Have you ever been surprised to log into Google while traveling to find advertisements for hotels or attractions in your new location? Have you made a purchase on Amazon, and then been taken aback to see recommendations for similar products marketed to you a day later while visiting Facebook? When we become aware of the algorithms at work online, we can be pleasantly surprised to discover content, products, or services that appeal to us, and we eagerly click to learn more. At other times, we feel that our privacy has been violated, experiencing the unpleasant sensation of being watched. At still other times, we feel consternation at the poor match between what we find displayed and what we desire to see, disgruntled by the failure of an algorithm to provide successful personalized experiences. It is at these moments—when our seamless web surfing and regular participation in social media spaces become disrupted by the unexpected—that we become conscious of the power and ubiquity of algorithms on the social web.

Algorithms play an essential role in the contemporary web. Web search engines suggest search terms through autocomplete and social media sites compile trending topics. Consumer websites recommend products, dating apps recommend partners, and job search services recommend employment options. We have seen how algorithms drive many important activities: hiring decisions (data assessments of job candidates), falling in love (matches on dating sites), developing social and professional relationships (Facebook’s and LinkedIn’s connections), participating in political discourse (Twitter trends), and even assessing academic performance (automated essay scoring and plagiarism detection services). Bits of education, news, culture, and information are filtered and managed for more “personalized” and “responsive” experiences across the web. These algorithms help us to find information as well as to better understand what information we should be seeking, to connect with communities and publics locally, regionally, and across the globe, and to participate in social and civic discourse.

Algorithms shape and construct online experiences for virtually all web users, yet they are viewed uncritically by many. Internet users hold almost unquestioning faith in algorithms and their ability to present comprehensive information and accurately guide our thoughts, decision-making, and activities. When as a culture we rely almost exclusively on Google’s search engine algorithm and social media sites’ trending news features to filter what content we access, it creates what Eli Pariser (2012) has called a “filter bubble” that can have the adverse effect of excluding from view new information, diverse content, and alternate viewpoints. Siva Vaidhyanathan (2011) warns us about the dangers of the monopolization of the knowledge economy by companies like Google, noting the ways in which algorithmic processes rely on assumptions and values that are largely invisible and even coercive. Google acts as custodian to our most important resource for information and knowledge, he claims:

> where once Google specialized in delivering information to satiate curiosity, now it does so to facilitate consumption. “Search” as a general concept of intellectual query has mutated into a process of “browsing” for goods and services. Where once users were guided to the unfamiliar, now targeted and customized searches are default, thus driving us toward the familiar and comfortable.  

*(Vaidhyanathan 2011: 201–202)*

Google is for many the gateway to the Internet, as users rely on its search algorithm for access to virtually all sought-after web content, largely with great trust in the software operating behind the search technology. Likewise, the news we encounter through Facebook and Twitter trends is selected based on algorithms that identify patterns of inclusion and exclusion, predict user interest, evaluate relevance, and “calculate publics” (Gillespie 2014). Through trending topics, filtered content, and customized searches, the knowledge economy of the social web is largely constructed through algorithms that operate quietly behind the scenes.

To define, algorithms are software programs or computer codes that process data, perform automated reasoning, and then output information in a transformed manner toward a desired end. Algorithms are encoded by humans, but automatically rendered. At their inception, algorithms come to development based on a human-identified problem. This problem can be consumer-driven, such as the desire for more targeted marketing, or research-driven, such as seeking better cancer treatments based on large-scale patient data, or driven by any number of human desires and activities. Once designed and encoded by humans, algorithms operate by collecting specified data, aggregating it, transforming it, and outputting it on a scale no human can, through a complex process that relies on machine computation. Humans play a role in identifying goals for automated programs and making decisions about how databases are constructed and how data will be put together through particular combinations and sequences and associations to arrive
at a desired output. Humans also provide much of the data that is used by algorithms through their online activity, with every click, comment, and movement across the web. However, the subsequent work of the algorithm is automated, performed with reduced or removed human intervention.

