

Alternative Social Media: From Critique to Code

It's common to start any essay on social media with numbers, especially total numbers of users. So I will do the same here. These are the estimated registered members of several social networks:

- Ello: over 2,000,000
- *diaspora: 602,795
- Twister: 80,493
- GNU social: 25,823¹

For anyone with a passing familiarity with the size of the user bases of Facebook, Twitter, Google+, or Pinterest, these numbers are not particularly impressive. However, for students of social media, these estimated numbers tell us that there is life outside the walls of the dominant social media systems. Ello, *diaspora, Twister, and GNU social are part of a larger collection of sites meant to be alternatives to the mainstream. They are, as I call them, *alternative social media*.

What makes them "alternative"? In this chapter, I suggest that these sites are alternative not in the sense of mere choice (as in, you have a choice between Coca-Cola and Pepsi). Rather, they are alternative in the same sense that "alternative media" (Atton, 2002) are alternative: their internal operations, economics, and cultural practices are markedly different from what I call "corporate social media." In addition to providing a choice, they provide new ways of thinking about what it means when we say "social media." Alternative social media are a response to the criticisms of corporate social media: their surveillance practices, their appropriation of user data, their emphasis on marketing messages over other forms of connection, and their algorithmic shaping of sociality, to name a few.

To highlight the differences between alternative social media (hereafter, ASM) and corporate social media (hereafter, CSM), I will in the first half of this chapter explore several academic critiques of corporate social media, tracing lines of argument through technical, economic, and cultural lenses. The lines of critique described below are not exhaustive, but they help illuminate differences between corporate social media and alternative social media. In the final half, I will explore how various alternative social media can be seen as responses to the criticisms leveled at CSM. Much of the second half is derived from my previous work on ASM, interviews with ASM makers and users, as well as my ongoing participant observation of multiple ASM systems.

Critiques of Corporate Social Media

There are three lines of critique directed at corporate social media that have direct relevance for any exploration of alternative social media. These are 1) *critiques of CSM technical infrastructures*, 2) *critiques of the political economy of CSM*, and 3) *critiques of the dominant cultural practices and uses of CSM*. As with anything to do with digital media, the lines between technical, economic, and cultural activities are blurred.

Technical infrastructures

The goal of this line of critique is to map how CSM are "primarily concerned with establishing the

¹ Sources for these statistics: Ello (https://ello.co/dredmorbius/post/gxpvKs_tp-SL10nNJ1Rlbw); diaspora*: (<http://pods.jasonrobinson.me/>); Twister (<http://yazgi.net/twister/users/charts>); GNU social: (<http://gstoools.org/>).

technocultural conditions within which users can produce content and within which content and users can be re-channelled through techno-commercial networks and channels" (Langlois et al., 2009). Thus, critical exploration of the technical infrastructures of CSM comports to traditional media theory, which focuses on the medium over the message. Critics of CSM have largely focused on two main topics: the (en)closed structure of CSM network topologies, and their use of algorithms.

Much of the criticisms of the technical structures of CSM are directed at their centralized network topologies. Mark Andrejevic's (2007) criticism of Google's free wi-fi program as an example of "enclosure" anticipates this line of critique. For Andrejevic, technology companies such as Google and Microsoft seek to enclose end users within a centralized network topology. Moreover, Andrejevic also notes that technology firms work to elide the internal details of their networks behind the (then proverbial, now ubiquitous) discourse of the "cloud" (also see Mosco, 2014). "The cloud" is in this case a fog that covers up the recentralized relationship between once autonomous computer users and the manufacturers and service providers those computers now connect to. This relies on closed, proprietary code and protocols that end users cannot modify (Cabello et al., 2013: 340). Andrejevic is thus making a similar argument to Jonathan Zittrain (2008) and Tarleton Gillespie (2007): while we have more and more interaction with our devices, we have less and less control over them. We are enclosed within networks of closed-code devices, always connected to centralized server farms whose code we cannot access (Striphas, 2015: 407).

This critique of technology firms' double move of centralization and wiring shut figures into later critical work exploring CSM. As Gerlitz and Helmond (2013) have shown, Facebook's centralized power is extending through the ubiquitous "Like" button and Facebook's Connect login system. The Like button and Connect appear to be distributed across the Web in a decentralized manner; many sites allow for users to sign in with Facebook and Like items on their pages. This decentralizes the point of data gathering: one no longer needs to visit Facebook.com to have one's data tracked by Facebook. Yet, Gerlitz and Helmond argue that this distribution is always connected to the centralized data processing core of Facebook:

such data mining practices reveal an alternative fabric of the web, one that is not organised through hyperlinks placed by webmasters, but one that is based on data flows enabled by and to third party devices, facilitating the decentralisation of data mining and the recentralisation of data processing within platforms (Gerlitz and Helmond, 2013: 1361).

This simultaneous, distributed centralization (Gehl, 2012), where end users' data is gathered across the Internet and drawn into centralized CSM, exemplifies the (en)closed line of critique: critics are finding that interaction is made more visible and transparent as users channel their social activities through social media. At the same time, the inner workings of social media – data analysis, storage, and sales – are increasingly closed and opaque. Everything flows to the logical center – large server farms and corporate headquarters – but the inner workings of that increasingly important and powerful center are obscured.

More recently, critical attention has turned to the use of algorithms to shape social and technical interactions within the CSM platforms. The power of algorithms to shape online social interaction was made extremely visible during the 2014 controversy over the Facebook contagion study, where social scientists from Facebook, UC-San Francisco, and Cornell manipulated hundreds of thousands of Facebook users' social streams in order to elicit various emotional responses (Kramer et al., 2014). However, that controversy is only a more visible example of longstanding concerns over algorithmic shaping of culture. For example, Twitter's "Trending Topics" algorithm has been criticized multiple

times for perceived censorship of topics such as "Occupy Wall Street" (Gillespie, 2011).

These controversies reveal anxieties over CSM's ability to algorithmically shape both the present and the future. Writing about the present, Weltevrede, Helmond, and Gerlitz (2014) have explored the technical construction of "real time" within Facebook, Twitter, and Google, among other platforms. "Real-time," Internet critic Geert Lovink quips, "is the new crack" (Lovink, 2012: 11). Weltevrede, Helmond, and Gerlitz show us how this "crack" is algorithmically constructed, as well as how its addictive properties are tied to CSM imperatives. Denying any essential, a priori concept of time, they argue that Twitter, Facebook, and Google algorithmically engineer a sense of presence and immediacy within their specific sites: "The organization of the pace of updates can be thought of as a pattern through which the continuous production of new content is being organized in ways that are aligned with the specific politics" (Weltevrede et al., 2014: 19) of systems such as corporate social media. CSM pushes out content, notifying us that there are 5 more Tweets, 10 more Likes, or 17 new Google+ messages. We turn to them to know what's going on now. However, Weltevrede, Helmond, and Gerlitz also note other temporalities that exist alongside these constant updates:

In the case of Twitter, which simultaneously displays fresh, new content and relevant, featured results, relevance becomes a recommendation feature that alters the pace of the freshness stream, as these so-called Top Tweets are designed to produce future user engagement by making them sticky and able to stay on top of a fast-changing stream (Weltevrede et al., 2014: 18).

These multiple temporalities – the constant appearance of fresh, user-generated content on the one hand, and curated trends on the other – are not accidental, but are tied to the desires of CSM to keep our attention both on streams of new content and the (very often sponsored), "sticky" messages that appear alongside.

