

Research abstract

Interactive interfaces for multimedia content fruition and browsing

Daniele Pezzatini

Media Integration and Communication Center

University of Florence, Italy.

Studies and research I've done in last years mainly focus on human computer interaction, internet applications and social computing.

As Shneiderman points out in his book "Designing the user interface", about 50% to 80% of all source code is concerned with the development of user interfaces. This suggests that user interfaces, and Human Computer interaction in general, play a fundamental role in the success of technological systems.

During my research I've studied both solutions that involve natural interaction paradigms and web-based interfaces with advanced interaction capabilities, the so-called Rich Internet Applications.

In last years we are expanding beyond mouse and keyboard and started to exploit more natural forms of interaction, such as touch, gestures and speech. Furthermore, modern data acquisition devices, like Microsoft Kinect, allow us to analyze people's body gestures interaction without using any additional device. People are meant to interact with technology as they are used to interact with the real world and, with the increasing diffusion of smartphones and interactive tables, the natural interaction paradigm is becoming more and more common in everyday life.

Solutions that have been developed during my research involve the use of multitouch surfaces, smartphone applications and interactive video-walls in order to offer a multi-user and multi-modal interactive experience.

I had the opportunity to test such paradigms and interactive solutions in several fields of application, such as cultural heritage, interfaces for professional and control rooms, medical rehabilitation and training.

In some cases, the problem addressed requires the development of a web-based interface. In my research, I took part in the development of several web-based tools for multimedia browsing and manual annotation. Some work has been done to provide effective browsing interfaces for professional and consumer users in systems adopting advanced data structures, such as ontologies or taxonomies, in order to perform semantic search of multimedia content.

With the increasing volume of information available, we also have to take into account the problem of filtering and personalizing the content we provide to users. In my research I also studied systems and solutions to perform user's profiling. The profiling system can be based on the analysis of social networks activities, or in other cases could be performed collecting data from users' behavior, using CV or other sensors (like RFID, NFC and Bluetooth beacons). Research in these fields allows us to face difficult problems related to the access of digital information, like how users interact with contents or the selection of content that is proposed by a digital system.