ABSTRACT

Hypermedia and the Web have been successful means to create global social networks via the Internet. Collaborative hypermedia systems and standards like BSCW, Wikis, and WebDAV enable people to establish formal and informal collaboration patterns across the Internet. The easy to use Blog/Weblog systems have made it possible for people to establish communities, express opinions, and spark debates over the Internet with minimal effort. Open hypermedia and annotation systems have been developed to support linking and commenting on existing Web documents to support scholarly discourse of online material. Many e-learning applications have been built on top of these systems to provide support for remote learning activities in schools and at workplaces.

However, this focus on remote and distributed social networks has to some degree taken the focus away from social networks and collaboration among people who share the same physical environment whether face-to-face or over time. Physical environments in this context may be public spaces or buildings such as workplaces, schools, libraries, museums, and homes. Some of the technologies listed above may of course be applied by people who are in close proximity to each other who shares the same space over time, but I will argue that there is a need to focus on and conduct research in new ubiquitous hypermedia infrastructures and interaction techniques to also support social interaction and networking among people who share the same physical environment.

In the Center for Interactive Spaces and predecessor projects, we have focused on the development of various kinds of ubiquitous hypermedia infrastructures and applications that support collaboration or social interaction among proximate peers at work, at school, at libraries, at museums, etc. We are applying various augmented reality tagging mechanisms (e.g., geo-tags, RFID, Bluetags, and visual tags) to provide hypermedia links among digital resources, people, objects and places. We are applying various mobile, spatial, and multi-user interaction techniques to provide new types of interfaces for social interaction in physical spaces.

In the Center for Interactive Spaces we have developed several examples of ubiquitous hypermedia applications: eBag – an electronic schoolbag system with seamless login based on bluetooth ID; iFloor – an interactive floor for libraries and schools providing hypermedia functionality for collective search, exploration, debate, and knowledge sharing; InfoGallery – an exhibition system for digital resources and debates at libraries, museums, attractions, and cityscapes; HyConExplorer utilizing geo- and RFID-tagging to annotate the outdoor environment for school projects or the like.

Related examples from other projects and labs are Slogan-benches from the Presence project in Amsterdam; Informative Art from PLAY at Chalmers University, Sweden; the CatchBob! pervasive game developed at EPFL, Switzerland.

The talk will: motivate the research in ubiquitous hypermedia supporting social interaction in physical environments; provide a brief overview of ubiquitous hypermedia techniques; give examples of ubiquitous hypermedia used for social interaction in specific domains; and, finally, outline further research issues for developing novel hypermedia techniques to be integrated in physical spaces.

Categories and Subject Descriptors
H.5 [Information Interfaces and Presentation]. H.5.1 [Multimedia Information Systems] augmented reality; H5.2. User interfaces; H.5.4 [Hypertext/Hypermedia]

General Terms
Documentation, Design, Human Factors.

Keywords
Ubiquitous hypermedia, social computing, augmented reality, context awareness.