Sun-ha Hong, **Technologies of Speculation: The Limits of Knowledge in a Data-Driven Society**, New York: New York University Press, 2020, 287 pp., $89.00 (hardcover), $30.00 (paperback).

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Have smart technologies empowered us or enslaved us? Are these merely technologies of datafication or rather technologies of speculation? While some of us would not hesitate to cheer for a data-driven society and a dataficated (or datafied) lifestyle, others are weary about the tricks of smart machines and concerned about their ethical implications for us as individuals. Author Sun-ha Hong seems to be among the second group.

Hong, who, at the time of publication of *Technologies of Speculation: The Limits of Knowledge in a Data-Driven Society*, was assistant professor of communication at Simon Fraser University, analyzes the fantasies, values, and sentimentalities surrounding big data and artificial intelligence in his book. By mapping out the smart technologies that have developed in recent years and the fierce debates revolving around them, he seeks to raise awareness of the ethical stakes of technological promises.
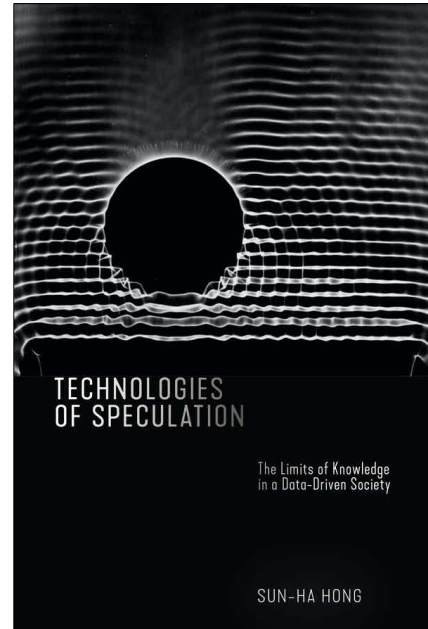
The book centers on three keywords: datafication, speculation, and limit (appearing throughout the book 109, 33, and 20 times, respectively). "Datafication," at the time of this writing, is still not an official word in the *Oxford Dictionary* or the *Merriam-Webster Dictionary*. The earliest inclusion of this word to the English lexicon as a formal dictionary presence seems to be the January 14, 2020, submission in the online *Macmillan Dictionary* (n.d.). In this entry, datafication is defined as "the introduction into and use of data in an activity" (Macmillan Dictionary, n.d.). To call it brief and underdefined, compared with an average dictionary entry, is an understatement. Datafication, in very recent years, is understood as a technological trend turning many aspects of our lives into data that is subsequently transformed into information that may be realized in the form of possible value. It is commonly agreed that it was Viktor Mayer-Schönberger, professor of Internet governance, and journalist Kenneth Cukier who first introduced the term to the broader English lexicon, when they published their book, *Big Data: A Revolution That Will Transform How We Live, Work, and Think*, in 2013. Since its birth, datafication has always been associated with the impact of big data and the computational opportunities afforded to predictive algorithms.

If "datafication" is a neutral and factual term, "speculation" is not. As defined in *Merriam-Webster Dictionary*, speculation implies doubt, idleness, inconclusiveness, insufficiency, and other negative connotations. Calling smart technologies "technologies of speculations" in the title of this book divulges the author's standpoint. Moreover, Hong links smart technologies to "the limits of knowledge," revealing his perspectives regarding the impact of such technologies on our established means and processes of knowing.

The DIKW pyramid, from "data" to "information" to "knowledge" to "wisdom" in ascending order, is a fixture in many textbooks across disciplines (Frické, 2019, p. 33; Rowley, 2007, p. 163). As explained by Hannah Fry, mathematician and host of the acclaimed 2016 BBC documentary from director and producer Catherine Gale, *The Joy of Data*, data is anything that when analyzed becomes information, which in turn is the raw material for knowledge whereby wisdom emerges from this only true path. Fry, young and enthusiastic, appears to hold an optimistic view of datafication. Of course, data, if eventually resulting in ultimate wisdom, is certainly a source of joy. But with technologies of speculations, data may instead turn out to be a cause of discomfort, sorrow, or even combative conflict. The author of this book seems to be reluctant to cheer for datafication. More often than not, he appears unenthusiastic about a data-driven society.