These "sticky" messages – trending topics, recommended reads, and the like – are the objects of multiple critics of CSM algorithms who focus on how CSM can shape the future. Ganaele Langlois (2014) has explored the "recommendation engines" of corporate social media, aptly calling them the "colonization of users' experiences of meaning" (Langlois, 2014: 85). Langlois finds that recommendation engines algorithmically shape what phenomenologists call "protention" (that is, our future expectations) (Langlois, 2014; see also Hansen, 2006: 304; and Turow, 2011). Similarly, Ted Striphas critiques "algorithmic culture," "the enfolding of human thought, conduct, organization and expression into the logic of big data and large-scale computation, a move that alters how the category culture has long been practiced, experienced and understood" (Striphas, 2015: 396). Striphas sees CSM (and other large, centralized online systems such as Netflix and Amazon) as the new arbiters of culture, shaping our tastes through computer code.

In sum, the criticism of the technical elements of CSM ties in their network topologies, use of closed-access code and databases, and their algorithmic shaping of both the present and future. The next line of critique, that of political economy, draws our attention to how these technical infrastructures relate to the profit motives of CSM.

Political Economy

When it comes to critiques of the political economy of corporate social media, perhaps the most fundamental concept is that of free labor. This concept, proposed by Tiziana Terranova (2000), describes how Web users contribute valuable labor to online applications. "Simultaneously voluntarily

given and unwaged, enjoyed and exploited, free labor on the Net includes the activity of building Web sites, modifying software packages, reading and participating in mailing lists, and building virtual spaces on MUDs and MOOs" (Terranova, 2000: 33). Written as a riposte to the concept of the "high-tech gift economy" (Barbrook, 1999), Terranova's argument holds that digital capitalism requires a large range of activities to keep it operating: moderating online communities, adding to open source code, or tagging objects, to name a few. The multiple valences of Terranova's "free labor" concept includes: affective work, cognitive work, cultural work, and work that is done in the hopes of being "hypervalorized" – in other words, work that might have the rare result of the free laborer achieving celebrity or well-paid status. All the while, thanks to Terms of Service agreements, users often agree that the results of their free labor become the property of the site they perform the work on.

This analytical concept had immediate applicability to specific instances of online social interactions. Hector Postigo (2003, 2009), for example, explored the America Online volunteers who did unpaid work to maintain AOL forums. Mark Coté and Jennifer Pybus (2007) take up the concept to explore how MySpace managed its users, training them to profile themselves and contribute to the cultural, creative, and economic dimensions of the site. The promise of MySpace was that users who worked hard enough within its structures would become hypervalorized "MySpace celebrities"; Coté and Pybus point to the example of Tila Tequila, a celebrity who used MySpace to promote herself and thus became a model laborer for other MySpace users to emulate. I myself took up the concept of free labor to contrast Facebook's management of its users as free laborers with MySpace, arguing that Facebook's more standardized structure helped make its free laborer/users more productive (Gehl, 2014b).

All of this begs the question: more productive for whom? Who benefits economically from the free labor of social media users? CSM relies on a basic exchange: you provide your personal information and your free labor, and in exchange CSM gives you access. While you have access, part of your attention must go to marketing messages. Therefore, marketers and advertisers are the primary beneficiaries of user free labor. Many critics suggest that users' constructions of their own profiles greatly benefit marketers and advertisers who previously had to do the work of profiling people (see Elmer, 2004). For example, as Andrejevic (2011) argues, marketers can now tap into the steady stream of declarations of social media users to quickly discern patterns in emotion, a practice called "sentiment analysis." Sentiment analysis

[trolls] through twitter feeds, blogs, social networking sites, online forums, bulletin boards and chat rooms, probing the emotional pulse of the Internet. [It places] a premium on speed and volume: processing as many posts and messages in real time in order to deliver 'relevant and actionable answers fast' (Andrejevic, 2011: 610).

As Nick Couldry and Joseph Turow note, thanks to users doing the work of self-profiling themselves in Facebook and Twitter, "It is... now possible to buy the right to deliver an ad with a message tailored to a person with a specific profile at the precise moment that that person loads a Web page" (Couldry and Turow, 2014: 1714). As Maria Bakardjieva puts it, "Thus we find our Facebook profile page populated with our friends' images, pronouncements, witty snippets and exclamations, *all impishly mixed up with rider boots, cruise ships, designer clothes, eye-glass frames – you name it. In fact we have named it, directly or not – at some point in the recent past, and Facebook is happy to oblige*" (Bakardjieva, 2014: 376 my emphasis). Here we see a corollary to the "realtimeness" that Weltevrede, Helmond, and Gerlitz (2014) found in their analysis of CSM technical structures: as users do the work of responding to real-time prompts (and therefor contribute to social streams), CSM sites mine their activities and sell their attention in real-time to marketers and advertisers who place targeted ads into end-users' social media

screens.

But marketers and advertisers aren't the only ones benefiting from the free labor of users. The CSM platforms do, as well. Taina Bucher's (2012) analysis of Facebook's EdgeRank algorithm suggests that Facebook privileges constant user participation in the site, which in turn prompts other users to continue to provide content as they all work against becoming "invisible" or drowned out by the constant stream of updates. Gerlitz and Helmond (2013) trace the "Like economy" to find the ways in which such simple binary signals constitute a whole range of online practices. Participation in Facebook (liking, friending, commenting), Twitter (tweeting, retweeting, favoriting), or Google+ (+1ing, sorting contacts into circles) has a multiplicative effect: the resulting "data and numbers have performative and productive capacities, they can generate user affects, enact more activities and thus multiply themselves" (Gerlitz and Helmond, 2013: 13). Bringing these works together, we see that CSM are structured to intensify user participation, with the benefit of more traffic on these respective sites, more user attention paid to them, and more data produced by users (which can then be sold to marketers).

Ritzer and Jurgenson (2010) note that the economics of CSM has not gone unnoticed by users, many of whom start to think of themselves as "prosumers":

On Facebook, empowerment lies in the fact that one can choose exactly how one wants to present oneself and can alter that presentation at will. Further, many find Facebook an effective social tool in building and maintaining contact with others. In addition to modest gains and empowerment, people can gain quite materially from being a prosumer (Ritzer and Jurgenson, 2010: 25).

Indeed, Alice Marwick and danah boyd's (2010) analysis of Twitter users find that many of them negotiate categories such as "authenticity" and "professionalism" in order to present themselves to their imagined audiences. "These exemplify highly self-conscious identity presentations that assume a primarily professional context. Revealing personal information is seen as a marker of authenticity, but is strategically managed and limited" (Marwick and boyd, 2010: 127). Building on these observations, both myself (Gehl, 2011) and Marwick (2013) argue that the logic of branding and marketing has been folded back onto corporate social media users themselves, who are encouraged to think of themselves as "personal brands." Thus, not only do CSM users do the work of building out the content of sites such as Facebook and Twitter, nor do they merely do the work of self-profiling so marketers no longer have to; they also construct themselves in idealized ways, mimicking the economic practices of corporate branding and attempting to control how their profiles influence other users' sentiments.

So far, I have traced the political economy line of critique with little regard for *polis*. However, several critics have not failed to address this topic, specifically the concern that the dominant CSM institutions (e.g., Facebook, Twitter, Pinterest, and Google) are peculiarly American, specifically Californian, companies. As Miriam Rasch and Geert Lovink (2013) note, "Social media culture is belied in American corporate capitalism, dominated by the logic of startups and venture capital, management buyouts, IPOs, etc. Three to four companies literally own the Western social media landscape and capitalize on the content produced by millions of people around the world" (Lovink and Rasch, 2013: 367).

