



The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms

Taina Bucher

To cite this article: Taina Bucher (2016): The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms, *Information, Communication & Society*, DOI: [10.1080/1369118X.2016.1154086](https://doi.org/10.1080/1369118X.2016.1154086)

To link to this article: <http://dx.doi.org/10.1080/1369118X.2016.1154086>



Published online: 25 Feb 2016.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms

Taina Bucher

Department of Media, Cognition and Communication, University of Copenhagen, Copenhagen, Denmark

ABSTRACT

This article reflects the kinds of situations and spaces where people and algorithms meet. In what situations do people become aware of algorithms? How do they experience and make sense of these algorithms, given their often hidden and invisible nature? To what extent does an awareness of algorithms affect people's use of these platforms, if at all? To help answer these questions, this article examines people's personal stories about the Facebook algorithm through tweets and interviews with 25 ordinary users. To understand the spaces where people and algorithms meet, this article develops the notion of the algorithmic imaginary. It is argued that the algorithmic imaginary – ways of thinking about what algorithms are, what they should be and how they function – is not just productive of different moods and sensations but plays a generative role in moulding the Facebook algorithm itself. Examining how algorithms make people feel, then, seems crucial if we want to understand their social power.

ARTICLE HISTORY

Received 10 August 2015
Accepted 5 February 2016

KEYWORDS

Algorithm; affect; algorithmic imaginary; experience; social power

Meet Jessa. She and her boyfriend, both in their mid-20s, recently moved to New York City for work. The couple has been subletting an apartment for one and a half months, sleeping on an air mattress that seems to be deflating gradually ever faster. They regularly talk about how much they look forward to sleeping on a real mattress. While Jessa trawls Craigslist for new apartments, her boyfriend looks at mattresses on Amazon. Then, one morning while Jessa scrolls through her Facebook news feed, there it is – an ad for air mattresses. Jessa is so perplexed she tweets about it: 'How on earth did the Facebook algorithm know she was sleeping on an air mattress?' Although the connection may have been coincidental, the effects are not incidental. While Jessa understands that clicks and browser behaviour are routinely tracked and used to tailor ads online, there is something 'wonderfully creepy' (Chun, *in press*) about the ways in which these ads function, as they call into question the clean separation between publicity and privacy.

This article reflects on the kinds of situations experienced by Jessa and other social media users like her as they encounter the workings of algorithms in their everyday life. When computer scientists speak of software, they generally refer to machine-readable

instructions that direct the computer to perform a specific task. The algorithm, simply put, is just another term for those carefully planned instructions that follow a sequential order (Knuth, 1998). However, when social scientists speak about algorithms, they tend to be less concerned with the mechanical term, and more with the ways in which ‘software conditions our very existence’ (Kitchin & Dodge, 2011, p. ix). While media and communication scholars have started to take notice of algorithms – writing about their power (Beer, 2013), relevance (Gillespie, 2014) and accountability (Diakopoulos, 2015) – little is yet known about the ways in which users know and perceive that algorithms are part of their ‘media life’ (Deuze, 2012). The focus of this article is thus on users’ understanding and experiences of algorithms in everyday life. In what situations do people become aware of algorithms? How do they experience and make sense of these algorithms, given their hidden and invisible nature? To what extent does an awareness of algorithms affect people’s use of these platforms, if at all? To help answer these questions, this article examines people’s personal algorithm stories – stories about situations and disparate scenes that draw algorithms and people together. The aim is to help provide an understanding of the cultural imaginaries and ordinary affects of algorithms by developing the notion of the algorithmic imaginary.

The algorithmic imaginary is not to be understood as a false belief or fetish of sorts but, rather, as the way in which people imagine, perceive and experience algorithms and what these imaginations make possible. Using the theoretical lens of affect, understood as mood and intensity corresponding to ‘forces of encounter’ (Gregg & Seigworth, 2010), the aim is to understand how algorithms have the capacity ‘to affect and be affected’ (Deleuze & Guattari, 1987). Methodologically, this article examines situations involving ‘failed relays’ and ‘jumpy moves’ (Stewart, 2007). It takes as its starting point tweets by ordinary users that express a thought, opinion, feeling, statement or question about the Facebook algorithm. Taking my lead from Berlant’s book *Cruel optimism* (2011), I examine the affective dimensions of algorithms by attending to the situation, the episode, the interruption, that gives rise to these statements. A situation, as Berlant (2011) defines it, ‘is a state of things in which something that will perhaps matter is unfolding amid the usual activity of life. It is a state of animated and animating suspension’, one ‘that forces itself on consciousness, that produces a sense of the emergence of something in the present’ (p. 5). Algorithms, I suggest, may be productive of such an emerging presence.

