government's proposed amendment of the fugitive laws in 2019. On 9 June, an estimated one million people marched against the extradition bill, which would have enabled the government to detain and transfer fugitives to places where Hong Kong has no extradition agreement, including mainland China and Taiwan. Three days later, confrontations among the protestors and police took place around the Legislative Council building, where the lawmakers were set to debate the proposed bill. Though Chief Executive Carrie Lam announced the "suspension" of the bill on 15 June, the protest continued to take place and demanded a formal withdrawal of the bill. The movement subsequently evolved into a large-scale connective action concerning "the political accountability, institutional oversight and political development prescribed under the Basic Law" (Cheng et al., 2022: 642). State repressions, such as the use of police force against protestors since June and mass arrests since August, significantly increased the cost of participation (Cheng et al., 2022), contributing to the loss of movement momentum in November 2019. The movement was further silenced due to the outbreak of coronavirus disease-19 in early 2020.

The Anti-ELAB movement has piqued scholarly attention in communication studies and social movement studies. Three vital points emerge from this literature. First, protestors' extensive use of digital and social media alone cannot fully explain the unprecedented scale of this so-called "leaderless" movement. In Hong Kong, protestors have heavily relied upon digital media for self-mobilization and claim-making since the 2010s (Lee et al., 2019). Scholars have demonstrated how the abeyant professional groups (Ho,

2020; Ma and Cheng, 2023) and civil society networks (Cheng et al., 2022) since the 2014 Umbrella Movement contributed to initiating the movement. Protestors learned to recognize "the need for more decentralized decision-making and tolerance for radical protests" from the failure of the Umbrella Movement (Ho, 2020: 725; see also Lee et al., 2019). The ethos of leaderlessness might be reflected in the wide range of protest tactics such as the practice of settling an old score, doxing, political consumerism, and flash mobs (e.g. Lee et al., 2019; Lee and Fong, 2023; Poon and Tse, 2022).

Second, scholars have examined the role of digital and social media—such as LIHKG (Lee et al., 2022; Liang and Lee, 2023), Telegram (Lee et al., 2022), Instagram (Yuen and Tang, 2023), Facebook Live (Fang and Cheng, 2022)—in facilitating movement mobilization and coordination. Lee et al. (2022) argue that the affordance of LIHKG, one of the central communication channels during the movement, "allows efficient surveying of popular sentiments and emerging discourses, renders domination by opinion leaders difficult, and prevents the splintering of discussion" (p. 1704). Yet, LIHKG's anonymity, lack of network structure connecting users and followers, and absence of popularity metrics might increase the difficulty of sustaining informal opinion leadership (Liang and Lee, 2023). Within the context of political consumerism, LIHKG served as one of the essential social spaces for participants to consolidate the relevant information (Lee and Fong, 2023) and resolve disagreements about the appropriateness of protest strategies (Fong and Lee, 2023).

Third, data became a tool of repression (Kwok and Chan, 2024) and an object of contention (Li and Whitworth, 2023) during the movement. On one hand, police actively collected protestors' data online, through their phones, and at protest sites for demobilization (Kwok and Chan, 2024). Protestors, on the other hand, developed anti-surveillance strategies (Kwok and Chan, 2024) and adopted doxing of police officers and their relatives as part of the contentious repertories (Li and Whitworth, 2023). To date, the scholarly discussion has primarily focused on the general process of datafication. However, as activists use social media for claim-making and mobilization, they must consider how their claims are rendered visible algorithmically. The case study offers a significant opportunity for probing into how activists attempted to interpret and mobilize others to construct themselves into automated subjects that count in automated media for collective claim-making.

## Methods and data

This study primarily drew upon a qualitative thematic analysis of posts ($n = 694$; average metrics per post = 970.07; average comments per post = 54.93; average shares per post = 302.10)[1] shared by two public Facebook Pages—AgainstBlueAdvertisers and Whistleblower—from July 2019 and January 2020. Since protestors are at risk of arrest in Hong Kong, all names have been changed for confidentiality reasons. We collected the posts in 2022; therefore, some social media and LIHKG posts might have already been removed. Although large-scale protest events began in June 2019, Lee and Fong (2023) found that LIHKG posts about political consumerism significantly surged in July and subsequently decreased in January 2020. We supplemented the analysis through a close reading of the relevant LIHKG threads ($n = 166$) given the centrality of LIHKG in

discursive formation of political consumerisms (e.g. Lee and Fong, 2023). The posters of the threads primarily shared and discussed AgainstBlueAdvertisers' protest tactics,[2] which affords opportunities for exploring how such tactics were deliberated. However, the most common comments used the word "push" or simply contained emojis which aimed to help increase the visibility of the threads on LIHKG.[3] Instead of generalizing the threads and comments, we aimed to use them to contextualize the analysis of the Facebook Pages.

