IJIDI: Book Review

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I magine that every time you search the Internet using a term describing a group you belong to, the first page of results is full of pornographic sites or mug shots. Perhaps you do not have to imagine. This happened to author Safiya U. Noble in 2010 when she attempted to find fun online activities for her stepdaughter and nieces using the query "black girls." Although Google "fixed" the results of that particular query, the shocking and not-at-all age-appropriate search results inspired the writing of *Algorithms of Oppression: How Search Engines Reinforce Racism*. Noble uses close readings of search results, news reports, anecdotes, and case studies to analyze the biases and phenomena she discusses in each chapter. Noble's expertise in both sociology and library and information science, as well as her lifelong interest in the social ramifications of information communication technologies, are evident throughout the book.

Noble argues that algorithms are not the bias-free machines we often expect. Rather, they are systems built by individuals who are biased (as all humans are) and not terribly diverse (Silicon Valley is notoriously dominated by white and Asian males) for a non-neutral corporate purpose (to generate advertising revenue). These influences create conditions in which systemic racism can be reinforced and amplified by algorithmically-selected Google search results.

Noble writes from what she terms a "black feminist technologies studies" (BFTS) approach, which acts as a lens through which to view gender, race, identity, and power in media, rather than focusing on traditional topics like technology consumption and usage (p. 171-172). The book focuses almost exclusively on Google, since the company has a virtual monopoly on Internet searches, but the problems she discusses are relevant to many other applications of algorithmic ranking, categorization, and decision-making; from sites reviewing local businesses to social media newsfeeds.

In the expansive introduction and first chapter, Noble familiarizes the reader with the commercial context of search engines as well as the concept of algorithmic bias and racism and the impact they have on marginalized communities. She critiques the belief that the racism and misogyny that so often appear online as suggested terms (such as "why are black women so... angry" vs. "why are white women so... pretty") or relevant search results (sexual images as results for "black girls" or images of white and only white women as results for "beautiful") are merely attributable to the users of the system, absolving algorithms and systems of all responsibility—as Google has claimed. She points out that Google is perfectly capable of optimizing its algorithms for commercial purposes, and could

turn that same power toward changing the racist narratives appearing in search results if they wanted to, rather than subjecting minority groups to whatever perceptions are illustrated in the majority of searches. It is not that Google cannot ensure better representation of minority groups in its search results—it is that the company rarely has an incentive to do so, short of bad press. Even then, Google has used stopgaps and half-measures rather than critically evaluating its system (for instance, Noble recounts that when the Anti-Defamation League criticized the anti-Semitic sites that appeared on the first page of results for "Jew", Google's response was to add a link to a disclaimer on the results page).

In Chapter 2, Noble discusses the commodification of both information and identity, driven by neoliberalism's singular focus on profits. Describing the power of search results to direct public attention to particular sources, narratives, or values, she questions the wisdom of taking information-related decisions out of the hands of humans and putting them entirely into the realm of profit-driven corporate entities.

The rest of the chapters are more narrowly focused. Chapter 3 presents an argument that search results can frame your perception of an entire group or community, using white supremacist and mass shooter Dylann Roof as a case study. Before murdering nine members of a Black church in South Carolina, Roof described in an online manifesto how a web search for "black on White crime" led him to a set of results that helped radicalize him. As this case illustrates, misrepresentation of minority groups is not "just" offensive and hurtful—it can be a matter of life and death.

Librarians will be familiar with the concepts presented in Chapter 5, which talks about the values driving any attempt to classify and categorize people. Algorithms run behind the scenes, making the processes behind classification more invisible and more difficult to critique than, say, a racist subject heading in a library catalog that is viewable to all. Noble calls for the development of alternative ways to search the Internet, such as, involving the expertise of librarians and journalists in order to provide the public with only the best, unbiased information.

Chapter 6 takes a big-picture view of "information culture" in society, questioning the future of information when its value is increasingly determined solely and automatically by attention and clicks. She suggests that there should be regulation to prevent the harm that is done by the biased representation of groups in search results. In conclusion, Noble encourages further research using the BFTS approach she demonstrated in order to develop unconventional and radical responses to, and solutions for, the inequities reinforced by uncritical use of technology. The conclusion also looks to other areas where algorithms influence or even erase identity, using Yelp's impact on businesses as an example. An interview with the owner of an African American hair salon that had thrived on word-of-mouth in the Black community for decades revealed that, without investing the time and money to appear high in Yelp's search results, it is now as if her business does not exist.

Noble offers little in the way of tangible solutions to the problems raised, instead highlighting potential directions and starting points for research. This is understandable, given the newness of the issues, but to have no clear answers after such an effective description of the problems is somewhat frustrating. Many of Noble's more concrete suggestions focus on regulation as a solution; she even hints that a search engine analog to the U.S. Federal Communications Commission's (FCC) decency standards (which regulate permissible language, violence, and

sexual and other content in the media) might be useful (while acknowledging that such regulation would be highly controversial). Given the current administration's interest in regulating against the perceived liberal bias of search engines and social media, the idea of giving the U.S. federal government more control over the representation of minority groups may make some readers queasy.

Algorithms of Oppression is a good read for anyone interested in how bias can be expressed by lines of code. Even those already familiar with the issue will find new insight in the connections and impacts Noble outlines. The book is accessible even to those who are not well-versed in the technology of search engines. It assumes that readers have a basic understanding of how search engines, algorithms, and machine learning operate, which one can easily learn from a few short YouTube videos. No matter how much or little you know about algorithms and critical theory this book will make for an enlightening read.

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