

Beyond Performance: Considerations for End-User Comfort in the Design of In-Situ User Interfaces

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ABSTRACT

Our reliance on computing technologies for making decisions or sense-making, has undergone a transformation from occurring in well defined settings (such as on traditional PCs) to taking place in-situ, for supporting everyday activities. In-situ user interfaces, have emerged largely from improved mobile and mixed-reality technologies and rely on mid-air input as the basis for interaction. Often, designers of such, on-the-go, user interfaces place an emphasis on enhancing end-user performance. However, we argue that supporting end-user comfort is as critical if in-situ interfaces are to become commonplace among the general population. In this talk, I will present some of our work on various aspects of end-user comfort for in-situ interactions. I will present models for estimating arm fatigue induced by mid-air input, and showcase interactive systems that have been specifically designed to circumvent such fatigue. I will also discuss elements of social comfort and present a framework for including such factors in the design process of end-user interfaces. I end my presentation with a discussion of some of the open problems in this space.

CCS Concepts/ACM Classifiers

- Human-centered computing~Natural language interfaces
- Human-centered computing~Pointing • **Human-centered computing~Gestural input** • **Human-centered computing~Ubiquitous computing** • **Human-centered computing~Mobile computing**

Author Keywords

In-situ user interfaces, AR/MR/VR, natural user interfaces, mobile interactions, mid-air input

BIOGRAPHY

Pourang Irani is a Professor in the Department of Computer Science at the University of Manitoba and Canada Research Chair in Ubiquitous Analytics. His research is in the areas of Human-Computer Interaction and Information Visualization. More specifically, his work focuses on in-situ user interfaces, interactive methods and systems for giving end-users efficient access to information “anywhere” and “anytime”. His interests in translating research outcomes into consumer ready technologies has motivated his work with industry. He has collaborated with industrial partners such as the Honda Research Institute, was a visiting scholar at Microsoft Research (Redmond), and serves as a scientific advisor to several organizations, including the Human-Machine Interaction lab at Huawei Canada.



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ISS'20 Companion, November 8–11, 2020, Virtual Event, Portugal.

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ACM ISBN 978-1-4503-7526-9/20/11.

<https://doi.org/10.1145/3380867.3430137>