

An Introduction to This Special Issue on Interaction Design Research in Human-Computer Interaction

Interaction design, as a field, has made great strides towards understanding and improving our interactions with technology products. From early explorations with the Web as an interactive structure, we now have reached the point where interaction design encompasses understanding the behavior of many types of technology products. The expansion of the field and associated conferences, publications, and journals are evidence of this growth. Topics for research and discovery include artifacts that are intelligent, autonomous, mobile, social, and embodied: artifacts and services that exist ubiquitously in the environment.

Design Issues last examined design research in 1999 (15: 2). In planning this issue, we noticed that, despite the fact that many advances in design research related to interaction design and complex technology products have occurred, few have been published as such. Most of the published literature in this area has been relegated to process discussions in technical conference publications. Our goal for this issue was to provide a structure for reporting some of this new work, and to stretch the field of inquiry by focusing on emerging themes in interaction design, models of design research, the role of theory both in and outside of the field of design, and communicating the methods and processes inherent in our design research activities. We invited work that would represent how design researchers produce knowledge that effectively contributes to the design process, and becomes an integrating force for teams. We also hoped to better articulate how interaction design research is differentiated from the research produced by the other disciplines.

Contents of this Special Issue

In this issue of *Design Issues*, we present seven articles in the emerging area of interaction design research.

The editors of this special issue, Forlizzi, Zimmerman, and Evenson write on interaction design theory. In this article, we propose and describe a new model of interaction design research in HCI, based loosely on Frayling's concept of research through design. To formalize this model, we offer four criteria for distinguishing and evaluating interaction design research within HCI: process, invention, relevance, and extensibility.

Fallman, provides a context for the articles that follow with his view of interaction design theory. The author has provided a useful framework for design research in interaction design, differentiating three types of research activities: design practice, design exploration, and design studies; and the concept of loops, trajectories, and progressions for describing the development of design research work. The article and the framework should help design researchers to consider, and direct their work towards, industrial, academic, and societal problems at large.

The third article, on interaction design theory and the role of theory from other disciplines in influencing interaction design, is by Baranauskas and Bonacin. This paper proposes a framework for interaction design inspired by Organizational Semiotics theory. It frames design as a social process, involving a dialogue between problem and artifacts among the stakeholders in a design problem. A case study brings the framework to life.

The fourth article, by Kurvinen, Koskinen, and Battarbee, focuses on the social impact of technology in interaction design. Three fascinating field studies focusing on mobile communications technology use are described. The research presented in this paper is important as a design research case, a study of best practices, and a nascent framework for understanding reasons for and ways to prototype social interaction.

The fifth article, by Matthews, Stienstra, and Djajadiningrat, is both a case study and a study of how theories from other disciplines can influence interaction design. It first provides a comprehensive overview of issues and concepts influencing interaction design research, with a focus on play and interactive systems. The second half of the paper illustrates how theories can influence interaction design research, through a case study of interactive tiles, to understand the effect that such a system might have on play. In both the fourth and fifth articles, researchers had to understand and cope with the problems of deploying technology in real-world settings. These articles provide invaluable guidance for interaction design researchers attempting to assess concepts and build theories “in the wild.”

The sixth article, by Ju and Leifer, provides a framework for understanding how to design interactions with technology products that require varying amounts of our attention. Cleverly using the example of an automatic door, first made famous in the essays of LaTour, the authors show how interactions can be developed that demand appropriate amounts of attention, and fit within well-defined social norms.

The seventh article is a best practices paper by Blair-Early and Zender. A systematic design inquiry was undertaken to discover the essential parameters of an interface, and critical design principles for the creation of interface designs. Integrating parameters and principles with an understanding of users, content, and form in a particular design problem provides a roadmap for interface and interaction design in both academia and industry.

Taken as a whole, these articles represent important themes in interaction design, developing theories to support these themes, and best practices and case studies to provide validity for these ideas. More interdisciplinary collaboration is needed between interaction designers, behavioral and social scientists, and technologists, and is essential in advancing interaction design research both within and beyond our field. Plenty of opportunities exist for these collaborations within and outside of the lab, and in academic settings, industrial settings, and society at large. In general, we see many opportunities for interaction designers in any setting, and believe that, as the landscape of interaction design research becomes more populated with examples, the field will continue to make significant advances.

Guest Editors

Shelly Evenson

Jodi Forlizzi

John Zimmerman