Steering Committee Foreword

Smart Objects in Ambient Intelligence - A Next Step in Growing a Vision Mature

After a five years development, Ambient Intelligence is no longer just an imaginary vision that is aimed at improving and enhancing people's lives by making electronics intelligent and integrating it into smart environments. Anyone who has followed the developments in Ambient Intelligence at close range has witnessed how major parts of the vision have become real, and how it has influenced researchers, decision makers, and entrepreneurs all over the world in their challenging effort to realize innovation. Several new concepts have been derived from the vision for the interaction of people with intelligent electronic systems and first products have been brought to the market. By now, we can safely state that the vision has become internationally recognized as an influential and promising concept for the development of new information processing systems, combining knowledge from a variety of fields including electrical engineering, computer science, industrial design, user interface design, and cognitive sciences.

The essential element of the Ambient Intelligence vision is contained in the key observation that future developments in technology will enable the integration of electronics into the environment, thus enabling people to interact with it in a seamless, trustworthy, and natural manner. This fact has largely stimulated the discussion about novel models of technological innovation within a multi-dimensional society, and the discussion is centered around the following three issues : what do we need to know in order to successfully create Ambient Intelligent systems, how can we obtain this knowledge, and when are we successful in creating Ambient Intelligent systems ? For the research community these issues have introduced major new challenges, many of which are related to the one central research question for Ambient Intelligence : what interaction technology can bridge the gap between human actors and the invisible computer ? One way approach to bridging this gap is to use the physical world as the interface, or to put it in other words, use physical objects to provide users with natural interaction means that allow them to control the functionality hidden in the embedded systems that surround them. Indeed there are many examples known of such interaction concepts, and probably the most widely spread an convincing approach to this line of thinking is the use of RFID tags in objects that can access information "hidden" in our physical environment, thus allowing for context aware and location sensitive interaction and control. This has opened a world of unprecedented options for enhancing peoples' lives in a large variety of domains including healthcare, well-being, creativity, and productivity.

As a consequence of these developments we felt the need to bring together the Smart Objects and the Ambient Intelligence research communities, which has resulted in the joint conference of SoC (Smart Object Conference) and EUSAI (European Symposium on Ambient Intelligence). The program of this occasional meeting shows that the organizing committee indeed has succeeded in bringing together a fine collection of research papers that address many interesting new topics related to the use of physical objects in an Ambient Intelligent world. Many of the presented studies have been based on the multi-disciplinary user-centered design approach, which combines enabling technologies into interaction concepts that make sense based on the validation through extensive user-studies. This complies with the opinion of many leaders in our field who argue that user-centered design is a key ingredient of the systematic and methodological approach to the design of Ambient Intelligent environments. They found their opinion on their believe that not ambient intelligence will shape the future of ordinary people, but that ordinary people will shape the future of ambient intelligence through a co-creation process. Evidently, it is fortunate to see that the conference program contains many interesting studies addressing this topic. The program also reveals that both research communities have not-yet succeeded in developing the holy-grail answer to the ultimate research question on the bridging interaction technology. This remark should be considered as an exciting and stimulating observation rather than a downturn, because it implies that the research in Smart Objects and Ambient Intelligence is becoming mature. We are in the middle of the process of learning from the many results that have been obtained so far to develop a better understanding of the true research questions in this field, and this stage through which we are going now is an inevitable hurdle in the strive toward obtaining solutions to the ultimate research question stated above.

Through our work on Smart Objects and Ambient Intelligence we are participating actively in a very exciting and stimulating technological and societal innovation process : let's try to contribute to it.

Patrice Senn and Emile Aarts, *chairs of the Steering Committee*