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 lead to significant advances in practical applications from artificial intelligence to software engineering. In a nutshell, 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, argumentation, and belief revision. The KR conference series serves as a biannual gathering for researchers working on these different aspects of KR&R, and fosters communication, cross-fertilization of ideas, and collaboration across their boundaries. As a consequence, KR conferences' lists of topics of interest are diverse and cover a broad range of substantial research areas. KR 2010 is no different. Its list of topics include "natural language processing, summarization, categorization," "causal reasoning, abduction, model-based diagnosis," as well as "computational aspects of knowledge representation." Another consequence of KR's amalgamation effect can be seen in the growing number of collocated events. As on many previous occasions, in 2010, KR is collocated with the International Conference on Automated Planning and Scheduling (ICAPS), the International Workshop on Description Logics (DL), and the International Workshop on Non-Monotonic Reasoning (NMR). Moreover, KR 2010 is collocated with the International Conference on Formal Ontology in Information Systems (FOIS) and, for the first time, with the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), holding with the latter a joint technical session with both invited talks and presentations of regular papers from AAMAS and KR.

We received 211 submissions that emerged from 266 registered abstracts. This was not as many as in KR 2008 (where it was 251), but comparable with 210 submissions to KR 2006, and significantly more than 199 and 161 submissions to KR 2004 and KR 2002, respectively. It meant a considerable work load for the members of the program committee. Interestingly, in addition to the "traditional big" themes such as reasoning about actions, logic programming, or description logics, we were faced with a surprising number of submissions, in particular on argumentation and preferences, which caused us to further extend the program committee. We would like to express our gratitude to all members of the Program Committee for their hard work, thorough and timely reviews, and informed discussion — and thank especially those Program Committee members who were so kind as to accept our invitation after the submission deadline. From the 211 submissions, we accepted 53 papers as regular papers and 16 as short papers with poster presentation: the latter category was introduced to give a forum to authors who submitted an interesting,

promising new idea, in a form that was felt to be not mature enough for a regular KR paper.

The conference program includes four invited talks, by five invited speakers: Ron Brachman and Hector Levesque will present a "Great moments in KR" talk in the joint session with AAMAS. Ian Horrocks will share some of his experiences on how performance, language standards, and infrastructure are vital ingredients to make a well-established, logic-based KR&R formalism useable and attractive. Yoav Shoham will discuss logics that capture intuitions about intention and other mental constructs from a computational perspective, namely from a database perspective. Finally, Chitta Baral will describe a journey in reasoning about actions and change — from single agent actions to multiagent actions.

In addition, we follow the traditions established at KR 2006 to have tutorials and at KR 2004 to have a doctoral consortium. For the latter, Yan Zhang has brought together an exciting program. For the former, we were able to invite the following four tutorial presenters: Leonardo de Moura (presenting Satisfiability with and without Theories); Carsten Lutz (presenting Reasoning in DLs: Expressive Power Versus Computational Complexity); Bernhard Nebel (presenting Computational Complexity of Action Planning); and monica mc schraefel [sic] (presenting What if You Wanted Someone (Else) to Use This? Usability Heuristics for KR Tool and Representation Design).

Finally, we thank all those who helped making KR 2010 a success. Mikhail Soutchanski, our Local Arrangement Chair, has worked extremely hard and efficiently throughout the preparation of the conference: KR 2010 being colocated with five other conferences made their job even more tricky. Finally, we would like to cordially thank Yan Zhang (Doctoral Consortium Chair), Joost Vennekens (Publicity Chair), Joshua Gross, Alexandra Goultiaeva, Yilan Gu, and Wael Yehia (local organisation team) for their efforts and priceless service. Last but not least, we would like to thank our sponsors who have enabled us to invite speakers and tutorial presenters, to run a doctoral consortium, and to organize the conference: KR, Inc., *Artificial Intelligence Journal,* IBM, ECCAI, University of Kentucky, and Ryerson University.

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