Preface

The International Joint Conference on Rules and Reasoning (RuleML+RR 2017) is the first conference of a new series of conferences, joining the efforts of two existing conference series, namely, RuleML (International Web Rule Symposium) and RR (Web Reasoning and Rule Systems). The ten conferences of the RR series have been a forum for discussion and dissemination of new results on all topics concerning Web reasoning and rule systems, with an emphasis on rule-based approaches and languages. The RuleML series of conferences has been held since 2002, being devoted to disseminating research, applications, languages, and standards for rule technologies, with attention to both theoretical and practical developments, to challenging new ideas, and industrial applications. Both series of conferences aimed at building bridges between academia and industry in the field of rules and their applications. Therefore, RuleML+RR is expected to become a leading conference for all subjects concerning theoretical advances, novel technologies, and innovative applications about knowledge representation and reasoning with rules.

This new joint conference provides a valuable forum for stimulating cooperation and cross-fertilization between the many different communities focused on the research, development, and applications of rule-based systems. It provides the possibility to present and discuss applications of rules and reasoning in academia, industry, engineering, business, finance, health care, and other application areas.

RuleML+RR 2017 was hosted by Birkbeck, University of London, UK. The conference was co-located with the following events: the 13th Reasoning Web Summer School, which is a high-level educational initiative devoted to reasoning techniques related to the Semantic Web, Linked Data and Knowledge Graph application scenarios; DecisionCAMP, a renowned event in the field of Business Rules and Decision Management Technology; and BICOD, the 31st British International Conference on Databases, a venue for research papers in the broad area of data management. BICOD and RuleML+RR shared a session that included a keynote talk and presentations of two research papers. The conference also included a Doctoral Consortium, an initiative to attract and promote student research in rules and reasoning, with the opportunity for students to present and discuss their ideas and benefit from close contact with leading experts in the field. RuleML+RR 2017 also included: an Industry Track as a forum for all sectors of industry and business (as well as public sectors) to present, discuss, and propose existing or potential rule-based applications; and the 11th International Rule Challenge, prividing competition among work in progress and new visionary ideas concerning innovative rule-oriented applications, aimed at both research and industry.

The technical program of RuleML+RR 2017 included the presentation of 14 research papers, carefully selected by the Program Committee among 38 high-quality submissions, with an acceptance rate of 37%. The review process included the possibility for authors to respond to initial reviews. These responses were thoroughly discussed by the reviewers and the Program Committee chairs before finalizing the

reviews. All submissions received four reviews, with only one exception receiving three. Presentations of accepted papers were divided into sessions on Rules and Databases, Rules and Description Logics, Applications of Rules, and Rules and Logic Programming. The best Doctoral Consortium paper was presented as a full paper, accompanied by short presentations of the other five accepted Doctoral Consortium papers.

RuleML+RR 2017 offered successful Invited and Keynote Talks and Tutorials by experts in the field, as listed here.

The following keynote talks were given:

- Robert A. Kowalski, Imperial College London, presenting "Logic and AI – The Last 50 Years" (Social Dinner talk)
- Elena Baralis, Politecnico di Torino, presenting "Opening the Black Box: Deriving Rules from Data" (BICOD joint talk)
- Jordi Cabot, Internet Interdisciplinary Institute, Open University of Catalonia, Barcelona, presenting "The Secret Life of Rules in Software Engineering"
- Stephen Muggleton, Imperial College London, presenting "Meta-Interpretive Learning: Achievements and Challenges"

An industry talk was also given (joint with DecisionCAMP):

- Jean-Francois Puget, IBM, presenting "Business Analytics and Decision Optimization"

Four tutorials:

- "Decision Modeling with DMN and OpenRules" by Jacob Feldman (Open Rules, Inc.)
- "How to do it with LPS (Logic-Based Production System)" by Robert Kowalski, Fariba Sadri (Imperial College London), and Miguel Calejo (InterProlog Consulting)
- "Logic-Based Rule Learning for the Web of Data" by Francesca A. Lisi (University of Bari, Italy)
- "Rulelog: Highly Expressive Semantic Rules with Scalable Deep Reasoning" by Benjamin Grosof (Accenture), Michael Kifer, and Paul Fodor (Stony Brook University, NY)

The Chairs sincerely thank the Invited and Keynote Speakers for accepting to contribute to the event, and all those who submitted tutorial proposals and presented tutorials for their excellent proposals. The chairs wish to recognize the hard work of the Program Committee members and of the additional reviewers for the revision and careful selection of submitted papers. The reviews were balanced, provided constructive criticisms and useful comments and suggestions for improving the papers, and resulted in high-quality publications. The chairs are also grateful to all authors for their interest in the conference and for the efforts devoted to preparing their submissions and camera-ready version within the established schedule. Sincere thanks are due to the chairs of the co-located events and to the chairs of the additional tracks, namely, the Doctoral Consortium, Rule Challenge and Industry Track, for the excellent cooperation; thanks are due to the publicity, sponsorship, financial, and proceedings chairs,

who actively contributed to the organization and the success of the enterprise; thanks also to the sponsors, including EurAI, ALP, Oxygen, and Binary Park, who provided vital contributions that helped us organize a high-standard event for the participants; and to the publisher, Springer, for their cooperation in editing this volume and publication of the proceedings.

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