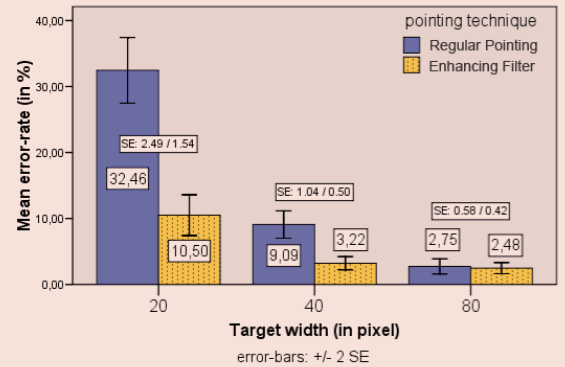
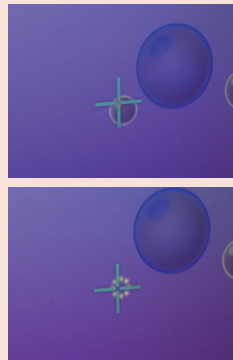
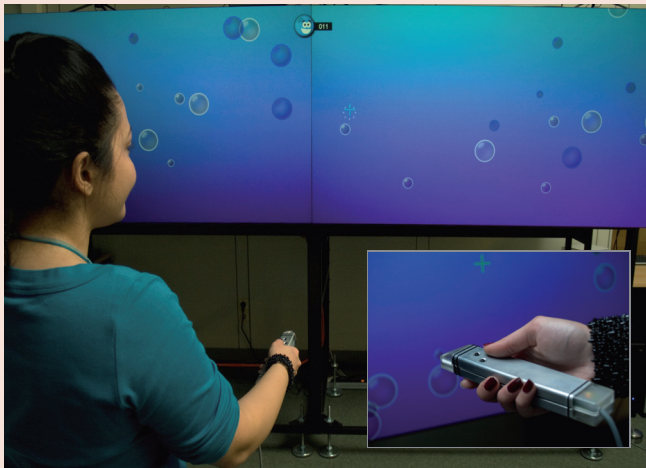


Media Room - Multimodal Interaction & User Interface Design

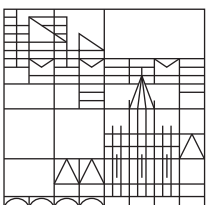
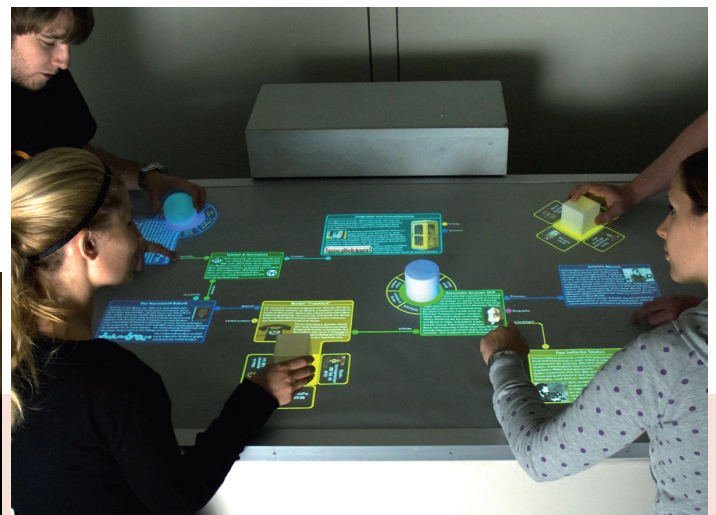
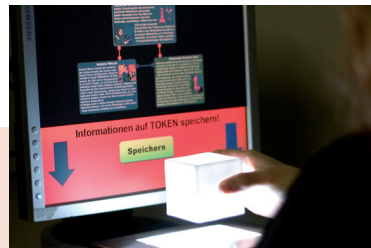
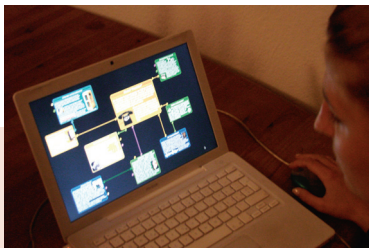
Human-Computer Interaction Group, University of Konstanz