Making sense of algorithms

While there is not much existing research on the ways in which people experience and perceive algorithms as part of their everyday life and media use, a few studies have recently emerged examining ‘algorithm awareness’, the extent to which people are aware that ‘our daily digital life is full of algorithmically selected content’ (Eslami et al., 2015). In their study of 40 Facebook users, Eslami et al. (2015) found that ‘more than half of the participants (62.5%) were not aware of the News Feed curation’ (p. 1). This, they argue, is worrisome as ‘ignorance of the algorithm had serious consequences’, leading some participants to attribute wrongly ‘the composition of their feeds to the habits or intent of their friends and family’ (Eslami et al., 2015, p. 9). By contrast, Rader and Gray (2015) found that most Facebook users were, in fact, aware that they were not seeing every post created by their friends. Analysing survey results from 464 respondents, Rader and Gray (2015) found that

the clear majority (75%) did not think they were seeing everything. Only 8% answered yes. While users' beliefs about the Facebook systems varied a great deal, most survey respondents demonstrated 'a fairly sophisticated understanding of the system' (Rader & Gray, 2015, p. 7). Despite somewhat contradictory findings, these studies raise some interesting questions with regard to the power of algorithms, affecting not just *what* people think about the systems with which they are interacting on a daily basis but, perhaps more profoundly, how different ways of thinking about what algorithms are and do may affect how these systems are used.

While existing research has primarily been concerned with algorithm awareness – the extent to which users are aware of what is happening as part of Facebook's news feed, this paper considers the kinds of situations through which people become aware of and encounter algorithms. Building on phenomenological and ethnographically inspired approaches, the question is how do people experience and perceive algorithms as part of their everyday life? As the phenomenologist Merleau-Ponty (1962) suggests, people usually encounter the world through invisibilities. When we meet other people, they appear to us by virtue of their habits, experiences and personalities. We do not merely perceive people through their clothing, language or general demeanour. Phenomenologists (who do not, of course, make up a homogeneous group) would suggest that invisible moods, affects and values are key to the constitution of what appears to us in the first place. This implies that people do not necessarily need access to the precise instructions that tell the computer what to do in order to experience an algorithm. As the opening sequence describing Jessa's everyday encounter with an algorithm suggests, what people experience is not the mathematical recipe as such but, rather, the moods, affects and sensations that the algorithm helps to generate.

If we follow the phenomenological line of thinking discussed above, we do not necessarily need access to the thing itself (whatever that may be) in order to perceive it. Accordingly, phenomena of all sorts – including algorithms – can be 'accessed' via experience and the ways in which they make people feel. This is closely related to the notion of affect but not exactly the same. As Papacharissi (2014) points out, affect is what permits feelings to be felt; it is the movement that may lead to a particular feeling. Affect, she suggests, can be thought of as the 'rhythm of our pace as we walk' (p. 21). For example, a fast-paced rhythm may lead to and amplify feelings of stress; a slow and light-paced rhythm may make us calm. In the context of this study, the question is where we might find the force of movement in algorithms, 'the reason to react', as Stewart (2007) puts it (p. 16).

Encountering algorithms

Method

In order to investigate the affective dimensions and perceptions of algorithms, this article takes its methodological leads from Berlant's (2011) notion of the situation and Stewart's (2007) cultural analysis of emotional experience. Accessing people's personal stories and experiences with data and algorithms can be tricky. Where do you go to gather stories about things algorithmic? It turns out that one particularly useful place is the microblogging service Twitter. The public nature of Twitter, with millions of public profiles and text-based short statements in no more than 140 characters and the ability to search for tweets

using a platform-specific search engine, provides a great tool for accessing ideas, sentiments and statements about almost anything, including algorithms.

During a nine-month period stretching from October 2014 to June 2015, I searched Twitter regularly for keywords and combinations of keywords, including: ‘Facebook algorithm’, ‘algorithm AND Facebook’, ‘algorithm AND weird’, ‘algorithm AND creepy’, ‘algorithm AND great’, etc. The aim was to understand how ordinary users experience encounters with algorithms by taking their own accounts as the starting point. It should be noted that this article focuses specifically on users’ encounters with the algorithms of the Facebook platform. The decision was made to limit discussion of findings to one platform for reasons of consistency and comparability. Facebook is taken as a particularly interesting case in point, due to its widespread use, experienced long-time users and an increase in public attention towards its algorithms, in part due to considerable media coverage in the wake of the so-called Facebook emotion contagion experiment. Querying Twitter every few weeks, I manually scrolled down the stream of tweets and took screenshots of the ones that seemed to be more personal rather than marketing-oriented. Using a research profile I had set up on Twitter, I occasionally contacted people who had recently tweeted about the Facebook algorithm to ask whether they would be willing to answer a few questions related to that tweet. Out of 47 people that I contacted, 25 people got back to me with a positive reply. I then contacted these individuals via email, providing more background information about the project, along with an informed consent statement and 3–4 questions. As the primary concern was to inquire about the tweets in question, the decision was made to opt for email interviews in order to get quick feedback on the scenes, stories and sentiments contained in those tweets in order to validate the participants’ memory about the events in question. Questions included: ‘What is the context of this tweet? What led you to write this?’, ‘In your opinion, how does the FB algorithm work?’, ‘Has your awareness of the algorithm affected your use of Facebook in any way?’

The answers were coded for information about the kinds of situations that provided the informants a ‘reason to react’, the beliefs and mental models informants had about the workings of the Facebook algorithms, the extent to which their awareness of the algorithm affected their use of the platform, what kinds of tactics and strategies they developed in response to the algorithm (if any), and the kinds of issues and concerns they voiced about the algorithm. All 25 participants are pseudonymised, whereas their real age, country of residence and occupation are disclosed (see [Appendix 1](#)). Despite the study being limited to data from 25 users and to Facebook’s algorithm only, the findings provide novel insights into the ways in which people experience algorithms. If we want to understand the social power of algorithms, it is important to understand how users encounter and make sense of algorithms, and how these experiences, in turn, not only shape the expectations users have towards computational systems, but also help shape the algorithms themselves.

