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Transactions on Computational Collective Intelligence VI

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Preface

Welcome to the sixth volume of *Transactions on Computational Collective Intelligence* (TCCI). This is the first issue in 2012, the third year of TCCI activities. In 2010, the first year, TCCI published 20 papers in two issues, while in 2011 there were three issues containing 30 papers. From 2012 we are planning to keep a constant number of issues with about 35–40 papers per year. All papers included in TCCI issues contain original and advanced research results of the authors. Each of these papers constitutes a complete and comprehensive description of the contribution.

TCCI is devoted to research in computer-based methods of computational collective intelligence (CCI) and their applications in a wide range of fields such as group decision making, knowledge integration, consensus computing, Semantic Web, social networks and multiagent systems. TCCI strives to cover new computational, methodological, theoretical and practical aspects of collective intelligence understood as the form of intelligence that emerges from the collaboration and competition of many individuals (artificial and/or natural).

This volume of TCCI includes ten interesting and original papers. The first of them, entitled "On the Pattern Recognition and Classification of Stochastically Episodic Events" by Colin Bellinger and B. John Oommen, presents the frontiers of novelty detection through the introduction of a new field of problems open for analysis. In particular, the authors note that this new realm deviates from the standard set of one-class classification problems based on the presence of three characteristics, which ultimately amplify the classification challenge. In the second paper with the title "Paraconsistent Reasoning for Semantic Web Agents" the authors, Linh Anh Nguyen and Andrzej Szałas, address the problem of processing inconsistency of knowledge, which, for example, can appear in fusing knowledge from distributed sources. The authors introduce a number of paraconsistent semantics by providing a special logic named SROIQ, including three-valued and four-valued semantics. The next paper, "An Agent Model for Cognitive and Affective Empathic Understanding of Other Agents" by Zulfiqar A. Memon and Jan Treur, focuses on modelling capabilities to interpret another person's mind, taking into account both affective and cognitive states. The authors have built an agent model that describes how the empathic agent deals with another agent's cognitive states and the associated feelings. In the fourth paper entitled "Multiagent-Based Simulation as a Supply Chain Analysis Workbench" the authors, Jacek Jakieła, Paweł Litwin and Marcin Olech, present the application of multiagent-based simulation tools to the analysis of supply chain behavior. They show that the agent-oriented approach may be considered as a powerful conceptual framework for organization modeling and workbench for simulations of intra- and inter-organizational business processes. In the paper "On the Effective Distribution and Maintenance of Knowledge Represented by

Complementary Graphs" by Leszek Kotulski and Adam Sędziwy, a method for knowledge distribution and maintenance using parallel graph transformations is presented. In the next paper, entitled "Agent System for Managing Distributed Mobile Interactive Documents in Knowledge-Based Organizations," Magdalena Godlewska presents a model of knowledge-based organization and general assumptions of the mobile interactive document (MIND) architecture and selected workflow patterns applicable to knowledge-based organizations. She describes the elements of the agent system for managing distributed mobile documents and shows case studies that use the MIND architecture. In the seventh paper with the title "Agent Cooperation Within Adversarial Teams in Dynamic Environment — Key Issues and Development Trends" Bartłomiej Dzieńkowski and Urszula Markowska-Kaczmar present a comprehensive survey of multiagent systems with adversarial teams competing in dynamic environments. The next paper, "On Pricing Strategies of Boundedly Rational Telecommunication Operators" by Bogumil Kaminski and Maciej Latek, contains an analysis of a multiagent model of a pre-paid telecommunication market and illustrates how the topology of the call graph among customers influences long-run market prices. The ninth paper entitled "Reasoning About Time-Dependent Multiagents: Foundations of Theorem Proving and Model Checking," by Norihiro Kamide, presents some extensions of linear-time temporal logic and computation tree logic. The author has proved that owing to these approaches it is easier to process time-dependent knowledge in multiagent systems. In the last paper, "Learning Predictive Models for Financial Time Series by Using Agent Based Simulations," Filippo Neri presents a computational technique to model financial time series combining a learning component with a simulation one. The author also describes an agent-based model of the financial market to simulate how the market will evolve in the short term while the learning component based on evolutionary computation is used to optimize the simulation parameters.

TCCI is a peer-reviewed and authoritative journal dealing with the working potential of CCI methodologies and applications as well as with emerging issues of interest to academics and practitioners. The research area of CCI has been growing significantly in recent years and we are very thankful to everyone within the CCI research community who has supported the *Transactions on Computational Collective Intelligence* and its affiliated events including the *International Conferences on Computational Collective Intelligen*ce (ICCCI). The first ICCCI event was held in Wroclaw, Poland, in October 2009. ICCCI 2010 was held in Kaohsiung, Taiwan, in November 2010 and ICCCI 2011 in Gdynia, Poland, in September 2011. For ICCCI 2011 almost 300 papers from 25 countries were submitted, and only 105 papers were selected for inclusion in the proceedings published by Springer in the LNCS/LNAI series. ICCCI 2012 will be held in Ho Chi Minh city, Vietnam, in November 2012. After each ICCCI event we invite authors of selected papers to extend them and submit them for publication in TCCI.

We are very pleased that TCCI and the ICCCI conferences are strongly cemented as high-quality platforms for presenting and exchanging the most important and significant advances in CCI research and development. It is also our pleasure to announce the new Technical Committee on Computational Collective Intelligence within the Systems, Man and Cybernetics Society (SMC) of IEEE.

We would like to thank all the authors, Editorial Board members, and the reviewers for their contributions to TCCI. Finally, we would also like to express our gratitude to the LNCS editorial staff of Springer headed by Alfred Hofmann for supporting the TCCI journal.

December 2011 Ngoc Thanh Nguyen

Transactions on Computational Collective Intelligence

This Springer journal focuses on research in applications of the computer-based methods of computational collective intelligence (CCI) and their applications in a wide range of fields such as the Semantic Web, social networks and multiagent systems. It aims to provide a forum for the presentation of scientific research and technological achievements accomplished by the international community.

The topics addressed by this journal include all solutions of real-life problems for which it is necessary to use CCI technologies to achieve effective results. The emphasis of the papers is on novel and original research and technological advancements. Special features on specific topics are welcome.

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