Data as Design Research: Mediating Processes, Protocols, and Precedent in Practice

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Editorial: Data as design research: Mediating processes, protocols, and precedent in practice

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Abstract: The theme aims to consider the evolution of design methods, processes, and outputs in relationship to the imperatives of data in design practice, and the ways in which data-integrated practices are changing the nature of design itself. The increasing availability of data and related processes due to networked artifacts, artificial intelligence, and cultural digitalization pose a significant paradigm shift for design methods, collaboration, and the scalable impact of design in the world. Discourse may consider the fact that the systematic nature of data structures pushes related design pursuits into a realm of scalable systems that exceeds the replicability of industrial production. As such, the values and ethical protocols below data-driven design activities become an increasingly important infrastructure to attend to and daylight within the design process.

Keywords: data; artificial intelligence; transdisciplinary design; design ethics

1. Introduction
We proposed this track to explore and amplify discourse about the rapidly changing imperatives of data-related processes for the disposition and impact of design research and practice in a world of increasing data availability and machine learning capabilities. The submission and selection process yielded papers that can generally be classified into the following categories:

- Data as Design Method
- Generative AI in Practice
- The Social Dimensions of Data and Design Research
2. Perspectives

As we consider the critical imperatives of our time in relation to design research as both academics and practitioners, we find ourselves returning again and again to the issue of scalability and systemic connectivity. The things we create as designers have long since shifted from artisanal artifacts rooted in purely formal considerations to products and processes with the capability to scale both digitally and physically. As we eclipse the technological paradigms of industrialized reproduction, we confront the reality that the design output of our time tends toward web-based connectivity, digital-physical hybridity, and continuous change in response to one or more data sets. Through these inevitably digital mechanisms, the values that drive our design outputs have scalable impact within and beyond the independent experience of a single user or context; the data running through them enables independent evolution and change beyond the moment of design production.

Given our increasing capacities for data production and processing, along with the enormous social, economic, and ecological impact of data-driven design, we constructed this track with for following intent:

- To explore emerging analytic methods that can assist in more relevant, informed, and responsible design research at the local and systems levels; to better target the impact of future design outputs within the complexity of our 21st century world
- To discuss emerging generative design methods that leverage data to utilize machine learning and collective creativity as core layers within the design process; to interrogate the feedback loops between analytical and intuitive creativity
- To daylight the ways in which value systems are rooted in the originating processes of data-driven design, and the extent to which designers can ensure ethical undergirding values in the face of scalable systems of design
- To call attention to the importance of data set creation, gaps in data, and the layered use of pre-constructed digital processes within values-driven design research

The responses to the track’s prompt are diverse in their approaches, ranging from experiments aiming to integrate emerging AI models into the design process, to data-driven analysis rooted in design history and theory, to reflections on data privacy with human subjects. Core issues surrounding the role of human and non-human intuition rise to the surface across the submissions, and the role of precedent knowledge and analysis within a data-driven process is opened up as territory for reconsidering the role of design in society in an era of AI. Design disciplines across scales from urbanism to UX are represented in the selected papers. As we sorted through the papers, three sub-themes emerged:
Data as Design Method
The papers within this theme address the changing nature of design research and methods in relation to the increasing availability of data and data-driven machine learning models. Areas of focus include the design of data processes as analytic tools to confront previously unsolved challenges; the role of data and intuition within the design process; the challenges of moving from data analysis to design action.

Generative AI in Practice: Creativity and collaboration in the design process
Topics within this theme primarily build upon the emerging capabilities of large language models and image-based generative adversarial network architectures. Focused disciplinary techniques and domains such as the development of user personas, physical form generation, and bio-design are utilized as platforms for focused exploration. The risks and opportunities of new models, training data, and design agency are addressed.

The social dimension
This theme includes topics related to utilizing data to yield a deeper social and cultural understanding of the history of design instrumentation and knowledge. Such papers are analytic in nature, opening up the traditional processes of precedent analysis and information collection that have historically operated as standard operating procedures within design research. The inevitable condition of interdisciplinarity that lies at the heart of data-related design research is addressed, as are the power structures associated with emerging and traditional formats of data visualization within the design process. Ethics related to data collection and privacy in social practice are also addressed in this grouping of papers, as is the complexity of conducting collaborative design research across multiple qualitative and quantitative data sets and processes.

We hope that the conversations started within the track will contribute to a rigorous and ongoing dialog around the opportunities for data-related processes as design research, the need for relevant and equitable data set creation, the importance of daylighting path dependencies and invisible value systems that drive design output, and the definition of design itself in an era of collective creativity and continuous data processing.

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2. Selected References

About the Authors:

**Elizabeth Christoforetti** is an Assistant Professor in Practice of Architecture at the Harvard Graduate School of Design and founder of design firm Supernormal. She is interested in socio-technical systems, human-machine collaboration, and the ways that scalable systems of design are transforming the role of the designer in society.

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