As Peter Jakobsson and Frederik Stiernstedt (2010) point out, American CSM's ability to absorb the free labor of users results in a paradoxical situation in which peer-to-peer users are labeled "pirates" while sites such as YouTube are labeled "innovators." Jakobsson and Stiernstedt interpret CSM as

"legitimated pirates" because these firms appropriate the content generated by free laborer/users but are not punished by states for doing so. In fact, "services engaged in 'legitimate piracy' are not only welcomed, but even utilized as tools for organizations and individuals representing state interests (*e.g.*, the European Union's and the U.S. Army's use of YouTube)." Jakobsson and Stiernstedt argue that this paradox arises because of the political desire to protect Silicon Valley-brand technocapitalism, so long as that economic model is profitable, and root out non-American, non-legitimated, decentralized, peer-to-peer media sharing networks.

Similarly, Jack Bratich (2011) traces states of exception as the U.S. State Department adjudicates between foreign media and home-grown media. In the case of Egypt, for example, "we see an interesting divide here. In residual cold-war logic, the sovereign adversaries are said to have State-run mass media. The USA, meanwhile, has State-friended social media" (Bratich, 2011: 629). In other words, U.S. political elites support Silicon Valley-native companies as they expand around the world, hailing their growth as media democratization, while condemning other nations' media systems as necessarily totalitarian and oppressive.

Thus, the technical structures explored by CSM critics link up with these political economic concerns: CSM are centralized, American, for-profit firms that deploy algorithms to intensify content production by users, appropriating and selling the resulting data to marketers and advertisers, supported by hegemonic governments. This has direct implications for how subjectivities are shaped in and through CSM. As Langlois argues,

What is important here is to understand that the user is not a singular entity separate from the meaning machine, but one that is produced by and situated within the meaning machine in order to fulfill some economic role.... the meaning machine's purpose is not simply to mine the field of meaning, but also to shape it and redefine what is meaningful and what is meaningless and by extension, to shape what it means to live a meaningful life according to specific profit logic (Langlois, 2014: 87).

I take up the overdetermination between CSM technical structures, political economy, and the question of the "meaningful life" in the next section.

Cultural Practices

When we consider how culture – that is, day-to-day practices and subjectivities – is overdetermined with technical and economic spheres, we see many articulations between network structures, algorithms, political economy, and the cultures of communication and sociality that are mediated in CSM. Cultural practices that have shaped, been shaped by, and emerged within the technical and economic imperatives of CSM have not gone unnoticed by critics.

The relationship between subjectivity, performance, and surveillance practices has perhaps been the single most explored topic for critical CSM scholars. Scholars have documented the various ways that CSM users perform, exhibit, and curate the self for others, whether those others be identifiable contacts or an imagined audience (Albrechtslund, 2008; Donath and boyd, 2004; Hogan, 2010; Marwick and boyd, 2010). In making performative declarations about hobbies, passions, friends, and desires, CSM users construct themselves in ways that previous media systems did not allow. However, users' knowledge that such performances are mediated, structured, and recorded has a particular impact upon how they live their day-to-day lives. Dubrofsky (2011), for example, finds that Facebook normalizes surveillance as part of daily life:

Facebook animates a seamless (unremarkable) integration of surveillance into the lives of users.... Facebook effectively situates users as the master of their own surveillance and as the producers of their self under surveillance. On Facebook, surveillance is a practice of the self (Dubrofsky, 2011: 120).

This normalization of surveillance is especially troubling when we consider the links between recorded and mediated performances of identity and the growing surveillance state. As Kirsty Best (2010) has shown, "I have nothing to hide" is a prevalent attitude among everyday Internet users, even as a steady drumbeat about corporate and government surveillance sounds in the news (also see Solove, 2007). The normalized surveillance practices of CSM invite users to produce themselves through their data declarations, and, as Best notes, end users believe that they must be truthful and transparent in order to benefit from them.

Dubrofsky suggests that the self as constituted by surveillance produces a data-driven, profiled subject:

The Facebook subject exists mostly through the data tracks it makes (there are few activities a subject can engage in that do not create data tracks traceable by either the makers of the site or by other users), which verify its existence as well as create its subjectivity: Facebook subjects are aggregates of traceable data (Dubrofsky, 2011: 124).

Indeed, as attention to and funding for Big Data analysis increases, conceptions of who we are and what possibilities lie before us can be increasingly decided in relation to the data profiles we are building within CSM (Mackenzie, 2013). Given that centralized CSM systems have particular economic goals in mind (i.e., the abstraction and sale of our information and the direction of our attention to marketing messages), the sort of subjectivities that are being shaped within and through CSM are increasingly tied to those economic imperatives. Ultimately, I would suggest that the subjectivity preferred in CSM and produced through normalized surveillance is not that of the citizen, but of the consumer (Gehl, 2013).

Alongside the concerns about surveillance practices and the construction of the self, recent criticism of CSM, especially Facebook (but to a lesser extent Google+ and LinkedIn), has been directed at their requirement that users sign up with their real names. While early CSM saw the practice of "Fakesters" (i.e., fake or pseudonymous profiles) (boyd, 2006), Facebook was able to create a culture of real-world identities, both through relying on third-party verification (college IDs at first, then later work-based emails) and through the use of the "social graph" as a means to vet individuals (Gehl, 2014b: 85). Twitter of course does not have a real-name policy, but its increasing prominence as a place where media outlets, celebrities, and businesses promote themselves as "brands" is tied to a culture of authenticity within the site (Marwick and boyd, 2010). Google+ had a real-name policy, but dropped it under pressure from protesters (MacKinnon and Lim, 2014). As José van Dijck (2013: 200) argues, "Platform owners have a vested interest in pushing the need for a uniform online identity to attain maximum transparency, not only because they want to know who their users are, but also because advertisers want users' 'truthful' data." A user signed up with a real-world identity is thus more valuable to marketers, and we might expect more demands for real names in CSM in the future, protests notwithstanding.

Indeed, this cultural practice has ossified into a policy: the "real-world identity" policy of Facebook. Facebook's policy manifests in multiple ways, including the requirement of a government ID to sign up (if a user is unable or unwilling to provide a mobile phone number) as well as the recent controversy over the use of stage names by drag queens within Facebook (Lux, 2014). Examining the latter, Jessa

Lingel and Adam Golub (2015) explore how drag performers use social media. As they argue,

Drag performers are tasked not only with fitting complex narratives of gender into rigid online interfaces, but with leveraging social media tools in service of personal, professional, and community objectives. While drag itself presents a dramatic form of complexity, there are more general layers of complexity around negotiating personal and professional life within a single platform. We argue that Facebook, like other dominant social media platforms, tends towards a design ethic of singularity and simplicity, fundamentally at odds with technological preferences (or needs) for complexity and mess (Lingel and Golub, 2015: 537).

This "design ethic of singularity and simplicity" runs counter to the identity-play that we presumably have in online interactions (e.g., Turkle, 1995). Instead, CSM's "conflation of self-expression, self-communication and self-promotion into one tool, which is subsequently used for personality assessment and manipulating behavior, should raise the awareness of users in their different roles as citizens, friends, employees, employers and so on" (van Dijck, 2013: 213).

Similarly, the "singularity and simplicity" of the term "friend" as it is used in CSM has been critically explored. danah boyd (boyd, 2006; Donath and boyd, 2004), for example, has done pioneering work on the early CSM sites Friendster and MySpace, contrasting the vernacular meaning of friendship with the actual practices of users. Users of Friendster, for example, users listed as "Friends" "fellow partygoers, people they knew (and people they thought they knew), old college mates that they hadn't talked to in years, people with entertaining Profiles, and anyone that they found interesting. Not everyone took the Friendship process seriously" (boyd, 2006). Despite this observation, rather than bemoaning the erosion of friendship and social interaction, boyd's valuable work has empirically examined new forms of sociality enabled by CSM, especially for teens and young adults.