Methodologically, we followed an interpretive approach (Orgad, 2008) to inquiring how multiple meanings emerged from the sampled Facebook posts. We considered social media and forum posts as digital traces that reveal interpretative processes through which activists articulated and spread their collective claims through their uses of Facebook. The goal of the interpretative research is neither to evaluate whether activists' claims are "truthful" (Orgad, 2008) nor to evaluate whether activists actually performed such practices. Instead, we focus on activists' discourses of resistance. Informed by Brock's (2018) discussion of critical technocultural discourse analysis, we prioritized the epistemological standpoint of activists by attending to "the ways that technology users perceive, articulate, and ultimately define the technocultural space in which they operate and exist" (p. 1016). As such, we acted as passive observers to interpret how activists, particularly the Page administrators articulated their discourses about algorithmic technologies and mobilized others to engage in automated communication on Facebook.

We selected these Facebook Pages as major sites of investigation for two reasons. First, the practice of settling an old score did not come naturally; instead, it required the discursive formation of why certain entities *ought* to be targeted and how to boycott them. We focused on Facebook Pages because the platform provides a rather centralized communication tool for articulating and spreading protest claims through and in relation to automated media, compared with Telegram and LIHKG. An examination of the two Facebook Pages affords opportunities for studying the distinctive dynamics among human actors (e.g. activists, supporters, and corporations) and non-human actors. This is because many brands and corporations marketize through their own Facebook Pages, which enables the Page administrators to mobilize human-automated collectives to take place on these business Pages.

Second, while there were more than two social media pages related to the practice of settling an old score, we selected two relevant and prominent Facebook Pages for the analysis. Both Pages had over 70,000 followers.[4] The two Pages were similar in that they both mobilized the public to protest against political opponents through social media metrics (e.g. the number of likes on Facebook), as well as economic and administrative means. They also considered social media metrics as evidence to showcase the effectiveness of their tactics. AgainstBlueAdvertisers mobilized the public to engage in what it called "daily tasks" that boycotted TVB and its advertisers due to TVB's biased news reporting of the Anti-ELAB movement. In addition, Whistleblower mainly revealed opponents' illegal behaviors to relevant authorities to drag them into legal trouble as revenge. Given that AgainstBlueAdvertisers distributed daily tasks every day, it had more posts than Whistleblower in the sample. Yet, their claim-making did not only exist on social media. AgainstBlueAdvertisers, for instance, promoted the Page at protest sites.

We analyzed the relevant Facebook posts by manually coding (1) the basic information about the posts (e.g. the publish date); (2) the purposes of the posts (e.g. sharing protest information, educating others to engage in algorithmic tactics); and (3) the types, rationales, and intended consequences of algorithmic tactics. We paid close attention to critical events where the Page administrators mentioned the success and failure of algorithmic tactics on their Pages.

We are aware of the ethical dilemma of studying such discourses of resistance, especially considering that protestors are at risk of arrest. Although the analysis anonymizes the source, online content is traceable and searchable (Markham, 2012). Following Trevisan and Reilly (2014), we primarily conveyed the key themes from the digitally mediated interactions among activists and avoided using direct quotes. In so doing, we "concentrate ethical reflexivity on what was said rather than *who* said it" (pp. 1142–1143; italics in original).

## Findings

We begin by describing the typical types of Facebook posts in the sample. Generally, there were three types of Facebook posts. The first type of posts shared news and information about the Anti-ELAB movement. For example, AgainstBlueAdvertisers shared news articles that criticized TVB's biased reporting of the movement, especially during the early days of the Page.

