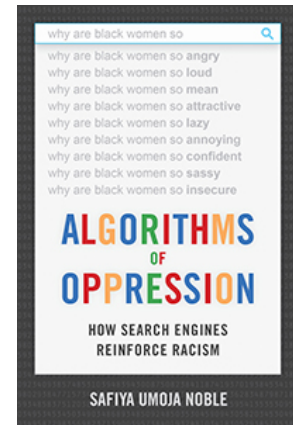


Safiya Umoja Noble, **Algorithms of Oppression: How Search Engines Reinforce Racism**, New York, NY: New York University Press, 2018, 229 pp., \$28.00 (paperback).

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In *New Dark Age* (2018), James Bridle urges his readers to reconsider the impact of complex technologies on our lives. With the history of how science and technologies have served the elite and corporations at the expense of powerless citizenry, he points out that abundance of information may darken society. It becomes possible as science and technologies emerge as tools for exploiting and occupying people whose lives become vulnerable without them. According to him, smart devices, the Internet, and other networks are a means of generating wealth for those who enjoy their vested rights. His argument is based on the premise that technologies are socially constructed objects. Then, the way that technologies are developed and diffused is subject to the power dynamics of the society (Couldry & Hepp, 2017; Hacking, 1999; Parks & Starosielski, 2015).



Safiya Umoja Noble's *Algorithms of Oppression* is another volume that follows the tradition of the social construction of technologies. Throughout the book, Noble raises questions about search engines, which take pivotal roles in digital society. To be short, she argues that search engines are designed by sophisticated but racialized and gender-biased algorithms and that they result in categorizing information and knowledge with sexist and racist mechanisms. Keywords from users contribute to consolidating and reinforcing algorithms. This demonstrates how such discriminatory framework shapes knowledge and reproduces stereotypes about minorities.

Noble starts her argument by casting doubt on widespread confidence in considering search engines as neutral and objective in the era of Googling. By calling it "artificial oppression," she explains that search engines reinforce the racist and sexist hegemony with their algorithms and databases. She reminds readers that search engines are not simply information providers; they are private companies driven by profits from their commercial activities. As long as technologies, including search engines and their algorithms, reproduce pre-existing biases and stereotypes online, believing technologies to be "neutral" and "objective" is a naïve way to understand the role and impact of search engines. Instead, algorithms of search engines are produced and disseminated within the social context, the nature of which is contingent on the privileged class. Accordingly, search engines and their algorithms serve as ideological tools to reinforce dominant values and hegemonies. Meanwhile, they become suppressive to various discourses and subjects that have been marginalized in society.

Based on various critical approaches including the political economy, library studies, and the feminist theory of technologies, *Algorithms of Oppression* tries to explore the discursive foundations of such biased environments in cyberspace. Through several methods, including literature reviews, observations, and interviews, the author finds that these problematic algorithms are consolidated by a symbiotic

relationship among stakeholders: the state's neoliberal stance on policies relevant to information and communication technologies (ICTs), search engine companies and their programmers, and users.

Expecting the rise of a data-driven economy, the state often condones or ignores an issue of encoding prejudices and reproducing biases against gender and race. Meanwhile, search engines collect revenues as a reward for showing results in favor of advertisers and venture capitalists by customizing their indexes. In addition to this, White and Asian men have made up the majority of workforces in the industry. Finally, users interpret the results of their searches as knowledge, which is indeed full of advertisements. By inputting what they want to find in search engines, they contribute to databases and algorithms that are not free from gender and racial biases. Such a relationship among stakeholders reassures that the nature of search engines cannot be interpreted as an individual. If anything, it is socially shaped and provides breeding grounds for dehumanizing people.

While the values of White, heterosexual, middle-class males dominate the entire production line, women and non-White races are neglected from dialogues for ICT development. This exclusion distorts their representation in cyberspace and marginalizes their status. Of course, the elimination of women and people with color from power systems is omnipresent. However, considering their scale and scope, the impact of algorithms of search engines on societies are overwhelmingly more far-reaching, fundamental, and powerful.

