I. BACKGROUND

Pervasive Computing dates back to Mark Weiser’s vision of Ubiquitous Computing. Nearly two decades ago he envisioned a world populated with computers that invisibly weave into our daily environment. Extensive research has been done in the past and a number of developments have taken place, though most of them are confined to research laboratories.

Despite this effort, the impact of research into products is limited. This panel’s challenge is to identify relevant aspects of the key technologies, revise the state of the art, and identify obstacles in the adoption.

II. TECHNOLOGY

Pervasive Computing requires comprehensive support from a number of fields. First of all, the integration of computing technology into everyday artefacts requires appropriate form factors. This will lead to a mix of servers in the infrastructure as we know them today that cooperate with small, embedded platforms. In order to react to the demands of the user in an unobtrusive way, the system has to anticipate the users’ requirements. This can be done based on context information. A major source for context information can be obtained by sensors and processed by fusion algorithms. In order to support the automatic configuration and adaptation in such dynamic environments, appropriate systems support is needed in the form of operating systems or middleware platforms. However, clearly only addressing technical aspects is not enough. Users are concerned about their privacy and thus security and privacy precautions have to be addressed comprehensively.

III. ADOPTION

While the technical foundation is necessary for building Pervasive Computing systems it does not suffice for the adoption and the success. A number of application scenarios have been proposed in the past. Currently, one can only see limited application of Pervasive Computing technology. Here, questions for successful use and business cases have to be answered. Based on such scenarios, it can be determined if necessary technologies exist or if there is need for further research.

The panel will discuss gaps in technology as well as prospective applications. We have invited panelists from academia and industry to share their view on technology and its transition into applications. Based on this discussion, research shortcomings should be identified. We also hope for feedback from PerCom participants from academia and industry.

IV. PANELISTS

Andrew T. Campbell, Dartmouth College
Jiannong Cao, Hong Kong Polytechnic University
Florian Michahelles, ETH Zürich
Ty Znati, NSF