

## PREFACE

H. Ulrich HOPPE

*Department of Computational and Cognitive Science  
University Duisburg-Essen  
Lotharstr. 63/65  
47058 Duisburg, Germany  
e-mail: hoppe@collide.info*

José A. PINO

*Computer Science Department  
University of Chile  
Beauchef 851, 3<sup>rd</sup> floor  
Santiago, Chile  
e-mail: jpino@dcc.uchile.cl*

This special issue comprises a selection of outstanding papers from the 18<sup>th</sup> Conference on Collaboration Technology (CRIWG 2012). Founded in 1995 in an Ibero-American context, CRIWG ([www.criwg.org](http://www.criwg.org)) has become a significant international and inter-disciplinary forum for researchers and professionals in the area of collaboration technology and related fields such as computer-supported collaborative learning (CSCL), computer-supported cooperative work (CSCW) and social media. CRIWG gathers contributions on groupware from a wide variety of academic perspectives, ranging from theory building and engineering approaches to innovative design and evaluation methods.

Following up on the 11<sup>th</sup> CRIWG conference held in Paraty (Brazil), CRIWG 2012 was held in the Renaissance castle of Raesfeld in the Lower Rhine region of Germany with University Duisburg-Essen and Ruhr West University of Applied Sciences as local organizers. The conference programme featured nine full and twelve work-in-progress papers. The spectrum of these papers provided an interesting account of the current state of research on collaboration technologies encompassing, e.g., papers on designing, facilitating, and analyzing *technology-enhanced collaborative learning*, *mobile collaboration support*, *collaborative gaming*, and *social media analytics related to networked communities*.

Based on the review results and on the impressions from the actual conference presentations the best and most interesting papers were invited to this special issue with elaborated versions that included at least 30% additional content. These extended papers underwent another two rounds of reviews through which they have been further improved. As a result, this special issue comprises six papers that cover a variety of issues and approaches related to *Collaboration and Technology*. CSCL issues are addressed in three papers from different angles, namely enabling technologies, design models, and analysis methods. The other three articles deal with a technical approach to support partially virtual communities, the use of interactive serious learning games for knowledge acquisition and finally a network-structural analysis of open source software development communities.

The first article by Francisco Gutierrez, Nelson Baloian, Sergio F. Ochoa, Gustavo Zurita, and Luis Loyola from Universidad de Chile deals with *An Architecture to Support the Design and Evaluation of Software Platforms for Partially Virtual Communities*. Focusing on “partially virtual communities” in which technically mediated communication is blended with direct face-to-face interaction, the authors propose a software architecture that helps both to design supporting platforms and to evaluate existing systems. The architecture has been used in three case studies as a design guideline in the phase of system development. Additionally, it has also been applied in the evaluation of three commercial systems with encouraging results.

In their paper on *Drawings in Computer-Supported Collaborative Learning – Empirical and Technical Results*, Lars Bollen, Hannie Gijlers, and Wouter van Joolingen from the University of Twente (Netherlands) investigate conditions that support learning through collaborative drawing activities with 94 primary school students. These support functions include the provision of awareness information, prompting and activity scripting. The underlying drawing tool was run on Wacom tablets and features object recognition based on machine learning techniques. Also in a CSCL context, Irene-Angelica Chounta and Nikolaos Avouris from the University of Patras (Greece) report on *Towards a Time Series Approach for the Classification and Evaluation of Collaborative Activities*. They propose a model that makes use of time series techniques to analyze logfiles. Collaborative sessions are classified regarding the quality of cooperation according to the derived time series attributes. These results are validated in comparison to assessments made by expert evaluators.

At the cross-roads of CSCL and Learning Design (i.e. the modeling or scripting of learning processes), María Jesús Rodríguez-Triana, Alejandra Martínez-Monés, Juan Ignacio Asensio-Pérez, and Yannis Dimitriadis from the University of Valladolid (Spain) present *Monitoring-Aware Learning Design Process: Pilot Studies in Authentic CSCL Scenarios*. In the underlying study, one of the researchers and a teacher iteratively co-designed two authentic collaborative learning scenarios with a focus on making the design model and the process monitoring-aware, in such a way as to aim of defining and evaluating a monitoring-aware design model and process. Based on the analysis of this co-design process a data structure and a set of measures for enhancing monitoring at design-time have been defined. This is

conceived as a basis for the future implementation of a monitoring-aware learning design authoring tool.

The article on *Self-Enriching Ontology-Based Casual Learning Games* by Nils Malzahn, Sabrina Ziebarth, Dominik Kloke, and H. Ulrich Hoppe from the University of Duisburg-Essen (Germany) deals with combining the ideas of using “serious games” for human learning and knowledge acquisition on the part of the system based on user input (“games with a purpose”) to improve system performance. Based on the game “Matchballs”, the authors present a general framework to implement such systems using a blackboard architecture and a domain-specific ontology. The system learns new relations between concepts from the users and thus extends the ontology. Three case examples from different domains are presented and first empirical results are discussed.

The last article by Gustavo A. Oliva, José Teodoro da Silva, and Marco A. Gerosa from the University of Sao Paulo and Francisco W. Santana and Cláudia M. L. Werner from the Federal University of Rio de Janeiro (all from Brazil) reports on *Evolving the System Core: A Case Study on Identification and Characterization of Core Developers in Apache Ant*. Based on observations in the area of open source software development teams, the authors present a method to identify key developers and characterize these in terms of social activity and contributions. The approach makes use of social network analysis techniques and takes a dual perspective in that it uses both communication and co-construction events (i.e., mail messages and code commits). The interpretation makes use of the notion of “socio-technical congruence” as a theoretical construct.

Alltogether, this collection of articles gives an interesting and up-to-date account of new developments in the field of *Collaboration and Technology*, presenting innovative methodological approaches as well as novel applications. Our thanks go to all contributors and to the reviewers whose work guaranteed the high quality of this volume.



**H. Ulrich Hoppe** holds a full professorship for cooperative and learning support systems in the Department of Computer Science and Applied Cognitive Science at the University of Duisburg – Essen, Germany. He is the founder of the research group Collide (Collaborative Learning in Intelligent Distributed Environments). His current research interests include the analysis, modelling, and intelligent support of interactive and collaborative learning as well as social network analysis and community support.



**José A. PINO** is Full Professor at the Department of Computer Science (DCC) of the University of Chile, Santiago. He has been President of the Chilean Computer Science Society (SCCC) and CLEI (a Latin American association of universities on computing). His main research areas are collaborative systems and human-computer interaction. He is author of six books and over 80 indexed journal papers on these subjects, including one published in *Computing and Informatics* in 2006. He is member of the Editorial Board of two journals and has been Special Issue Editor in 12 opportunities, including this one in *Computing and Informatics*.