The second type of posts mobilized supporters to engage in mostly online political actions—including what AgainstBlueAdvertisers called "daily tasks" (i.e. leaving emoji reactions and comments on the Facebook Pages of the companies that had advertisements on TVB, also known as "flooding") and filing complaints about political opponents (i.e. the case of Whistleblower). These posts attempted to educate others to have somewhat "standardized" digital engagement with the government and pro-government businesses. Specifically, they often included comment templates for others to easily "flood" a brand's Facebook Page. A typical comment template looks like the following: "TVB news is biased and misleading. I have been a long-term user of your product. If you continue placing advertisements on TVB, I will no longer purchase your product and start using another brand's product (i.e. pro-movement brand)." Such tactics were similar to but also crucially different from the notion of e-tactics (Earl and Kimport, 2011). Both of them were similar in the sense that activists could leverage technological affordances to engage in contentious politics at a low cost. Nevertheless, as illustrated below, algorithms became intertwined into the Pages' claim-making process.

The third type of post discussed why their tactics were meaningful and effective. AgainstBlueAdvertisers, for example, often shared that TVB's advertising revenue was declining and thanked the supporters, or what they called "keyboard fighters," for continuously completing the daily tasks. Following AgainstBlueAdvertisers' discursive logic, the daily tasks were effective in damaging TVB's reputation and eliciting companies to withdraw their advertisements from TVB. The latter two types of posts were particularly relevant to our study because they revealed the Pages' discourses about their tactics.

In what follows, we explicate how activists articulated their understandings of automated communication on social media through their Facebook posts and LIHKG discussions about the political effectiveness of flooding. This instance revealed how activists cautiously decoded algorithmic systems (Lomborg and Kapsch, 2020). While Lomborg and Kapsch's (2020) discussion of decoding algorithms directed attention to individuals' positive, ambivalent, and negative evaluations of algorithms, our analysis points to activists' understandings of how algorithmic (in)visibility might shape contentious politics. Then we identify and describe various algorithmic tactics based on the analysis of Facebook posts. We close by discussing how activists interpreted and contested countermovement algorithmic strategies.

## *Decoding algorithms—flooding as a tool for or against the movement?*

Algorithmic (in)visibility is concerned with how others could see their collective claims. Consider the case of AgainstBlueAdvertisers. TVB had contracted with a large number of advertisers. This raises questions about which companies should be targeted and flooded. At first, AgainstBlueAdvertisers posted the counting of the number of advertisements and sponsors on TVB and publicly named those companies. Later, the Page published a few targets that were the most urgent priority for protestors to act against their daily tasks.

AgainstBlueAdvertisers referenced a LIHKG thread about TVB and advertising when discussing whether the practice of flooding was an effective means for the movement. In this thread, one forum member shared that individuals should target and communicate with TVB's advertisers to resist TVB's biased reporting of the movement. The thread referenced the former Chief Executive Chun-ying Leung's counting of Apple Daily's (i.e. a pro-democracy newspaper) full-page advertisers on his personal Facebook Page a while ago. While Leung's act was considered an attack on press freedom (Cheng, 2019), the member noted that this was a "smart move" because advertising is the main source of revenue for media companies. In order for companies to withdraw advertisements from TVB, individuals must first "unfollow" their social media pages because the number of followers is a quantifiable marketing metric. Besides, the thread suggested that individuals should continuously leave angry emoji reactions and comments on companies' Facebook Pages. Because most of the local companies had a relatively small number of followers, a few hundreds of emoji reactions and comments could raise their attention so as to persuade them to withdraw advertisements from TVB.

Inspired by this LIHKG thread, AgainstBlueAdvertisers' posts encouraged supporters to leave angry emoji reactions to companies that had on-going TVB advertisements and sad emoji reactions to companies that had once placed advertisements on TVB. Besides, because of Facebook's "personalized" recommendation algorithms, the Page suggested that supporters should publicly tag their friends and influential opinion leaders and prioritize their posts on individual users' newsfeeds. AgainstBlueAdvertisers' posts and the LIHKG thread indicate that flooding was not simply about the expression of grievance but an effective protest tactic within a wider social media ecosystem.

