

# HCI Development: Beyond the Desktop

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## Overview

For the first time, the annual Human Computer Conference (CHI) organized by ACM's Special Interest Group on Computer-Human Interaction (ACM SIGCHI) was held in Europe. Specialists from all over the world presented their latest developments and results in the areas of user interface design and man-machine interaction. As every year, a so-called »Development Consortium« tried to identify the most important developments and point out the directions the HCI research will take in the coming years. For CHI 2000, the general topic of this consortium was »Beyond the Desktop«. This theme is reflected in the extraordinary growth of various computer-based devices and services that are rather naturally embedded in our way of life – versus being bound to a single computer desktop. The addressed areas are mainly:

- telecommunications and portable computing aids,
- home entertainment and networked home,

- workplaces and new industrial applications,
- new interaction metaphors that incorporate trust and responsibility.

The Computer Graphics Center (ZGDV), represented by the Department of Mobile Information Visualization and Digital Storytelling as well as the Interactive Graphics Systems Group (GRIS), represented by the Department of 3D Graphics Computing, contributed to this process. It also shaped the resulting primary directions proposed for future work in the CHI community based on their experience in current INI-GraphicsNet projects. The main topics that were identified are:

- *Socially aware and anthropomorphic systems.*  
This subject challenges the CHI community to take responsibility in social and ethical issues of designing socially embedded systems. While interfaces employ new technologies such as human-like emotional avatars, tracking of users or

## German Abstract

Eine wichtige Fragestellung für zukünftige Entwicklungen im Bereich der Mensch-Computer-Interaktion ist die Lösung der neuen Aufgaben welche durch die zunehmende Nutzung von computer-basierten Geräten und Diensten in allen Bereichen des Lebens gestellt werden. Dies wurde durch ein Entwicklungs-Konsortium zur Thematik »Beyond the Desktop« während der diesjährigen ACM CHI 2000 Konferenz adressiert. Mitglieder des INI-GraphicsNet sind an diesem Prozess beteiligt. Nachfolgender Artikel gibt einen kurzen Überblick über aktuelle und zukünftige Aktivitäten im Bereich der benutzer-zentrierten Entwicklung.

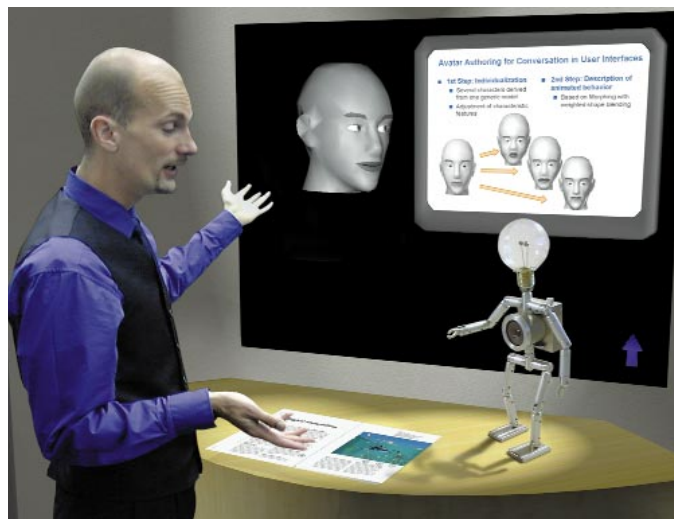
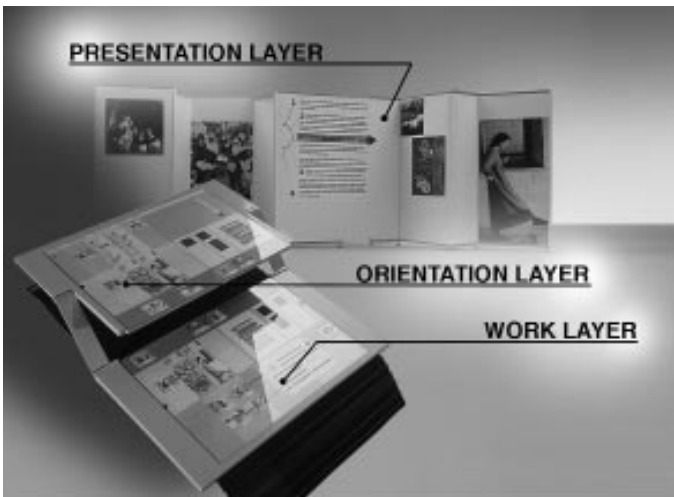


