Beyond Algorithms: Exploring the Power and Sociopolitical Impact of UI and UX Design

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Abstract: User interface (UI) and user experience (UX) designs play a pivotal role in shaping human-to-machine and human-to-human interactions. They not only influence people's engagement with technology but also shape individual perspectives, political discourses, and social relations. While much research has focused on algorithms and Big Data, less attention has been given to the sociopolitical dimensions of design, especially its impact in the Global South. This essay attempts to contribute to the conversation around how design functions as a form of power that targets and directs user actions and interactions. Through the lens of UI and UX design, I echo digital media scholars' argument that today's technologies simultaneously facilitate the following: the commodification of data, perpetuation of disparities, control over people's access to information, and manipulation of user behavior. These dynamics often reinforce power structures and benefit those with access to user data, hence the need to further interrogate the sociopolitical implications of UI and UX designs. Design, as both a tool and a system of power, demands critical scrutiny if we are to challenge the deep-seated inequalities it perpetuates and reclaim digital spaces for more equitable futures.

Keywords: User interface, user experience, design, data, algorithms

Search engines and online social networks have become integral parts of many people's lives. Their features aid their users with almost everything—seeking directions, deciding where to eat, doing banking transactions, looking for potential dating partners, maintaining communication with family and friends, or keeping abreast of local and global politics. These technological platforms have also been instrumental in helping users determine what is logical, true, or morally right. However, while they extend human capabilities and horizons, the widespread adoption of these technologies has significant social, political, and moral consequences. Simultaneous to technology's transformation of daily life is the evolution of regulatory and ideational mechanisms that influence human interaction and behavior.

Algorithms have become increasingly relevant in the study of market systems, governments, and state apparatuses. Despite being supposedly apolitical—a finite set of ordered, step-by-step instructions designed to perform specific tasks—several scholars of digital media and critical data studies claim that algorithms modify the modes in which power and agency are exercised. This is especially the case when its coding is designed for data collection (Couldry & Powell, 2014) and

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datafication, or the transformation of a phenomenon into a quantified format that enables measurement and analysis (Arora, 2019).

The Gap

While much research has focused on algorithms and Big Data, less attention has been given to the sociopolitical dimensions of design, even though design itself gives birth to new techniques of governance. It is not exactly the codes but the design that aids the identification and exploitation of human tendencies and behavior. Infinite scroll, for instance, is not an algorithm but a design technique that produces compulsive users of social networking sites (and hence, enhances the sites' capacity to amass data). For this reason, I redirect the analysis of sociopolitical issues concerning algorithms to designs. Particular interest will be given to user interface (UI) [1] and user experience (UX) designs, underscoring the importance of examining the behavioral and sociopolitical implications arising from user interactions with digital technologies.

A closer look at the scope and framework of existing works on Big Data and algorithms reveals a number of gaps and shortcomings. For one, an extensive body of literature has been chiefly focused on identifying the agenda of Silicon Valley, as well as the societal implications of the technologies they develop. Theorization of data privacy and digital mediation has "disproportionately [drawn] from empirical evidence on privacy attitudes and behaviors of Western-based, white, and middle-class demographics" (Arora, 2018, p. 3). Investigations of the impact of Big Data on technological innovations have mostly focused on cases in the Global North while treating the development interventions in the Global South as "byproducts of larger-scale processes of informational capitalism" (Taylor & Broeders, 2015, p. 229). Further, the contemporary conceptualization of the supposedly new social and economic order (i.e., data colonialism) still follows the core-periphery model (with few modifications). Lastly, most of the research aligns with the digital universalism myth (Chan, 2013), or the "tendency to assimilate the cultural diversity of technological developments in the Global South to Silicon Valley's principles" (Milan & Treré, 2019).

The Challenge

Needless to say, digital media and critical data scholars must move beyond Western or Global North-centric approaches. Milan and Treré (2019) argued that to advance the "theory of datafication of and in the Souths," the research agenda should acknowledge the "particularities and idiosyncrasies of the so-called Global South" (p. 320). Rethinking the ramifications of Big Data and software designs in the Global South requires a more contextualized and decolonized analysis—one that is cognizant of the South's history of marginalization and subversion and one that recalibrates the core-periphery relations (Arora, 2018).