Nevertheless, individuals can take up a different position toward the relationship between flooding and algorithmic (in)visibility. The following discussion among

AgainstBlueAdvertisers' administrators and LIHKG forum members exemplifies how the purposes of algorithmic tactics could be interpreted variously. As a forum member explained on LIHKG, YouTube's algorithms do not distinguish "dislike" from "like" when recommending content to other users. Instead, both likes and dislikes are equal measures of engagement. When movement supporters were mobilized to dislike certain pro-government YouTube channels, they inadvertently helped to boost the visibility of counter-movement claims. Flooding, therefore, would increase opposing camps' click-through rates for free. To lower the visibility of counter-movement claims, forum participants suggested that movement supporters should simply ignore or utilize social media reporting tools when encountering protest-related disinformation and misinformation. While the thread was initially about YouTube's algorithms, others questioned the effectiveness of targeting TVB's advertisers on Facebook. AgainstBlueAdvertisers accordingly clarified that this interpretation of algorithms did not work for its Facebook campaign because the campaign rather aimed to increase the engagement rate so as to boost the public visibility of blue businesses such that movement supporters became aware of the businesses' political position. Meanwhile, AgainstBlueAdvertisers noted in a Facebook post that supporters should avoid reacting to political opponents' comments; otherwise, Facebook's algorithms might make those comments to be the "top comments." This instance also problematizes the empowering potential of algorithmic visibility. As protestors amplified the visibility of their claims in political consumerism, they could inadvertently increase the visibility of the opposing targets.

### *The construction of human-automated collectives*

We now analyze the socio-technical and cultural processes through which the two Facebook Pages mobilized supporters to construct human-automated collectives.

Whistleblower positioned itself as a "partial bot" and arguably attempted to introduce the culture of "political bot" through its Facebook posts. Bots are defined as "social media accounts that are controlled either wholly or in part by software agents," and these accounts perform actions that are designed by the agents who control the program with the purpose of intervening in "the way knowledge and information is communicated" (Murthy et al., 2016: 4955). By "partial bot," we mean that the two Facebook Pages mobilized human users to perform the exact same actions and functions bots would generally do in shaping the automated communication processes. This process performs the articulation work that frames and moralizes why supporters should engage with such an algorithmic tactic. We found that Whistleblower attempted to mobilize supporters to send a large number of complaint emails to government authorities. For example, it mobilized users to send complaints to the Building Department to report political opponents' "unauthorized building works," which are "[a]ny additions or alterations inside the buildings, and building works outside the building without the prior approval of the Building Authority". Here, reporting political opponents was framed not only to support the movement but also to maintain the legal order. To this end, Whistleblower provided a template and instructed followers to email the template to the Lands Department with the pseudonym "Mr. Chan." By flooding the Lands Department's email, Whistleblower claimed that they had succeeded in triggering the government to demand the removal of a major pro-government newspaper's signage in July 2019.

As discussed earlier, AgainstBlueAdvertisers mobilized its supporters to engage in the tactic of flooding, which shared a similar logic of partial bot. We observed a similar discursive frame that moralized the tactic. AgainstBlueAdvertisers once mobilized supporters to flood and boycott a cold-pressed juice brand that had placed advertisements on TVB. Instead of simply blaming the brand as a blue business, its Facebook post cited a Consumer Council's report and noted that the brand produced unhealthy drinks that contain too much sugar. These instances illustrate the intersection of discourses and materiality (i.e. algorithmic tactics) in making human-automated collectives.

This algorithmic tactic, nevertheless, might not always work for two reasons. First, AgainstBlueAdvertisers reminded its supporters in one post that posting the same content on Facebook on the blue businesses' pages might be automatically classified as spam. Such "spam" content would be removed and, thus, did not contribute to the visibility of protest claims. Second, users might be temporarily suspended if they are classified as "spammers." Hence, AgainstBlueAdvertisers urged supporters to evade "being suspended" by slightly modifying the template and avoid posting a large amount of content in a short period of time. This mundane instance highlights the interpretive agency of activists in shaping not only *what* should be seen but also *how* the content should be posted.