The Media Room provides a research environment for the design, development, and evaluation of novel interaction techniques and input devices as well as a simulation facility for future collaborative work environments. Therefore, it offers different input (e.g. laserpointer, hand-gestures, multi-touch, eye-gaze, speech) and output devices (Table-Top, HD-Cubes, audio & tactile feedback) which can be used simultaneously and in combination, creating a new dimension of multi-modal interaction. In the following, we will outline some of these input and output devices.



Laserpointer interaction provides a high flexibility (the device is mobile) and a natural interaction (absolute pointing); but hand-tremor leads to a high amount of jittering. We develop filter techniques that unnoticeably reduce this jitter and result in significantly lower error-rates when hitting small targets.

Tangible user interfaces allow users to interact directly with the interface by placing objects on it (Tokens) or using their hands. Besides, the multi-touch technology makes this experience even more natural and furthermore allows simultaneous usage by several people. This makes such a combination of input-output device extremely useful for collaborative work as well as for leisure activities, e.g. in a museum context.



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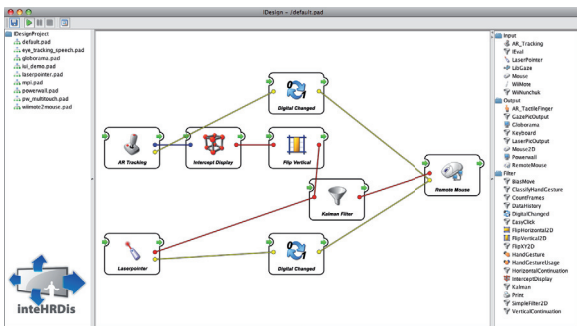
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Media Room - Multimodal Interaction & User Interface Design

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One major challenge for future human-computer interaction is the design of a cross platform user interface paradigm, which provides a consistent interaction and presentation style on different output devices, ranging from mobile devices to large high-resolution displays. We are currently introducing a novel concept based on a zoomable object-oriented information landscape (ZOIL) which will meet these requirements. Besides, interacting with such an environment should also be similar for different input modalities, such as eye-gaze interaction, hand-gestures, or using gestures in combination with a mobile phone camera. A common interaction library named Squidy provides the linkage between these different devices and allows a flexible design and evaluation.



Related Projects

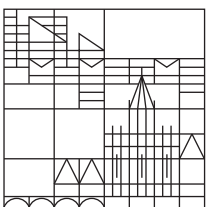
inteHRDis: Within the inteHRDis project the Media Room is used to research novel input devices and interaction techniques which then again can be used to support other Media Room scenarios. In combination with a unified interaction library (Squidy) the Media Room serves as a testing and design environment, especially for multimodal interaction techniques.

Permaedia: The permaedia project demonstrates a novel user interface paradigm for personal nomadic media. It is based on a zoomable object-oriented information landscape (ZOIL) and is meant to provide users with a consistent interaction style independent from device or display size. The Media Room provides the necessary environment to design this UI as well as to test and observe whether it succeeds in providing a device and display independent interaction concept.

Blended Interaction Design: The goal of this project is to provide tool support for the creative design process of novel interaction and interface concepts. Since this is in many cases a highly collaborative activity, an appropriate environment is needed, which supports working individually on a user interface prototypes as well as sharing these sketches, models, ideas, or code with others. The MediaRoom provides this environment with its different workstations ranging from handheld computers to shared high-resolution displays.

Blended Museum: This project's scope embraces the combination of virtual and physical museums to enhance the visitor's experience by focusing on innovative interaction techniques, information design and mediation strategies. The MediaRoom allows us to develop and test these techniques in a controlled environment.

eLmuse: Within the scope of this project, the different scenarios, interaction techniques, and devices are empirically evaluated with users. Thereby, the focus is on longitudinal evaluation methods which provide possibilities to better address learning aspects and by also increasing the ecological validity of the experiments.



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