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Preface

Special Issue on Computer-Supported Cooperative Work: Techniques and applications

According to Schmidt and Bannon [3], the term Computer-Supported Cooperative Work (CSCW) was first used by Greif and Cashman in 1984 to describe the topic of an interdisciplinary workshop that they were organizing on how human collaborative activities and their coordination can be supported by means of computer systems [1,2]. The definition of CSCW and the history of this research field are beyond the scope of this brief editorial. In fact, many people simply refer to this area by the term of Groupware, though others consider this to be too narrow. Generally speaking, the term Groupware is widely used in commercial software products while CSCW has been widely used in the research community.

Since 1996, a series of international workshops and conferences on CSCW in Design have been held with the objective to provide a forum for researchers and practitioners involved in different but related domains to present research results and discuss key issues on the development of CSCW techniques and their applications to collaborative design, manufacturing, construction, businesses, and services. The 11th edition of the International Conference on CSCW in Design (CSCWD 2007) was held in Melbourne, Australia, on April 26–28, 2007 [4]. This special issue is a result of this conference. The 11 articles are the extended versions of the selected papers chosen from 201 presented at the conference. These papers address different aspects of CSCW techniques and applications: social software, knowledge sharing and management, workflow optimization, multi-agent systems, collaborative design platforms, service-oriented architecture and applications, security and privacy of collaborative systems.

Knowledge sharing issue is addressed by the first four papers. A knowledge engineering approach is introduced by Richards to offer a wiki style collaboration under the social software context. The approach extends a combined rule- and case-based knowledge acquisition technique known as multiple classification ripple down rules to allow multiple users to collaboratively view, define and refine a knowledge base over time and space. A distributed knowledge sharing approach called Mobile Exchange of Knowledge (MEK) is proposed by Monclar et al. by using the idle moments of search to improve social networks and to disseminate knowledge in a proactive way. Nunes et al. developed a context-based model for information collection and knowledge sharing, particularly with an environment to support the cycle of creating and dealing with information about activities and interactions, which focuses on their context. A formal ontology-based representation of context is presented to support the proposed environment. Shah et al. proposed an ontological approach as a uniform way of representing and interpreting exceptions in cross-organizational settings so as to enhance the reliability and fault tolerance capability of open multi-agent systems.

The second group of two papers is related to the coordination and management of collaborative computing or working environments. Yuan et al. presented a heuristic deadline early tree algorithm to address the cost optimization for workflow scheduling represented by DAG (Directed Acyclic Graph) with deadline constraint in Grid computing environments. Hsiao et al. demonstrated an integrated information platform to facilitate the cooperation for integrated circuit design industry by combining a project management (PM) module, a design knowledge management module and a collaborative working environment.

The integration and application of software agents and Web services are shown through two papers. An agent-based framework is presented by He et al. to facilitate autonomous SLA (service level agreement) management in the context of service composition by making use of the software agents' ability of negotiation, interaction, and cooperation. A service-oriented portal framework is developed by Zhu et al. for the planning, design, implementation and integration of digital city applications.

The last group of three papers deals with access control in collaborative computing or working environments. Luo et al. presented a trust degree based access control model to facilitate the cooperation in a dynamic grid computing environment. The proposed model has shown significant performance improvements for grid computing based on experiments on a prototype environment. Sun et al. proposed an active authorization management model by extending RBAC with constructs supporting flexible authorization management while at the same time reducing the complexity of security management. Flexible access control policies are supported through the use of restraint rules. Ochoa et al. described a transformational

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model to address the need of providing a low cost process to feed OMS (Organizational Memory Systems) based on information stored in legacy information systems, embedding automatic privacy mechanisms for the digital documents stored in the OMS, and providing appropriate information retrieval capabilities to all users of the OMS.

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