

When Design Meets Intelligence: Incorporating Aesthetic Intelligence in Smart Spaces

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Abstract. This paper illustrates the motivation and objectives of the third international workshop on *Aesthetic Intelligence*. The workshop aims at bringing together researchers as well as industry practitioners from the fields of computer science, engineering, architecture, industrial and interface design to discuss ongoing research activities and emerging trends in the area of smart environments. A special focus of the workshop is on the role of aesthetic design for the acceptance and adoption of services in smart environments.

Keywords: Ambient Intelligence, Ubiquitous Computing, Smart Spaces, Aesthetics, Design, Architecture, Urban Informatics.

1 Motivation

Over the last decades, the nature of computing changed fundamentally. Following the *mainframe era* of the 1960s and 1970s, the two last decades of the 20th century were mainly characterized by *personal computing* as the leading paradigm. Today, we are in the age of ubiquitous computing and are heading towards an era of *smart environments* [1], in which a multitude of computers will be embedded in our physical surrounding and unobtrusively support us in our everyday activities.

However, we did not only see a tremendous increase in computing power, we also experienced a shift in the relationship between computers and users. Especially early mainframe computers required an entire team of engineers and computer scientists to be operated and were jointly used by multiple people, sometimes even entire organizations. The introduction of personal computers in the 1980s was accompanied by a one-to-one relation between computers and users. Today, most people own multiple “computers” in form of notebooks, tablet PCs and smart phones, and continuously interact with these devices throughout their day.

Yet, not only technology changed, also the world around us changed, which has a large impact on the way systems have to be designed. Today's computer users are much more diverse than they used to be in the time of mainframe computers or the era of desktop PCs. Only 20 years ago, computers were mainly used in the office context by users who were relatively computer literate or at least trained for the tasks they did. With the transition away from the office context towards to the home domain, we have to look at completely new user groups, starting with children up to seniors.

In addition, also the context of computer usage changed significantly. Today, computers are used anywhere and anytime. This does not only include different locations (public vs. private spaces), but also varying social contexts (multi vs. single-user situations). All those aspects have a considerable relevance for the design of future systems.

2 Objectives and Research Challenges

Hence, when looking at these developments, it is not really surprising that also the requirements of users changed. In the 1990s, most computer users looked for functional criteria when they bought a computer. Things like CPU speed, capacity of the hard drive etc. were criteria that determined whether a computer was bought or not. Today, other aspects are important as well. Computers become more and more lifestyle devices, which have to meet a broad variety of criteria, ranging from classical usability factors to more hedonic aspects. When designing systems, developers have to take this diversity into account, which means that it is not sufficient anymore to only concentrate on technical problems and performance aspects. Instead, it is vital to make sure that we provide the means – and especially the interfaces – that enable users, who are interested in using the technology we are designing, to actually do so. Therefore, this workshop aims at bringing together researchers from diverse disciplines to discuss best practice examples and research challenges with regard to the inclusion of hedonic and aesthetic dimensions into the design and usage of smart environments. By doing this, the workshop builds on the results and insights gained during the previous workshops held in Amsterdam, the Netherlands [2] in 2011 and Pisa, Italy [3] in 2012.

References

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