However, even as critics have noted complex, emergent new forms of sociality in CSM, they also have evaluated the quality of those new social interactions. Some critics find them lacking. Bernard Stiegler, for example, draws on Aristotelian philosophy and decries the "social engineering" of CSM:

By (formally) declaring our "friends" and our "friendship," and also operating a selection among our *friends, acquaintances, and contacts of all sorts*, here all lumped together under the appellation "friends," we trigger a profound alteration of *what used to be understood as social networks*: friends, family and relatives, acquaintances, chums, pals, old social structures, the very ones *creating* those networks and *depending* on them at the same time (Stiegler, 2013: 20 original emphasis).

Stiegler goes on to suggest that the formal declaration of connection in sites like Facebook is the "grammatization" (i.e., discretization, abstraction, and rationalization) of social relations, which can enable the modulation and control of populations and ultimately the "destruction of the social" (Stiegler, 2013: 27).

Similarly, Maria Bakardjieva (2014: 371) notes that, in CSM, "the patient work of taming and the uniqueness of the figure of the friend as per Saint-Exupéry have been swept aside and replaced by a brief sequence of clicks and a multiplicity of post-stamp images staring and smiling at us from the computer screen." Although she does not use Stiegler's term "grammatization," Bakardjieva points to the discretization process:

Twitter gives us the benefits of purging all words that do not represent the most direct

means to an end. Facebook conveniently serves us with a button to register our 'likes', thus saving us the need to expend time and imagination on crafting an approving comment (Bakardjieva, 2014: 374).

Ultimately, Bakardjieva concurs with Stiegler, criticizing the "McDonaldization" of friendship: "interpersonal sharing is mass-produced, standardized and automated. By claiming ownership over the notion of friendship, social media platforms seize the power to mold its cultural understanding in a formally rationalized manner" (Bakardjieva, 2014: 381).

There is certainly much more to be said about CSM, both from critical perspectives and from more celebratory frameworks. The lines of technical, economic, and cultural critique I offer here are germane to the next section: the exploration of alternative social media systems that have been built as a response to the growing body of criticism leveled at CSM.

From Criticism to Code

At its best, criticism – the active interrogation of cultural practices – opens up new possibilities of imagination and practice (Feenberg, 1986). But this opening up is also a key limitation of critique; very often the critic is satisfied with pointing out flaws, ruptures, and contradictions and leaves the construction of solutions to others.

To be fair to academic critics of CSM, most do not have the training or time to construct solutions to the problems in sites such as Facebook and Twitter. Nor are they likely to receive any institutional benefits from doing so. However, as I argue elsewhere (Gehl, 2014b), tackling sociotechnical problems requires more than critique; all of us need to learn from the knowledge gained by critical inquiry and apply it to specific, grounded, viable sociotechnical solutions, as well. Fortunately, there are a growing number of coders, software engineers, Web administrators, and users who are developing alternatives to CSM: what I call "alternative social media" (Gehl, 2015c). ASM are technologies built as a critical response to CSM; they are new social media systems that replicate positive features of CSM while removing negative features.

The origin story of one such ASM site, diaspora*, illustrates this move from critique to code quite well. In February of 2010, lawyer, Internet scholar, and activist Eben Moglen spoke at a meeting of the Internet Society of New York at New York University (Moglen, 2010a, 2010b). In that talk, Moglen summed up many of the critiques of CSM detailed here: their centralization on server farms, their for-profit nature, and their "[degeneration of] the integrity of human personality" (Moglen, 2010a, 2010b). But after those critiques, Moglen made an impassioned plea:

The problems are really bad.... The solution is made of our parts. We've got to do it. That's my message. It's Friday night. Some people don't want to go right back to coding I'm sure. We could put it off until Tuesday but how long do you really want to wait? You know every day that goes by there's more data we'll never get back. Every day that goes by there's more data inferences we can't undo. Every day that goes by we pile up more stuff in the hands of the people who got too much. So it's not like we should say "one of these days I'll get around to that." It's not like we should say "I think I'd rather sort of spend my time browsing news about [the] iPad" (Moglen, 2010a, 2010b).

In the audience were four NYU students, Ilya Zhitomirskiy, Dan Grippi, Max Salzberg, and Raphael Sofaer, who took up Moglen's call and began diaspora*, one of the ASM projects I will detail below.

I point to this origin story as an example of the interface between critique and construction. This is an academic critic making the case for solutions to the problems of CSM and coders seeking a project they could pursue. Such meetings of critics and coders need to happen more often.

Here, I will trace a range of projects that have taken seriously the critiques leveled at CSM and have produced possible solutions in the form of alternative social media. Mirroring the above sections, I will examine ASM in terms of technical infrastructures, political economy, and cultural practices.

Technical infrastructures

A great deal of innovative work has gone into addressing the criticism of CSM centralization. Because CSM are centralized – that is, they comport to a star network topology, where all data flows to a center – then ASM must decentralize.

Many ASM take one of two approaches to implement decentralization: *federation* and *distribution*. The first approach, federation, is taken by systems such as diaspora*, rstat.us, and GNU social.² The federation approach modifies the server-client architecture so that multiple, independent Web servers can "federate" into a larger network. In their paper on diaspora*, Bielenberg et al (2012) explain,

Rather than forcing users to store all their information on one central server or a collection of servers owned by one single entity, the Diaspora network users decide for themselves on which servers their information will be stored. Some users choose to maintain their own Diaspora servers in order to keep complete control of their data, while others might choose to join an existing server (Bielenberg et al., 2012: 13).

Thus, a user might run diaspora*, rstat.us, or GNU social on her own server, or he might sign up on a server run by someone he trusts. Either way, users can communicate with one another across servers using protocols that are included with the software. diaspora* explains this process with the metaphor of seeds: diaspora*'s logo is a dandelion gone to seed. Metaphorically, a new server is a "seed" planted by the overall project, blooming as new members join.

Distribution, on the other hand, is even more decentralized. Whereas federation employs the client-server architecture, distribution relies on peer-to-peer connections. In this architecture, there are no central servers; every device attached to the network (phone, tablet, laptop, or desktop computer) is both a server and a client. Given the prominence of peer-to-peer systems such as Napster in the early-to-mid-2000s, many computer scientists explored ways to build peer-to-peer social networks (e.g., Ackermann et al., 2008; Koll et al., 2014; Mahdian et al., 2011). However, there have been series of very difficult technical problems to solve, including authenticating users and the storage of data. These technical hurdles have been jumped thanks to a confluence of developments: bittorrent protocols and the blockchain storage system of Bitcoin. The project that has synthesized these technologies into a peer-to-peer ASM microblog is Twister (Freitas, 2015b). Twister allows now-conventional microblogging practices (following, short messaging, repeating messages, and replying), but it does so as a fully independent node operating on the end users' devices.

I should note that not all ASMs use decentralized architectures, whether federated or distributed. Many operate as centralized client-server systems. Ello, for example, uses the standard centralized model. The dark web social network Galaxy2 operates as a Tor hidden service, which means that it runs on a hidden, centralized server. As a 2012 critical survey of the economics and technical structures of

² For more details on the alternative social media systems mentioned throughout this paper, including URLs, see Appendix A, as well as the S-MAP: The Social Media Alternatives Project (www.socialmediaalternatives.org).

decentralized architectures found, decentralization is a very difficult task (Narayanan et al., 2012). But even in the few years since that survey was released, decentralized networks are becoming the norm among ASMs.

