INTERACTIVE MEDIA SYSTEMS FOR SENIORS

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The Interactive Media Systems for Seniors workshop aimed to generate debate around the design of new pervasive applications for elderly people. Several papers presented at recent UbiComp conferences have shown the need for developing and assessing systems to

- improve older users’ access to social services and to context-based information and entertainment,
- extend social networks and facilitate social participation, and
- support independent living.

The overall goals are to improve the welfare and quality of life of the industrialized world’s aging society, empower senior citizens in society, and reduce the digital divide.

After the paper presentations was a group discussion on the core issues raised. The workshop’s last part summarized the topics in a poster that we then presented at the conference’s poster session (see www.sintef.no/upload/IKT/9012/ubicomp_poster.pdf).

The participants presented and discussed some remarkable solutions using metaphors that are familiar to elders (for example, a family newspaper, a family photo album, and a memory library). These projects used participatory design techniques to facilitate dialogue between designers and users. So, this process reduced functionality to the elders’ core needs. We also discussed how to use intelligent techniques such as neural networks to

- analyze and classify behavioral changes concerning aging users’ daily Web-browsing activities and
- detect changes over time that might indicate the onset of a cognitive or physical impairment.

Some pointed out that these systems’ design should consider gender differences.

Participants expressed concern about the usual accessibility problems due to the complexity of multimodal user interfaces in networked applications. They also agreed that there’s a lack of methods and tools to identify elderly users’ underlying needs and requirements and of critical “soft data” such as their feelings and emotions. This lack is leading to a poor understanding of both the factors motivating or discouraging such applications’ use and their social impact on senior citizens. In fact, most participants stated that the social and physical context was a decisive driver or inhibitor of system use (for example, frustration and embarrassment due to mistakes and concerns about device theft). Furthermore, some participants expressed concerns about a general overreliance on using social helpers such as younger family members as technology brokers.
EXURBAN NOIR

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We designed the Exurban Noir workshop to generate debate on the nature of ubicomp in exurban environments. We wanted to emphasize that underneath and between a happily-ever-after veneer of technologies lurks a dark, strange world driven by very different human needs, values, and desires. Diverse populations aren’t necessarily well served by our “everyman” designs.

The workshop was revealed in five stages. First, participants briefly presented their research in exurban design. Second, they took a guided tour of Orange County to acquaint themselves with a particular person’s view of his or her OC. One group’s guide was active in a Buddhist monastery, one guide was active at the Crystal Cathedral, one was a private detective from Newport Beach, and one was a public-health promoter based in Santa Ana.

The third stage began the next morning with each person creating a visual “memory map” of the preceding afternoon. Team members then met to decide what instance, activity, or object from the maps would ground their design brief. Fourth, teams created a “design noir” scenario based on the brief, highlighting the darker aspects of their designs. Finally, we videotaped the teams acting out their designs and explaining their rationale to the workshop members. Designs included a car that supports religious experiences, a fake funeral service, money-laundering ATMs, and a gossip-recording system for a private detective from Newport Beach, one was active at the Crystal Cathedral, one was a private detective from Newport Beach, and one was a public-health promoter based in Santa Ana.

The ubiPCMM workshop focused on issues surrounding personalized service in situations where multiple users stay at the same service area together. Personalization research has been a popular issue at UbiComp for several years. However, using personalized services in public, everyday environments has been disappointing for many users, as opposed to indications from controlled experiments. For example, a personalized service playing a user’s favorite song when he or she comes to the service conflicts if other users are nearby but their favorite music genre is different.

We asked all participants to discuss specific problems based on their field experiences with personalized-service-enabled environments. One group pointed out that users were often interrupted when a new user came to them, because personalizing services for a new user often causes a clash with the ongoing services. Another group reported that many users were puzzled about how to control the personalized, automatically adapted services when they became annoying.

Along with the usual problems of exploiting personalized services in real life, the consensus emerged that researchers haven’t given enough attention to the concept of boundary, such as where a personalized service should be active to a user. So, it’s ambiguous to define when the personalized services among users conflict with each other and how to manage the conflict beforehand. Additionally, it’s difficult to determine where the interface, which hands over control of services, should pop up from the background. Also, defining the personalized-service boundary is hard because it dynamically changes according to a user’s context—for example, personal-area network, room, or building. Participants generally agreed that the personalized-service boundary might dynamically be configured by the service that users are currently paying attention to. To insert personalized services into daily life, therefore, we need research on the role and the management of this boundary that models it as part of a person’s context.

SYSTEM SUPPORT FOR FUTURE MOBILE COMPUTING APPLICATIONS

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We organized the FUMCA 2006 workshop to foster an exchange of results, experiences, and products between academia and industry researchers working in mobile applications, from a system support perspective.

To open the workshop, Jon Bostrom, senior director of Java in Nokia’s Technology Platform unit, gave a keynote address about the “server in your pocket” approach of Nokia’s next-generation mobile Java platform. His address paved the way for lively discussions during paper presentations about the new roles that mobile devices and service infrastructures could or should assume. For example, when commenting on the keynote speech, most participants agreed about the need for...
openness of the platform and the possibility of providing real services from a personal device. One participant even suggested that companies release “open source” hardware platforms for external researchers.

Along with the usual discussions about context-aware middleware and its role in effective mobile-application development, more interesting discussions dealt with the real need to support multiple domain-specific and general-purpose languages in the same mobile device. Most participants felt that another challenging issue is characterizing how user requirements can influence or drive system-support platform design. Indeed, they realized that ubicomp researchers have concentrated mostly on either usability or system support issues and have rarely tried to merge the two worlds within a single research effort. Some participants pointed out how mobile-device manufacturers have kept most of the system-support APIs closed and how time-consuming standardization processes have negatively influenced the relationship between industry and academic researchers.

The participants were happy to see more open platforms coming from device manufacturers. In addition, they emphasized how, independently of the device manufacturer, some mobile-phone development platforms have been less open than those available for some PDAs.

The workshop proceedings, published by the IEEE Computer Society, are available at http://csdl2.computer.org/persagen/DLPublication.jsp?pubtype=p&acronym=FUMCA.

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