Besides the "partial bot" strategy, Whistleblower later claimed that their "newsfeed rate" had been lowered due to opponents using Facebook's reporting function. They published a post, consisting of multiple infographics and QR codes, that educated followers to use bots to facilitate their claim-making outside Facebook. For instance, it suggested that followers could use "TG @ TwitterHelpBot" to quickly identify Tweets whose content is beneficial to the movement. Also, it instructed followers not to tweet and retweet content critical to the movement so as to build a "positive image" for the movement. Specifically, a crucial infographic suggests that activists should interact with two kinds of tweets: (1) those pertinent to the Hong Kong protests and (2) those that attempt to elucidate the causes and justifications behind the protests to the world. Simultaneously, the infographic advises activists to refrain from tweeting and retweeting two types of content: (1) videos depicting violent self-defense and (2) content that activists personally deem harmful to the movement's image. To widen the bot-assisted tweets' influence, it instructed followers to use images rather than texts to spread their messages to fit into social media cultures. The bot-led strategy demonstrates human–machine collaboration in claim-making. Successful propaganda is premised on the collective skillful utilization of bots for material screening. Putting the partial bots and Twitter bots together, it shows that performing bot-like tasks and collaborating with bots are essential to the collective claim-making process, not only in making the claims visible but also in maintaining the group's solidarity in that the group justified its existence by its usefulness in effective dissemination of information in an algorithmically led environment. Thus, a crucial dimension of the human-automated collectives, which Beraldo and Milan's (2019) important typology of "data as stakes" and "data as repertoire" does not sufficiently capture, is the fact that automated programs have become potential sites for building and consolidating solidarity.

It is not an easy task to mobilize supporters to act like a (partial) bot on a daily basis. We found that while AgainstBlueAdvertisers routinely posted its "daily tasks," it created

"playful" tasks that appropriated TVB's events. AgainstBlueAdvertisers' posts noted that the deadline for companies to sign next year's advertising contract with TVB was on December 12, 2019, and one of the key functions of TVB annual awards ceremony—which usually takes place in November or December and has a high television rating—was to attract companies to collaborate with TVB. For AgainstBlueAdvertisers, November and early December became critical moments where supporters must convey their critique of TVB to companies so as to incite the companies to take action. Hence, there were event-related Facebook posts in this period. While TVB's ceremony aims to give recognition to the best actors, actresses, and drama series produced by the television station, AgainstBlueAdvertisers invited followers to vote for the "most annoying" TVB's actors and actresses. On the same day of the ceremony, it posted a long list of blue businesses—as opposed to only two to three on a typical day—and mobilized supporters to participate in the practice of flooding on social media and via email. A similar "big mission" occurred in December 2019. Against this backdrop, AgainstBlueAdvertisers suggested that supporters should "like" and leave positive comments to encourage companies that withdrew advertisements from TVB in 2019 to continue doing so in 2020. Meanwhile, AgainstBlueAdvertisers warned that all companies that insisted on collaborating with TVB in 2020 would be publicly named and shamed. These examples provide a glimpse into how such algorithmic tactics could be connected with broader social and cultural events.

### *Contesting counter-movement algorithmic strategies*

So far, the analysis examined how the Facebook posts discussed their tactics in relation to algorithms they depended on. In Treré and Bonini's (2024) discussion of #YaMeCanse in Mexico, they noted that political institutions might attempt to hijack the hashtags used by activists. In contrast, activists incessantly articulated algorithmic tactics to reclaim their narrative agency. Similarly, in our case study, the two Facebook Pages discussed how institutions and opposing camps might attempt to silence activists' voices through social media reporting tools and legal means.

One common algorithmic strategy was about reporting violations of Facebook's community guidelines, which could potentially result in visibility penalties (Duffy and Meisner, 2023). AgainstBlueAdvertisers noted in a post that Facebook had limited the reach to the audience; therefore, their posts did not appear in users' newsfeeds for 1 week. As it reasoned in the post, TVB and its supporters might have reported the Page to prevent their voices from being heard. The followers did not get any notices when the Page's visibility was temporarily moderated. In addition, because the Page used TVB's logo and promotional materials in its claim-making, TVB reported a violation of copyrights and trademarks to the Page's Telegram channel. The channel was subsequently banned. AgainstBlueAdvertisers received the message from Telegram and reposted it on Facebook. In response to this incident, AgainstBlueAdvertisers removed TVB's logo on its Facebook Page and urged supporters to follow its "back-up" (secondary) Facebook Page and Telegram channel. Although Telegram recovered the channel a few days later, this incident showcases that social media reporting could be weaponized against the weak. In 2021, TVB reportedly registered some Internet slangs, such as "CCTVB" (i.e. a slang that criticized TVB's pro-Chinese-government political stance), as trademarks,

meaning that the company could potentially further utilize social media reporting for their political interest in the future.

