Introduction to the 26th international conference on logic programming
special issue

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The Logic Programming (LP) community, through the Association for Logic Programming (ALP) and its Executive Committee, decided to introduce for 2010 important changes in the way the main yearly results in LP and related areas are published. Whereas such results have appeared to date in standalone volumes of proceedings of the yearly International Conferences on Logic Programming (ICLP), and this method—fully in the tradition of Computer Science (CS)—has served the community well, it was felt that an effort needed to be made to achieve a higher level of compatibility with the publishing mechanisms of other fields outside CS.

In order to achieve this goal without giving up the traditional CS conference format a different model has been adopted starting in 2010 in which the yearly ICLP call for submissions takes the form of a joint call for a) full papers to be considered for publication in a special issue of the journal, and b) shorter technical communications to be considered for publication in a separate, standalone volume, with both kinds of papers being presented by their authors at the conference. Together, the journal special issue and the volume of short technical communications constitute the proceedings of ICLP.

This 26th International Conference on Logic Programming Special Issue is the first of a series of yearly special issues of Theory and Practice of Logic Programming (TPLP) putting this new model into practice. It contains the papers accepted from those submitted as full papers (i.e., for TPLP) in the joint ICLP call for 2010. The collection of technical communications for 2010 appears in turn as Volume 7 of the Leibniz International Proceedings in Informatics (LIPIcs) series, published on line through the Dagstuhl Research Online Publication Server (DROPS). Both sets of papers were presented by their authors at this 26th ICLP.

Papers describing original, previously unpublished research and not simultaneously submitted for publication elsewhere were solicited in all areas of logic programming including but not restricted to: Theory (Semantic Foundations, Formalisms, Non-monotonic Reasoning, Knowledge Representation), Implementation (Compilation, Memory Management, Virtual Machines, Parallelism), Environments (Program Analysis, Transformation, Validation, Verification, Debugging, Profiling, Testing),
Language Issues (Concurrency, Objects, Coordination, Mobility, Higher Order, Types, Modes, Assertions, Programming Techniques), Related Paradigms (Abductive Logic Programming, Inductive Logic Programming, Constraint Logic Programming, Answer-Set Programming), and Applications (Databases, Data Integration and Federation, Software Engineering, Natural Language Processing, Web and Semantic Web, Agents, Artificial Intelligence, Bioinformatics).

Special categories were application papers (where the emphasis was on their impact on the application domain) and system and tool papers (where the emphasis was on the novelty, practicality, usability and general availability of the systems and tools described). In the shorter technical communications the emphasis was on describing recent developments, new projects, and other materials not yet ready for publication as full papers. The length limit for full papers was set at 15 pages plus bibliography for full papers (approximately in line with the length of TPLP technical notes) and for technical communications at 10 pages total.

In response to the call for papers 104 abstracts were received, 81 of which remained finally as complete submissions. Of those, 69 were full papers submitted to the TPLP special issue track (21 of them applications or systems papers). The program chairs acting as guest editors organized the refereeing process with the help of the program committee and numerous external reviewers. Each paper was reviewed by at least three anonymous referees which provided full written evaluations. Competition was high and after the first round of refereeing only 25 full papers remained. Of these, 16 went through a full second round of refereeing with written referee reports. Finally, all 25 papers went through a final, copy-editing round. In the end the special issue contains 17 technical papers, 6 application papers, and 2 systems and tools papers. During the first phase of reviewing the papers submitted to the technical communications track were also reviewed by at least three anonymous referees providing full written evaluations. Also, a number of full paper submissions were moved during the reviewing process to the technical communications track. Finally, 22 papers were accepted as technical communications. A listing of these papers, published in LIPIcs, appears at the end of the special issue. The list of the 25 accepted full papers, appearing in this special issue, follows:

Regular Papers

Automated termination analysis for logic programs with cut
  Peter Schneider-Kamp, Jürgen Giesl, Thomas Stroeder, Alexander Serebrenik, René Thiemann

Transformations of logic programs on infinite lists
  Alberto Pettorossi, Maurizio Proietti, Valerio Senni

Swapping evaluation: A memory-scalable solution for answer-on-demand tabling
  Pablo Chico de Guzmán, Manuel Carro Liñares, David S. Warren

Threads and or-parallelism unified
  Vítor Santos Costa, Inês Castro Dutra, Ricardo Rocha

1 The LIPIcs volume contains a complete list of referees.
CHR(PRISM)-based probabilistic logic learning
   Jon Sneyers, Wannes Meert, Joost Vennekens, Yoshitaka Kameya, Taisuke Sato

Inference with constrained hidden Markov models in PRISM
   Henning Christiansen, Christian Theil Have, Ole Torp Lassen, Matthieu Petit

A translational approach to constraint answer set solving
   Christian Drescher, Toby Walsh

A decidable subclass of finitary programs
   Sabrina Baselice, Piero Bonatti

Disjunctive ASP with functions: Decidable queries and effective computation
   Mario Alviano, Wolfgang Faber, Nicola Leone

Catching the ourobos: On debugging non-ground answer-set programs
   Johannes Oetsch, Jörg Puehrer, Hans Tompits

Loop formulas for description logic programs
   Yisong Wang, Jia-Huai You, Li-Yan Yuan, Yi-Dong Shen

Towards closed world reasoning in dynamic open worlds
   Martin Slota, João Leite

A program-level approach to revising logic programs under answer set semantics
   James Delgrande

FO(FD): Extending classical logic with rule-based fixpoint definitions
   Ping Hou, Broes De Cat, Marc Denecker

A complete and terminating execution model for Constraint Handling Rules
   Hariolf Betz, Frank Raiser, Thom Frühwirth

Decidability Properties for Fragments of CHR
   Maurizio Gabbrielli, Jacopo Mauro, Maria Chiara Meo, Jon Sneyers

A declarative semantics for CLP with qualification and proximity
   Mario Rodríguez-Artalejo, Carlos A. Romero-Díaz

Application Papers and Systems and Tools Papers

Logic-based decision support for strategic environmental assessment
   Marco Gavanelli, Fabrizio Riguzzi, Michela Milano, Paolo Cagnoli

Test case generation for object-oriented imperative languages in CLP
   Miguel Gómez-Zamalloa, Elvira Albert, Germán Puebla

Logic programming for finding models in the logics of knowledge and its applications: A case study
   Chitta Baral, Gregory Gelfond, Enrico Pontelli, Tran Son

Applying prolog to develop distributed systems
   Nuno P. Lopes, Juan Navarro Perez, Andrey Rybalchenko, Atul Singh

CLP-based Protein Fragment Assembly
   Alessandro Dal Palù, Agostino Dovier, Federico Fogolari, Enrico Pontelli

Formalization of psychological knowledge in answer set programming and its application
   Marcello Balduccini, Sara Girootto
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Manuel Hermenegildo and Torsten Schaub
Program Committee Chairs and Guest Editors