Sites and scenes of ordinary affects

Using people’s tweets as an entry point to a better understanding of people’s perceptions and personal experiences with algorithms, the following section reports on some of the scenes and situations prompting people to tweet about the Facebook algorithm. Stewart’s

Ordinary affects (2007) serves as a model for the presentation of these scenes and situations, although the presentation of findings in this article makes no claim or attempt to match Stewart's poetic prose. Not meant as an exhaustive account of the kinds of situations that generate algorithm awareness, the scenes described below serve as exemplary cases that find resonance in the sample as a whole. Just like the kinds of ordinary affects described by Stewart (2007), the following accounts experiment with the style of writing, paying attention to pressure the points and the forms of attachments that the tweets and stories people tell may help to reveal about the social power of algorithms. The presentation of the findings is written in the form of brief scenes, reiterating the participants' stories and accounts of the situations that moved them to tweet about Facebook's algorithms. When relevant, these scenes include the tweet itself and select quotations. The exact wording of the tweets – if directly quoted – has been slightly altered in order to ensure the privacy of the participants. What, then, were some of the pressing situations and observations that made people reach out on social media to tweet about the Facebook algorithm?

Profiling identity

In the past, Kayla has posted on Facebook about being broke and single. She had to cancel her gym membership (Facebook seems to constantly remind her of this) and she has used dating apps to find a potential partner. Recently, Kayla has been looking at nursery decorations online for a baby shower gift. As she scrolls down her news feed, she notices how the algorithm for suggested apps shows her multiple dating sites and multiple pregnancy-related apps in the same set of suggestions. How bizarre. On Twitter, she notes how Facebook seems to think that she is 'pregnant, single, broke and should lose weight'. Tellingly, Kayla adds, 'the Facebook algorithm confuses me'.

Like Jessa and the air mattress ad described in the beginning of the article, Kayla, a 23-year-old student from New York, intuitively understands that the Facebook algorithm makes connections between her online activity and the kinds of apps and ads that are shown to her. She knows she is being tracked, but this understanding does not take away from the strange feeling of being classified and profiled by algorithms in a certain way. Such is the work of 'profiling machines' (Elmer, 2004) that produce detailed consumer profiles to anticipate future needs. These forms of algorithmic profiling thrive on the continuous reconfiguration of identification and personalised forms of surveillance (De Vries, 2010; Fuchs, Boersma, Albrechtslund, & Sandoval, 2012). While the inferences that Facebook makes about Jessa and Kayla might seem right, the point is that they *feel* wrong. As Kayla suggests, no one likes to be reminded of being broke and overweight.

At other times, the connections that Facebook makes are simply wrong, as when Shannon, a career counsellor in her 40s who blogged about Taylor Swift, all of a sudden gets Facebook ads for products that younger people might like, quite possibly because the typical Taylor Swift fan falls into a different demographic classifier. Shannon notes that she usually gets 'ads for wrinkle cream and fat loss', which reflects stereotypical assumptions about what the typical middle-aged woman is like. While Shannon thinks that the Taylor Swift incident is rather amusing, she often finds Facebook ads to be 'slightly offensive as they make assumptions about me, which I don't like to think are true'. The question is not just whether the categories and classifications that algorithms

rely on match our own sense of self, but to what extent we come to see and identify ourselves through the ‘eyes’ of the algorithm?

‘Whoa’ moment

Sat down and opened up Facebook this morning while having my coffee, and there they were two ads for Nespresso. Kind of a ‘whoa’ moment when the product you’re drinking pops up on the screen in front of you.

Just like algorithms track behaviour in order to profile identity, they can be productive of what Jessa calls ‘whoa’ moments – events in which the intimate power of algorithms reveals itself in strange sensations. Even for a tech-savvy journalist like Jessa, there is something peculiarly unexplainable about these whoa moments. While the Nespresso ads are likely an effect of contextual advertising based on the time of the day and other information, Jessa’s encounter more importantly describes how algorithms ‘function as a means of directing and disciplining attention’ (Amoore, 2009, p. 22). As Beer (2013) suggests, algorithms define ‘what “finds us”, and so have a powerful place in the circulation of data and how these are filtered and directed’ (p. 82). Whoa moments arise when people become aware of being found.

Faulty prediction

Scrolling through and reading the Facebook news feed has become a sensory habit. Lena does it several times a day. She is not particularly impressed by what she sees. A majority of the content in her news feed seems to come from people with political views opposite to hers, and the trending topics all have to do with celebrity gossip. Facebook suggests she should ‘poke’ her ex-boyfriend (Yes! People still do that). She has hidden his posts from her news feed, but Facebook seems to ignore this fact dutifully. Lena is annoyed. She is annoyed that her ‘own social network is so out of sync’ with her interests and beliefs. Maybe it is because she added most of her Facebook friends while she still attended high school in rural Texas. She now lives in New York City and feels at home there. She goes to grad school, and she votes for the Democrats. As Lena sarcastically notes in her tweet: ‘Either the Facebook algorithm is crappy or I really do want to learn about celebrities, read conservative news, and interact with my ex’. The algorithm ‘must be incorrectly assessing my social networking desires’, she says.