Because algorithms are brokers of information in a digital economy, they present an important site for study from a rhetorical perspective. Even though much of the work of algorithms is automated, we must remember that algorithms do not produce neutral output based on purely objective calculations. Rather, algorithms carry political and rhetorical valence, representing what Tarleton Gillespie (2014: 168) calls a “new knowledge logic … built on specific presumptions about what knowledge is and how one should identify its most relevant components.” From their beginnings, algorithms originate through human identification of a problem and projected goal with a range of types of appropriate solutions. The knowledge logic of algorithms relies on the nature of the databases that serve as their foundations, the patterns of what is included and what is excluded. Algorithms are based on certain criteria that are used to establish relevance among data, determining how the data is analyzed and transformed and how output is presented, i.e., a logic for arriving at a useful conclusion. For example, one reporter notes the ways in which Facebook’s trending news feature reveals the problematic assumptions behind the algorithmic logic of some social media networks. During the 2015 U.S. presidential primaries, rather than finding links to the recent Democratic presidential debate, Amanda Hess (2015) was directed to sensationalized headlines about celebrities and YouTube pranks and even puppies in Facebook’s trending news feed. She observes, “Facebook isn’t incentivized to show users the types of content they want to see most. It’s incentivized to show users the types of content that will keep them on Facebook.” (ibid.). This algorithmic programming even overrides user input such as “hiding” posts from view with the idea that “the system knows the user better than she knows herself.” In this way, algorithms do more than reflect user preferences; they also work to create online experiences that at times reveal the worst of ourselves (Gillespie 2016; Hess 2015; Pariser 2012). Trending topics that represent the basest celebrity news and voyeuristic content rather than the most pressing national and global news of the day reflect a version of ourselves that we would rather not give attention to. However, with our increasing dependence on algorithms as mediators of online communication and information, it is exactly this phenomenon of unexpected or unwanted algorithmic outcomes that we should be paying attention to as we seek critical understanding of the rhetorical implications of algorithms across digital culture.

A rhetorical study of algorithms is important because they function largely behind the scenes, without users’ critical awareness. In an examination of Internet cookies, Aaron Hess (2014) argues for the central role of hidden interactions between human and server in the functioning of digital rhetoric. Meaning-making and persuasion online rely on information filtered through and shaped by a technological system that operates behind the scenes as we navigate the Internet.

In “Power through the Algorithm?” (2009), David Beer introduces the role of the technological unconscious in algorithmic authority, which is established when technologies are “used to sort, filter, and discriminate in automated ways and without users’ knowledge” (ibid.: 998). When viewing digital rhetoric as a product of human-machine interaction, as suggested by Beer, Aaron Hess, Gillespie, and others, rather than simply applying traditional conceptions of rhetoric in digital contexts, we can see the ways in which algorithms act as powerful rhetorical agents. As Hess (2015: 18) argues, “too often in critical rhetorical analyses, rhetorical scholars assume that digital technology functions as a neutral medium or channel. This mistaken assumption dismisses the ontological and epistemological effects that technology has on our existence.” In Ethical Programs, Jim Brown (2015) positions algorithms and systems as participants in rhetorical practice, exerting influence and advancing an agenda with rhetorical and ethical implications. Algorithms are more than a tool for rhetorical activity; they themselves participate in meaning-making, affecting human communication, understanding, and behavior on both small and large scales.

Across the social web, algorithms have been granted the power to speak and to be heard as they filter the content we access and shape the content we read. Algorithms have the ability to respond to our actions, changing our online experiences with every click, query, and comment. And algorithms effect change, telling us what we should be reading, whom we should connect with, what we should be paying attention to, and what activities we should engage in. These qualities are ones that we attribute to rhetorical agents: the ability to speak and be heard, to interact and respond, and to effect change. Karlyn Kohrs Campbell (2005: 3) defines rhetorical agency as “the capacity to act, that is, to have the competence to speak or write in a way that will be recognized or heeded by others in one’s community.” She notes the “polysemic and ambiguous” nature of agency, describing agents as “points of articulation” rather than originators” that gain power and influence when they are repeated and become sedimentary (ibid.: 1). When applied to digital rhetoric, this definition of agency provides theoretical grounding for understanding technological systems such as algorithms as rhetorical agents. Algorithms are points of articulation that present an interaction between user input and machine programming. They are firmly rooted in digital cultures and collectives, dependent on collective user input and activity on a massive scale. They are inventive in meaning-making online, and influential as they operate across a myriad of online spaces and activities. As such, algorithms participate through interaction with human rhetors to shape meaning and exercise great power in digital rhetoric. By moving away from a definition of rhetorical agency as singular, solitary, and exclusively human, we can locate agency in the ongoing and dynamic collaborations between humans and algorithms within the interactive networks that make up digital culture.

