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Lev Manovich, **Cultural Analytics**, Cambridge, MA: MIT Press, 2020, 336 pp., $40.00 (hardcover).

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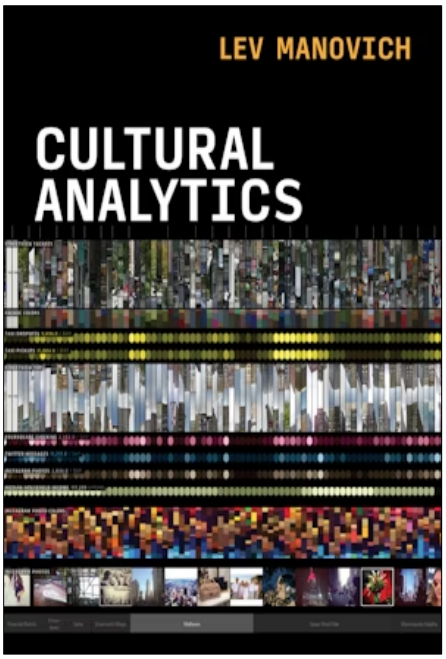

Lev Manovich's ***Cultural Analytics*** explores how datafication and data science methods can revolutionize research in the humanities and social sciences. Manovich outlines cultural analytics as a distinct approach to studying global digital cultures, differentiating it from digital humanities (Burdick, Drucker, Lunenfeld, Presner, & Schnapp, 2016; Hockey, 2004; Underwood, 2017) and computational social science (Hilbert et al., 2019; van Atteveldt & Peng, 2018). As such, the book serves as both a manifesto and an introductory primer on computational data analysis and visualization.

Cultural analytics uses data science methods to study global cultural output, including media artifacts, digital behaviors, and physical experiences. Manovich defines cultural analytics as the application of computational methods, such as data visualization and machine learning, for analyzing contemporary culture at scale (p. 9). Unlike media analytics, which focuses on user-generated content for commercial purposes, cultural analytics encourages open research and the creation of publicly accessible visualization tools.

Within Manovich's definition of cultural analytics, there are four important points needing to be unpacked and discussed in detail. Most crucially, cultural analytics operates on the implicit assumption that global cultural production is undergoing an irreversible shift toward the digital. The digitization of preexisting analog cultural artifacts (think of artwork or music recorded on vinyl) as well as the emergence of online platforms for disseminating user-generated content is causing cultural production to (a) leave digital footprints and (b) take on a uniquely "digital" character. Within such a context, global cultural production in the 21st century is not just characterized by the abundance of digital (and digitized) content but also metadata. For Manovich, methods drawn from data science offer new and exciting ways to study global cultural production both as content and as metadata. He argues that the application of contemporaneous data science methods to large-scale cultural datasets will reveal hidden regularities and patterns that can have the generality of scientific laws. The discovery of these laws will make possible what Manovich describes as the science of culture (pp. 39–49).

Building on this, Manovich suggests that results yielded through the application of data science methods to cultural datasets may create the possibility to challenge or even overturn dominant paradigms in scientific research. For him, the characteristics of (digital) culture can (and should) be quantified and analyzed in a manner no different from physical or biological phenomena. Although some may dismiss this as quantitative reductionism by pointing to the intangible aspects or "aura" of cultural artifacts, Manovich's

emphasis on the need to quantify cultural data strongly connects with a problem commonly encountered in the field of media studies. For one thing, the ubiquity of computers, digital media software, consumer electronics, and computer networks has led to the exponential rise in the numbers of cultural agents worldwide and their output, making it very difficult, if not impossible, to understand global cultural developments and dynamics using conventional theoretical tools and methodologies. For Manovich, the adoption of data science methods for tracking, studying, and visualizing global digital culture offers a path out of this epistemological quagmire.

