

**Orit Halpern:**  
**Beautiful Data: A History of Vision and Reason since 1945.**  
**Durham & London: Duke University Press. 2015. 352 pages.**

Orit Halpern embarks on an experimental and novel approach to the history of science and technology that is strikingly relevant to both present and possible futures of interactivity and digital media in contemporary society. *Beautiful Data* constructs a history of big data through the co-constitution of vision and reason in the second half of the twentieth century. It begins with the history of postwar cybernetic science, from a captivatingly non-militaristic perspective, alongside histories of human sciences, urban planning and design to trace the ways in which humans have been trained to sense and analyze the world. She calls attention to the increasing power and value of the human imagination and visualization of data, as digital information increasingly bombards our cognitive environments and occupies the expanding virtual space we live in today.

From the intersection of modern utopian ideals with architecture imagined by Le Corbusier to massive private “smart-city” initiatives in South Korea, Halpern historicizes the cultural influence of cybernetics on design and urban planning after the Second World War. This change in attitude Halpern defines as “communicative objectivity,” emerging from the integration of cybernetic science, engineering, pedagogy and the arts, and producing patterned ways of visualizing big data. The performative, affective and seemingly infinite possibilities characteristic of these systems is what makes data arguably

“beautiful” for Halpern. She embraces “communicative objectivity” in her own unique approach by chronicling patterns in discourse and methodology to illuminate a history of interactivity.

The book is divided into four sections, each making its contribution to the reformulation of observation and knowledge; from mechanical objectivity and authoritative truth to hyper-individualized agents in techniques of calculation, measurement and administration. Disciplinary boundaries are crossed and dialogues are developed between fields rarely overlapping in historical inquiry. The opening section, *Archiving*, begins in the ubiquitous days of cybernetics, largely focusing on Norbert Wiener and his colleagues at MIT to trace the role of cybernetic theory in reformulating concepts of storage, time and process from earlier notions of memory, knowledge and perception. With the reconceptualization of the archive a new form of methodological truth emerged based on the strength and density of networks and capacity to circulate information and action.

In the following section, *Visualizing*, Halpern transforms notions of space into an interface comprised of channels of communicative exchange, detailing prominent figures in creating postwar American infrastructures, such as György Kepes, Kevin Lynch and Charles Eames. Cybernetic concepts transformed the everyday life and practices of vision and cognition for Americans through aesthetic

practice, business and education. This marked the reformulation of perception and emergence of data visualization with the interface as the central concern for design. The human observer became both isolated and interactively networked in society requiring specific modes of attention associated with their environment. The management of visualization and aesthetics resulted in a discourse and economy for managing systems in a variety of fields ranging from advertising to urban planning. Halpern marks the IBM installation of the “information machine” that could “think” as the boost of a new information economy. The interest of social sciences in systems of society resulted in new strategic solutions to the post-industrial economy and developing infrastructures that repressed and redefined problems in society through acts of consumption.

The third section, *Rationalizing*, traces the development of the cognitive and social sciences following psychiatrist and cyberneticist Warren McCulloch, as well as political scientist Karl Deutsch. Halpern analyses the shifts in discourse of “psychosis” and the redefinition of consciousness based on reason to cognition grounded by rationality, which produced new models of sense, measure and calculation of perception. Rationality became algorithmically defined for all situations resulting in the rise of nascent models for visualizing data and society. Visualization emerged as a set of techniques to manage, calculate and act on quantifiable, observable and measurable populations in society. This drove computational approaches to intelligence, economy and governance. Halpern argues that economists remain focused on old definitions of consciousness and choice despite the observed shift toward cognition and rationality after the Second World War. She suggests that rationality be understood

as a contested interface allowing the imagination and agency to return to a self-reflexive subject.

In response to the transformation of cognition and perception, governance and rationality, Halpern problematizes the valorization of beautiful data through politics and aesthetics. The final section, *Governing*, explores a radical reformulation of the tactics by which bodies, territories and networks are governed through measurement and attention. Halpern speculates on technological inevitability and organization of contemporary forms of war and terror—interrogating the ethical and political implications of making data beautiful and affective.

*Beautiful Data* is an ambitious and commendable history of the present. For Halpern, a history of big data and digital media does not give simple causal answers and must be non-deterministic in its approach. She uncovers a history of probabilities and potential outcomes that are contingent on the human practices and experiences of interactive digital media. Halpern calls attention to the danger of repetition without difference in the conditioned ways we have come to sense and analyze the invisible world.

*Beautiful Data* is a pleasant complement and historical succession to Emily Thompson’s (2004) “*The Soundscape of Modernity*.” Both Thompson and Halpern explore materialities of space and trained ways of human sense that come to form our world. Thompson elucidates the prewar cultural processes and construction of a mechanically objective modern sound constituted by relationships between listeners and their environment. This is a notable accompaniment to readers compelled by the way in which Halpern beautifully details shifting forms of vision, rationality and economy after WWII.

Halpern opens our eyes to the invisible infrastructures of big data with seemingly endless possibilities and unknown futures. Big data is performative and “smart”—attuned to the behaviours and actions of humans in a new technological environment. The fetishization of big data has reshaped ideals and practices of truth and memory, transforming knowledge into organizations of power and governmentality. Halpern encourages us to engage with these sociotechnical networks differently and challenge our image of the interface.

*Beautiful Data* is an innovative, informative and highly enjoyable read for those who often find themselves hovering between disciplinary fields, offering a reflective history of early cybernetics, art, design, psychology and political science. Halpern guides her readers gracefully through a history of interactivity between humans and machines, the archive and the interface. This is accompanied by several cultural explorations and images revealing fascinating patterns in observation and form. Halpern grounds her book in a balance between the history and theory of human sciences as a point of departure for future projects and new ways of thinking about digital media, vision and cognition. The book is particularly useful in conceptualizing the cultural significance of cybernetics beyond its plural meaning in contemporary society. The pervasive nature of cybernetics prompts the opportunity for similar stories to be told based on historical probabilities and contingencies. *Beautiful Data* is an important read for those interested in the sociocultural influences of cybernetics, ubiquitous computing and big data in contemporary society.

## References

Thompson E (2004) *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933*. Cambridge: MIT Press.

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