While ‘whoa’ moments are generated by the sometimes uncanny ways in which algorithms seem to know what we are up to in the present, Lena’s annoyance stems from the fact that she cannot seem to overcome her past. While ‘real’ life allows the past to be the past, algorithmic systems make it difficult to ‘move on’. Algorithms and the databases with which they are intertwined make it hard to forget the past. Herein lies the politics of the archive. Beer (2013) notes that the archive not only records, but also works to shape memory by defining what is relatable and retrievable. For Lena the Facebook algorithm is at odds with how she sees her life. Lena is no longer the person she used to be, nor is she simply a reflection of her friends. Algorithms have a hard time picking up on such existential and social nuances, which raises the question of possibilities for escape. What happens when the world algorithms create is not in sync (as Lena says) with how people experience themselves in the present? To what extent do existing social networking profiles remain forever muddled by past lives and experiences?

A recurrent theme among the participants was the normative dimension of algorithms, the ways in which people expect algorithms to behave in a certain way. Quite often these

expectations were not made intelligible until the algorithm did something to upset them, throw people off guard or frustrate. People generally started to notice the Facebook algorithm in moments of perceived breakdown. For Lena, it was clear that the Facebook algorithm did a poor job in assessing her life and social desires. Although she admitted to thinking that it was not solely the algorithm's fault – after all, she did add those people as friends herself – she also thought the algorithm should be able to do better than that.

When algorithms do not behave in the way people expect, they tend to describe the system as broken. Like Lena, several of the other participants described situations reflecting this. Lucas, a 25-year-old quality assurance engineer, tweeted that he was 'pretty sure the Facebook algorithm is getting worse. I'm getting even less variety than usual lately'. He later explained the context of his tweet by saying that he had become increasingly frustrated by the algorithm's insistence on displaying the same 5–6 stories at the top of his news feed for many consecutive hours. As he said, having 'absolutely no new content show up agitated me, so I tweeted about my feelings on the algorithm'. Like the agitated feelings Lucas described, other participants stated how much they 'hated the algorithm' (Jolene), calling the algorithm a 'joke' (Sarah) or describing its workings as 'sheer mockery' (Jacob).

Popularity game

He presses the post button and waits. Normally, it should take no longer than 5 minutes before the 'likes' or 'comments' start ticking in. Nothing happens. Instead, Michael tweets: 'The whole Facebook algorithm thing is super frustrating'. As an independent musician, Michael has to find ways of spreading the word about his music and reaching an audience. Facebook seems like the perfect platform for self-promotion. Except only for those who have learned to play by its algorithmic drum. Michael says he has gotten better at 'playing Facebook's game'. For example, 'statuses do better based on what night you post it, the words you choose to use, and how much buzz it initially builds'. He knows from previous experience that 'if the status doesn't build buzz (likes, comments, shares) within the first 10 minutes or so, it immediately starts moving down the news feed and eventually gets lost'. He has just released a new album and needs to get the word out. He had picked the perfect day of the week, carefully crafted the words of the update, deliberately used phrases like 'wow!' and 'this is amazing!' Or so he thought. 0 downloads and 'only' 35 plays. 'Pure frustration', Michael notes.

While Facebook offers a tool for the performance of 'microcelebrity' (Marwick & Boyd, 2011), understood as the creation of online status and audiences by amateurs through social media, the business models and underlying algorithmic logic of the platform restrict how these practices can play out. Being a student and independent musician, Michael is frustrated by having his professional life at the mercy of the Facebook algorithm. Although Michael thinks he has become better at playing 'Facebook's game', he also suspects that Facebook will 'only showcase the statuses that people have paid to promote'.

Popularity, of course, is the gist of social networking platforms. While Facebook goes to great length to emphasise the 'notion of sharing in user-to-user traffic', while de-emphasising its 'interest in commercial exploitation' (Van Dijck, 2013, p. 61), sharing does not carry equal weight. As Bucher has argued, the Facebook algorithm tends to only reward the 'right' kind of sharing, giving certain kinds of posts more visibility at the expense of others (Bucher, 2012). Nora, another participant and a Canadian student, worries that the popularity bias of social media algorithms potentially diminishes the kinds of posts

people get to see on their news feed. She says Facebook makes her uncomfortable because of its ‘catch-up with friends’ angle. Nora worries that the algorithmic bias towards ‘likes’ and ‘shares’ makes viral videos like the ‘ice bucket challenge’ much more prominent, hiding more important but less ‘liked’ current events such as the racial conflicts in Ferguson. As Nora says, ‘I don’t like having an algorithm or editor or curator or whatever controlling too much of what I say – if they’re trying to go for more “trending topics”, will my posts on “non-trending topics” get shuttered away?’

When I asked Nora to describe what caused her to write that there was ‘definitely something strange going on with the Facebook algorithm’, she said the tweet was meant as a comment on the perceived performance of one of her Facebook posts. She often posts about Canadian current affairs and regularly compares how well her posts are received in terms of gathering ‘likes’, ‘comments’ and so on. ‘As much as I hate to say it, I dislike it when not a lot of people like my posts or statuses’, she says. The amounts of ‘likes’ fuel the popularity game supported by Facebook, in which algorithms feed off on the social disposition towards interaction. Agger (2012) suggests that social media platforms like Facebook have created ‘a generalized anxiety’ that requires users to attend to their profiles in hopes of not being ignored (p. 44). For Nora, however, gathering likes is not a ‘narcissistic cry for help’ (Agger, 2012, p. 45). Rather, it is a necessary strategy that users need to deploy if they want to impact the algorithm’s willingness to show the posts more prominently.