In the remainder of this chapter, I argue that we need to rethink the concept of rhetorical agency in an age of algorithms. I posit that rhetorical agency online must account for both human and technological agents in a dynamic, interactive, and
From Rhetorical Agency to Rhetorical Actancy

Rhetoric scholars have historically resisted the move to assign agency to nonhuman agents, denying technologies in general and algorithms and automated computing in particular an agential role beyond that of a tool employed by designers or users (Cooper 2011; Miller 2007; Warnick and Heineman 2012). This resistance stems from conceptions of rhetorical agency rooted in human subjectivity and intentionality and resulting in purposeful actions by human agents and their intended effects. More recently, postmodern critiques of singular authorship and human subjectivity have allowed room for rethinking agency as distributed and dispersed across human and nonhuman agents, dependent on the intersections within social, cultural, and political contexts (Brooke 2009; Geisler 2004; Kennedy 2016; Lundberg and Gunn 2005; Reyman 2013). A 2004 meeting of the Alliance for Rhetoric Societies led by Cheryl Geisler (2004: 10) asserted that “the concept of rhetorical agency may be on the cusp of major rethinking” due in part to the implications of digital technologies and digital spaces on rhetorical practices. The concepts of distributed rhetoric and rhetorical ecologies are useful for understanding rhetorical contexts and activities in digital spaces and how agency is enacted within them. Rhetorical ecologies depart from Lloyd Bitzer’s foundational concept of the rhetorical situation, which is made up of fixed and discrete elements of audience, rhetoric, exigence, constraints, and text (Bitzer 1968). Rhetorical ecologies allow for an understanding of communicative acts as arising out of dynamic, interactive, and ever-shifting elements of communicative acts within and across networks. Jenny Edbauer (2005) argues that we should theorize rhetorical ecologies rather than rhetorical situations, noting the distributed, fluid movement of rhetoric, and how it emerges and circulates within networks of forces, affects, and associations. A focus on rhetorical ecologies places rhetorical activity within dynamic networks, as a system of relations within interdependent and responsive environments, and has led to a growing awareness of agency as removed from the singular, static, and autonomous author, rhetor, or agent. What follows is a revised notion of agency as distributed among rhetors, audiences, technologies, and contexts within complex and ever-shifting networks of social and cultural activity.

The separation of rhetorical agency from singular human agent has led to what Geisler (2004: 11) calls a “fragmentation of agency.” With this fragmentation, agency is situated within the material conditions that shape rhetorical action rather than positioning agency as possessed by a single human agent or arising out of a fixed rhetorical situation. In new media contexts, material conditions always already include technological systems and algorithmic agents that continually interact with human agents to shape and reconstitute the rhetorical ecology. To attribute agency to algorithms becomes possible when we break down the human-technology binary, resisting the tendency to consider them as distinct, separate, and subsidiary entities in digital rhetorical activity. Given the ubiquity of algorithms across a wide range of spaces and activities online, central to the circulation of our culture’s most valuable knowledge resources, and our acceptance and even faith in them to deliver relevant content and shape meaningful experiences, I would argue that we have already attributed to algorithms’ rhetorical agency.

Cooper (2011: 421) asserts “that neither conscious intention nor free will is required for agency and consequential change. However, she argues pointedly, “deeds are always done by someone, and replacing the doer of the action, the agent, with an amorphous force like kinetic energy leaves us with no basis for assigning responsibility for actions” (ibid.: 438, citing Miller 2007). While she clarifies that humans are not solely responsible for social change resulting from rhetorical acts, she does stress the point that agency is embodied and that humans must ultimately hold responsibility. Similarly, when algorithms perform in unexpected ways or lead to unexpected consequences, one response is to assign responsibility to human designers and programmers behind the algorithms, emphasizing agency as embodied as Cooper claims. For example, Gillespie (2011) notes the tendency of users to claim censorship by human designers and developers when certain political topics do not appear in a list of trending topics on Twitter. However, Gillespie asks us to reconsider this response, viewing critically the notion that an outcome produced by an algorithm is necessarily a manipulation by a human agent. Instead, it complicates the oversimplified binary of human and machine through which we traditionally assign agency, noting the ways in which algorithms make connections and reveal to us what we, as human designers or users, are unable to predict and/or perceive. Likewise, David Gunkel (2012) challenges the cultural assumption that machines and their activities are solely products of human intention and seeks to complicate the human-machine binary within which we consider “moral agency.” Following Gillespie, Gunkel, and others, I argue that it is within the relationships between and among humans and machines, in their inseparable interactions, that we find agency in digital contexts.

