

# Experience Labs: towards a contextualized understanding and evaluation of user experiences Symposium

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Ambient Intelligence and related visions such as pervasive computing, ubiquitous computing, etc., signal a move towards embedding information and computational technology in our social and physical interactions making it an inseparable part of our daily life. For researchers, designers or technologists attempting to design, analyze, engineer or create user experiences this transition poses serious methodological challenges. These are discussed briefly below:

- Designers or researchers are expected to study and analyze a situation that does not yet exist. Currently only modest scale demonstrators of Ambient Intelligence technologies have been created rather than realistic deployments. Test users can only reflect upon their understanding of designed experiences by extrapolating from brief encounters with experimental technologies and with partial representations of this future technological domain divorced from the contexts of their daily lives. User studies conducted within such constraints lack external validity. More critically, they cannot produce dense explanations of the phenomena surrounding the user experience and are too limited to further our current understanding of these experiences and to drive related design efforts.
- Existing evaluation methods and methodological research have focused on task-oriented interaction, usually embedded within a short time span. Extending characterizations and evaluation methods to address user experiences as they occur in context, reflecting social interactions between several participants, requires scaling up the sampling of data and the richness of the data collected through user studies.
- The problematic of understanding the user experience extends beyond usability and human factors accounts. Concepts (overlapping) such as persuasion, fun, enjoyment, engagement, flow, trust, are not yet sufficiently understood; presenting thus a vibrant field of research in defining, operationalizing and measuring related concepts.
- The eventual form of the interactive experience will depend as much on any particular interactive product as upon the technological, social and the physical contexts in which this product will be experienced. Studies of the user experience must be able to account for, capture and investigate this variability allowing experimenters to manipulate and control those environments or, when working in the field, to capture sufficient contextual information about it.

A growing number of research initiatives attempts to address these challenges. First, considerable work is going into understanding the concept of user experience, providing theoretical accounts for the range driving the development of

new technologies, like fun, connectedness, engagement, etc, involving survey measures but also using physiological parameters of humans (e.g., galvanic skin conductivity, heart-rate, etc.) as ways to assess aspects of those experiences.

Laboratory infrastructures have been created allowing long term experimental deployments of ambient intelligence technologies. A leading example of such an infrastructure is the Future Home at Georgia Tech.

Other laboratories focus on providing a realistic simulation of a target environment, be that a home, an office or a hospital environment. Inside such simulated labs, often having multiple areas, it is often possible to modify this environment for the purpose of an experiment (e.g., modifying the layout) and to manipulate several environmental variables, e.g., lighting, temperature. A pioneering example of such an infrastructure is the Home Lab of Philips discussed further in this session.

Field studies also present a credible, though challenging, approach to evaluating user experiences. Techniques such as diaries and experience sampling are recently extended to include technology support for facilitating self-report or enhancing them with the use of instrumentation like sensors, microphones and cameras.

This symposium brings together some leading researchers in this field, who will discuss their own efforts to meet the challenges discussed above. In all presentations, the emphasis is on methodology rather on the results of any specific study.

## Symposium contents

### Measuring fun in the home

Andrew Monk and Sián Lindley

### Measuring urban mobility and encounter

Eamonn O'Neill and Vassilis Kostakos

### Application driven experience research

Boris de Ruyter

### InHaus-2: An innovative testbed for developing and testing ambient assisted living solutions and systems

Edwin Naroska

### Probing in the wild: Lessons learned for contextual research

Manfred Tscheligi

### Reading the tea-leaves in an intelligent Coffee Corner: understanding behavior by using sensory data

I. Mulder B. Hulsebosch, G. Lenzi, and M.S. Bargh