Interestingly, the majority of participants had experimented or played around with the system and algorithmic workings in one way or another. Kate, a former school teacher who now runs a Facebook page for parents in her neighbourhood, said she posts consciously, using multiple pictures instead of one, always trying to choose the right words and the right time of the day for ‘maximum reach’. As a page owner, Kate says, ‘I have completely changed how I share information to make it work best for the algorithm’. Nora, too, orients her updates and Facebook use towards the algorithm, and she shares Michael’s observations about timeliness and the importance of building buzz. As Nora explains, ‘if I post things and they receive no likes within the first 5 minutes, or very sparse likes (1–2 in the first minute), then they’ll drop off and not get many comments or likes at all’. Over the years, Nora has developed different strategies for making her ‘posts more frequently recognized’ by the algorithm. These strategies include: posting at a certain time (‘usually around late evening on a weekday that’s not Friday’), structuring the post in specific ways, making sure that other people are *not* shown in her profile pictures (otherwise they are ‘likely to get fewer likes’) and making sure to avoid or include certain keywords in her updates. As Gillespie (2014) has usefully pointed out, adapting online behaviour to social media platforms and their operational logics can be seen as a form of optimisation, whereby content producers make their posts ‘algorithmically recognizable’. When users wait until a certain day of the week and for a particular time of day, use multiple pictures instead of one, carefully choose their words and deliberately use positive sounding phrasing, they are not just strategically updating their social media profiles or hoping to be seen by others. Consistent with Gillespie’s (2014) argument about using hashtags as a means of optimising for the algorithm, the personal algorithm stories shared as part of this study suggest that many of the participants are redesigning their expressions so as to be better recognised and distributed by Facebook’s news feed algorithm.

Cruel connections

Memory is a powerful thing. It lives in the flash of a second, and the duration of a lifetime, it emerges in lifelike dreams and the drowsiness of mornings. Memories can be recalled at will or wilfully withdrawn. A memory is an event that connects us to the past and makes it possible to project a path for the future. Memory is an encounter, a distraction, an opportunity, daydream, or denial. In the digital age, memories can be made, encouraged, and programmed by the machine. Engineered to make people connect and participate, apps do the memory lane. Memories materialized in 'look back' videos and 'year in review' features giving people the impression of having a life. Except, in some cases, that good life is long lost. Features and apps do not just remind people about their friends' birthdays, they may also linger as a painful reminder of the tragedies of life. Emerging at odd moments, memories flash across the screen. Software apps that make you 'raise your head in surprise or alarm at the uncanny sensation of a half-known influence'. (Stewart, 2007, p. 60)

Such was the case for Eric Meyer, who did not go for grief that day but which found him anyway – on Facebook. 'Eric, here's what your year looked like'. A picture of his daughter, who died that year. On Twitter, a stranger ponders 'just maybe, there isn't an algorithm capable of capturing human experience'.

Albert – the stranger's name – lives in Massachusetts and works in advertising. While an algorithm might not be good at capturing human experience, Albert's tweet nicely captures the oddness of machines intercepting emotions. The story of Eric Meyer and the 'cruel algorithm' serving up a picture of his recently deceased daughter as part of the 'year in review' went all over the news when it happened in December 2014. For Albert, as for some of the other participants, the incident constituted a forceful encounter with the power of algorithms, giving him a 'reason to react' (Stewart, 2007). While Richard, another participant, decided to leave Facebook because of it, the incident sparked for Albert some fundamental questions about human nature and machines. 'While algorithms might (or might not) be a good tool for effectively serving up the right ad to the right user', Albert contemplated, 'they might not be the best way to create emotional content or connect on a human level'. In many ways, these sentiments point to what David Hill, drawing on Lyotard's (2012) work on *The inhuman*, describes as the 'inhuman functioning of new technologies' (p. 107). As Beer (2012) points out, algorithmic systems 'judge individuals against a set of contrasting norms, without human discretion intervening or altering decisions' (p. 77). Indeed, the year-in-review fiasco shows how computers and humans 'think' nothing alike. For Albert, this incident pointed him 'to the most obvious thing about algorithms – they're just machines'. What was obviously missing, says Albert, was the 'human judgment that says, "You know, this guy probably doesn't want to be reminded that his daughter died this year, so even though the post got tons of attention, I'll leave it out"'.

For both Richard and Albert, algorithms are not just capable of misjudging humans; they might not even be able to judge humans at all. While Albert is not sure 'what the algorithm in this case *should* have done', what seems clear to him is that 'an algorithm can only be as smart as the human who builds it'. However, human developers are not a guarantee for a *humane* working of software. The problem, as Hill (2012) suggests, 'is the rigidity of the algorithmic mode of processing data compared with the human's ability to ascertain contextual differences' (p. 113).