A corollary to decentralization is the opening up of internal details. Whereas Facebook, Google, Twitter, and Pinterest store data and run code on server farms that are inaccessible to end users, making them, as Gillespie (2007) might put it, "wired shut," many ASM use Free, Open Source (hereafter FLOSS), or even Public Domain licensing schemes, enabling end users the ability to inspect, modify, and replicate their code. As a project sponsored by the Free Software Foundation, GNU social, for example, is Free Software. As GNU social founder Matt Lee explains,

Free software is software that can be controlled by the users of the software, rather than the developers. Users of a free program can run, copy and modify the program to suit their own uses, and share copies with friends and colleagues. GNU social is a little different in that it is primarily used in a web browser, so we used a special free software license that extends these freedoms to users in a browser (qtd. in Gehl, 2015c: 6).

Whereas Facebook, Google, Twitter, and Pinterest's software is obscured in a cloud, the lines of code comprising Free Software are open for inspection by all, including end users.

Finally, as for the algorithmic shaping of the present and future, the predominant response of ASM is simple: they don't use algorithms to shape social streams. For example, Ello proclaims, "Ello doesn't use manipulative algorithms that control what you see" (Ello Dictionary, 2015).

This might change as these systems grow, but in keeping with their status as alternatives, it is possible that ASM will approach the use of algorithms quite differently from CSM. In an interview, Twister creator Miguel Freitas noted that, in the future, users might demand algorithms to shape what they see in Twister. However,

Because content is always delivered to your node unfiltered, that means that any content filter will have to be applied locally. Pretty much like those SPAM filters which for a while were built into POP3/IMAP clients. This hypothetical filter would be open for examination and configuration by the user.... The user would always have the final word on what is filtered and how the algorithm works (Freitas, 2015a).

Thus, in contrast to the algorithms developed by data scientists and software engineers working for Facebook, Google, Pinterest, and Twitter, ASM algorithms would likely arise from end users (admittedly, end users with coding abilities). Moreover, because ASM tend to rely on FLOSS licensing, these algorithms would be open to end user inspection and auditing.

The lack of ASM algorithms begs the question: why do CSM use them? The answer offered by executives at Facebook and Twitter is: we want users to see the most relevant items. Otherwise, users would drown in content. The fact that ASM can offer similar features to CSM without shaping streams with algorithms undermines the CSM executives' arguments. In my experience on a host of ASM sites, I have not encountered users complaining about the pace or volume of content, nor have I seen any users asking for algorithms to shape what they see. For now, ASM users enjoy "raw" streams of updates and content from their fellow users.

Political Economy

In mid-2014, the social networking site Ello got a lot of attention, especially due to its manifesto, which

read in its entirety:

Your social network is owned by advertisers.

Every post you share, every friend you make, and every link you follow is tracked, recorded, and converted into data. Advertisers buy your data so they can show you more ads. You are the product that's bought and sold.

We believe there is a better way. We believe in audacity. We believe in beauty, simplicity, and transparency. We believe that the people who make things and the people who use them should be in partnership.

We believe a social network can be a tool for empowerment. Not a tool to deceive, coerce, and manipulate — but a place to connect, create, and celebrate life.

You are not a product (Ello Manifesto, 2014).

Ello's manifesto was cited in a range of news outlets who proclaimed it to be a novelty: an "ad-free social network" (e.g., Butcher, 2014). However, a marker of many ASMs, including those created prior to Ello, is their refusal to engage in the dominant political economy of the Internet: the sale of user attention to marketers. In other words, ASM refuse advertising.

As I suggest elsewhere (Gehl, 2015c), the refusal of advertising in ASM does two things: first, it denies moneyed speech – that is, statements that become more prominent because they are made by those who pay for the privilege. Even as CSM are lauded for allowing all of us to speak, they have built into their interfaces spaces for "louder" voices – advertisers – whose messages get privileged positions on our screens. Secondly, and perhaps more importantly, refusing Internet advertising denies the entire socio-technical system that it stands in for: cross-site tracking, standardized exchanges, and organizational dynamics (such as having departments and engineers dedicated to improving advertising response rates) (Turow, 2011). The anti-commercial ethos of ASM is in large part a reaction to the ways in which advertising has warped previous media systems, including CSM, radio, and print.

In addition, the lack of advertising on ASM alters ASM's relationship to free labor. Like CSM, ASM rely on the free labor of their users: users construct profiles, write posts, comment on each others' posts, declare connections, and signal affection (i.e., "liking" or "loving", depending on the system). Their affective work constitutes ASM, just as it does CSM. However, the ends to which this work is put are often different. For example, on a dark web social network I explored (Gehl, 2014a), a user and an administrator collaborated on a privacy policy, with other users commenting on drafts. Users who contributed did so out of a sense of duty to what they called their "community." Contrast this with the privacy policies of sites such as Facebook, which are not written in consultation with users and appear to be more about laying greater and greater claim to user data (Opsahl, 2010). Moreover, because ASM software is often licensed as FLOSS, users can contribute their free labor to the modification of the codebase.

Finally, in line with the decentralization of network topologies, there's a political decentralization happening in ASM, as well. While many ASM have been conceived of and developed in the United States (e.g., diaspora*, GNU social, rstat.us), they have been contributed to and greatly modified by people outside the U.S. GNU social, for example, has been extensively modified by En Kompis Kompis, a Swedish team of software coders who have built Quitter.se, an ASM meant to challenge the

power of the American firm Twitter. Likewise, according to <https://podupti.me/>, there are 93 diaspora* servers running worldwide as of this writing, and only 18% (17) of them are hosted in the United States. Many of them are located in Germany, Holland, and France.

But ASM are also being developed outside the United States. This is important both as a challenge to the technological dominance of the U.S. and because of the recent revelations about U.S. National Security Agency spying on non-Americans. Brazil, for example, has for years sought to protect its indigenous technology industries from the power of U.S. firms such as Microsoft (Paiva, 2009). Moreover, it has reacted to leaked documents that reveal U.S. surveillance of Brazilian leaders by intensifying the development of its own technology industry (Mari, 2013; Solon, 2013). Brazilian support for Free, Libre, Open Source Software (FLOSS) is now presented as a national response to the centralized technological power of the United States.

This is more than simply keeping American corporations at bay or blocking U.S. spying. Many of the reforms made by the Brazilian government are radical changes to the dominant regimes of copyright and intellectual property. According to Simon Phipps, Brazil's new

License for Trademarks... adds additional rights on top of those delivered by open source. It ensures that any trademarks used in the software can be freely used by the community and means that control of trademarks can't be used to chill the ability to exercise the four freedoms [of Free Software] (Phipps, 2011).

This license is required of all government-sponsored software projects. Although Twister is not government-sponsored, it's not surprising that it has emerged from Brazil, complete with a Open Source software license and a distributed architecture meant to prevent American companies from being able to shut down communication in Brazil (or anywhere else, for that matter) (Gehl, 2015a: 8–9). Indeed, Twister appears to be growing in use among Chinese activists.

Cultural Practices

As I argue elsewhere (Gehl, 2015c), given the revelations about both corporate and government surveillance over the past fews, as well as the normalized surveillance practices of CSM themselves, we might conclude that ASM must be anti-surveillance. This, we might conclude, would lead to different day-to-day practices occurring in ASM, ones tied less to public performances of identity and more to other factors. However, this is not the case. Social media – corporate or alternative – is defined by its public, performative aspects. Both CSM and ASM share the three features proposed by boyd and Ellison (2008): they allow users to

(1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system (boyd and Ellison, 2008: 211).

What distinguishes ASM from CSM is a more democratic form of surveillance: "a wider negotiation of flows of vision and obfuscation than is allowed in CSM" (Gehl, 2015c: 7; also see Fuchs, 2012). This is clearest to see when we consider federated and distributed ASM (e.g., diaspora*, GNU social, Twister). Because these systems can be installed by end users, either on servers or local devices, the administrative control over them shifts from their creators to the end users. For example, I run Twister on several of my devices. This gives me, and me alone, administrative control; not even Twister founder Miguel Freitas could access my systems. Moreover, alongside this reduction in administrative

surveillance capacity, users of ASM actively monitor the technical and policy decisions of administrators, critiquing their choices and demanding reforms if necessary.

