Reflective HCI: Towards a Critical Technical Practice

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Categories & Subject Descriptors: H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; J.5 Arts and Humanities

General Terms: Design, Theory, Experimentation

Keywords: Critical technical practice, arts, humanities, cultural studies

INTRODUCTION

HCI is increasingly a focus of interdisciplinary interest, enriched by investigations not only from traditional perspectives such as computer science and cognitive psychology, but also alternative views grounded in social science, design, literary theory, cultural studies, critical theory, and phenomenology. These new perspectives have broadened our view of what HCI might be, as a discipline; perhaps more significantly, they have also broadened our perspectives on how it should be practiced. In particular, influences from domains such as cultural studies and art practice have underscored the importance of questioning fundamental assumptions about the nature of interaction between people and technology and the role of the designer in mediating that interaction. Philip Agre [1], considering the development of Artificial Intelligence and its philosophical commitments to notions of cognition and agency, advocated the development of "critical technical practices" in which technology development is not simply an end in itself, but also becomes a means to reflectively explore the assumptions and attitudes that underpin ideas about technology and humanity. In this workshop, we explore critical technical practices within HCI as ways to integrate exploration of the fundamental assumptions underlying current interaction design practice with the development of new forms of interaction design.

CRITICAL TECHNICAL PRACTICES

Such practices have been an important element of many significant trends in HCI over the past few years. Natalie Jeremijenko's artistic work played an important role in the early formulation of the ubiquitous computing program and its exploration of the relationship between physical and virtual worlds [14]. Simon Penny's interactive and immersive artworks explore the possibilities of embodiment and virtuality while simultaneously questioning our notions of the role and disposition of the body in human-computer interaction (e.g. [13]). Ken Goldberg's telerobotic installations have inspired experimentation in telepresence and remote operation while simultaneously exploring issues of presence and perception [7]. Michael Mateas' work on autonomous agents and artificial characters expands the boundaries of AI in interactive and game technologies while reflecting on relationships between audience and narrative [8].

At the same time, over the past few years, traditional cognitivist perspectives on HCI have been supplemented by alternative theoretical positions including phenomenology (e.g. the work of Heidegger as explored by Winograd and Flores [15] and Dourish [6]), critical theory (e.g. [5]), the work of Bakhtin, as explored by McCarthy and Wright [10] or cultural-historical activity theory (e.g. [12,4]).

Finally, a new range of research and educational programs is emerging which attempt to bring these perspectives together. Examples include the graduate program in Arts, Computation and Engineering at UC Irvine, the Interaction Design program at the Royal College of Art, the program in Literature, Communication and Culture at Georgia Tech, and the program associated with the Center for Research in Computing at the Arts at UC San Diego. The UK's Engineering and Physical Sciences Research Council has recently issued a call for collaborative initiatives at the interface between science, engineering, arts and the humanities.

EVERYBODY NEEDS AN ARTIST?

These interdisciplinary approaches to HCI are proving useful in providing new perspectives on problems HCI currently faces, such as understanding and designing for the human experience of interfaces (e.g. [2]), developing culturally appropriate technologies for the home (e.g. [3]), and incorporating human emotion into the interface in innovative and meaningful ways. Yet the implications of interdisciplinary engagement run deeper than new technical solutions for current problems. *Beyond Productivity* [11], the recent report on IT and creative practices by the US National Research Council's Computer Science and

CHI 2004, APRIL 24–29, 2004, Vienna, Austria.

ACM 1-58113-703-6/04/0004.

Telecommunications Board, argues that engagement with the arts and other creative practices can help HCI become aware of and design for the ethical, social, and political implications of the systems it designs and builds. More generally, engagement with the arts and humanities defamiliarizes the assumptions underlying HCI methods and technologies, suggesting new ways to understand our machines, ourselves, and our relationships to them.

RETHINKING HCI

These new understandings raise important challenges for research and practice in HCI, raising questions such as the following:

- What are effective forms of engagement between the various traditional disciplines at work here? How do we draw on both technical practices and critical practices in ways that do justice to both?
- What are the primary criteria and commitments around which emerging practice will be organized? How can we distinguish between different styles of investigation, with aesthetic, cultural, technical, and philosophical components?
- How can we foster a critical technical practice within the HCI curriculum? What does it mean to adopt and meld techniques from training in domains such as engineering and art?
- Where and how should this work be situated with respect to the mainstream of traditional HCI? How might that relationship be developed?

GOALS OF THE WORKSHOP

The aim of this workshop is to bring together practitioners, researchers and academics with interests and experience in HCI as a critical technical practice. Our goals are as follows:

- To explore the possibilities for HCI as a critical technical practice;
- To share experiences, explore foundations, and build a research agenda to take what is currently a set of interesting but informal issues explored at CHI conferences into a vibrant and coherent research program;
- To gain a broad understanding of the issues and challenges around the notion of a critical technical practice, and formulate a long-term research agenda.

We plan to cover the following general topics:

Theory: The application of theory and concepts from design, literary theory, cultural studies, critical theory, the arts and phenomenology to human interaction with technology and to HCI as a critical technical practice;

Practice: Case studies of work from computer scientists, product designers, digital artists, etc. that incorporate artistic and humanistic analysis into technology design, or use technology design as a way to generate new artistic or humanistic reflections on human-technology interaction;

Education: Experience and examples of educational programs and research initiatives that aim to bridge arts, design, science and engineering disciplines.

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