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Ingrid Nunes · Rym Zalila-Wenkstern (Eds.)

Engineering Multi-Agent Systems

4th International Workshop, EMAS 2016
Singapore, Singapore, May 9–10, 2016
Revised, Selected, and Invited Papers

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Preface

The engineering of multi-agent systems (MAS) is a multi-faceted, complex task. These systems consist of multiple, autonomous, and heterogeneous agents, and their global behavior emerges from the cooperation and interactions among the agents. MAS have been widely studied and implemented in academia, but their full adoption in industry is still hampered by the unavailability of comprehensive solutions for conceiving, engineering, and implementing these systems.

Although much progress has been made in the development of MAS, the systematic engineering of large-scale MAS still poses many challenges. Even though various models, techniques and methodologies have been proposed in the literature, researchers and developers are still faced with the common questions:

- Which architectures are suitable for MAS?
- How do we specify, design, implement, validate and verify, and evolve our systems?
- Which notations, models, and programming languages are appropriate?
- Which development tools and frameworks are available?
- Which processes and methodologies can integrate all of the above and provide a disciplined approach to the rapid development of high-quality MAS?

Existing approaches address the use of common software engineering solutions for the conception of MAS, the use of MAS for improving common software engineering tasks, and also the blending of the two disciplines to conceive MAS-centric development processes.

The International Workshop on Engineering Multi-Agent Systems (EMAS) provides a comprehensive venue where software engineering, MAS, and artificial intelligence researchers can meet, discuss different viewpoints and findings, and share them with industry. EMAS was created in 2013 as a merger of three separate workshops (with overlapping communities) that focused on the software engineering aspects (AOSE), the programming aspects (ProMAS), and the application of declarative techniques to design, program, and verify MAS (DALT). The workshop is traditionally co-located with AAMAS (International Conference on Autonomous Agents and Multiagent Systems) which in 2016 took place in Singapore. The previous editions were held in St. Paul (LNAI 8245), in Paris (LNAI 8758), and in Istanbul (LNAI 9318).

This year the EMAS workshop was held as a one-and-a-half-day event. Fourteen papers were submitted to the workshop and after a double review process, ten papers were selected for inclusion in this volume. All the contributions were revised by taking into account the comments received and the discussions at the workshop. Among them, the paper “How Testable Are BDI Agents? An Analysis of Branch Coverage” by Michael Winikoff, also appears in LNAI 10002 [N. Osman and C. Sierra (Eds.), AAMAS 2016 Ws Best Papers, LNAI 10002, pp. 90–106, 2016, DOI: 10.1007/978-3-319-46882-2_6], since it was selected as the best paper of the workshop, while

the paper “Augmenting Agent Computational Environments with Quantitative Reasoning Modules and Customizable Bridge Rules” by Stefania Costantini and Andrea Formisanom also appears in LNAI 10003 [N. Osman and C. Sierra (Eds.), AAMAS 2016 Ws Visionary Papers, LNAI 10003, pp. 104–121, 2016, DOI: 10.1007/978-3-319-46840-2_7], because it was selected as the most visionary paper of the workshop. The volume includes two extended versions from the AAMAS 2016 demonstration abstracts, namely, “PriGuardTool: A Web-Based Tool to Detect Privacy Violations Semantically,” by Nadin Kokciyan and Pinar Yolum, and “Using Automatic Failure Detection for Cognitive Agents in Eclipse,” by Vincent Jaco Koeman, Koen Victor Hindriks, and Catholijn Maria Jonker.

We would like to thank the members of the Program Committee for their excellent work during the reviewing phase. We also acknowledge the EasyChair conference management system that –as usual– provided support for the workshop organization process. Moreover, we would like to thank the members of the Steering Committee of EMAS for their valuable suggestions and support.

November 2016

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