To support this view, we might look to Laurie Gries (2012) and her suggestion that we move “from agency to actancy.” Following a new materialist approach and channeling Latour (1999), Gries argues:

"Rhetorical actancy," then, acknowledges that rhetoric is always produced from the dance of various actants engaged in intra-actions within various
assemblages. The capacity to persuade, then, and to effect change is a distributed process created in the relationship between multiple and various actants.

(Gries 2012: 81)

These actants could be technological as well as human. While “agent” is embodied in a human subject and connected to human–audience relations and intentionality, “actant” shifts the focus to fluctuating interactions between material and human entities, both of which undergo continual transformation. Actancy is conceived as “relational, dynamic, and temporal” (ibid.:82), according to Gries, and would make room for a machine actant with agential capacity. Rickert’s (2013) theory of ambient rhetoric supports this conception of agency; he likewise draws on Latour (1999:204) to critique “the standard technological quandary where we are either masters of technology or by technology mastered.” A revised notion of agency requires interactions of human and nonhuman actants, allowing for material forms of meaning-making that find their locus neither in human motivation, intention, and expression nor in technological forces alone. With this new definition, we can shift the focus to relational rhetorical agency, “distributed through time, space, and material engagement” (Gries 2012: 79). In an age of algorithms, we must look at how agency emerges from and through rhetorical acts that arise through the relational dynamics of human–algorithm interactions.

Agency and Algorithmic Glitches

Algorithms engage in rhetorical and generative acts using human-inputted data, an algorithm constructs a presentation of self (Facebook timeline), creates a public (Twitter trends), makes associations between us and others (recommendations on social networks), answers questions (Google search), and even tells us what we should be asking (news feeds). At times algorithms present something distinct and surprising from what was imagined by their human designers and/or human users, offering unexpected associations. Algorithms become “creepy” to users when target advertisements and buying recommendations are too appealing (Hill 2012). We suspect censorship when a Twitter trend does not match our expectations about what politically oriented hashtag is getting the most attention (Gillespie 2011). We are troubled when a human photograph is auto-tagged with the term “animal” or “ape” (Barr 2015; Hern 2015) or when a chatbot spews racist and inflammatory comments (Vincent 2016). Google’s autocomplete feature offends users when it fills in search boxes with racist, sexist, and stereotyped terms and queries (Baker and Potts 2013). In these cases when the output doesn’t match our expectations or comes as an unwanted surprise, when we note the ways in which algorithms can be “wrong,” we are confronted with the possibilities and implications of algorithmic agency.

The unintended outcomes of algorithms are sometimes thought of as technological “glitches,” or errors in the workings of technology. Technological glitches are defined as communication errors between systems, databases, and programs that result in illegible or unexpected outputs. Glitches are typically temporary problems of small significance (“bugs”), which go undetected by designers and can be reported later by users; they are also transient, quickly corrected by developers. In his consideration of technological glitches as rhetoric, Boyle (2015) posits that glitches create distanced positions in which we can critically examine and respond to the technology we use, becoming consciously aware of technological mediation that typically goes unrecognized. In this way, the “glitch can help inform a rhetoric that is an ongoing practice of affirming the multiple relations available in any given moment of mediation” (ibid.: 28).

Unexpected outcomes produced by algorithms are not always technically glitches; sometimes they are a product of an algorithm operating correctly from a procedural standpoint: carrying out the process and analysis of data as designed without error. It is only the human interpretation and use of the resulting output that establishes a problem or failure. A recent example is presented in the unintended outcomes of the automated photo tagging systems from Google and Flickr. In May 2015, Flickr introduced a new “advanced image recognition technology” that enables an algorithm to determine tags for users’ photos and automatically tag them (adstds 2015). If an image of a car is recognized as such, it will be tagged with the word “car,” and because tags are relied on for searching and accessing users’ photos, it will be more easily discoverable by others searching for images of cars. Further, the algorithm “learns” based on user feedback; if a user removes an autotag from an image because it is inaccurate or not useful, the algorithm will learn from the mistake with the goal of producing more accurate results in the future. Flickr, upon announcing the change in their user forums, also asked users to “share your most impressive (yay), most unexpected (boo), or most hilarious (hal) results” (ibid.).