Ruined friendships

The tweet is short and concise: ‘The Facebook algorithm wrecks friendship’. No more, no less. Rachel has been observing the algorithm for a while. She learned about the Facebook algorithm through an article in the Washington Post. She is a journalist herself. The algorithm makes her curious. What is it, how does it behave, what effect does it have? She has been monitoring her ‘feed more closely to find signs of it’. There! A friend from high school just liked one of her posts. Rachel had ‘totally forgotten she was even on Facebook’. ‘I’m constantly taken aback by all the info and people Facebook hides from my feed on a daily basis’.

Facebook is all about friendship. From the moment people log in, create a profile and start using the site, they are encouraged to find, add, maintain and communicate with their friends. Facebook does not just mediate friendships. As Rachel’s story suggests, Facebook also does something *to* friendships. In Rachel’s experience, friendships on Facebook are filtered and curated. In her mind, the algorithm ruins friendship by making certain people disappear from view, only to emerge into awareness by chance. As Rachel elaborates, ‘it does feel as if there is only a select group of friends I interact with on the social network, while I’ve practically forgotten about the hundreds of others I have on there’. Just as Facebook programmatically reminds people through various features and functionalities including the above-mentioned memory apps, Facebook also makes people forget. While it ‘can feel almost like a relief’, Rachel says, ‘that Facebook chooses to not bombard me with updates’ on the lives of people she does not care about, there is also the sense in which she has lost control of her own life and relationships. ‘As far as “forgetting people” goes’, she says, ‘I do feel that the algorithm is trying to make decisions on my behalf, which angers me’.

This is a fairly common Facebook experience. Several of the participants said they felt uncomfortable and uneasy about the ways in which they perceive the Facebook algorithm to make decisions on their behalf, controlling what they see and do not get to see. Anthony, a Canadian art professor in his 60s, says it makes him ‘think that there are intentional manipulations being experimented by the Facebook administration’. He finds the ways in which ‘irregular people show up’ on the newsfeed to be ‘slightly creepy’. Not unlike Jessa’s notion of a ‘whoa’ moment Anthony says the Facebook algorithm tends ‘to place me into the “who are these people who suddenly show up?” state’. Like a ghost in the machine, the algorithm reminds people about their own lives and relationships, whether they like it or not. These reminders may feel uncanny, as Anthony put it, precisely because they should not be. When friends we have not talked to in a while, or have forgotten we even knew, all of a sudden appear on the news feed, the sensation of discomfort felt at the sudden surprise speaks to the specific affective dimension of Facebook friendships.

The algorithmic imaginary

The Facebook algorithm seizes the social imaginary through the various affective encounters it generates. As the many different personal algorithm stories analysed in this article attest to, Facebook’s algorithms become part of ‘force-relations’ and are generative of different experiences, moods and sensations. The different scenes and situations can be understood as forming part of what might be called an algorithmic imaginary – ways of

thinking about what algorithms are, what they should be, how they function and what these imaginations in turn make possible. While, as Steven suggests, 'nobody outside Facebook really knows' how the algorithm works, the personal algorithm stories illuminate how knowing algorithms might involve other forms of registers besides code. This is to say that what the algorithm does is not necessarily 'in' the algorithm as such (Introna, 2016). Rather, we may begin to understand the performance of algorithms through the ways in which they are being articulated, experienced and contested in the public domain. This is not to suggest that people's experiences and encounters with algorithms are somehow imaginary. Quite the opposite, they are 'real'. Algorithms are not just abstract computational processes; they also have the power to enact material realities by shaping social life to various degrees (Beer, 2013; Kitchin & Dodge, 2011). When Rachel finds herself 'clicking consciously everyday' to influence what will subsequently show up in her news feed, the algorithm is not merely an abstract 'unreal' thing that she thinks about but something that influences the ways in which she uses Facebook. Similarly, Lucas says his awareness of the Facebook algorithm has affected not just how he posts but also how he responds to others. As Lucas explains:

I know that, if a friend of mine posts something they are passionate about, I will go out of my way to 'like' and 'comment' because I know that will programmatically 'support' them and hopefully put them into more people's feeds because EdgeRank will give them more points for my participation.

Lucas' willingness to go out of his way to like his friends' posts to enhance their visibility echoes some of the findings in recent work on social media surveillance. As Trottier and Lyon (2012) have shown, Facebook users engage in 'collaborative identity construction' augmenting each other's visibility through practices of tagging, commenting and liking.

Users' perceptions about what the algorithm is and how it works shape their orientation towards it. Several of the participants reported having changed their information-sharing behaviour 'to make it work best for the algorithm', as Kate put it. This seemed particularly true of the users whose responses indicated that they were avid and long-time Facebook users. These responses made apparent how engagement with Facebook as a publishing platform implies developing tacit knowledge about the underlying logic of the system. While most technologies are designed in such a way that people do *not* have to know exactly how it works (Hardin, 2003), people tend to construct 'mental models' and theories about its workings as a way of navigating and interacting with the world (see, for example, Orlikowski & Gash, 1994). Despite explicitly pointing out that they did *not* know the algorithm, most participants had more or less elaborate theories about what the Facebook algorithm is and ought to be. Kayla, for example, says she has 'no idea what the algorithm is' but suspects it works in response to all the data tracked by Facebook. Similarly, Michael has 'no clue what the actual algorithm is' but still had a clear idea how best to construct a status update in order to increase the likelihood of getting his posts widely distributed.

