From Objects to Agents

XIV Workshop, WOA 2013
Torino, Italy, December 2nd-3rd, 2013
Workshop Notes

WOA 2013 Home Page:
http://di.unito.it/woa2013
Agent-based technologies, developed in the Artificial Intelligence area, have become more and more important especially in more traditional Computer Science areas, like Software Engineering, where the agent abstraction is considered a natural extension of the object abstraction. The importance of these techniques is also witnessed in the industrial sector by their use in the development of tools and applications.


This year event, celebrating the forteenth workshop edition, was co-located with the conference of the Italian Association for Artificial Intelligence. On this occasion we took stock of whether the agent technology can still be considered a scion of Artificial Intelligence and to which extent it can still be considered as connected to the object technology. We were honored to have Rafael Heitor Bordini as an invited speaker. His talk was intitled “Jason Comes of Age: 10 Years of Progress in Multi-Agent Oriented Programming”.

This volume contains sixteen papers, selected by the Programme Committee. Each paper received at least three reviews in order to supply the authors with helpful feedback that could stimulate the research as well as foster discussion.

We would like to thank all authors for their contributions, the members of the Steering Committee for the valuable suggestions and support, and the members of the Programme Committee for their excellent work during the reviewing phase.

November 25th, 2013

Matteo Baldoni
Cristina Baroglio
Federico Bergenti
Alfredo Garro
Program Committee

Matteo Baldoni Dipartimento di Informatica, Univ. di Torino
Cristina Baroglio Dipartimento di Informatica, Università di Torino
Federico Bergenti Università degli Studi di Parma
Giacomo Cabri Università di Modena e Reggio Emilia
Federico Chesani University of Bologna
Rino Falcone Istituto di Scienze e Tecnologie della Cognizione, CNR Roma
Nicoletta Fornara Università della Svizzera Italiana, Lugano
Giancarlo Fortino University of Calabria
Alfredo Garro University of Calabria
Elisa Marengo Dipartimento di Informatica, Università di Torino
Viviana Mascardi DIBRIS (Department of Informatics, Bioengineering, Robotics and System Engineering), University of GENOVA, IT

Emanuela Merelli University of Camerino
Andrea Omicini Alma Mater Studiorum Università di Bologna
Paolo Petta Austrian Research Institute for Artificial Intelligence
Agostino Poggi University of Parma
Giovanni Rimassa Whitestein Technologies AG
Andrea Santi Università di Bologna
Corrado Santoro
Paola Turci University of Parma
Eloisa Vargiu Barcelona Digital Technology Center
Mirko Viroli Alma Mater Studiorum - Università di Bologna
Additional Reviewers

Giuliani, Alessandro
Keyword Index

actor model 91
Agent Communication Infrastructure 104
Agent Negotiation 54
Agent-based Data Mining 47
Agent-oriented Computing 60
Agents 41
agent-based modelling and simulation 30
Ambient Intelligence 47

BDI 66
biochemical coordination 16
biochemical kinetic laws 16
biochemical simulation 16
biopepa 16

Cloud Computing 60
Commitment and commitment-based protocol 104
computer vision 30
concurrent programming 91
crowd analysis 30
crowd synthesis 30