To address this challenge, scholars could engage in a nuanced reading of Couldry and Mejias's (2019) data colonialism to examine how local and national leaders from the Global South collaborate with and use the technologies produced by tech giants for advancing political agendas. Another approach could involve analyzing how software designs and infrastructures reinforce or multiply pre-existing borders, as well as how the marginalization of people with low incomes is perpetuated through free but limited internet services or by mobile data constraints. These analytical routes offer pathways to uncover new and creative forms of subversion and resistance that arise in response to emerging digital governance techniques.

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Design and Power

Design determines and pushes the boundaries of digital landscapes. It makes finite the number of possible operations in computer and mobile systems and dictates the form and extent of interaction between technologies and users. Although it is developed and deployed within certain constraints, it can influence perceptions and behaviors at different levels—for instance, by making individuals aware of habits and unconscious actions through self-tracking designs (Sharon & Zandbergen, 2017) or reinforcing political inclinations through technology designs that increase selective exposure (Dylko, 2015). In the context of social media, design can also help create echo chambers or filter bubbles that further polarize communities, with users being segregated based on personal preferences and algorithmic curation (Del Vicario et al., 2017; Spohr, 2017). In some cases, filter bubbles can alter perceptions of reality by selectively exposing individuals to content that reinforces their beliefs, making a version of the world feel “true” for them, even though it may not reflect the broader, shared reality.

Design facilitates power through a delicate balancing of form and function. When the balance between art and functionality is achieved, designs create smooth user flows, make accessible UI, and ensure pleasant UX. Meeting these standards is crucial in a society that competes for human attention, as digital technologies’ usability and software’s navigability have become significant drivers of tech usage and user retention.

Functional and behavioral designs have been oriented toward hooking and retaining users. At times, it may also cause behavioral addiction (Liu et al., 2016; Noë et al., 2019). Nick Seaver (2018) explained that users become captives of well-designed technologies as developers exploit human’s habitual minds and capitalize on their tendencies, compulsions, and susceptibility to persuasion. With an understanding of these inclinations and vulnerabilities, tech companies, private corporations, advertising companies, politicians, and others have harnessed the power of design to influence perceptions, consumer behaviors, political biases, and responses to societal issues.

To influence and capture individuals efficiently, UI and UX development requires information about a technology’s target user. Algorithmically driven recommendation engines cannot generate a playlist without data. Thus, big tech companies and other software and app developers invest in UI and UX designers and engineers to improve their ability to accumulate data. Data became a resource that can be extracted. Even social interactions have become a target of datafication and commodification, transformed into machine-readable data to enable capital accumulation (Hlongwa & Talamayan, 2023). In many cases, user data were “taken with little regard for consent and compensation” (Sadowski, 2019, p. 1).

The ardent desire of tech giants to build large-scale database systems is mostly profit-driven. While data and profit are not the same (Sadowski, 2019), more data could mean more advertisers. In 2023, publishers of “made for advertising” sites alone generated USD 10 billion in ad revenue (Graham, 2024). For politicians, advertisers, and those in the influence industry, access to digestible data gives them a strategic advantage over their competitors.

Thus, to understand the power of design in the context of digital technologies, one must recognize the intricacies of its symbiotic relationship with data. Claiming that design itself is power also acknowledges its reliance on data accumulation and processing.

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Design and Politics

Highlighting the relationship between design and data could also underscore its political nature. This, however, is not a new idea. Design has long been associated with politics. The spatial organization of Spanish colonial cities, which positioned power structures such as churches and key government offices at the city's center, and early 20th-century U.S. companies designing advertisements that reinforced the American "benevolence" narrative, serve as illustrative examples of designs that assert sociopolitical hierarchies.

While designs create an avenue for datafication, datafication gives designs the ability to discriminate. As Koen Leurs and Tamara Shepherd (2017) earlier claimed, given Big Data's "origins in a Western military-industrial context for the development of technology and concomitant mobilization within asymmetrical power structures," it "inherently discriminates against already marginalized subjects" (p. 212). For instance, its capacity to discriminate can be observed in various automated social sorting at state borders to control flows of undesired migrants (Leurs & Shepherd, 2017). Datafication also classifies and sorts users into sensible and usable clusters for authorities, politicians, and advertisers alike. This act of mediation or intervention is political as it organizes people into movable and swayable masses. It also affects meaning-making; as Luciana Parisi (2018) explained, a variety of modalities of data abstraction produces new axioms and meanings.

