Algorithmic Rating

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Algorithmic Rating: the use of algorithms to generate, aggregate, display, and/or operationalize rankings, esteem measures, or scores, in order to evaluate online users, workers, citizens, brands, products or digital objects. Algorithmic ratings are used across numerous professional, business and security contexts: for example, in credit scoring algorithms that determine consumer interest rates (Langley 2014, Pasquale 2015, 22-41); algorithmic teacher evaluations used to try to optimize schools by cutting 'underperforming' teachers (O'Neil 2016); predictive policing algorithms that generate 'Strategic Subject Lists' of those deemed to be at the highest risk of gun violence (Saunders, Hunt and Hollywood 2016); and border security software, which flags potentially 'risky' subjects (Amoore 2011). Such algorithmic ratings are often carried out in the name of efficiency. Yet, as many commentators have noted, they can also perpetuate errors and unfairness, increase inequality, and exacerbate racial bias – while all the while remaining unaccountable to public scrutiny or juridical oversight (Pasquale 2015, O'Neil 2016, Amoore 2011).

In online platforms, algorithmic ratings influence what information users see in search results. For example, Google's best-known search algorithm, PageRank, judges the importance of a webpage based on how many other pages link to it – and how important those pages, in turn, are. It then optimizes search results accordingly, with higher-ranked pages appearing first (Austin 2006). Some algorithmic rating systems are highly visible and interactive: for example, 'like' counters on social media, or star ratings on e-commerce sites. Other hidden, black-boxed rankings persist alongside these visible measures: for example, algorithms that evaluate the relative strength of social media 'friendships' to sort newsfeeds. A platform's more- and less-visible rating systems might interact with one another in complex ways. For example, the Facebook 'like' button allows users to click their approval of a particular post (and implicitly, signal their esteem for the user who posted it). The software compiles the 'likes,' such that users can see the aggregated popularity of that post as a single number. This feature tends to increase user engagement with the platform, by meting out 'dopamine hits': neural reward pathways that produce a feeling of satisfaction, linked to receiving social approval (Parkin 2018, Harford 2019). At the same time, Facebook may use these 'likes' to help determine which friends to feature most prominently in a user's newsfeed, to further maximize engagement. Facebook uses proprietary, machine learning algorithms, which are constantly, automatically updating and correcting themselves – and guarded as trade secrets. Thus, it is not possible to know exactly how newsfeeds are currently filtered. Nonetheless, analyzing a well-known, but now defunct, Facebook algorithm, EdgeRank (used until 2011), helps to illustrate the general point. EdgeRank analyses the relationships between digital 'objects' (users, videos, posts) and 'edges' (the relationships between them). It ranks the frequency of interactions between users, the type of those interactions (with a comment weighing more than a 'like'), and builds in a time decay, so that more current interactions count for more (Bucher 2012). Arguably, the relative importance of the 'like' button data, too, has decayed over time – as Facebook's algorithms have become more attuned to more minute user data, such as "percent completion" rates for videos on newsfeeds (Bapna and Park 2017).

Online reputation systems, such as user rating interfaces on ‘sharing’ and e-commerce sites like Airbnb, allow users to contribute to one another’s ratings, ostensibly to build trust through reliable and stable seller or user scores. Equally, however, the sheer complexity of algorithmic rating methods across platforms – not to mention the complex interactions between users’ ratings and the algorithms that interpret and aggregate them – can produce significant uncertainty, instability, and contestability in the field of online reputations. For example, Twitter bots are frequently used to boost politicians’ apparent online popularity, or shift a political conversation (Caldarelli *et al*. 2020). Hostile actors can tactically tank others’ reputations, by posting libellous claims designed to feature prominently in search results. In one extreme case, a woman posted libel about hundreds of people on ‘complaint sites’ such as Ripoff Report from around 2015-2021, tarnishing the reputations of not only those she perceived to have been responsible for her career failures, but also their entire extended families (Hill 2021). The efficacy of her campaign was diminished when Google began deranking ‘complaint sites’ in their search results algorithms. However, this deranking had far more of an effect for those targets who already had many search results associated with their name (such as the *New York Times* writer who reported the story), than for those who had far fewer prior search results. Thus, the field of algorithmic rating must be seen as a complex one, with the instabilities of online ranking affecting different users very differently. Algorithmic ratings are rendered unstable not only by conflicted views of users’ worth, and huge societal emphasis on gaining social status; not only by the myriad tactics used to intervene in online reputations; but also by the sheer complexity of interactions between conscious acts of ranking and rating enabled by platform software, and their automated, algorithmic aggregation.

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