

Louise Amoore, **Cloud Ethics: Algorithms and the Attributes of Ourselves and Others**, Durham, NC: Duke University Press, 2020, 232 pp., \$25.95 (paperback), \$99.95 (cloth).

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Algorithms are increasingly embedded in our daily lives, involved in processes ranging from which search results appear at the top of the page to who gets pulled aside at a border crossing. Far from neutral computational artifacts, algorithms have huge social and political consequences. In recent years, scholars across disciplines such as law, literature, sociology, communication, media studies, computer science, and software engineering have generated a rich discourse surrounding algorithms' ethical and political implications. As algorithms come to impact so many aspects of our lives, how ought we respond? With which sorts of ethical questions do algorithms demand we grapple? Political geographer Louise Amoore, in her book, **Cloud Ethics: Algorithms and the Attributes of Ourselves and Others**, makes a cutting-edge contribution to this discussion. Amoore's text will be of great interest to critical communication scholars, political scientists, and researchers from other disciplines and fields interested in critical algorithm studies.



Amoore focuses on machine learning and neural network algorithms, which are often the most politically relevant, as they are the kind used in domains such as immigration, policing, and defense. Simultaneously, their complexity makes them extremely difficult to understand. Where other scholars insist on accountability in the form of prizing open this black box, *Cloud Ethics* takes as a premise that not only is opacity unavoidable, but it is also the fundamental condition for all ethicopolitical encounters. The complexity, partiality, and opacity of the algorithm is not the limit to political engagement but rather the threshold. Instead of complete transparency, a cloud ethics insists on a more complicated notion of responsibility, acknowledgement of multiplicity, and a refusal of political foreclosure.

One of the author's strongest interventions is in challenging the impulse to locate responsibility for an algorithm's effects in a singular author or source. While in a traditional form of ethics we assign responsibility to an individual human when harm occurs, this is virtually impossible in the case of machine learning and neural network algorithms, which are trained on thousands of previous human-algorithm interactions, consistently updated by a variety of engineers, and incorporate other algorithms that have their own creators and data sets behind them. Given all these interactions, there is no individual human who can be responsible for a given algorithm's effects.

Nor can responsibility be assigned to either human or machine when algorithmic tools are used in practice. For example, the use of surgical robots has sparked debates about the ethical implications of relying on a machine to assist in an operation, raising the question of how liability can be assigned should an operation go wrong. In situations such as these, Amoore argues that since their activities are performed in collaboration,

it is impossible for one or the other to be accountable. For the author, the most serious ethicopolitical inquiries are not about locating either the human or the machine at the root of a decision. Instead, a cloud ethics must cope with this new "composite form of being" (p. 66).

In the absence of an identifiable author, officials sometimes offer up an algorithm's source code as the locus of responsibility. Amoores compares the coding of algorithms to literary writing, showing that like other forms of writing wherein the publication of a text is only the beginning of its evolution—where reader interpretations multiply or the text takes on new cultural significance—algorithms exceed their code since they continue to evolve in action, adjusting their weights and learning from new data and outcomes. Amoores's discussion, here, connects productively with other scholars in the field who argue that the "transparency ideal" is problematic when considering algorithmic accountability (Ananny & Crawford, 2018). Rather than prizing open the algorithmic black box, a cloud ethics must grapple with all the untraceable facets of the algorithm.

The author also intervenes in discussions of algorithmic reason and madness. In popular discourse, algorithms are portrayed as reasonable and governable instruments. When algorithms go mad, for example by causing Microsoft's Twitter chat bot, Tay, to spew hate speech, popular media depicts this—incorrectly—as an aberration from an otherwise acceptable norm. The fact is, however, that this sort of frenzied algorithmic behavior results from the rational design of the algorithm itself (which, as Amoores recognizes, is no less concerning). Algorithms are designed to constantly alter their parameters to generate new experimental outcomes; their unreasonable outputs are essential parts of this process, necessary for their correct functioning even if they seem aberrant on the surface.

While Amoores does not deny the harmful consequences of such algorithmic behavior—and her arguments are consistent with other scholars in the field, such as Noble (2018)—she also locates harm in algorithmic behaviors we consider rational. As Finn (2017) has highlighted, the algorithm's power is in its ability to calculate and offer up seemingly perfect knowledge. This is precisely what we *want* the algorithm to do. But this calculation, where the algorithm distills many inputs into one output, disavows the multiplicity and doubt that must be part of every evaluation. A cloud ethics must dwell on the inherent uncertainty of all decisions, reinstating the doubt that is always present when one choice is discarded and another selected.

Algorithmic decisions are of ethical concern not only because they define, for example, who will pass customs or what a drone will target, but also because they generate the parameters within which those decisions are made. In Amoores's text, this is exemplified in the case of self-driving cars that are being programmed to respond in the event of an accident, comparing thousands of possible actions and making a decision based on criteria such as the prioritization of children's lives. These calculations rely on previous algorithmic outputs in order to recognize, for example, who becomes classified as a child. Algorithms make the incalculable decision calculable while also serving as the framework in which these decisions can be made, such that there ceases to be an outside to the algorithm.

As algorithms are used more frequently in more high-stakes situations, as in the example above, the consequences of recognition are potentially life threatening. A cloud ethics must be concerned both with the algorithm's present decisions as well as the frameworks of recognition on which these rely. Extending this to the

political sphere, a cloud ethics must take into account not only how rights are being protected or transgressed right now but also the ways in which the very bestowal of rights is contingent upon algorithmic recognition.

Throughout the text, Amoore consistently revisits one of her core arguments: While algorithms are opaque, this does not exempt them from politics—rather, uncertainty, illegibility, and partiality are the conditions of possibility for ethicopolitical life. Politics, according to the author, exists precisely because our relationships cannot be condensed into calculation, and a cloud ethics must understand each of us to be unique, unable to be distilled into algorithmically legible attributes. For Amoore, politics represent “the impossibility of resolving all problems with a solution” (p. 161). Therefore algorithms, in glossing over this insolubility, threaten the operation of politics.

Perhaps her most ambitious and controversial point, Amoore argues for a politicization of algorithmic weights. In probabilistic algorithms, adjusting the weights of different factors can lead to different outcomes: In terrorism prevention, for example, adjusting the weights will affect the false positive rate, which could entail more civilian deaths. While she admits that scientists have cautioned against politicizing the weights because even the algorithms’ creators don’t know exactly how they work, the author argues that this is precisely why the weights are such a rich area for cloud ethics: We are forced to work in the dark. The weights must be ethically heavy, carrying the burden of their—often hugely significant—consequences.

While Amoore’s book concludes with a synthesis of the principles of cloud ethics highlighted throughout the text, *Cloud Ethics* never shifts into the realm of policy or concrete action, and this is one of its greatest merits. Amoore avoids boiling down her most salient points into straightforward recommendations, and the text forces the reader to thoughtfully engage with the complexity and multidimensionality of a cloud ethics. The text exemplifies the author’s insistence on multiplicity and the impossibility of political smoothness. Like the algorithms that she discusses, *Cloud Ethics* is a text that will exceed its source, one that will benefit debates and contention within the academic fields it touches on as well as society at large.

References

- Ananny, M., & Crawford, K. (2018). Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. *New Media & Society*, 20(3), 973–989.
<https://doi.org/10.1177/1461444816676645>
- Finn, E. (2017). *What algorithms want: Imagination in the age of computing*. Cambridge, MA: MIT Press.
- Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York: New York University Press.