

Preface

Knowledge representation and reasoning (KR&R) has long been a vibrant and exciting field of human endeavor, and has become a key driver of innovation in computer science. It has also led to significant advances in practical applications from artificial intelligence to software engineering. Informally, research in KR&R is aimed at an understanding of how to store, retrieve, and interact with knowledge, and at the development of methods and tools for the practical performance of these tasks. The KR&R landscape is broad and diverse. Dedicated formalisms have been developed for different kinds of knowledge, such as, for representing and reasoning about temporal, spatial, or vague knowledge; and different forms of human-reasoning motivated research on specific reasoning tasks such as planning, diagnosis, argumentation, and belief revision.

The KR conference series serves as a biennial gathering for researchers working on different aspects of KR&R, and fosters communication, cross-fertilization of ideas, and collaboration across research boundaries. As a consequence, the lists of topics addressed at this and previous KR conferences are diverse and cover a broad range of substantial research areas. KR 2012 is a case in point. The most popular topics for submission to KR 2012 included answer set programming; description logics; nonmonotonic reasoning; argumentation; belief merging, revision, and update; and KR and databases. An additional consequence of KR's broad reach is reflected in the range of colocated events including: the 25th International Workshop on Description Logics (DL 2012), the 14th International Workshop on Non-Monotonic Reasoning (NMR 2012), the 12th AI*IA Symposium on Artificial Intelligence (AI*IA 2012), the 9th Italian Convention on Computational Logic (CILC 2012), and the 1st Interna-

tional Workshop on Knowledge-Intensive Business Processes (KiBP 2012).

We received 202 submissions to KR 2012 that emerged from 256 registered abstracts. This was comparable to the numbers for KR 2010, KR 2006, and KR 2004, which received 211, 210, and 199 submissions, respectively. It was significantly more than the 161 submissions to KR 2002, but somewhat fewer than the record set at KR 2008 of 251 submissions. From the 202 submissions, we accepted 53 papers as regular technical papers and 18 papers as short technical papers. The provision of short technical papers was introduced at KR 2010 and has been continued in 2012.

In 2011, the KR community lost one of its most influential researchers. John McCarthy, recognized by many as the founder of AI and KR, passed away following a rich and productive career that spanned nearly 50 years. KR 2012 will pay tribute to John through an invited lecture by Leora Morgenstern entitled "Through the Lens of *Drosophila*: John McCarthy's Quest for Human-Level Artificial Intelligence." KR 2012 is also honored to host Vladimir Lifschitz who will deliver the 2012 Great Moments in KR Lecture, "Logic Programming Solution to the Frame Problem." The conference is also delighted to host three distinguished lectures: by Craig Boutilier, "Preference Elicitation and Preference Learning in Social Choice: New Foundations for Group Recommendation"; by Maurizio Lenzerini, "Ontology-based Data Management: Present and Future"; and by Moshe Vardi, "The Rise and Fall of Linear Temporal Logic." In addition, KR 2012 will hold four tutorials on the following topics: "IBM Watson," presented by Alfio M. Gliozzo; "Graph-Based Methods for Problem Decomposition," by Georg Gottlob, Gianluigi Greco, and Francesco Scarcello; "Introduction to Social Choice" by Jérôme Lang; and "Model-

ing and Solving in Answer Set Programming” by Torsten Schaub.

We would like to express our gratitude to all those who helped make KR 2012 a success. First and foremost, our profound thanks go out to the KR 2012 Program Committee — to the Area Chairs, the Program Committee members, and to the auxiliary reviewers. We thank you for your hard work, thorough and timely reviews, and informed discussion. Next we would like to thank Giuseppe De Giacomo and Marco Schaerf from University of Rome “La Sapienza,” and their team, including Carola Aiello and Paolo Felli, for the outstanding job they did on local arrangements. The conference will reflect the best of Italian hospitality. We also thank Esra Erdem and Frank Wolter for their outstanding service in coordinating the KR 2012 Doctoral Consortium. We further wish to thank Ben Johnston and Mary-Anne Williams for their assistance publicizing this event. Finally, we thank Tomi Janhunen for kindly providing his ASP-based paper assignment software

and Thomas Krennwallner for its further development. Last but certainly not least, we extend our thanks to our generous sponsors without whom this conference would not take place: Principles of Knowledge Representation and Reasoning, Incorporated; University of Rome “La Sapienza,” *Artificial Intelligence Journal*; IBM Italy; Agreement Technologies – COST Action IC0801; European Network for Social Intelligence (SINTELNET); and the Italian Association for Logic Programming (GULP).

In closing we thank our KR colleagues for their outstanding technical contributions, which grace the pages that follow.

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