Far from naming an illusory relation, the algorithmic imaginary is a powerful identification that needs to be understood as productive. The sites and situations through which people encounter and experience algorithms arguably shape ways of thinking, talking and feeling about them. While seeing an ad for wrinkle cream may not be surprising when you are 45, or an ad for a dating site when you have declared yourself as 'single' on Facebook, these connections may not *feel* incidental. Algorithms create a 'cybernetic relationship to

identification' by constructing 'categories of identity' (Cheney-Lippold, 2011, pp. 168, 172). These statistically derived patterns of cybernetic categorisation, however, may be in conflict with how users feel about and see themselves. Some participants, such as Shannon and Kayla, feel uncomfortable with the ways in which they are apparently being categorised, while others, such as Lena and Larry, feel distanced and even angry at the algorithm for 'thinking' they would be the kinds of persons who would actually be interested in the content they get served. While it might be difficult to escape the digitally constructed categories of identity, affect, as Papacharissi (2014) suggests, may extend beyond 'just emotions and feelings to describe driving forces that are suggestive of tendencies to act in a variety of ways' (p. 12). Whether or not the algorithm makes a correct inference does not necessarily matter. For example, a child who gets wrongfully addressed as an adult may like the fact it is being taken 'seriously' and start to behave in a more adult-like manner (De Vries, 2010, p. 78). Similarly, it seemed that Lena's anger at being 'wrongfully' identified and associated with her former class mates provoked her to update even more on the Democrats to counter the algorithm's insistence of showing 'Republican' updates.

The algorithmic imaginary does not merely describe the mental models that people construct about algorithms but also the productive and affective power that these imaginings have. Some participants attempt to make themselves more readily 'recognizable' to the algorithm (Gillespie, 2014) by acting in a way that would serve their individual purposes, for example, as Larry does, hiding posts in order to train the algorithm to show more interesting content on their news feed. Others try to make themselves more unrecognisable. Louis, a respondent from the Philippines, says he is deeply fascinated by the Facebook algorithm; yet, he thinks of it as a trap. As Louis contends:

The Facebook algorithm is like a Lotus flower. It makes you want for more; yet, it traps you from really getting what you want. You like the sensation of being on it, but you have no idea what it actually does to you.

Unlike participants who have 'learned to live with' the algorithm, Louis thinks a better option would be to develop strategies to counteract the algorithm in different ways. Indeed, as Hill (2012) argues, 'resistance cannot merely be about opting out, but about participating in unpredictable ways' (p. 121). As Louis sees it, 'privacy online does not really exist. So why not just confuse those who are actually looking at your intimate information? That way it misleads them'. Some respondents reported engaging in activities of data obfuscation, both explicitly and implicitly. Lena has been trying to 'manipulate content' she interacts with in order to 'control the suggestions' Facebook gives her, while Jessa attempted to confuse the algorithm by liking contradictory things.

As we have seen, the ways in which algorithms are experienced and encountered as part of everyday life become part of 'force relations' that give people a 'reason to react'. Affective encounters between people and the Facebook algorithm are not just productive of different moods and sensations, but also play a generative role in moulding the algorithm itself. Driven by machine learning, the Facebook algorithm evolves and changes as a result of being exposed to an ever-increasing set of data (Introna, 2016). As Rader and Gray (2015) point out, the feedback-loop characteristics of these systems make user beliefs an important component in shaping the overall system behaviour. When users 'click consciously', disrupt their 'liking' practices, comment more frequently on some of their

friends posts to support their visibility, only post on weekday nights, or emphasise positively charged words, these movements or reactions are not just affected by the algorithm (or, rather, by people's perceptions of the algorithm), these practices also have the ability to affect the very algorithms that helped generate these responses in the first place. If we want to understand the social power of algorithms, then, critiquing their workings is not enough. While algorithms certainly do things to people, people also do things to algorithms. The social power of algorithms – particularly, in the context of machine learning – stems from the recursive 'force-relations' between people and algorithms.

Concluding remarks

People experience algorithms in all kinds of situations. As this article has shown, the lived reality of the Facebook algorithm generates a plethora of ordinary affects from the frustration of not getting any 'likes' to the strange sensation of thinking 'who are these people who suddenly show up'? To understand the spaces where people and algorithms meet, this article proposed the notion of the algorithmic imaginary. As algorithms are becoming a ubiquitous part of contemporary life, understanding the affective dimensions – of how it makes people feel – seems crucial. If we are to consider the future of the algorithmic intensification, questions arise as to what possibilities for living with and alongside algorithms do these forces of encounter inspire? How does the algorithm perceive its subjects, and to what extent does it influence their sense of self? How, in turn, does the way in which people perceive algorithms affect the logic of the system? Contrary to the notion that 'the individual user is incapable of really experiencing the effect that algorithms have in determining one's life as algorithms rarely, if ever, speak to the individual' (Cheney-Lippold, 2011, p. 176), this article suggests that people do experience algorithms; and, while algorithms might not speak to individuals, they might speak through them. Despite the difficulty in accessing or discovering people's personal encounters with algorithms, it might just be a matter of *where* we as researchers go to look for these meetings. Sometimes, it is not a matter of peeking inside the black box of code but getting behind the tweets.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Taina Bucher is Assistant Professor in Communication and IT at the University of Copenhagen. Her research centres on social media, software studies, and the power and politics of algorithms in everyday life. [email: taina.bucher@gmail.com]