Similarly, when Whistleblower's posts seemingly appeared less visible on supporters' newsfeeds, the Page administrators suggested that it was because "we did the right thing," which allude to the claim that their declining visibility was due to opponents' or political bots' manipulation. In January 2020, the Page re-published a post published last week about reporting the tenancy abuse in public housing (as it was claimed that pro-government supporters were generally tenants in public housing). The Page claimed that last week's post did not get enough public attention because opponents reported the post to Facebook and the algorithms, therefore, lowered the post's visibility. While AgainstBlueAdvertisers did receive Facebook's notification about visibility moderation, the case of Whistleblower was telling of what is known as "shadowbanning"—"witnessing swift, staggering declines in their metrics" (Duffy and Meisner, 2023: 292). As a response, the Page called for supporters to widely share it and tag key opinion leaders as a response to opponents' gaming of the Facebook algorithms.

Another notable event occurred in November 2019 when TVB attempted to regain advertisers' trust amid the growing number of online calls for a boycott. TVB reportedly invited its advertisers to participate in a seminar on "How to Handle Social Network Harassment." In the seminar, the speaker talked about how companies could "cut down on inappropriate content" by "add[ing] keywords that you'd like to block from appearing on your Page." Facebook would then mark content with those keywords as "spam" and thus limit the public visibility of such content. Some suggested keywords included "TVB," "CCTVB," "boycott," and "feeling ashamed to be associated with." Indeed, AgainstBlueAdvertisers and other boycott campaigns against TVB often used these keywords. In addition, TVB filed a police report to criminalize netizens' email campaigns—which aimed to mobilize advertisers to withdraw their campaigns from TVB—as a kind of "Denial-of-service attack" and "cyberbullying behavior." As a response, LIHKG forum participants derided TVB's efforts as a lack of technical expertise, partly because activists could simply modify the keywords on social media and the email title to avoid having their content classified as spam. Accordingly, AgainstBlueAdvertisers noted in their Facebook posts that supporters should slightly modify their comments to avoid being classified as spam. What is at stake is not whether TVB's algorithmic strategies or activists' responses actually worked, but how the construction of human-automated collectives should be considered as a "back-and-forth struggle" among various social actors (Treré and Bonini, 2024).

## Discussion and conclusion

Scholars have highlighted the transformation of social movements that is characterized by the proliferation of connective action, the growing importance of personalized claims in social movement diffusion and mobilization, and the centrality of data in the repertoire of contention, among other factors. However, while only a few studies have explicitly examined and given central attention to the role of algorithms in contentious politics (c.f. Treré, 2019; Treré and Bonini, 2014; Tufekci, 2017), this study directs attention to how activists articulate and distribute their missions and tasks around algorithms on Facebook.

There are, however, three limitations of the study. First, as this study only analyzed activists' Facebook Pages supplemented with the relevant LIHKG threads, the findings reveal what activists articulated about algorithmic tactics through discourses. Yet, these discourses were public-facing and arguably written for a particular imagined audience (i.e. followers of the Pages who were likely to be the supporters of the Anti-ELAB movement). It is likely that activists might have their distinctive cultural frameworks for narrating and justifying their practices, which can only be studied through other qualitative methods (e.g. interviewing). Second, while we drew upon various Facebook posts to illustrate the concept of human-automated collectives and the tensions between algorithmic strategies and tactics, we did not study the scale at which activists adopted these algorithmic tactics during the Anti-ELAB movement. Third, as the study focused on Facebook Pages, future research should also consider cross-platform affordances (Poon and Tse, 2022) in making human-automated collectives.

Notwithstanding these limitations, our findings have two important implications. First, social media platforms are necessarily mediated by algorithms, and these algorithms have created new spaces for the participation of machine agents such as bots and other software programs. Simply conceptualizing algorithms as part of the repertoire of contention misses the crucial point that activists operating in the digital public space must internalize the underlying rules and norms of automated media in their course of action. Therefore, the concept of human-automated collectives is concerned with how activists negotiate with and articulate tactics around algorithms for automation in social media, as exemplified by activists' endeavors to imitate bot behavior. This allows us to question the (dis)empowerment of activists in relation to their interpretation and use of automated media.