The stated goal of many ASM is to allow censorship-free speech. Given that Facebook and Twitter users know that their statements are monitored both by other users, these respective CSMs, and state agents, and given that Facebook and Twitter have censored user posts many times (Gerstein, 2010; Pagliery, 2015), we might expect CSM users to carefully monitor what they say in order to avoid crossing a legal or normative line. In other words, we can expect a degree of self-censorship within CSM. This may not be a day-to-day concern of most CSM users (although Marwick and boyd (2010) have found evidence for this), but activists are quite aware of the pitfalls of CSM (Poell, 2014; Terranova and Donovan, 2013). Activists might be our proverbial "canaries in the coal mine," indicators of how deeply the internalization of the gaze of surveillance has penetrated into everyday users. In turn, following Foucault (1979), we can expect the internalization of the gaze to impact how we constitute ourselves as data subjects within CSM. In contrast, by building systems specifically to avoid censorship, ASM alter the parameters within which users can construct themselves through declarations and performances.

Where these altered parameters play out most prominently are in terms of real names and pseudonyms. In 2014, Facebook's real-name policy prompted public attention to Ello, revealing a major difference between ASM and CSM: there has never been a real-name policy in any ASM. Instead, ASM hearken back to an Internet before the real-name culture, a time of pseudonyms and the identity exploration that comes with them.

Finally, I turn to the critique of the quality of social interaction on CSM, which centers on the use of the term "friend." ASM have responded to criticisms of the reduction of all relationships to "friendship" by working on new methods of connection. diaspora*, for example, pioneered the concept of "aspects", where users can sort their contacts into various categories, such as friends, family, colleagues (All about aspects, n.d.). The activist-centric ASM Crabgrass used a completely different connective metaphor: the group (Sparrow, 2012). As ASM mature, we may see more such experimentation with both the granularity of social connection as well as new metaphors and approaches to connection. However, such experimentation can only go so far; in other essays (Gehl, 2015b, 2015c), I suggest that ASM can experiment with existing social media conventions only up to the point when they begin to offer something distinctly different from social networking. Returning to boyd and Ellison's (2008) definition cited above, "articulating lists of connections" is a *sine qua non* of social networking sites. Such practices are a source of the pleasures of social networking and online connection. Metaphors such as "friends" and "likes" are recognizable markers of these practices; thus ASM deploy them to signal to end users their purposes and goals.

Conclusion

As ASM builders and activists Cabello et al argue,

Contributing to the design and development of technopolitical tools enhances 'technological sovereignty.' There are examples of such a rich contribution by citizens, for example the development of communal radio and television broadcasting, the launch of the first non-military satellite into orbit, the invention of free software and licenses, and even the first news portal on the Internet with an open and anonymous publication system, set up by the Indymedia network in 1999 (Cabello et al., 2013: 340).

Here, Cabello et al articulate alternative social media (such as their project, Lorea) into a larger history of alternative media. Following them, I suggest that the best framework for understanding ASM is in terms of "alternative media": media that challenge centralized media power (Couldry and Curran, 2003: 7). ASM do so by multiple means:

- Offering decentralized network topologies that do not enclose users or their devices into centralized star topologies;
- Opening up their code, including their algorithms, to inspection and modification;
- Allowing users, rather than central administrators, the ability to restructuring flows of transparency and opacity;
- Refusing to alter their technical or organizational structures to accommodate advertisers;
- Allowing for more play with online identity, especially in comparison with Facebook;
- Experimenting with new metaphors and means of connections.

However, ASM are not without their flaws. Most of the work put into them appears to be aimed at solving technical problems (i.e., the problem of both network and American centralization). The political economy problem of advertising is solved merely through simple refusal; less work has been done in ASM to make these systems financially stable, and in fact many ASM sites come and go as funding depletes and coders lose interest. Perhaps Ello's incorporation as a "Public Benefits Corporation" is a viable economic model, or it could be that ASM can follow in Wikipedia's footsteps and become non-profit organizations funded through donations. Or, there may be a new model emerging in an as-yet largely unknown, experimental ASM.

Perhaps more importantly, there are many problematic cultural practices that ASM have not directly addressed. For example, the intense misogyny found in Twitter (e.g., Mantilla, 2013) has not, in my experience, migrated to ASM, but there is no reason it would not. Assuming they do not want such practices, ASM administrators and users must turn their attention away from technical problems and begin to focus more and more on the cultivation of particular cultures of interaction.

In both the case of funding these projects as well as cultivating progressive cultures, academic critics can help. Comparative research between CSM and ASM, sustained ethnographic and social scientific study of ASM, the documentation and elaboration of new economic models, and even open participation by academics in ASM can help to legitimate and mature these systems.

Appendix: A Selection of Currently Active Alternative Social Media

Here I offer URLs, short descriptions, and, where available, selected academic papers for many of the alternative social media systems discussed in this chapter.

For more information about these and other alternative social media, see the S-MAP: The Social Media Alternatives Project, at www.socialmediaalternatives.org.

diaspora*

URL: <https://diasporafoundation.org/>

Founded in 2010 by four students at New York University, diaspora* is a federated social networking system. Its code is open source and can be installed on any Web server. Early in its history, it was hailed in the news media as a "Facebook Killer." This was unfortunate, because it was too much to expect of a brand-new system. However, despite diaspora* not living up to that expectation, it has steadily grown. Moreover, it has incorporated as a non-profit in the United States.

Academic Papers on diaspora*: Bielenberg et al (2012), Sevignani (2013), van der Velden (2013).

GNU social

URL: <http://www.gnu.org/s/social/>

Sponsored by the Free Software Foundation, GNU social is a Free Software package that can be installed on any Web server. GNU social began life in the late-2000s as Laconica, before being renamed StatusNet and finally GNU social. GNU social is a microblogging service. A notable example of GNU social in action is the Swedish site Quitter.se, which is styled to mimic Twitter and thus be the "methadone" to Twitter's "heroin" (Gehl, 2015a: 7).

Academic Papers on GNU social: Dhekene and Vibber (2011), Miltenberg and Leenaars (2015),

Twister

URL: <http://twister.net.co/>

Twister was created by Miguel Freitas in reaction to U.S. National Security Agency spying, as well as the need for activists and protesters to have decentralized means of communication. Working as a peer-to-peer system, Twister runs on both the Bittorrent and Bitcoin protocols.

Academic Papers on Twister: Freitas (2015b).

Ello

URL: ello.co/

Ello was founded in 2014. It received a great deal of attention in news coverage due to its manifesto (quoted above) against advertising in social media. Unlike other ASMs, Ello is not open source, it is centralized, and in fact it is incorporated, albeit as a "Public Benefit Corporation." Ello's design is akin to Pinterest, with an emphasis on graphics over text.

Galaxy2

URL:

Founded early in 2015, Galaxy2 is social network running as a Tor hidden service. It can only be accessed via Tor-based software such as the Tor Browser Bundle. Despite being hidden, Galaxy2 has grown to nearly 5000 members. The site is built on Elgg, a popular open-source social networking package.

Academic Papers on Galaxy2: Gehl (2015c).

Sone

URL: <https://wiki.freenetproject.org/Sone>

Sone is a social networking plugin for Freenet, an anonymous peer-to-peer network. Sone works much like Twitter: it uses a follower-followed relationship and relies on short posts. Much like Galaxy2, it cannot be accessed with a standard browser; the Freenet router is required.