In the context of UI, a design can influence (or even dictate) human-to-machine and human-to-human interactions. It can also mediate signification or intervene in the framing of significance. Along these lines, it can also be argued that design can alienate vulnerable populations. The issue of access to information best highlights this phenomenon. Quoting Joan Donovan and danah boyd (2019), "Today...information flows freest for those who can pay for it, or those who can strategically exploit information architecture" (p. 14). The relationship between design and systemic inequalities is evident in the ways disparities in access and privilege are subtly reinforced within digital ecosystems. For marginalized groups, restricted access to information can limit their ability to engage with and critically evaluate complex issues, as their understanding is often shaped by the narrower range of information available to them.

Take the design of free Facebook, also known as Facebook Zero or Free Basics, as an example. Launched in 2010, Facebook Zero was designed to increase access and connectivity worldwide by waiving regular data charges for its Global South users. It offers free browsing of Facebook's text-only version, and the service remains free so long as users refrain from viewing photos or clicking external links. Free Basics or Facebook Free was rolled out in the Philippines in 2013, quickly becoming the internet for those who cannot pay for connectivity. While bringing the impoverished and otherwise marginalized population to cyberspace seemed an act of benevolence, it has at the same time, increased Facebook's users and revenue (Elgan, 2016).

In countries such as Colombia, Ghana, Kenya, and the Philippines, denying Facebook Free Basics users complete access to websites outside its platform provided a means for mis- and disinformation to flourish (see Gadjanova et al., 2022; Madowo, 2018; Solon, 2017). Its design does not allow for any validation of content. When it is the only way for individuals to access online information, the design denies them the tools that could help them verify the veracity of any post. The design also makes it difficult for Facebook Free users to distinguish legitimate news from satirical news websites.

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Design is also political in such a way that it can absorb the values of the institutions or actors that require them. While one can argue that software designs are apolitical, actors who desire to administer people through technology make designs political. Despite the inability to alter algorithms, knowledge about the algorithms that run in various online platforms provides certain agents (such as data brokers, social media consultants, media intelligence, and data technology companies) a space for intervention. By combining knowledge about a platform's algorithm with data extracted from user conversations, these agents can determine trending issues and predict and influence what could trend in the future. Using Big Data and deep-dive analysis, these agents or brokers are also able to provide insights on how the engagement of internet users could be increased, how online consumers could be influenced or convinced, or how one's message could be efficiently communicated and amplified.

Equitable Futures

Design is more than just a component of contemporary technologies—it is a form of power and digital manifestation of political structures and systems that influence the ways in which people interact with technology and, by extension, with society. Design can mediate people's access to information, reproduce inequalities, and privilege those with access to user data. It is never neutral—in some cases, it serves as an instrument of manipulation, control, and capital accumulation.

To fully understand its complexities, scholars must adopt a contextualized and decolonized approach to analyzing UI and UX designs. To challenge the inequalities perpetuated by design and reclaim digital spaces for more equitable futures, digital technology design must become a focus of scrutiny. This is a research area where social scientists can make valuable contributions, engaging in deeper interrogation to uncover the sociopolitical implications of technological design.

Future research in this area should expand on several critical areas. First, comparative studies of UI and UX design across different cultural contexts, particularly in the Global South, could reveal how design practices are tailored to or diverge from local norms and power structures. Examining the influence of design on marginalized communities, particularly in terms of access and digital literacy, could also provide insights into how design reinforces or challenges societal divides. There is also room for interdisciplinary research into the ethical implications of data-driven design, particularly the psychological and sociological effects of design strategies aimed at prolonging user engagement or driving behavioral addiction. Finally, studying alternative design models rooted in community-centered, equitable principles could offer frameworks for developing digital spaces that resist traditional power dynamics and support more inclusive digital ecosystems.

Notes

1. UI, or an interface, is the means by which a person controls or interacts with a software application or hardware device. Examples of UI are graphical controls in software programs such as the menu bar or toolbar (Graphical User Interface or GUI) and Siri and Alexa (Voice User Interface or VUI). UI can also refer to the buttons in hardware devices such as TV remote controls (Christenson, 2009).

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