PLP: Probabilistic Logic Programming

A workshop of the 2014 International Conference on Logic Programming
17 July 2014
Vienna, Austria
http://stoics.org.uk/plp

Invited speaker: James Cussens, University of York, UK
Deadline for submissions: 10th of May
Special issue: International Journal of Approximate Reasoning

Overview

Probabilistic logic programming (PLP) approaches have received much attention in this century. They address the need to reason about relational domains under uncertainty arising in a variety of application domains, such as bioinformatics, the semantic web, robotics, and many more. Developments in PLP include new languages that combine logic programming with probability theory as well as algorithms that operate over programs in these formalisms.

PLP is part of a wider current interest in probabilistic programming. By promoting probabilities as explicit programming constructs, inference, parameter estimation and learning algorithms can be ran over programs which represent highly structured probability spaces.Due to logic programming's strong theoretical underpinnings, PLP is one of the more disciplined areas of probabilistic programming. It builds upon and benefits from the large body of existing work in logic programming, both in semantics and implementation, but also presents new challenges to the field. PLP reasoning often requires the evaluation of large number of possible states before any answers can be produced thus braking the sequential search model of traditional logic programs.

While PLP has already contributed a number of formalisms, systems and well understood and established results in: parameter estimation, tabling, marginal probabilities and Bayesian learning,many questions remain open in this exciting, expanding field in the intersection of AI, machine learning and statistics.

This workshop provides a forum for the exchange of ideas, presentation of results and preliminary work, in the following areas

* probabilistic logic programming formalisms
* parameter estimation
* statistical inference
* implementations
* structure learning
* reasoning with uncertainty
* constraint store approaches
* stochastic and randomised algorithms
* probabilistic knowledge representation and reasoning
* constraints in statistical inference
* applications, such as
* * bioinformatics
* * semantic web

* * robotics

* probabilistic graphical models

* Bayesian learning

* tabling for learning and stochastic inference

* MCMC

* stochastic search

* labelled logic programs

* integration of statistical software

The above list should be interpreted broadly and is by no means exhaustive.

Purpose

The main aim of the workshop is to provide a platform for publishing results in this area with emphasis on the LP aspects of PLP.The collocation with ICLP will benefit both the main conference and the workshop. We hope that both (a) more LP researchers will become interested in inference and learning with PLP and (b)PLP researchers will get important feedback on their work from logic programmers.

Submissions

Submissions will be managed via EasyChair. Contributions should be prepared in the LLNCS style. A mixture of papers are sought including: new results, work in progress as well as technical summaries of recent substantial contributions. Papers presenting new results should be 6-12 pages in length. Work in progress and technical summaries can be shorter. The workshop proceedings will clearly indicate the type of each paper.

Deadlines

Submission: May 10
Notification: May 31
Camera ready: June 16
Workshop: July 17
Journal subm.: Oct. 6

Publication

Proceedings will be made available electronically to attendees. They will also be for stored permanently in the form of a booklet on the Computing Research Repository (http://arxiv.org/corr/home/). The proceedings will constitute of clearly marked sections corresponding to the different types of submissions accepted.A special issue including extended versions of selected workshop papers will be published in the International Journal of Approximate Reasoning.

Legacy

We hope that PLP will become an annual event and that in the future PLP will alternate its collocation between ICLP and ILP.

Invited Speaker

James Cussens (University of York, UK)

Programme committee

Nicos Angelopoulos (Imperial College, UK) [co-chair]
Elena Bellodi (Universita di Ferrara, Italy)
Hendrik Blockeel (Leiden University, The Netherlands)
Yoshitaka Kameya (Meijo University, Japan)
Angelika Kimmig (KU Leuven, Belgium) [co-chair]

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Fabrizio Riguzzi	(Universita di Ferrara, Italy)
Vitor Santos Costa	(Universidade do Porto, Portugal)
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