Figure 1: Exemplified vision of anthropomorphic systems beyond the desktop



**Figure 2: Proto-  
type design for a  
projection wall  
and a split-screen  
PDA to support  
the desktop  
paradigm**

of a usability lab at ZGDV is planned for this year and will be used by different departments to perform user-centered design tasks within different projects and application areas.

The response received at CHI 2000 showed that the visions of ZGDV and GRIS in the area of user interfaces of the future are well accepted in the research community. We must assume that our current initiatives and developments will have a large impact on future products.

For more information on our visions about the CHI development, see the following position papers for CHI 2000:

Freiberger B., Müller W.:  
»Office Environments for  
CSCW in Design and Architec-  
ture«, in »Extended Abstracts  
of ACM CHI2000«, The Hague,  
Netherlands, April 2000, pp.  
39-40

Gerfelder N., Müller W., Spier-  
ling U.: »Novel User Interface  
Technologies and Conversa-  
tional User Interfaces for Infor-  
mation Appliances«, in  
»Extended Abstracts of ACM  
CHI2000«, The Hague, Nether-  
lands, April 2000, pp. 41-42

Spierling, Ulrike: »Conversa-  
tional Integration of Multime-  
dia and Multimodal Interac-  
tion«; Development Consor-  
tium »Beyond the Desktop«, in  
»Extended Abstracts of ACM  
CHI2000«, The Hague, Nether-  
lands, April 2000, pp. 37-38

### Points of contact

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adaptable system behavior, new aspects beyond mere usability are gaining importance: trust, privacy, satisfaction, and fun. Figure 1 shows an exemplified vision of anthropomorphic systems beyond the desktop: The »human-machine communication« changes to a conversation between roles in a story-like structure: in this case, a visitor, an opponent presenter and the »little helper« in the human's tangible world (see also CGtopics 4/99, pp.8-10). In an invisible interface, the term »user« should be avoided and be replaced by natural roles that people take in various situations. In parallel, the functions of the system could be represented by different characters and miscellaneous inventory.

- *Implications of »ubiquity« beyond the desktop in roles, models and relationships*  
The challenge is to adopt the paradigm of human-human interaction as a central model for designing human-system interaction in a new world beyond the desktop and to identify appropriate metaphors for conversational user interfaces. Further, we have to develop a common vision of how to interact with evolving new kinds of information appliances in the household and in office and how to incorporate the ideas of ubiquitous computing.

- *Information Appliance Design: known questions – new answers*  
As we move beyond the desktop, content-driven usage implies a different presentation and interaction, increasingly dynamic and constantly variable. The familiar design parameters of user, task, device, and location remain the same, but must be rethought in the light of new forms of usage. For example, the content provided for the user must be appropriately scaled to the form factors of mobile products.

These research topics, which will definitely influence future developments in the area of usability engineering and user interface design, are currently addressed within various projects at the INI-GraphicsNet. Mainly the focus projects EMBASSI »The Electronic Multimedia Operating and Service Assistant« (see CG topics 1/2000 and an article in this issue) and MAP »Multimedia Workplace of the Future« (see special article in this issue) are ahead of new kinds of integration and usage of computer-based devices.

Furthermore, ZGDV is working on several industrial projects with different topics of usability design, engineering and testing. This ranges from task analysis, scenario-based design, evaluation of competitive alternatives, design and walk-through to evaluation and validation. The establishment