Quan Bai and Naoki Fukuta (Eds.)

Advances in Practical Multi-Agent Systems

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Advances in Practical Multi-Agent Systems

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Preface

This book constitutes the thoroughly refereed post-proceedings of workshops under the 12th International Conference on Principles of Practice in Multi-Agent Systems (PRIMA2009). Twenty-eight revised full papers were included in this book.

The International Conference on Principles of Practice in Multi-Agent Systems (PRIMA) is a conference that has developed from a series of leading international workshops in the Pacific Rim region for the presentation of research and the latest developments on principles, practices, and theories in multi-agent system (MAS) technologies, including the application of MAS to problems of social, industrial, and economic importance. PRIMA 2009 was the 12th in the series of conferences/workshops and was held in Nagoya, Japan, December 13-16, 2009.

The PRIMA2009 workshops were designed to provide a forum for researchers and practitioners to present and exchange the latest developments at the MAS frontier. Workshops are more specialized and on a smaller scale than conferences to facilitate active interaction among the attendees. They encourage MAS theories to meet reality, MAS researchers to work with practitioners, and vice versa. Through workshops, both sides get exposure to evolving research and tools, and to the practical problems to which MAS can be applied. As an excellent indicator of the current level of active research and development activities, PRIMA2009 included a total of five workshops that were grouped as two joint workshops and one stand alone workshop:

- International Workshop on Agent-based Collaboration, Coordination, and Decision Support;
- Joint workshop on Multi-Agent Simulation in Finance and Economics & Applied Agent based simulator Engineering for Complex System study; and
- Joint Workshop on Agent Technology for Disaster Management & Intelligent Agents in Sensor Networks and Sensor Web.

The output from those workshops has created this unique collection that is presented in three parts. Part I reports the use of agent technologies in assisting the collaboration among humans and software mechanisms, coordination among software agents and systems, and decision support on knowledge discovery; Part II covers agent-based simulation in finance, economics and social science; and Part III discusses agent-based applications for environmental monitoring and disaster management.

Each workshop paper was accepted after review by at least two experts. Further improvements were included in many papers in preparation for this collection. Readers will be able to explore a diverse range of topics and detailed discussions related to the five important themes in our ever changing world. This collection plays an important role in bridging the gap between MAS theory and practice. It emphasizes the importance of MAS in the research and development of smart power grid systems, decision support systems, optimization and analysis systems for road traffic and markets, environmental monitoring and simulation, and in many other real-world applications and publicizes and extends MAS technology to many domains in this fast moving information age.

The organizers of the workshops did an excellent job in bringing together many MAS researchers and practitioners from the Pacific-Asia region and from all over the world. The well-received workshops at PRIMA2009 and the publications included in this collection convincingly demonstrate the significance and practical impact of the latest work presented in MAS.

We are certain that this collection will stimulate increased MAS research and applications, influence many graduate students to conduct research and development in MAS, and have a positive impact towards making our future better by creating an increasingly smarter world.

December 2009

Quan Bai
CSIRO, Australia
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