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Constructing Ambient Intelligence

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Revised Selected Papers

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Preface

This volume contains the refereed papers selected for the Workshop Proceedings of the International Joint Conference on Ambient Intelligence (AmI-11) held in Amsterdam in November 2011. The workshops provided a forum for scientists, researchers and engineers from both industry and academia to engage in discussion on newly emerging or rapidly evolving topics in the field of ambient intelligence (AmI). Ambient intelligence is the vision of our future environment where we will be surrounded by various kinds of interfaces supported by computing and networking technology, which will provide intelligent, seamless, and non-obtrusive assistance to humans. In this way, the environment is able to recognize the persons in it, to identify their individual needs, to learn from their behavior, and to act and react in their interest. This broad vision addresses all areas of human life, such as home, work, health care, travel and leisure activities. A great amount of interdisciplinary research will be required in order to achieve this vision.

Since this vision is influenced by many different concepts in information processing and combines multi-disciplinary fields in electrical engineering, computer science, industrial design, user interfaces, and cognitive sciences, considerable research is needed to provide new models of technological innovation within a multi-dimensional society. Thus the AmI vision relies on the large-scale integration of electronics into the environment, enabling the actors, i.e., people and objects, to interact with their surrounding in a seamless, trustworthy, and natural manner.

The Workshop Chairs reflected these unique characteristics of the AmI conference series in the call for workshop proposals using two corresponding measures: (1) by particularly soliciting workshops on in-depth topics to the above-mentioned ambient intelligence flavor of post-PC research and (2) by offering workshop threads for advanced topics. We established a careful review process in which we involved other members of the AmI-11 Organizing Committee and tried to resolve conflicts of overlapping. The large number of very positive responses as well as the large number of attendees (the combined workshops had almost the same number of attendees as the conference) reflect the great success of the event.

The nine accepted workshops turned out to be well distributed over the two threads. The first, WS1 "Aesthetic Intelligence: Designing Smart and Beautiful Architectural Spaces," discussed the visual and perceptual possibilities that arise from the use of ambient intelligence technology. The focus of the workshop was on the relevance of beauty and aesthetic values for AmI.

Workshop WS2 entitled "Role of Ambient Intelligence in Future Lighting Systems" focused on LED-based artificial lighting. This workshop explored how the vision and principles of the AmI paradigm can be applied to future lighting

controls, where lighting is no longer only a functional on/off system, but a flexible system capable of creating a large range of functional/decoration and ambient light effects.

The workshop on "Interactive Human Behavior Analysis in Open or Public Spaces", WS3, looked into open spaces where humans exhibit a much larger and interesting range of behaviors, from their interaction with the environment to the way they communicate with each other.

A further workshop theme was dedicated to "User Interaction Methods for Elderly, People with Dementia" in WS 4. It drew on existing developments in this field, ranging from end-user research to interaction development and evaluations.

WS5 "Empowering and Integrating Senior Citizens with Virtual Coaching" focused on the effects of virtual coaches on elderly users and how they can be used to improve the quality of life by aiding in planning daily life activities and mediating meaningful relationships to maintain and expand the social network of the elderly persons.

WS6 "Integration of AMI and AAL Platforms in the Future Internet (FI) Platform Initiative" discussed a new generation of the Internet of the Future, the Future Internet Privacy Public Partnership (FI-PPP), which has been established with help of the European Commission. This workshop focused on the challenges of integrating AMI and AAL platforms with this kind of platform.

"Ambient Gaming" was the focus of WS7 with the aim to create novel player experiences in games by taking inspiration from aspects of AmI and translating these into a gaming context. Various issues were discussed from different perspectives like game design, games research and technology.

WS8 "Human Behavior Understanding: Inducing Behavioral Change" dealt with the problem of modeling human behavior under its multiple facets, for example, expression of emotions, display of complex social and relational behaviors, performance of individual or joint actions.

"Privacy, Trust and Interaction in the Internet of Things" was addressed in workshop WS9. Special attention was given to whether and how experiences with privacy and trust from related areas can be applied to the IoT, where existing conceptualizations need to be extended or modified and where radically new concepts are required.

In conclusion, the valuable contributions compiled in this volume manifest the success and high scientific quality of the workshops within the AmI conference series. With the present proceedings we are all privileged to harvest the fruits of hard work in the preparation, realization and compilation of the workshops. We hope that they are considered by the readers as worthwhile and valuable to be used as a basis for future work.

December 2011

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