References

- Agger, B. (2012). *Oversharing: Presentations of self in the internet age*. New York, NY: Routledge.
- Amore, L. (2009). Lines of sight: On the visualization of unknown futures. *Citizenship Studies*, 13 (1), 17–30. doi:10.1080/13621020802586628

- Beer, D. (2013). *Popular culture and new media: The politics of circulation*. New York, NY: Palgrave Macmillan.
- Berlant, L. G. (2011). *Cruel optimism*. Durham, NC: Duke University Press.
- 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. doi:10.1177/1461444812440159
- Cheney-Lippold, J. (2011). A new algorithmic identity soft biopolitics and the modulation of control. *Theory, Culture & Society*, 28(6), 164–181. doi:10.1177/0263276411424420
- Chun, W. (in press). *Habitual new media*. Cambridge, MA: MIT Press.
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus*. Minneapolis: University of Minnesota Press.
- Deuze, M. (2012). *Media life*. Cambridge, UK: Polity.
- De Vries, K. (2010). Identity, profiling algorithms and a world of ambient intelligence. *Ethics and information technology*, 12(1), 71–85. doi:10.1007/s10676-009-9215-9
- Diakopoulos, N. (2015). Algorithmic accountability: Journalistic investigation of computational power structures. *Digital Journalism*, 3(3), 398–415. doi:10.1080/21670811.2014.976411
- Elmer, G. (2004). *Profiling machines: Mapping the personal information economy*. Cambridge, MA: MIT Press.
- Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, K., Hamilton, K., & Sandvig, C. (2015). “I always assumed that I wasn’t really that close to [her]”: Reasoning about invisible algorithms in the news feed. In *Proceedings of the 33rd Annual SIGCHI Conference on Human Factors in Computing Systems* (pp. 153–162). New York, NY: ACM. doi:10.1145/2702123.2702556
- Fuchs, C., Boersma, K., Albrechtshund, A., & Sandoval, M. (2012). *Internet and surveillance: The challenges of Web 2.0 and social media*. New York: Routledge.
- Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. Boczkowski, & K. Foot (Eds.), *Media technologies: Essays on communication, materiality, and society* (pp. 167–194). Cambridge, MA: MIT Press.
- Gregg, M., & Seigworth, G. J. (2010). *The affect theory reader*. Durham, NC: Duke University Press.
- Hardin, R. (2003). If it rained knowledge. *Philosophy of the Social Sciences*, 33(1), 3–24.
- Hill, D. W. (2012). Jean-François Lyotard and the inhumanity of internet surveillance. In C. Fuchs, K. Boersma, A. Albrechtshund, & M. Sandoval (Eds.), *Internet and surveillance: The challenges of Web* (pp. 106–123). New York, NY: Routledge.
- Introna, L. D. (2016). Algorithms, governance, and governmentality on governing academic writing. *Science, Technology & Human Values*, 41(1), 17–49.
- Kitchin, R., & Dodge, M. (2011). *Code/space: Software and everyday life*. Cambridge, MA: MIT Press.
- Knuth, D. E. (1998). *The art of computer programming: Sorting and searching* (Vol. 3). Boston: Addison-Wesley.
- Marwick, A. & Boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, 13(1), 114–133. doi:10.1177/1461444810365313
- Merleau-Ponty, M. (1962). *The phenomenology of perception*. London: RKP.
- Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: Making sense of information technology in organizations. *ACM Transactions on Information Systems (TOIS)*, 12(2), 174–207. doi:10.1145/196734.196745
- Papacharissi, Z. (2014). *Affective publics: Sentiment, technology, and politics*. New York, NY: Oxford University Press.
- Rader, E., & Gray, R. (2015). Understanding user beliefs about algorithmic curation in the Facebook news feed. In *CHI’15 proceedings of the 33rd annual ACM conference on human factors in computing systems* (pp. 173–182). New York: ACM. Retrieved from <http://dl.acm.org/citation.cfm?id=2702174>
- Stewart, K. (2007). *Ordinary affects*. Durham, NC: Duke University Press.

- Trottier, D., & Lyon, D. (2012). Key features of social media surveillance. In C. Fuchs, K. Boersma, A. Albrechtslund, & M. Sandoval (Eds.), *Internet and surveillance: The challenges of Web 2.0 and social media* (pp. 89–105). New York, NY: Routledge.
- Van Dijck, J. (2013). *The culture of connectivity: A critical history of social media*. Oxford: Oxford University Press.

Appendix 1. List of participants

Australia: Steven (24, graphic designer).

Canada: Jolene (22, fashion blogger), Nora (20, student), Larry (23, works in television), Anthony (64, art professor), Richard (41, manual labourer), Alex (age unknown, occupation unknown).

Norway: Sarah (33, biologist).

Philippines: Louis (20s, former student, current occupation unknown).

United Kingdom: Jacob (38, on leave from a university degree).

United States: Amber (25, student), Kayla (23, student), Michael (21, Musician), Rachel (24, journalist), Jessa (20s, journalist), Lucas (25, Quality Assurance Engineer), Shannon (45, career counsellor), Lena (20s, graduate student), Chris (20, student), Albert (42, works in advertising), Kate (36, former school teacher), Nancy (age unknown, public policy associate), Caitlyn (30s, teacher).

Unknown location, age and occupation: Tom, John.