

Preface

The annual International Web Rule Symposium (RuleML) is an international conference on research, applications, languages, and standards for rule technologies. It has evolved from an annual series of international workshops since 2002, international conferences in 2005 and 2006, and international symposia since 2007. RuleML 2016 was the 10th symposium of this series, co-located in New York State with the 25th International Joint Conference on Artificial Intelligence (July 9–15, 2016) and the Joint Multi-Conference on Human-Level Artificial Intelligence 2016 (July 16–19, 2016).

RuleML is a leading conference aiming to build bridges between academia and industry in the field of rules and its applications, especially as part of the semantic technology stack. It is devoted to rule-based programming and rule-based systems including production rule systems, logic programming rule engines, and business rule engines and business rule management systems, Semantic Web rule languages and rule standards (e.g., RuleML, SWRL, RIF, PRR, SBVR, DMN, CL, Prolog), rule-based event processing languages (EPLs) and technologies, and research on inference rules, transformation rules, decision rules, and ECA rules.

This annual symposium is the flagship event of RuleML. The RuleML Initiative (<http://ruleml.org>) is a non-profit umbrella organization with a Steering Committee, an advisory board, taskforces, and technical groups, whose participants from academia, industry, and government work on rule technology and its applications. Its aim is to promote the study, research, and use of rules in heterogeneous distributed environments such as the Web. RuleML maintains effective links with other major international societies and acts as intermediary between various “specialized” rule vendors, applications, industrial and academic research groups, as well as standardization efforts from, e.g., W3C, OMG, OASIS, and ISO. One of its major contributions is the unifying RuleML system of families of rule languages, serialized in XML and spanning across all industrially relevant kinds of Web rules.

The technical program of RuleML 2016 included presentations of novel rule-based technologies, such as Semantic Web rule languages and standards, rule engines, formal and operational semantics, rule-based systems, as well as new emerging topics relevant to rules. Besides the regular research track, RuleML 2016 included six special research tracks: Smart Contracts, Blockchain, and Rules; Constraint Handling Rules; Event-Driven Architectures and Active Database Systems; Legal Rules and Reasoning; Rule- and Ontology-Based Data Access and Transformation; Rule Induction and Learning. These tracks reflect the significant role of rules in several research and application areas, which include: blockchains and smart contract, ontology-based data access, active databases and rules, legal rules, constraint handling rule, and rule induction and learning.

After a successful industry track at RuleML 2015, RuleML 2016 again included such a track, describing practical applications of rules, and aspects of the state of the art of rule-based business cases.

The highlights of this year’s RuleML Symposium included the following invited presentations:

Two keynote talks:

- Richard Waldinger, from Artificial Intelligence Center, SRI International, USA, presenting “Natural Language Access to Data: It Needs Reasoning”
- Bruce Silver from Bruce Silver Associates, presenting “DMN as a Decision Modeling Language”

Two tutorials:

- “Programming in Picat” by Neng-Fa Zhou, City University of New York
- “Practical Knowledge Representation and Reasoning in Ergo” by Michael Kifer, Theresa Swift and Benjamin Grosz (Coherent Knowledge Systems)

A RuleML standards talk:

- “The RuleML Knowledge-Interoperation Hub” by Harold Boley, Faculty of Computer Science, University of New Brunswick

In addition, the program included the 10th International Rule Challenge, dedicated to practical experiences with rule-based applications, the 6th RuleML Doctoral Consortium, which focused on PhD research in the area of rules, and finally, the DecisionCAMP 2016.

The contributions in this volume include a set of invited papers and research track papers. Invited presentations include two full papers and three abstracts for the keynotes, tutorials, and standards talk. Research papers include a selection of 20 papers, which were presented during the technical program of RuleML 2016. The research papers were selected from 36 submissions through a peer-review process. Each paper was reviewed by at least three members of the Program Committee.

RuleML 2016, like its predecessors, offered a high-quality technical and applications program, which was the result of the joint effort of the members of the RuleML 2016 Program Committee.

Special thanks are due to the Track Chairs, the excellent Program Committee, and the additional reviewers for their hard work in reviewing the submitted papers. Their criticisms and very useful comments and suggestions were instrumental in achieving a high-quality publication. We also thank the symposium authors for submitting high-quality papers, responding to the reviewers’ comments, and abiding by our production schedule. We further wish to thank the invited speakers for contributing their inspiring presentations. RuleML 2016 was financially supported by industrial companies and scientific journals and was technically supported by several professional societies. We wish to thank our sponsors, whose financial support helped us to offer this event, and whose technical support allowed us to attract high-quality submissions. Last, but not least, we would like to thank the development team of the EasyChair conference

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