

Fabrizio Riguzzi   Filip Zelezny

**ILP 2012**

**Late Breaking Papers**

**Late Breaking Papers from the 22nd International Conference  
on Inductive Logic Programming (ILP 2012)**

**Dubrovnik, Croatia, September 17-19, 2012**

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## Preface

This volume contains the Late Breaking Papers of ILP 2012: the 22nd International Conference on Inductive Logic Programming held on September 17-19, 2012 in Dubrovnik.

The ILP conference series, started in 1991, is the premier international forum on learning from structured data. Originally focusing on the induction of logic programs, it broadened its scope and attracted a lot of attention and interest in recent years. The conference now focuses on all aspects of learning in logic, multi-relational learning and data mining, statistical relational learning, graph and tree mining, relational reinforcement learning, and other forms of learning from structured data.

This edition of the conference solicited three types of submissions:

1. long papers (12 pages) describing original mature work containing appropriate experimental evaluation and/or representing a self-contained theoretical contribution.
2. short papers (6 pages) 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 above category.
3. 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 etc. or journal such as MLJ, DMKD, JMLR etc.

We received 20 long and 21 short submissions, and 1 previously published paper. Each submission was reviewed by at least 3 program committee members. The short papers were evaluated on the basis of both the submitted manuscript and the presentation at the conference. Accepted papers presenting work in progress, i.e., reports on ongoing research are collected in this volume.

The conference program included 3 invited talks. In the lecture entitled *Declarative Modeling for Machine Learning*, Luc De Raedt proposed to apply the constraint programming methodology to machine learning and data mining and to specify machine learning and data mining problems as constraint satisfaction and optimization problems. In this way it is possible to develop applications and software that incorporates machine learning or data mining techniques by specifying declaratively what the machine learning or data mining problem is rather than having to outline how the solution needs to be computed.

Ben Taskar's talk *Geometry of Diversity and Determinantal Point Processes: Representation, Inference and Learning* discussed approaches to inference and learning in graphical models using determinantal point processes (DPPs) that offer tractable algorithms for exact inference, including computing marginals, computing certain conditional probabilities, and sampling. He presented recent work on a novel factorization and dual representation of DPPs that enables efficient inference for exponentially-sized structured sets.

Geraint A. Wiggins spoke about *Learning and Creativity in the Global Workspace* and presented a model based on Baars Global Workspace account of consciousness, that attempts to provide a general, uniform mechanism for information regulation. The key ideas

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involved are: information content and entropy, expectation, learning multi-dimensional, multi-level representations and data, and data-driven segmentation. The model was originally based in music, but can be generalised to language. Most importantly, it can account for not only perception and action, but also for creativity, possibly serving as a model for original linguistic thought.

The conference was kindly sponsored by the Office of Naval Research Global, the Artificial Intelligence journal and the Machine Learning journal. We would like to thank Easychair.org for supporting submission handling. Our deep thanks go also to Nada Lavrač, Tina Anžič and Dragan Gamberger for the local organization of the conference and Radomír Černoch for setting up and maintaining the conference web site.

March 21, 2013  
Ferrara, Prague

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## Contents

<b>A Link-Based Method for Propositionalization</b> <i>Quang-Thang Dinh, Christel Vrain and Matthieu Exbrayat</i>	<b>10</b>
<b>MicroRNAs robustness in genetic regulatory networks</b> <i>Andrei Doncescu, Katsumi Inoue and Jacques Demongeot</i>	<b>26</b>
<b>A Problog Model For Analyzing Gene Regulatory Networks</b> <i>Antonio Goncalves, Irene Ong, Jeffrey Lewis and Vitor Costa</i>	<b>38</b>
<b>Creative Problem Solving by Concept Generation Using Relation Structure</b> <i>Katsutosh Kanamori and Hayato Ohwada</i>	<b>44</b>
<b>On Computing Minimal Generators in Multi-Relational Data Mining with respect to theta-Subsumption</b> <i>Noriaki Nishio, Atsuko Mutoh and Nobuhiro Inuzuka</i>	<b>50</b>
<b>A Wordification Approach to Relational Data Mining: Early Results</b> <i>Matic Perovšek, Anže Vavpetič and Nada Lavrač</i>	<b>56</b>
<b>Hybrid Logical Bayesian Networks</b> <i>Irma Ravkic, Jan Ramon and Jesse Davis</i>	<b>62</b>
<b>Towards an Automated Pattern Selection Procedure in Software Models</b> <i>Alexander van Den Berghe, Jan Van Haaren, Stefan Van Baelen, Yolande Berbers and Wouter Joosen</i>	<b>68</b>
<b>Non-monotone dualization via monotone dualization</b> <i>Yoshitaka Yamamoto, Koji Iwanuma and Katsumi Inoue</i>	<b>74</b>