

Workshop funded by the EU-Initiative “Disappearing Computer”

How to interact with disappearing computers in hybrid worlds?

Organizers

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Participating projects

AMBIENT AGORAS (contact: Norbert Streitz, Fraunhofer-IPSI)

E-GADGETS (contact: Irene Mavrommati, CTI)

SMART-ITS (contact: Hans W. Gellersen, Univ. of Lancaster)

WorkSPACE (contact: Preben Holst Mogensen, Univ. of Aarhus)

FEEL (contact: Carl Gustaf Jansson, KTH)

Abstract

This workshop addresses a range of topics that arise from the question "How to interact with disappearing computers in hybrid worlds?"

Today computers are used as *primary* artefacts, which means that people have to interact with them directly. The problem with this approach is that humans are not primarily interested in interacting with the computer as a device, but in interaction with information or cooperation with other humans. How can we get the computers “out of the way” / “out of sight” to allow to concentrate on the task at hand and make the interaction activity again the priority task?

In order to give priority back to human activities, computers have to become *secondary* artefacts. This can be achieved in several ways resulting either in “*physical disappearance*” or “*mental disappearance*” of computers as devices. Both cases of disappearance imply new challenges for answering the question “how to interact with disappearing computers?” This will be even more challenging when dealing with groups of people using multiple devices/artefacts.

The approach proposed is related to the vision of ubiquitous computing where Mark Weiser stated: “The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.” By embedding computers into the environment that surrounds us and into the objects of everyday life, they will “disappear” as perceivable devices and at the same time offer a ubiquitously accessible functionality. This approach promises to overcome traditional forms of human-computer interaction resulting in more direct forms of human-information interaction and human-human cooperation.

The combination of real and virtual worlds in a computer-augmented environment results in so called “hybrid worlds” for which new interaction techniques have to be proposed, developed, and evaluated. The issues to be discussed arise not only from the fact that computers will be integrated with or into other artefacts but also by the fact that one has to deal with different types of interaction of multiple devices when combining them with different types of artefacts.

Issues and questions to be addressed

Among others the following questions are to be discussed at the workshop:

- How can people interact with “invisible” devices?
- How do people migrate from explicit interfaces/interactions to implicit interfaces/interaction?
- How can we design for transparency and make people “understand” the interface?
- How can we design for a coherent experience?
- What should happen in case of errors or malfunctioning, which are not explicitly perceived?
- How can we design for user’s control and address the resulting privacy issues?
- How can people interact with multiple devices?
- What functionality may arise from the combination of several artefacts?
- How do people interact with hybrid worlds?
- How can Tangible User Interfaces (TUIs) contribute to a natural interaction with information?
- How can smart artefacts produce intelligent behaviour and how will users interpret this?
- How to evaluate the new forms of human-artefact interaction?

Expected results

- Gaining an overview of the different approaches on human-artefact interaction in the European DC community
- Identification of mutual relationships between the different approaches in the DC projects and comparing those with other approaches in the international scientific community
- Forming a comprehensive and coherent perspective on human-artefact interaction that can serve as a guideline for the DC community and will have an impact on the discussion in the international scientific community
- Dissemination of the results using appropriate communication and publication channels

Benefits for the European Community

Forming a European research and development perspective on human-artefact interaction for the new class of “smart artefacts” that can serve as a guideline for the DC community and expected exploitation efforts of the industrial partners in the DC projects.