References

- Ackermann M, Hymon K, Ludwig B, et al. (2008) Helloworld: An open source, distributed and secure social network. In: *W3C Workshop on the Future of Social Networking-Position Papers*. http://www.w3.org/2008/09/msnws/papers>HelloWorld_paper.pdf Checked: February, p. 2009.
- Albrechtslund A (2008) Online Social Networking as Participatory Surveillance. *First Monday* 13(3).
- All about aspects (n.d.) *The diaspora* Project*, Blog. Available from: https://diasporafoundation.org/getting_started/aspects (accessed 14 October 2015).
- Andrejevic M (2007) Surveillance in the digital enclosure. *The Communication Review* 10: 295–317.
- Andrejevic M (2011) The Work That Affective Economics Does. *Cultural Studies* 25: 604–620.
- Atton C (2002) *Alternative media*. London: SAGE.
- Bakardjieva M (2014) Social media and the McDonaldization of friendship. *Communications: The European Journal of Communication Research* 39(4): 369–387.
- Barbrook R (1999) The High-Tech Gift Economy. In: *ReadMe! ASCII Culture and the Revenge of Knowledge*, Autonomedia, p. 556.
- Best K (2010) Living in the control society: Surveillance, users and digital screen technologies. *International Journal of Cultural Studies* 13(1): 5–24.
- Bielenberg A, Helm L, Gentilucci A, et al. (2012) The growth of Diaspora - A decentralized online social network in the wild. In: *2012 IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPs)*, pp. 13–18.
- boyd danah (2006) Friends, Friendsters, and Top 8; Writing community into being on social network sites. *First Monday* 11(12). Available from: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1418/1336> (accessed 9 March 2009).
- boyd danah and Ellison NB (2008) Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication* 13(1): 210–230.
- Bratich J (2011) User-Generated Discontent. *Cultural Studies* 25: 621–640.
- Bucher T (2012) Want to be on the top? Algorithmic power and the threat of invisibility on Facebook. *New Media & Society* 14(7): 1164–1180.
- Butcher M (2014) Ello, Ello? New 'No Ads' Social Network Ello Is Blowing Up Right Now. *TechCrunch*, blog. Available from: <http://techcrunch.com/2014/09/25/ello-ello-new-no-ads-social-network-ello-is-blowing-up-right-now/> (accessed 25 September 2014).

- Cabello F, Franco MG and Haché A (2013) Towards a Free Federated Social Web: Lorea Takes the Networks! In: Lovink G and Rausch M (eds), *Unlike Us Reader: Social Media Monopolies and Their Alternatives*, Amsterdam: Institute of Network Cultures, pp. 338–346.
- Coté M and Pybus J (2007) Learning to Immaterial Labour 2.0: MySpace and Social Networks. *ephemera* 7(1): 88–106.
- Couldry N and Curran J (2003) The paradox of media power. In: *Contesting media power: Alternative media in a networked world*, Oxford, UK: Rowman & Littlefield Publishers, pp. 3–15.
- Couldry N and Turow J (2014) Big Data, Big Questions| Advertising, Big Data and the Clearance of the Public Realm: Marketers' New Approaches to the Content Subsidy. *International Journal of Communication* 8(0): 17.
- Dhekane R and Vibber B (2011) Talash: Friend Finding In Federated Social Networks. In: *LDOW*. Available from: <http://events.linkeddata.org/ldow2011/papers/ldow2011-paper08-dhekane.pdf> (accessed 14 October 2015).
- Donath J and boyd danah (2004) Public displays of connection. *BT Technology Journal* 22(4): 71–82.
- Dubrofsky RE (2011) Surveillance on Reality Television and Facebook: From Authenticity to Flowing Data. *Communication Theory* 21(2): 111–129.
- Ello Dictionary (2015) *Ello*, Social network. Available from: <https://ello.co/wtf/about/ello-dictionary/> (accessed 15 October 2015).
- Ello Manifesto (2014) *Ello*, Social network. Available from: <https://ello.co/wtf/about/ello-manifesto/> (accessed 13 October 2015).
- Elmer G (2004) *Profiling machines: mapping the personal information economy*. Cambridge, Mass.; London: MIT Press.
- Feenberg A (1986) *Lukács, Marx, and the Sources of Critical Theory*. New York: Oxford University Press.
- Foucault M (1979) *Discipline and Punish*. New York: Vintage.
- Freitas M (2015a) Algorithms.
- Freitas M (2015b) Twister: the development of a peer-to-peer microblogging platform. *International Journal of Parallel, Emergent and Distributed Systems* 0(0): 1–14.
- Fuchs C (2012) The Political Economy of Privacy on Facebook. *Television & New Media* 13(2): 139–159.
- Gehl RW (2011) Ladders, samurai, and blue collars: Personal branding in Web 2.0. *First Monday* 16(9).
- Gehl RW (2012) Distributed Centralization: Web 2.0 as a Portal into Users' Lives. *Lateral* 1(1).

Available from: <http://lateral.culturalstudiesassociation.org/issue1/content/gehl.html> (accessed 16 March 2012).

Gehl RW (2013) What's on your mind? Social media monopolies and noopower. *First Monday* 18(3-4). Available from: <http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/4618/3421>.

Gehl RW (2014a) Power/freedom on the Dark Web: A Digital Ethnography of the Dark Web Social Network. *New Media and Society*: 1–17.

Gehl RW (2014b) *Reverse Engineering Social Media: Software, Culture, and Political Economy in New Media Capitalism*. Philadelphia, PA: Temple University Press.

Gehl RW (2015a) *Building a Better Twitter: A Study of the Twitter Alternatives GNU Social, Quitter, rstat.us, and Twister*. SSRN Scholarly Paper, Rochester, NY: Social Science Research Network. Available from: <http://papers.ssrn.com/abstract=2595247> (accessed 13 October 2015).

Gehl RW (2015b) Critical Reverse Engineering: The Case of Twitter and TalkOpen. In: Langlois G, Redden J, and Elmer G (eds), *Compromised Data: From Social Media to Big Data*, New York, N.Y.: Bloomsbury, pp. 147–169.

Gehl RW (2015c) The Case for Alternative Social Media. *Social Media + Society* 1(2): 2056305115604338.

Gerlitz C and Helmond A (2013) The Like economy: Social buttons and the data-intensive web. *New Media & Society* 15(8): 1348–1365.

Gerstein J (2010) Facebook Censoring Online Activism? *Reader Supported News*, News. Available from: <http://www.readersupportednews.org/off-site-news-section/69-69/3351-facebook-censoring-online-activism> (accessed 18 September 2010).

Gillespie T (2007) *Wired shut*. Cambridge, MA: MIT Press.

Gillespie T (2011) Can an algorithm be wrong? Twitter Trends, the specter of censorship, and our faith in the algorithms around us. *Culture Digitally*, Blog. Available from: <http://culturedigitally.org/2011/10/can-an-algorithm-be-wrong/> (accessed 2 November 2014).

Hansen MB (2006) Media theory. *Theory, culture & society* 23(2-3): 297–306.

Hogan B (2010) The presentation of self in the age of social media: Distinguishing performances and exhibitions online. *Bulletin of Science, Technology & Society*: 0270467610385893.

Jakobsson P and Stiernstedt F (2010) Pirates of Silicon Valley: State of exception and dispossession in Web 2.0. *First Monday* 15(7). Available from: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2799> (accessed 25 July 2010).

Koll D, Li J and Fu X (2014) SOUP: an online social network by the people, for the people. In: ACM Press, pp. 193–204. Available from: <http://dl.acm.org/citation.cfm?doid=2663165.2663324>

(accessed 28 March 2015).