design Methodologies 66
distributed systems 91

Event-driven programming 1
Expert system 41

Feature Expansion 78

Goals 66
Group Recommendation 73
groups 30

Health Information System (HIS) 24
Home and Building Automation 47

Internet of Things 60
Interoperability 24

JADE 85
Jade and Cartago 104

Knowledge Artifact 41
<table>
<thead>
<tr>
<th>Keyword</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market of Services</td>
<td>54</td>
</tr>
<tr>
<td>Middleware</td>
<td>60</td>
</tr>
<tr>
<td>mok</td>
<td>16</td>
</tr>
<tr>
<td>Multi-Agent System (MAS)</td>
<td>24</td>
</tr>
<tr>
<td>Multi-agent systems</td>
<td>73</td>
</tr>
<tr>
<td>Multi-agent systems design</td>
<td>66</td>
</tr>
<tr>
<td>Non-determinism</td>
<td>8</td>
</tr>
<tr>
<td>Online Social Networks</td>
<td>73</td>
</tr>
<tr>
<td>Ontology</td>
<td>66</td>
</tr>
<tr>
<td>parameter engineering</td>
<td>16</td>
</tr>
<tr>
<td>parameter tuning</td>
<td>16</td>
</tr>
<tr>
<td>Polarity Classification</td>
<td>78</td>
</tr>
<tr>
<td>Quality of Service</td>
<td>54</td>
</tr>
<tr>
<td>rule-based systems</td>
<td>97</td>
</tr>
<tr>
<td>Security</td>
<td>97</td>
</tr>
<tr>
<td>Semantic Web of Things</td>
<td>47</td>
</tr>
<tr>
<td>Sentiment Analysis</td>
<td>78</td>
</tr>
<tr>
<td>Smart Objects</td>
<td>60</td>
</tr>
<tr>
<td>Social gaming</td>
<td>85</td>
</tr>
<tr>
<td>Social Network</td>
<td>78</td>
</tr>
<tr>
<td>software framework</td>
<td>91</td>
</tr>
<tr>
<td>Spatial coordination</td>
<td>1</td>
</tr>
<tr>
<td>Stochastic systems</td>
<td>8</td>
</tr>
<tr>
<td>Text Normalization</td>
<td>78</td>
</tr>
<tr>
<td>Trust</td>
<td>97</td>
</tr>
<tr>
<td>Tuple-based coordination</td>
<td>1, 8</td>
</tr>
<tr>
<td>Uniform primitives</td>
<td>8</td>
</tr>
<tr>
<td>WADE</td>
<td>85</td>
</tr>
<tr>
<td>Web services</td>
<td>97</td>
</tr>
</tbody>
</table>
# Table of Contents

Space-aware Coordination in ReSpecT ........................................... 1
  Stefano Mariani and Andrea Omicini

Tuple-based Coordination of Stochastic Systems with Uniform Primitives........... 8
  Stefano Mariani and Andrea Omicini

Parameter Engineering vs. Parameter Tuning: the Case of Biochemical Coordination in MoK ................................. 16
  Stefano Mariani

A Multi-Agent Solution for the Interoperability Issue in Health Information Systems...... 24
  Paolo Sernani, Andrea Claudi, Luca Palazzo, Gianluca Dolcini and Aldo Franco Dragoni

Integrated Analysis and Synthesis of Pedestrian Dynamics: First Results in a Real World Case Study ..................................... 30
  Luca Crociani, Sultan Daud Khan and Giuseppe Vizzari

A Conceptual and Computational Model for Knowledge-based Agents in ANDROID ...... 41
  Fabio Sartori, Lorenzo Manenti and Luca Grazioli

Mining the user profile from a smartphone: a multimodal agent framework .............. 47
  Giuseppe Loseto, Michele Ruta, Floriano Scioscia, Eugenio Di Sciascio and Marina Mongiello

Evaluating Negotiation Cost for QoS-aware Service Composition ........................ 54
  Claudia Di Napoli, Dario Di Nocera and Silvia Rossi

Towards a Cloud-assisted and Agent-oriented Architecture for the Internet of Things ...... 60
  Giancarlo Fortino and Wilma Russo

Ontology and Goal Model in Designing BDI Multi-Agent Systems ........................ 66
  Patrizia Ribino, Massimo Cossentino, Carmelo Lodato, Salvatore Lopes, Luca Sabatucci and Valeria Seidita

How to Improve Group Homogeneity in Online Social Networks ........................ 73
  Pasquale De Meo, Emilio Ferrara, Domenico Rosaci and Giuseppe M.L. Sarnè

Enhance Polarity Classification on Social Media through Sentiment-based Feature Expansion .................................................. 78
  Federico Alberto Pozzi, Elisabetta Fersini, Enza Messina and Daniele Blanc

An Overview of the AMUSE Social Gaming Platform .................................. 85
  Federico Bergenti, Giovanni Caire and Danilo Gotta

Replaceable Implementations for Actor Systems ...................................... 91
  Agostino Poggi

Trust Negotiation for Automated Service Integration .................................. 97
  Michele Tomaiuolo and Filippo Agazzi

2COMM: A commitment-based MAS architecture .................................... 104
  Matteo Baldoni, Cristina Baroglio and Federico Capuzzimati