

PREFACE

Collaborative multimedia applications in technology

In the last few years, the production of systems which support learning and group work has been high. However, the design and development of these types of systems are difficult, mainly due to the multidisciplinary involvement [1]. The development of applications to electronically support the realization of group activities is a difficult task due to, among other things, the multiple disciplines that converge in their design process [2].

The whole process of designing and developing great software systems that allow users to effectively work together is no easy task. Doing so requires a solid grasp of several fundamental concepts in so-called “groupware” systems. One such concept is an understanding of the ways in which people tend to interact with each other while working together [3]. Understanding different modalities of interaction among different users and how they relate to the application’s specific use cases is crucial when building systems that support remote users working together. Just putting a group of people around a task does not guarantee a real collaboration; it is necessary to structure activities to convey a communication and participation among different participants in an activity [4]. With the recent advances in computing and information technologies, we are seeing unprecedented opportunities for increased collaborations among individuals and distributed teams of humans, computer systems and applications, and/or a highly heterogeneous set of computing devices [5].

Computer-supported cooperative work or CSCW is computer-assisted coordinated activity carried out by groups of collaborating individuals [6]. CSCW is the area of research in which the impact of technology on group interaction is studied in order to facilitate group work [7]. Groupware is distinguished from normal software by the basic assumption it makes: Groupware makes the user aware that he is part of a group, while most other software seeks to hide and protect users from each other [8]. Group members interact with each other either through the manipulation of artifacts or through direct communication channels [9].

Computing technologies have continued to evolve from standalone tools, to open systems and from general purpose tools to specialized collaboration grids and infrastructures that facilitate intensive collaboration in multi-organizational settings, as well as in the context of global scale social interactions and work-sharing. Such collaborations are enabling large and globally dispersed organizations to achieve a much higher level of productivity and jointly produce innovative and powerful products that would be impossible to develop without the contributions of multiple collaborators [10]. Novel collaboration solutions that fully realize the promises of electronic collaboration, and push the limits of human endeavor, productivity and discovery require innovations and advancements in broad areas of computing including networking, systems and applications, user interfaces and interaction paradigms, and seamless interoperation among system, network and application-specific components and tools [11].

Different elements need to be considered, like awareness mechanisms. People

working in a cooperative manner need to be updated on events and informed about other users and their activities in their workspaces in order to collaborate effectively. It is necessary that group members feel they are part of the group, in particular when they are geographically dispersed. This kind of information is called awareness and it is an important research aspect in the computer supported cooperative work and computer supported collaborative learning areas [12].

To address this gap in knowledge, this focus section builds on to serve as an international venue for publishing innovative and cutting edge research results in theory as well as applied systems, applications and networking areas that enable intensive and efficient collaboration. In response, seven papers were selected for the focus section through a single-blinded peer-review process with at least two reviewers per paper. The papers showcase the applicability of various aspects related with Frameworks and Methodologies for Collaboration; Collaboration Enabling Technologies; Architectures & Design of Collaboration Systems; Platforms, Artifacts and Tools for Collaboration; Coordination and Cooperation Mechanisms; Interfaces for Collaborative Work; Intelligent, Autonomous and Multi Agents in Collaboration; Cognitive and Psychological Issues in Collaboration; Human-machine Collaboration and Interaction and Awareness in Collaboration Systems.

The first paper titled “Proposal to Conceive Multimedia Systems from a Value Creation Perspective and a Collaborative Work Routes Approach”, propose a new definition and a characterisation of a Multimedia System centred on value creation for its stakeholders.

In the second paper “Group formation in collaborative learning contexts based on personality traits: An empirical study in initial Programming courses”, authors present the results of the research process carried out to structure a homogeneous group formation technique in collaborative learning contexts, formation based on personality traits.

The 3rd paper titled “Tycho: Facilitation Support for Groupware User Tests”, authors have explored how tool-assisted facilitation affects the experience of coordinated user tests on groupware web applications, which is a complex and time-consuming task.

The 4th paper “Training of Drone Pilots through Virtual Reality Environments under the Gamification Approach in a University Context”, presents design elements under a proposed model for the production of virtual reality environments for drone pilot training.

In the 5th paper titled “Collating a city’s collective memory in co-production of an online urban design learning space”, authors describe a study enhancing a virtual city with collective memory was taken as an experimental approach to developing an online learning space for urban design learning

In the 6th paper titled “Collaborative web extensions: a P2P approach”, Authors describe a method enables developers without experience in P2P technologies to create P2P extensions with some collaborative features

The final paper “Designing for Children’s Reflections in Collaborative Interaction Mediated by Technology: A Systematic Literature Review”, Authors depicts a systematic literature review addresses how HCI research involving children used the term reflection in relation to collaborative interaction mediated by technology

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