As long as the production, institutions, market, and users of search engines are dominated by gender and race hegemonies that stabilize hierarchies in society, the public's expectation that technologies and the Internet will bring an all-inclusive democracy and promote social equality will be betrayed. Combined with a series of controversies over Google and other search engines—including data spills, commercial uses of personal information, unlimited storage of sensitive information, and the right to be forgotten—these platforms gain profit and fortify structural asymmetries in U.S. society at the expense of citizens' rights to Internet access. Moreover, since gender and race are hierarchical systems that privilege power and authority to certain groups, the reproduction of hegemonies online results in genderizing and racializing citizens.

The worst scenario will be that search engines oversimplify complex phenomena by obscuring racial and gender struggles in the name of objectivity. Through reframing our thinking and willingness to get access to information and knowledge, search engines fundamentally replace critical insight with simplified and commodified characteristics driven by advertisers and Internet moguls. Such problematic nature of search engines is strengthened by an individualistic use of the Internet triggered by commercialism and consumerism. By depoliticizing the online space and replacing politics with advertisements and shopping, ideologies and politics on the Internet become concealed. As long as algorithms with these characteristics coincide with tenets of neoliberalism and the commodification of information, search engines contribute to justifying the existing disparities and injustices and weakens public responsibility for the Internet. Then, the necessity of critically understanding search engines becomes important to everyone because our identities and fates online are at the hands of private moguls.

The author explains that based on the findings, biases, and stereotypes against women and people of color in search engines are more structural issues than deviations of individuals. While Google and other

platforms deny their responsibilities for distortions in results, the author refutes this with several counter-examples from Google France and Google Germany, which obey local laws to prohibit anti-Semitism and neo-Nazi sentiments. She finds that even content with embedded animal abuse is blocked from view. These examples reassure that search results are not items with a self-control mechanism. This shows that search outcomes are made and managed by pre-existing power structures to satisfy the needs of the dominant powers in society, as the pornification of black women in search engines shows. Having said that, the author calls on the public to take part in controlling and managing the Internet and its information.

Algorithms of Oppression challenges a series of premises that dominates our daily experiences by unveiling that the nature of search engines is not value-neutral and is the result of advertising. The author's argument coincides with many constructionist interpretations of the Internet and digital technologies. For instance, according to *The Internet Imaginaire*, Patrice Flichy (2007) argues that the management of the Internet is not objective, but it is a manifestation of the existing power dynamics outside of technologies. What distinguishes Noble's argument from previous volumes of the social construction of technologies is a strong and descriptive political proclamation that urges readers to engage in managing cyberspace and to be critically aware of search engines. If the author could provide more detail about how the languages of algorithms are connected to show sexist and racist results to users, her results would be more convincing. In terms of disclosing contexts, the author might give detailed accounts for the structure of conglomerations and search engines' relationship with other business partners than the porn industry.

Despite a few limitations, the book is one of the finest works to try to explain the sociocultural nature of search engines with in-depth insights and easy-to-understand language. One of the main strengths is a vast number of examples of keywords and indexes such as "Black Girls" and "unprofessional hairstyles for work" in the second chapter. By combining with Google's previous controversies over racism and sexism, including depicting the White House as "N*gga House" in 2015 or showing "booty on the beach" or "black pussy" as the search result of "Black Girls," the book reveals the sociocultural fundamentals of search engines. This gives convincing insight to readers as to why search engines have given them sexist and racist pictures in response to keywords such as "Women," "Black," and "Asian." Moreover, the language the author uses and alternatives she delivers throughout the book show how readers should approach these structural asymmetries of search engines and their algorithms. In regard to this, the most astonishing finding would be the power dynamics of the linkage between a user's keywords or questions and the following indexes without using much programming language.

She finds that a structural factor contributing to worsening asymmetries of stereotypes and distortions against race and gender is due to the workforce composition of ICT industries dominated by Asian and White men with limited undergraduate or postgraduate backgrounds in computer science, engineering, mathematics, and statistics, among other fields. Assuming that such an environment does not have much literacy in gender and race, the author asks that the industry's workforces be diversified. That being said, this volume would be an interesting book for not only students and faculty of cultural and gender studies but also those who study the nature of technologies and participate in the industry since they are the ones who construct the database of today's economy and knowledge.

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