The change was met with some criticism for, among other things, creating vague, irrelevant, and/or inaccurate autotags, and failing to meet its goal of improving the system and making photographs easier to search and find. One unexpected result that users did not find “hilarious” was that the system was tagging users’ photos with labels that photographers and users found offensive. Some examples were photographs of people being autotagged with “ape,” “animal,” including images of African Americans. Other examples included images of concentration camps, such as photographs of train tracks leading to Auschwitz or of bars on the gates at Dachau, tagged with “sport” or “jungle gym.” Understandably, these unexpected outcomes of the algorithmic system were met with many angry user responses. The photographers as well as users who searched and viewed images found the autotags to be racist, offensive, and troubling. Those who posted the original images were concerned about their responsibilities from an ethical and legal standpoint, as the autotags violated terms of use policies. Flickr responded by revising their autotagging system so that users could opt-out, and released the following statement of apology:
We are aware of issues with inaccurate auto-tags on Flickr and are working on a fix. While we are very proud of this advanced image-recognition technology, we’re the first to admit there will be mistakes and we are constantly working to improve the experience.

(adsteds 2015)

Similarly, one month later in June 2015 Google was in the news for its autotagging feature, which labeled two images of African American people with the tag “gorillas” (Barr 2015). Like Flickr, Google issued an apology for the tags and promised to continue to refine the algorithm.

When Google’s or Flickr’s automated tagging systems tag photos of African Americans with “ape” or “animal,” or assign to painful images of concentration camps the label “sport” or “jungle gym,” they enact a rhetoric of racism and hate speech. In these examples and others like them, some look to the human designers of the algorithm to place blame. In an NPR segment titled “Can Computers Be Racist?” a Google Photos user whose image of an African American friend was labeled erroneously with “gorilla” said, “Well, they say, oh, it’s a computer. I’m like, OK, yeah, a computer built by whom, a computer designed by whom, a computer trained by whom?” (Sydell 2016). In the interview, this Google Photos user goes on to question whether Google had any people of color on their design team, making the connection between the lack of diversity on the design team and the racially offensive tags. From the designers’ perspective, we might see a different identification of responsible party, with removal of blame from a human agent and toward more focus on the outcome as a system error. Flickr responded to their users’ outcries by assuring them that “The tagging process is completely automated—no human will ever view your photos to tag them” (adstads 2015). While this comment addresses privacy concerns among users, it also capitalizes on the notion of the algorithm as working independently through neutral calculus and without agency, removing accountability altogether. From this perspective, unexpected outcomes do not reveal human bias but are instead errors or mistakes in the system (glitches) that need to be corrected to function properly. The “fixes” can be enacted by humans refining the code, but could also result from users providing better input: “If you delete an incorrect tag, our algorithm learns from that mistake and will perform better in the future” (ibid.). Neither of these explanations adequately reflects the dynamic nature of rhetoric online, where agency lies within the interaction of humans and machines and where meaning is created within ever-shifting rhetorical ecologies. Recognizing the dynamic and relational nature of rhetorical agency as shared among humans and algorithms allows us to explore questions of accountability rather than dismiss the unethical rhetoric of glitches as system errors.

Another example of unintended outcomes of algorithms with ethical implications can be found in Microsoft’s Twitter chatbot, Tay. Tay was created in March 2016 with the goals of engaging millennials with artificial intelligence and to “experiment with and conduct research on conversational understanding” (Microsoft spokesperson quoted in Hunt 2016). Tay operated by monitoring the tweets of other users and then composing tweets of its own that mimicked the content, style, and speech patterns of other Twitter users that interacted with it. But within 24 hours of its launch, the bot started posting offensive tweets. A large group of Internet users tweeted offensive messages to Tay, which then began mirroring the tweets back to other Twitter users in what Microsoft has called a “coordinated attack by a subset of people” (Lee 2016). Posts included offensive comments such as, “bush did 9/11 and Hitler would have done a better job than the monkey we have now” and other anti-Semitic, misogynist, and racist messages. Microsoft began deleting tweets and then shut down the account. In the months since, Microsoft has released the software for developers to build a better chatbot (Bolton 2016).

Noting an old programming adage, one journalist pointed the finger at users as the cause: “flaming garbage pile in, flaming garbage pile out” (Vincent 2016). Microsoft corporate vice president Peter Lee responded with lessons learned by confirming that the offensive messages resulted from a vulnerability in the system. Looking to the future, he stated, “We will remain steadfast in our efforts to learn from this and other experiences as we work toward contributing to an Internet that represents the best, not the worst, of humanity” (Lee 2016). In this example of the Tay tweets, as in the example of the autotagging features within Google and Flickr, many users and designers looked to place blame on the human users of the system. While the technological system may have included errors in the code that made it vulnerable to attack or manipulation by humans, the outcome of racist and inflammatory speech was interpreted as the result of poor human design or manipulative human use.

