Preface

RuleML+RR 2017 is the leading international joint conference in the field of rule-based reasoning, and focuses on theoretical advances, novel technologies, as well as innovative applications concerning knowledge representation and reasoning with rules. Stemming from the synergy between the well-known premier RuleML and RR events, one of the main goals of this conference is to build bridges between academia and industry.

These proceedings present the papers presented at the following tracks/events hosted by RuleML+RR 2017: The Doctoral Consortium, The Rule Challenge, The Industry Track, Tutorials, and a Poster session.

The Doctoral Consortium is an initiative of the RuleML and RR communities to attract and promote student research in rules and reasoning. It offers students a close contact with leading experts on the field, as well as the opportunity to present and discuss their ideas in a dynamic and friendly setting. The Doctoral Consortium topics range from theoretical aspects of rules and reasoning, such as pragmatic inference and ontological reasoning through machine learning, to practical applications, such as event detection and diagnosis for intelligent transport systems, temporal reasoning in the legal domain and decision-making support for Industry 4.0. Students will present their papers work through brief oral presentations during a dedicated session of the RuleML+RR main track, but also in the form of posters and will have the chance to discuss their research in detail with their assigned academic mentors during a dedicated mentoring session.

The 11th International Rule Challenge provides competition among innovative rule-oriented applications, aimed at both the research and industrial side. This year featured a range of competitive submissions, including an invited demo from Keith L. Clark and Peter J. Robinson about TeleoR an extension of Teleo-Reactive rule based robotic agent programming language featuring Concurrent Task Programming. Most of the rule challenge submissions presented highly practical rule-based applications in health, traffic and transport, whereas one submission presented a rule-based machine learning approach for outlier detection.

The Industry Track introduces four papers describing research work in innovative companies, from rule-based applications in semantic text analysis to industry systems aiming to improve data quality in large knowledge bases as well as research on interoperability of rule-based systems.

A highlight of this year is RuleML+RR Tutorials featuring five great tutorials on decision modeling, logic-based production systems, rule learning, scalable deep reasoning and inductive logic programming.

The poster session introduce exciting applications such as link prediction in knowledge graphs, financial analysis, semantic self-description for cyber physical systems, cognitive robotics perception management, and logic programming execution visualization.

July 2017

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