The second important point in *Cultural Analytics* is about the representation of cultural output as data. Manovich identifies two primary categories of cultural objects within the digital realm: born-digital artifacts and digitized artifacts that originated in analog formats (pp. 75–91). These include photographs, music, designs, architectural plans, films, motion graphics, games, websites, apps, and artworks, which may either be born digital or digitized. Such objects are often accompanied by a diverse array of metadata, including artist names in catalogs, cultural venue addresses, or application download numbers. Additionally, public discourses (reviews, ratings, personal posts describing experiences at exhibitions, and related photos and videos) constitute a third dimension or an "extended metadata" of digital and digitized cultural objects (p. 76). Manovich also tentatively includes cultural experiences such as attending theater, dance, or performances, interacting with products, playing video games, or using locative media on GPS-enabled devices as part of this framework. However, he remains less explicit about how these experiences can be systematically studied. Nevertheless, cultural analytics can begin only after cultural output is captured and represented as data.

The third important point needing to be unpacked is about the potential of data science methods for large-scale analysis of cultural data. Manovich demonstrates the potential of such methods by highlighting how sensors and digital computers can measure color with far greater precision than human perception. Many modern imaging systems and image editing software now operate with 30, 36, or even 48 bits per pixel, enabling the encoding of over a billion distinct colors. Building on this, Manovich argues that this level of precision allows for much more nuanced comparisons of the color palettes used by painters, cinematographers, or fashion designers in comparison to linguistic descriptions (p. 158). In other words, using integers to measure and describe color rather than words is for Manovich one example of how data science methods offer advantages over more conventional forms of cultural analysis.

The final point to be discussed in *Cultural Analytics* is about the visualization of cultural data. In the book, visualization is defined as mapping between data and a visual representation (p. 189). Here, Manovich outlines two key differences between traditional information visualization and the visualization techniques of cultural analytics. The first difference is that whereas traditional information visualization demands reduction—using points, lines, and other geometric elements to stand in for real-world objects and their relations—cultural analytics seeks to operate without reduction (p. 198). The second difference is that traditional information visualization privileges spatial dimensions over other visual dimensions. In other words, the relevant properties of data are mapped onto space (positions and distances between points) while less important properties of the objects are represented through different visual dimensions (tones, fill-in patterns, colors, transparency, size, or shape of the graphical elements). In contrast, the visualization techniques of cultural analytics involve creating new visual representations from the actual

visual media objects or their parts. Rather than representing text, images, videos, or other media through new visual signs such as points, rectangles, and lines, cultural analytics builds new representations out of the original media. Manovich uses the example of *TIME* magazine covers to illustrate how cultural analytics visualizations can yield new information (p. 205). Sequencing 4,535 magazine covers published between 1923 and 2009 according to hue, medium, color, saturation, and contrast reveals how certain variables follow cyclical trends while others change gradually over time.

In conclusion, Lev Manovich's *Cultural Analytics* is an excellent starting point for humanities students aiming to integrate data science methodologies into their research. It also serves as a valuable overview for quantitative social scientists or computer scientists interested in media studies or the humanities. The book's strength lies in its discussion of how data science can transform cultural research, offering practical insights and examples. However, for those already familiar with Manovich's work, it may not introduce many new ideas or methodologies.

For further exploration of this approach, I recommend consulting the *Journal of Cultural Analytics*. Similarly, the public artworks of new media artist Refik Anadol (n.d.) offer an intriguing parallel in visualizing cultural data. Anadol's work often converts vast datasets—ranging from urban environments and cultural archives to natural phenomena—into mesmerizing visual and sensory experiences. By merging art and technology, Anadol navigates the intersection of the physical and digital worlds, encouraging viewers to perceive data as a living, fluid entity that challenges conventional notions of space, time, and reality.

For a more critical discussion on the visualization of cultural data, Johanna Drucker's (2020) examination of visual epistemology in the digital humanities, Svensson and Goldberg's (2023) coedited volume on digital humanities, or the *Theory, Culture & Society* (2012) journal's special issue on the topologies of culture are recommended.

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