Lisa Nakamura (Barrett 2015) notes that too often the proposed solution to unintended outcomes of algorithms—in these cases acts of racist rhetoric or hate speech—has been to encourage technology designers to take more control over systems. We know that Google has the power to reverse the effects of Google bombing (gaming Google’s search algorithm to produce certain results such as returning George W. Bush’s official webpage as a result for searching “misguided failure” in 2006) and that Facebook and Twitter have the capability to scrub their news feeds for hate speech, violent images and videos, pornography, and other inflammatory material, and these solutions are employed regularly. The design and development teams for Flickr and Google Photos can fine-tune their algorithms to recognize more skin tones or to not tag photos of humans as liberally. The programmers of Tay can delete tweets and build a system that avoids offensive content and racist speech. This focus on human programmers and human users as exclusively responsible for outcomes, however, ignores the distributed nature of agency in digital rhetoric. In these cases, the intentionality of human designers and users is insufficient for determining accountability; it is through the workings of the human–computer collaborations enabled by algorithms that racism is perpetuated and inoffensive content is spread rapidly and extensively through automated systems. The widespread reach and repetition of a tag or comment as
points of articulation is what makes them powerful. For the study of digital rhetoric, what is important is not any given data point or tag or comment that arises from a given automated action, but the influence that results from repeated articulations of points from a large collective. Algorithms operate on a massive scale, collecting, managing, and using data to generate many, many new points of articulation on a scale that no human is capable of.

By acknowledging that it is a myriad of relationships—human–human and human–machine—that give rise to rhetorical agency, we see each agent not as an individual figure acting based on intentionality and exerting power over outcomes, but as collectively contributing to what is produced. As such, algorithmic glitches present important questions about accountability and responsibility: Who or what is to blame if an algorithm gets it “wrong”? Can an algorithm be responsible as well as responsive? Adequately addressing the moral responsibility of technology in an age of algorithms and automation is beyond the scope of this chapter (see Gunkel 2012); however, redefining rhetorical agency renders visible the rhetorical implications of algorithmic activities rather than obscuring the consequences of unethical rhetoric produced by glitches.

Conclusions and Implications for Digital Rhetoric

Algorithms are designed by humans to meet defined goals and carry out their actions by making use of human interaction and user input. However, algorithms exert agency through their subsequent activities, making connections and generating output that no human would be able to create or, at times, even to anticipate. The rhetoric we produce and encounter online necessarily arises out of a digital ecology in which algorithms play a constitutive role. If we fail to recognize the dynamic nature of agency within that ecology, a rhetorical agency that is shared among human and technological actors, then we risk losing all sense of accountability for unethical rhetorics, such as those in the examples above, that can rise up from algorithmic systems in the form of glitches and unintended outcomes. These occurrences and others like them help us to recognize that human and machine are indissoluble in the performance of rhetorical acts online; digital rhetoric relies on human intentional choice contiguious with algorithms that carry out computational processes. Through these interactions, algorithms as rhetorical actors structure (and shape) information, expose us to (and limit exposure to) domains of knowledge and activity, deliver (and filter) news and content, connect us to others (and build invisible walls), and ultimately construct our online experiences. In these ways, the interaction of human and machine plays a constitutive role in digital culture and carries rhetorical valence in an age of algorithms.

The occurrence of unexpected outcomes of algorithms has important implications for how we understand and theorize the concept of rhetorical agency in an age of new media. As digital rhetoric scholars, we should neither circumscribe algorithms as tools for carrying out what humans designed them to do nor give them power over their uncritical human users. If we break down the binary

between human and technological agency, we can recognize that we have already granted rhetorical agency to algorithms—they hold the ability to speak and be heard, to interact and respond, and to effect change. And the errors or glitches in algorithmic activity are best understood as articulations of hidden assumptions or underlying biases, gaining influence through our often unreflective reliance on them and our seemingly unavailing trust in their output. By recognizing algorithms as actors with rhetorical agency, we can acknowledge glitches as rhetorical acts with ethical implications. In doing so, we can begin to explore the pressing question of accountability: if we acknowledge that agency is distributed among a network of humans and systems, how do we assign responsibility for consequences and outcomes? While this question is not easily answerable, it is one that will be important for scholars of digital rhetoric, given the agental role that algorithms play alongside humans within a dynamic digital rhetorical ecology.

Note

1 While a glitch is most often the result of a programming error, other forms such as glitch art are purposeful. Files, scripts, or even hardware can be intentionally manipulated to produce a glitch for artistic or productive purposes (Boyle 2015; see also James Bridle’s The New Aesthetic at new-aesthetic.tumblr.com).

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