- Kramer ADI, Guillory JE and Hancock JT (2014) Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences*: 201320040.
- Langlois G (2014) *Meaning in the age of social media*. New York, NY: Palgrave Macmillan.
- Langlois G, McKelvey F, Elmer G, et al. (2009) Mapping Commercial Web 2.0 Worlds: Towards a New Critical Ontogenesis. *Fibreculture* (14). Available from: http://journal.fibreculture.org/issue14/issue14_langlois_et_al.html (accessed 18 October 2010).
- Lingel J and Golub A (2015) In Face on Facebook: Brooklyn's Drag Community and Sociotechnical Practices of Online Communication. *Journal of Computer-Mediated Communication* 20(5): 536–553.
- Lovink G (2012) *Networks without a cause : a critique of social media*. Cambridge: Polity.
- Lovink G and Rasch M (eds) (2013) *Unlike Us Reader: Social Media Monopolies and Their Alternatives*. Amsterdam: Institute of Network Cultures.
- Lux D (2014) Facebook Real Name Policy: A Front Line Battle Report. *21st Century Burlesque Magazine*, Blog. Available from: <http://21stcenturyburlesque.com/facebook-real-name-policy-meeting-drag-queens-performers-dottie-lux/> (accessed 25 September 2014).
- Mackenzie A (2013) Programming subjects in the regime of anticipation: Software studies and subjectivity. *Subjectivity* 6(4): 391–405.
- MacKinnon R and Lim H (2014) Google Plus Finally Gives Up on Its Ineffective, Dangerous Real-Name Policy. *Slate*. Available from: http://www.slate.com/blogs/future_tense/2014/07/17/google_plus_finally_ditches_its_ineffective_dangerous_real_name_policy.html (accessed 29 June 2015).
- Mahdian A, Black J, Han R, et al. (2011) MyZone: A Next-Generation Online Social Network. *arXiv:1110.5371*. Available from: <http://arxiv.org/abs/1110.5371> (accessed 9 May 2012).
- Mantilla K (2013) Gendertrolling: Misogyny Adapts to New Media. *Feminist Studies* 39(2): 563–570.
- Mari A (2013) Brazilian government to ditch Microsoft in favour of bespoke email system. *ZDNet*, Blog. Available from: <http://www.zdnet.com/brazilian-government-to-ditch-microsoft-in-favour-of-bespoke-email-system-7000021929/> (accessed 18 June 2014).
- Marwick AE (2013) *Status update: celebrity, publicity, and branding in the social media age*.
- Marwick AE and boyd danah (2010) I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience. *New Media & Society*. Available from: <http://nms.sagepub.com/cgi/doi/10.1177/1461444810365313> (accessed 14 November 2010).
- Miltenburg W and Leenaars M (2015) Functional breakdown of decentralised social networks.

Available from: <https://homepages.staff.os3.nl/~delaat/rp/2014-2015/p16/report.pdf> (accessed 14 October 2015).

Moglen E (2010a) Freedom In the Cloud. *Software Freedom Law Center*, Blog. Available from: <https://www.softwarefreedom.org/events/2010/isoc-ny/FreedomInTheCloud-transcript.html> (accessed 25 May 2012).

Moglen E (2010b) Freedom in The Cloud: Software Freedom, Privacy and Security for Web 2.0 and Cloud Computing. New York University. Available from: <https://www.youtube.com/watch?v=QOEMv0S8AcA> (accessed 7 October 2015).

Mosco V (2014) *To the cloud: big data in a turbulent world*. Boulder, CO: Paradigm.

Narayanan A, Toubiana V, Barocas S, et al. (2012) A Critical Look at Decentralized Personal Data Architectures. *arXiv:1202.4503*. Available from: <http://arxiv.org/abs/1202.4503> (accessed 6 June 2012).

Opsahl K (2010) Facebook's Eroding Privacy Policy: A Timeline. *Electronic Frontier Foundation*, Blog. Available from: <https://www.eff.org/deeplinks/2010/04/facebook-timeline> (accessed 12 October 2015).

Pagliery J (2015) The 3 places where Facebook censors you the most. *CNNMoney*. Available from: <http://money.cnn.com/2015/02/06/technology/facebook-censorship/index.html> (accessed 14 October 2015).

Paiva E (2009) Use of Open Source Software by the Brazilian Government. *Open Source Business Resource* (May 2009).

Phipps S (2011) Brazil's New Trademark License. *Computerworld UK*, Magazine. Available from: <http://www.computerworlduk.com/blogs/simon-says/brazils-new-trademark-license-3569564/> (accessed 24 November 2014).

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.

Postigo H (2003) Emerging Sources of Labor on the Internet: The Case of America Online Volunteers. *International Review of Social History* 48(S11): 205–223.

Postigo H (2009) America Online volunteers: Lessons from an early co-production community. *International Journal of Cultural Studies* 12(5): 451–469.

Ritzer G and Jurgenson N (2010) Production, Consumption, Prosumption: The nature of capitalism in the age of the digital 'prosumer'. *Journal of Consumer Culture* 10(1): 13–36.

Sevignani S (2013) Facebook vs. Diaspora: A Critical Study. In: Lovink G and Rausch M (eds), *Unlike Us Reader: Social Media Monopolies and Their Alternatives*, Amsterdam: Institute of Network Cultures, pp. 325 – 337.

- Solon O (2013) Brazilian government plans national ‘anti-snooping’ email system. *Wired UK*, Magazine. Available from: <http://www.wired.co.uk/news/archive/2013-09/03/brazil-anti-snooping-email> (accessed 18 June 2014).
- Solove DJ (2007) *‘I’ve Got Nothing to Hide’ and Other Misunderstandings of Privacy*. SSRN Scholarly Paper, Rochester, NY: Social Science Research Network. Available from: <http://papers.ssrn.com/abstract=998565> (accessed 14 October 2015).
- Sparrow E (2012) Pitfalls of Building Social Media Alternatives (Debate). Amsterdam. Available from: <http://vimeo.com/39257353> (accessed 7 June 2012).
- Stiegler B (2013) The Most Precious Good in the Era of Social Technologies. In: Lovink G and Rasch M (eds), *Unlike Us Reader: Social Media Monopolies and Their Alternatives*, Amsterdam: Institute of Network Cultures, pp. 16–30.
- Striphas T (2015) Algorithmic culture. *European Journal of Cultural Studies* 18(4-5): 395–412.
- Terranova T (2000) Free Labor: Producing Culture for the Digital Economy. *Social Text* 18(2): 33–58.
- Terranova T and Donovan J (2013) Occupy Social Networks: The Paradoxes of Using Corporate Social Media in Networked Movements. In: Lovink G and Rausch M (eds), *Unlike Us Reader: Social Media Monopolies and Their Alternatives*, Amsterdam: Institute of Network Cultures, pp. 296 – 313.
- Turkle S (1995) *Life on the screen : identity in the age of the Internet*. New York: Simon & Schuster.
- Turow J (2011) *The daily you: how the new advertising industry is defining your identity and your worth*. New Haven: Yale University Press.
- van der Velden L (2013) Meeting the Alternatives: Notes About Making Profiles and Joining Hackers. In: Lovink G and Rausch M (eds), *Unlike Us Reader: Social Media Monopolies and Their Alternatives*, Amsterdam: Institute of Network Cultures, pp. 312–322.
- van Dijck J (2013) ‘You have one identity’: performing the self on Facebook and LinkedIn. *Media, Culture & Society* 35(2): 199–215.
- Weltevrede E, Helmond A and Gerlitz C (2014) The Politics of Real-time: A Device Perspective on Social Media Platforms and Search Engines. *Theory, Culture & Society*: 0263276414537318.
- Zittrain J (2008) *The future of the Internet and how to stop it*. New Haven [Conn.]: Yale University Press.