Hong's book traces media and public presentation of state- and self-surveillance technologies and their associated fantasies that have been proclaimed, justified, doubted, debated, and/or contested. Media coverage, leaked government files, lawsuits, and Senate hearings, as well as advertising and promotional discourse and conversations with entrepreneurs and enthusiasts around the emergence and rise of surveillance technologies, have formed the foundation of the book. The infamous Edward Snowden affair and surrounding fantasies have served as navigational devices in the book for understanding the enormous surveillance technology landscape, enhancing its readability.

Hong begins the book by asking profound questions such as these in the introduction: "What does it mean to 'know myself' if that knowing is achieved through mass-produced, autonomously operative devices?" and "What kind of relationship to knowledge is produced when machines communicate ceaselessly with the body and with each other along channels that my conscious reflection cannot ever access?" (p. 7). Chapter 1 starts with the rise-and-fall story of James Proud's sleep-tracking device and lays out recent technological fantasies that lend excitement to datafication. While self-tracking devices such as Proud's were crafting a rosy picture of techno-future orchestrated by consumerism, Hong points out that state surveillance systems were warning of a future that must not happen. As he states, the promotional rhetoric and buoyant claims surrounding datafication are merely fictions used to make sense of these smart technologies and the "knowledge" they promise to furnish. In reality, this (mis)recognition of what technology does and could do often plays a key role in allowing technoscience to take off.

Focusing on the Snowden affair, chapters 2 and 3 examine the dilemma between national interests and public interests with regard to surveillance. Snowden justified his whistleblowing of state surveillance programs with the argument that the American people must learn the truth about their own datafication. The problem is that, as Hong points out, most of the time, the "knowing" (p. 46) is a burden that members of the pubic cannot afford to bear—as previous research shows, it could cost $781 billion USD per annum in salary if the American public use their working hours to read the privacy policy of every website they visit. There is certainly a power asymmetry at work here. The National Security Agency claimed that keeping its surveillance system secret and inscrutable is not just of state interest but also of public interest, as disclosing these surveillance technologies would allow terrorists to better evade them. So now the questions seem to come down to: Is data truly intelligence? Does datafication guarantee better knowledge? How much knowledge or wisdom has this datafication generated? Is it worth the compromise of the public's right to know? Hong argues that ideal norms like transparent governments and informed rational publics falter when

confronted by technological systems too complex and opaque for human scrutiny. Ironically, as Hong notes, the massive data collected provides not the clarity of predictive certainty but new struggles to judge and act in the face of uncertainty for both the public and the state.

The book also draws on observational fieldwork of the international community of self-trackers, Quantified Self, which has played a key role in propagating self-surveillance technologies from a niche geeky venture to a mass market of corporate interests. Chapters 4 and 5 offer a closer look at the technological side of how personal data is generated and leveraged via these smart technologies, and their implications for human judgment and decision-making. Chapter 4 examines self-surveillance and its promises of personal empowerment. Chapter 5 probes further into concrete techniques of fabrication, such as how data-driven insights are crafted from uncertainties surrounding terrorism and its attendant data. Hong laments that, paradoxically, this human empowerment is dependent on the privileging of machinic senses and automated analytics over individual experience and cognition, and the new technologies for tracking and optimizing one's daily life actually create new labors and dependencies that enslave their users.

Chapter 6, "Data-Sense and Non-Sense," shows how self-surveillance has been presented as an inevitable step toward posthuman augmentation that Hong labels "data-sense" (p, 156). The promotion of self-surveillance as a path to human knowing, in his opinion, enacts a crucial displacement that installs new processes of fabrication that deal in knowledge not by or for human subjects. Such displacement, or "new epistemic order" as Hong calls, puzzles, if not threatens, our long-enduring norms of resisting institutional power, asserting individual territory, or defending the fundamental human freedom. If our smart machines know us better than we do, if human beings are outsmarted by the machines they produce, and if our machines have knowledge that we will never understand, do we still know for ourselves? Do we still intake information and output choices and decisions? Do we still oppose control over freedom, as we used to?

We are being watched, voluntarily or involuntarily, by technologies of speculations in a data-driven society. Hong concludes the book by reminding us that neither the eerie tricks of smart machines nor the empyreal complexity of big data that they generate should distract us from the moral problem they pose to individual humans and the civic society as a whole. We should worry about what we need and want to do with these smart technologies, not about the smart technologies in and of themselves. After all, they are still in our hands to shape our future.

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