

Preface

This volume contains selected short papers from the 26th International Conference on Inductive Logic Programming (ILP 2016). ILP 2016 was held in London, during September 4-6 2016, at the Warren House Conference Centre. Since its first edition in 1991, the annual ILP conference has served as the premier international forum for learning from structured relational data. Originally focusing on the induction of logic programs, over the years it has expanded its research horizon significantly and welcomed contributions on all aspects of learning in logic, multi-relational data mining, statistical relational learning, graph and tree mining, learning in other (non-propositional) logic-based knowledge representation frameworks, exploring intersections with statistical learning and other probabilistic approaches. Theoretical advances in all these areas have also been accompanied by challenging applications of these techniques to important problems in fields like bioinformatics, medicine, and text mining.

Following the trend of past events, this edition of the conference solicited three types of submissions: (i) long papers describing original mature work containing appropriate experimental evaluation and/or representing a self-contained theoretical contribution; (ii) short papers describing original work in progress, brief accounts of original ideas without conclusive evaluation, and other relevant work of potentially high scientific interest but not yet qualifying for the long paper category; and finally (iii) papers relevant to the conference topics and recently published or accepted for publication by a first-class conference such as ECML/ PKDD, ICML, KDD, ICDM, AAI, IJCAI, etc. or journal such as MLJ, DMKD, JMLR etc.

With the intent of stimulating collaborations and discussion between academia and industry, the program featured three invited talks by academic and industrial distinguished researchers. In the talk *Inferring Causal Models of Complex Relational and Dynamic Systems*, David Jensen, from the University of Massachusetts, presented key ideas, representations and algorithms for causal inference, and highlighted new technical frontiers. Frank Wood, from the University of Oxford, gave a talk entitled *Revolutionising Decision Making, Democratising Data Science, and Automating Machine Learning via Probabilistic Programming*. In his talk, he gave a broad overview of the emerging field of probabilistic programming, from the point of view of both programming (modelling) language and automated inference, and introduced most important challenges facing this field. Finally, Vijay Saraswat, senior research scientist in the Cognitive Computing Research division at the IBM T.J. Watson Center, discussed in his talk *Machine Learning and Logic: the beginnings of a new computer science?* the open challenges of building cognitive assistants in compliance, and the need to bring together researchers in natural language understanding, machine learning, and knowledge representation/reasoning to address them.

II

The conference featured, for the first time, also an international competition, designed and managed by Mark Law, a member of our Local Committee. The competition was aimed at testing the accuracy, scalability and versatility of the learning systems which were entered. The competition had two main tracks for probabilistic and non-probabilistic approaches. The winners of the competition were Peter Schüller, from Marmara University, for his non-probabilistic approach and jointly Riccardo Zese, Elena Bellodi and Fabrizio Riguzzi for their probabilistic approach. Results of the competition are publicly available on <http://ilp16.doc.ic.ac.uk/competition>.

The ILP 2016 conference was kindly sponsored by IBM Watson Research, the Association of Logic Programming, Springer Lecture Notes in Artificial Intelligence, Artificial Intelligence journal, and Machine Learning journal. We would like to thank EasyChair for supporting submission handling. We would like to thank the members of the Local Committee of ILP 2016: Krysia Broda, Dalal Alrajeh and Mark Law. Our deep thanks also go to Mark Law for running the competition, and for setting up and maintaining the Website. The conference would not have been possible without their hard work.

Finally, we would like to thank all those involved in making ILP'16 such a success: our invited speakers, our sponsors, the program committee and of course, those who came to ILP'16 to present and discuss their work.

May 2017

James Cussens & Alessandra Russo
Program Chairs
ILP'16

Organisation

Organising Committee

Program co-Chair:	James Cussens (University of York, UK)
Program co-Chair:	Alessandra Russo (Imperial College, UK)
Competition Chair:	Mark Law (Imperial College, UK)
Financial Chair:	Dalal Alrajeh (Imperial College, UK)
Publicity Chair:	Kryisia Broda (Imperial College, UK)

Program Committee

Dalal Alrajeh, Imperial College London, UK
Alexander Artikis, Institute of Informatics and Telecommunications, Greece
Kryisia Broda, Imperial College London, UK
Rui Camacho, LIACC/FEUP University of Porto, Portugal
Luc De Raedt, Katholieke Universiteit Leuven, Belgium
Sašo Džeroski, University of Ljubljana, Slovenia
Floriana Esposito, Università degli Studi di Bari, Italy
Nicola Fanizzi, Università degli Studi di Bari, Italy
Stefano Ferilli, Università degli Studi di Bari, Italy
Nuno Fonseca, European Bioinformatics Institute, Portugal
Katsumi Inoue, National Institute of Informatics, Japan
Kristian Kersting, TU Dortmund University, Germany
Ross King, University of Manchester, UK
Nicolas Lachiche, University of Strasbourg, France
Nada Lavrač, Jožef Stefan Institute, Slovenia
Francesca Lisi, Università degli Studi di Bari, Italy
Donato Malerba, Università degli Studi di Bari, Italy
Stephen Muggleton, Imperial College London, UK
Aline Paes, UFF - Federal Fluminense University, Brazil
Jan Ramon, INRIA, France
Oliver Ray, University of Bristol, UK
Fabrizio Riguzzi, University of Ferrara, Italy
Chiaki Sakama, Wakayama University, Japan
Vitor Santos Costa, Universidade do Porto, Portugal
Takayoshi Shoudai, Kyushu International University, Japan
Alireza Tamaddoni-Nezhad, Imperial College London, UK
Christel Vrain, University of Orleans, France
Stefan Wrobel, Fraunhofer IAIS and University of Bonn, Germany
Akihiro Yamamoto, Kyoto University, Japan
Gerson Zaverucha, PESC-COPPE - UFRJ, Brazil
Filip Železný, Czech Technical University, Czech Republic

Sponsoring Institutions

Association for Logic Programming

IBM Research

Machine Learning Journal (for best student paper awards)

Lecture Notes in Artificial Intelligence, Springer (for best paper award)

Artificial Intelligence Journal