

Preface

Context interpretation and context-based reasoning are key factors in the development of intelligent autonomous systems in a variety of applications. The ability to represent contextual factors, interpret them and combine them with other sources of knowledge are some of the challenges to enable intelligent systems achieve correct behavior. Much work has been done in application areas that make use of contextual information, such as pervasive computing, logic-based sensor fusion and data integration, distributed problem solving and societal issues in Multi-Agent Systems. As well, theoretical foundations for context-based reasoning have been studied.

However, there is still a great deal to do in context modeling, since generic context models for context-aware application development need to be further explored, as does the role of context reasoning in particular regarding distributed evaluation and in conjunction with more recently emerging areas such as ontologies, including Semantic Web data, social features and reasoning about mental states, as well as approaches to belief change.

Context-dependent data can arise from different sources; for example it may be gathered by sensors or collected from different knowledge sources in different formats. The incompleteness and heterogeneous nature of such data and the need for state-based context interpretation in dynamic systems suggest that non-monotonic reasoning techniques could be a powerful tool for effective context-dependent reasoning. Since in many applications the data stems from distributed sources, distributed reasoning mechanisms are a highly relevant subject of research. Likewise, declarative approaches to societal reasoning or agent coordination may provide the backbone for contextual reasoning in various application domains. Given the increasing interest in hybrid knowledge representation formalisms as basis of the Semantic Web, it is also very interesting to consider proposals that assume hybrid formalisms combining Description Logics and Logic Programming as the basic representation framework for reasoning with (distributed) contexts.

Log-IC 2011 provided a forum for researchers investigating context-aware applications and context-based or distributed reasoning to share and compare their views on the efficacy of different context representation and context interpretation frameworks. Like the first Log-IC workshop (in Potsdam, 2009), it was held in conjunction with LPNMR (organized in Vancouver, Canada, May 16-19, 2011) with the additional advantage of reaching out to the logic programming community, facilitating collaboration between different formalisms for context-based reasoning.

Besides regular and short papers accepted for presentation, the workshop program consisted of invited talks by Pedro Cabalar (Corunna University, Spain), Thomas Eiter (TU Wien, Austria), and Torsten Schaub (University of Potsdam, Germany). These proceedings contain abstracts of the invited talks and the four papers that were accepted for publication by our Programme Committee. Acceptance was based on a blind reviewing process where every submission had been evaluated by three reviewers. Research

topics covered by contributions in this volume include various aspects of context-based reasoning, for instance privacy preservation, model streaming, and inconsistency management, as well as issues of inter-context communication.

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Organizers
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Organisation

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