

Special Issue on the 29th Italian Conference on Computational Logic: CILC 2014

Preface

This special issue of *Fundamenta Informaticae* contains the revised, extended versions of selected papers presented at the Italian Conference on Computational Logic (Convegno Italiano di Logica Computazionale, CILC 2014) which was hosted by the University of Turin, Italy, from June 16th to June 18th, 2014.

The event was the twenty-ninth edition of the annual meeting of the Italian Association for Logic Programming (GULP, Gruppo Ricercatori e Utenti di Logic Programming). Since its first edition, which took place in Genoa in 1986, the annual conference organized by GULP is the main occasion of meeting and exchanging ideas and experiences among Italian researchers who work in the field of Computational Logic. During the years, this annual meeting extended its horizons from the specific field of traditional Logic Programming to more general declarative programming as well as to Artificial Intelligence and Deductive Databases. All these areas had a very significant growth over the last decades and nowadays they all play a crucial role in the fields of Information Processing and Computer Science.

The program of CILC 2014 included 29 technical papers accepted for presentation (23 for long presentation and 6 for short presentation). Paper selection was made by peer reviewing.

The technical presentations were of high quality and concerned several topics related to computational logic, including probabilistic logic programming, verification of logic programs, answer set programming, revision and query of ontologies, argumentation theory, proof and decision systems for non-classical logics, computable set theory, multi-agent systems, and machine learning.

The conference program included also two invited talks:

- (i) “From logic programming to argumentation and back”, by Francesca Toni (Department of Computing, Imperial College London, U.K.), and
- (ii) “Tractable approaches to consistent query answering in ontology-based-data access”, by Riccardo Rosati (DIAG, Dipartimento di Ingegneria informatica, automatica e gestionale, Università di Roma “Sapienza”, Italy).

Some of the papers presented at the conference were selected for this special issue and their authors were invited to submit an improved, extended version for publication. The papers that have been accepted went through a two-round careful review by qualified international referees, to whom we express our deep gratitude for their comments and criticisms.

Here is a brief overview of the topics of the accepted papers.

Francesco Alberti, Silvio Ghilardi, and Natasha Sharygina introduce a framework for the verification of parameterized infinite-state systems, that has been successfully applied to the verification of heterogeneous systems, ranging from distributed fault-tolerant protocols to programs handling unbounded data-structures. The authors provide an extensive experimental evaluation that demonstrates the effectiveness of the proposed framework.

Irene Benedetti and Stefano Bistarelli show that Argumentation Frameworks can be interpreted within a voting theory and considered as voting methods. Using a mapping that associates an argument to a candidate and attacks to votes, they define a bidirectional mapping between the two theories and investigate how fairness criteria defined for voting systems can be re-interpreted within the Argumentation Framework.

Domenico Cantone, Cristiano Longo, and Marianna Nicolosi Asmundo exploit the main features of a decision procedure for satisfiability of formulae in the fragment \forall_0^π of set theory to reduce such problem to the problem of Herbrand satisfiability for a first-order language which extends that fragment.

Emanuele De Angelis, Fabio Fioravanti, Alberto Pettorossi, and Maurizio Proietti use transformation techniques of constraint logic programs (CLPs) for the verification of properties of imperative programs. In particular, they encode the negation of the partial correctness property of an imperative program as a predicate `incorrect` defined by a CLP program, and through transformations of CLPs, they show whether or not `incorrect` holds.

Finally, Mauro Ferrari, Camillo Fiorentini, and Guido Fiorino introduce JTabWb, a Java framework for developing provers based on sequent or tableau calculi. In order to corroborate the fact that JTabWb can be used to generate efficient provers, they compare the performance of one of the provers which were implemented with the state-of-the-art provers for Intuitionistic Propositional Logic.

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The Special Issue Editors:

Laura Giordano

DiSIT, University of Piemonte Orientale “Amedeo Avogadro”, Italy
laura.giordano@uniupo.it

Valentina Gliozzi

Department of Computer Science, University of Turin, Italy
valentina.gliozzi@unito.it

Alberto Pettorossi

Department of Civil Engineering and Informatics Engineering
University of Rome Tor Vergata, Italy
pettorossi@info.uniroma2.it

Gian Luca Pozzato

Department of Computer Science, University of Turin, Italy
gianluca.pozzato@unito.it