Lecture Notes in Artificial Intelligence 7327

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Agent and Multi-Agent Systems

Technologies and Applications

6th KES International Conference, KES-AMSTA 2012
Dubrovnik, Croatia, June 25-27, 2012
Proceedings

Springer

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ISSN 0302-9743 e-ISSN 1611-3349
ISBN 978-3-642-30946-5 e-ISBN 978-3-642-30947-2
DOI 10.1007/978-3-642-30947-2
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012939053

CR Subject Classification (1998): I.2.11, I.2, H.3.4-5, H.4, D.2, J.4, I.6

LNCS Sublibrary: SL 7 – Artificial Intelligence

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Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This volume contains the proceedings of the 6th KES Conference on Agent and Multi-Agent Systems – Technologies and Applications (KES-AMSTA 2012) held at the Centre for Advanced Academic Studies (CAAS) in Dubrovnik, Croatia, during June 25–27, 2012. The conference was organized by the University of Zagreb, Faculty of Electrical Engineering and Computing, KES International and its Focus Group on Agent and Multi-agent Systems. The KES-AMSTA conference is a subseries of the KES conference series.

Following the successes of previous KES Symposia on Agent and Multi-Agent Systems – Technologies and Applications, held in Wroclaw, Poland (KES- AMSTA 2007), Incheon, Korea (KES-AMSTA 2008), Uppsala, Sweden (KES-AMSTA 2009) and Gdynia, Poland (KES-AMSTA 2010), it was decided to run KES-AMSTA 2011 in Manchester, UK, as a full conference. KES-AMSTA 2012 featured the usual keynote talks, oral presentations and invited sessions closely aligned to the established themes of the conference.

The aim of the conference was to provide an internationally respected forum for scientific research in the technologies and applications of agent and multi-agent systems. This field is concerned with the development and evaluation of sophisticated, AI-based problem-solving and control architectures for both single-agent and multi-agent systems. Current topics of research in the field include (amongst others) agent-oriented software engineering, beliefs, desires and intentions, agent co-operation, co-ordination, negotiation, organization and communication, distributed problem solving, specification of agent communication languages, formalization of ontologies and conversational agents. Special attention is paid to the feature topics: Intelligent technologies and applications in the area of e-health, social networking, self-organizing systems, economics and trust management.

The conference attracted a substantial number of researchers and practitioners from all over the world who submitted their papers for ten main tracks covering the methodology and applications of agent and multi-agent systems, one workshop and five special sessions on specific topics within the field.

Submissions came from 20 countries. Each paper was peer reviewed by at least two members of the International Program Committee and International Reviewer Board. In all, 66 papers were selected for oral presentation and publication in the proceedings volume of KES-AMSTA 2012.

The Program Committee defined the following main tracks: Knowledge and Learning Agents, Virtual Organizations, Business Processing Agents, Multi-agent Systems, Mental and Holonic Models, Self-Organization, Conversational Agents and Agent Teams, and Multi-agent Systems in Distributed Environments.

In addition to the main tracks of the conference the First International Workshop on Trustworthy Multi-Agent Systems (TRUMAS 2012) and the following

five special sessions were also hosted: Intelligent Workflow, Cloud Computing and Intelligent Systems; Digital Economy; Assessment Methodologies in Multi-agent and Other Paradigms; ICT-Based Alternative and Augmentative Communication, as well as a Doctoral Track. This year's conference also organized a Work in Progress Track as a half-day workshop taking place on the final day of the conference, giving early career stage researchers the opportunity to present their work.

Accepted and presented papers highlight new trends and challenges in agent and multi-agent research. We hope that these results will be of value to the research community working in the fields of artificial intelligence, collective computational intelligence, robotics, dialogue systems and, in particular, agent and multi-agent systems, technologies and applications.

We would like to express our sincere thanks to the Honorary Chair Ignac Lovrek, University of Zagreb, Croatia, for his support and help.

The Chairs' special thanks go to Tanja Grzilo, University of Zagreb, CAAS Dubrovnik, Croatia, and to the Local Organizing Chair Igor Cavrak, for his excellent work. Thanks are due to the Program Co-chairs, all Program and Reviewer Committee members and all the additional reviewers for their valuable efforts in the review process, which helped us to guarantee the highest quality of selected papers for the conference.

We would like to thank our main sponsor, University of Zagreb. Our special thanks also go to Springer for publishing the proceedings.

We would also like to express our thanks to the keynote speakers, Michael Luck, King's College London, UK, Wolfgang Ketter, Erasmus University, The Netherlands, and Kimon Valavanis, University of Denver, USA, for their interesting and informative talks of world-class standard. We cordially thank all of the authors for their valuable contributions and all of the other participants in this conference. The conference would not have been possible without their support.

April 2012

Gordan Jezic
Mario Kusek
Ngoc Thanh Nguyen
Robert J. Howlett
Lakhmi C. Jain

Organization

KES-AMSTA 2012 was organized by KES International – Innovation in Knowledge-Based and Intelligent Engineering Systems—and the University of Zagreb, Faculty of Electrical Engineering and Computing.

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Lakhmi Jain	University of South Australia, Australia

Keynote Speakers

Michael Luck
King's College London, UK
Behavior Regulation and Normative Systems

Wolfgang Ketter
Erasmus University, The Netherlands
Competitive Simulations: Lessons Learned from the Trading Agent Competition

Kimon Valavanis
University of Denver (DU), USA
Challenges in Unmanned Systems Swarms
A Wireless, Multi-agent Distributed System Perspective

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Intelligent Workflow, Cloud Computing and Intelligent Systems

Jessica Chen-Burger	University of Edinburgh, Scotland, UK
Lakhmi Jain	University of South Australia, Australia
Fang-Pang Lin	National Centre for High-Performance Computing, HsinChu, Taiwan

Digital Economy

Arkadiusz Kawa	Poznan, University of Economics, Poland
Jessica Chen-Burger	University of Edinburgh, Scotland, UK
Konrad Fuks	Poznan, University of Economics, Poland

Assessment Methodologies in Multi-agent and other Paradigms

Jadranka Sunde	Defence Science and Technology Organisation and University of South Australia
Marina Cicinsain	University of Rijeka, Croatia

TRUMAS 2012 (First International Workshop on Trustworthy Multi-agent Systems)

Nicola Dragoni	Technical University of Denmark, Denmark
Manuel Mazzara	Newcastle University, UK

ICT-Based Alternative and Augmentative Communication

Zeljka Car	University of Zagreb, Croatia

Sponsoring Institutions

Ministry of Science, Education and Sports of the Republic of Croatia
University of Zagreb, Faculty of Electrical Engineering and Computing

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