Preface

This volume contains the selected "Late Breaking Papers" from ILP 2015: *The 25th International Conference on Inductive Logic Programming*. ILP 2015 was held in Kyoto University, Kyoto, Japan, from 20th to 22nd of August, 2015.

The ILP conference series have been the premier international forum on ILP. Topics in ILP conferences address theories, algorithms, representations and languages, systems and applications of ILP, and cover all areas of learning in logic, relational learning, relational data mining, statistical relational learning, multi-relational data mining, relational reinforcement learning, graph mining, connections with other learning paradigms, among others.

This edition of ILP conference has solicited three types of submissions:

1. long papers describing original mature work containing appropriate experimental evaluation and/or representing a self-contained theoretical contribution,
2. short papers describing original work in progress, brief accounts of original ideas without conclusive experimental evaluation, and other relevant work of potentially high scientific interest but not yet qualifying for the long paper category, and
3. papers relevant to the conference topics and recently published or accepted for publication by a first-class conference or journal.

There were 44 submissions in total; 24 long papers, 18 short papers, and 2 published papers. Long papers have been reviewed by at least 3 members of the program committee, and then 13 papers were accepted for oral presentation at ILP 2015. Short papers were firstly reviewed on the grounds of relevance by PC co-chairs, then 17 papers were accepted for short oral presentation. The following 2 published papers were both accepted for oral presentation:

- Koichi Furukawa, Keita Kinjo, Tomonobu Ozaki and Makoto Haraguchi: "On Skill Acquisition Support by Analogical Rule Abduction".
- Andrew Cropper and Stephen Muggleton: "Learning Efficient Logical Robot Strategies Involving Composable Objects".

Each short paper presented at ILP 2015 were then reviewed by at least 3 members of the program committee. In this volume, 4 long papers and 6 short papers are collected from the papers presented at ILP 2015. These papers have been accepted as work-in-progress papers that report on ongoing researches or as advances of ILP techniques. This proceedings of ILP Late Breaking Papers has been an important component of each ILP program. Another post-conference proceedings is published for ILP 2015 as a volume of Springer LNAI series for selected papers [1]. Moreover, there will be a special issue on ILP in Machine Learning Journal.

There were 10 technical sessions in ILP 2015, whose topics are: Nonmonotonic Semantics, Logic and Learning, Complexity, Action Learning, Distribution Semantics, Implementation, Kernel Programming, Data and Knowledge Modeling,

and Cognitive Modeling. The program of ILP 2015 included the three excellent invited talks:

- Stephen Muggleton (Imperial College London) gave the talk "Meta-Interpretive Learning: achievements and challenges", and detailed their work on meta-interpretive learning, which is a recent ILP technique aimed at supporting learning of recursive definitions and predicate invention.
- Taisuke Sato (Tokyo Institute of Technology) firstly published the distribution semantics for probabilistic logic programming (PLP) in 1995, and ILP 2015 celebrated the 20th anniversary of the distribution semantics in the form of Sato's monumental talk "Distribution semantics and cyclic relational modeling", which was followed by a session of probabilistic ILP.
- Luc De Raedt (Katholieke Universiteit Leuven) reported in his invited talk "Applications of Probabilistic Logic Programming" their recent progress in applying PLP to challenging applications.

At ILP 2015, the Machine Learning Journal generously continued its sponsorship of the best student paper award. The two best student paper awards of ILP 2015 were given to:

- Golnoosh Farnadi for her paper "Statistical relational learning with soft quantifiers" (co-authored with Stephen H. Bach, Marjon Blondeel, Marie-Francine Moens, Martine De Cock and Lise Getoor), and
- Francesco Orsini for his paper "kProlog: An algebraic Prolog for kernel programming" (co-authored with Paolo Frasconi and Luc De Raedt).

To celebrate the 25th anniversary of ILP conference series, ILP 2015 organized a panel discussion on past and future progress of ILP. The panelists were Stephen Muggleton, Fabrizio Riguzzi, Filip Zelezny, Gerson Zaverucha, Jesse Davis, Katsumi Inoue, who are all chairs of the last five years of ILP conferences (2011–2015), and Taisuke Sato. A survey of ILP 2015 including the abstracts of the three invited talks and "ILP 25 Years Panel" as well as recent trends in ILP has been given in AAAI-16 as a "What's Hot" talk [2].

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Katsumi Inoue
Hayato Ohwada
Akihiro Yamamoto

References

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2. Katsumi Inoue, Hayato Ohwada and Akihiro Yamamoto. Inductive Logic Programming: Challenges. In: *Proceedings of the 30th AAAI Conference on Artificial Intelligence* (AAAI-16; Phoenix, Arizona, USA, February 2016), pp.4330–4332, 2016.

Table of Contents

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