Indeed, political communication scholars have proposed the theory of "media logic" to highlight that "events, action, and actors' performances reflect information technologies, specific media, and formats that govern communication" (Altheide, 2016: 1; see also Altheide and Snow, 1979). Recently, scholars have highlighted how social media operate with a different logic compared with mass media logic through theorizations of social media logic (Van Dijck and Poell, 2013) and network media logic (Klinger and Svensson, 2015). While Van Dijck And Poell (2013) identify programmability, popularity, connectivity, and datafication as the four grounding principles of social media logic, Klinger and Svensson (2015) direct attention to the changing norms, rules, and processes that shape media production, distribution, and consumption. Echoing the theory of media logic, we emphasize the interactive process (Altheide and Snow, 1979) through which activists interpret and adapt to the underlying technological affordances and rules of automated media, an area that is relatively understudied in political communication (Schaaf and Quiring, 2023). Consistent with Klinger and Svensson (2018), we do not argue that algorithms or what we term human-automated collectives replace media logic; instead, our findings show how algorithms—specifically the input and outcome stages—become deeply intertwined with the process of claim-making in the digital public space.

Second, our study sheds light on how activists discursively framed and mobilized through machine agents. On one hand, activists used bots to identify relevant tweets in a massive pool of tweets. On the other hand, the Facebook Pages anticipated and articulated how counter-movement opponents might simultaneously utilize social media platforms'

algorithms to decrease the visibility of movement supporters' claims. This case study thus demonstrates that the interaction between humans and machines is a mutual social shaping process. In this dynamic, human agents' mobilization and organizational tactics are influenced by their perceptions and understandings of non-human agents. However, these non-human agents' impacts on human agents' efforts to make claims are partly shaped by the struggles among human agents. Take, for instance, the tactic of "disliking" Facebook posts. This evolved into a strategy of disliking posts while avoiding engagement with opponents' comments, due to the algorithmic operation of Facebook. Later on, as claimed by the Whistleblower's admin, when opponents began to exploit Facebook's reporting function to lower the visibility of activists' claims, the activists countered by diversifying their claim-making platforms. They encouraged more activists to participate on Twitter and utilized bots to filter relevant tweets for activists to retweet and engage with. Such processes illustrate that the impacts of a given algorithmic structure on a movement are heavily influenced by the struggles between human agents. Therefore, the resulting impacts of machine operation on collective actions are not given by the algorithmic structure but are contingent upon the evolving struggles among activists.

In the end, researchers studying contentious politics in the digital space should pay more attention to the central role of machine agents in the collective claim-making processes. These agents create dynamics that any movement coordinating through social media platforms must confront and deal with. Therefore, future research should examine human–machine interactions in various contexts of contentious politics to unpack the algorithmically mediated political opportunity structure activists must encounter and interpret in the digital public space.

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## Notes

1. Facebook does not show the exact number of metrics (e.g. likes and other emoji reactions) when they hit 1000; instead, it shows a rough count (e.g. 1100). Therefore, the summary statistics do not reflect the actual engagement rate. Yet, we aimed to provide these statistics to help the reader to contextualize the sampled Facebook Pages.
2. One's digital traces could become evidence of their participation and mobilization in the movement, which might put them at risk of arrest. Some have reportedly removed their LIHKG and other social media accounts and posts. Therefore, the LIHKG threads that we scraped might not be representative of the discussions at the time of the movement. Yet, it should also be noted that our primary goal is to use these threads for contextualization rather than generalization.
3. There were a large number of protest-related and nonprotest-related threads (e.g. discussions about popular culture) on LIHKG at the time; therefore, users also had to consider how to

attract and compete for other users' attention (Liang and Lee, 2023). On LIHKG, a small number of threads are listed as "popular threads" and made visible separately. On LIHKG, a thread's recency and reading time may increase the likelihood of being listed as a "popular thread." A large number of comments may potentially trigger users' reading time to increase the popularity and visibility of the thread. However, this might better be understood as a kind of algorithmic imaginary (Bucher, 2017) because LIHKG does not fully disclose its algorithms to avoid users to game the system.

4. We decided *not* to describe the actual number of followers and the number of posts each page created during the timeframe to protect the identities of the Pages.

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