

## **Special Issue on the Italian Conference on Computational Logic: CILC 2013**

### **Preface**

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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 2013) which was hosted by the University of Catania, Italy, from September 25th to September 27th 2013.

The event was the twenty-eighth 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, users, and developers, who work in the field of Computational Logic and related areas, such as 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 2013 included 24 technical papers accepted for presentation (17 for long presentation and 7 for short presentation). Paper selection was made by peer reviewing. Each submitted paper was assigned to at least three members of the Program Committee, who in many cases relied on the help of external referees.

Technical presentations concerned several different topics related to computational logic, including verification of logic programs, answer set programming, proof and decision systems for several non-classical logics, computable set theory, and machine learning. The quality of the technical contributions confirms that the Italian community of computational logic is lively and active.

The program included also three invited talks and a tutorial. The invited talks were given by: (i) Maria Paola Bonacina, who reviewed recent trends and current developments on model-based reasoning; (ii) Eugenio Omodeo, who illustrated the state-of-the-art of proof-verification technology based on set theory and surveyed the proof checker *ÆtnaNova/Referee*; and (iii) Alberto Policriti, who presented the result on the decidability of the satisfiability problem for the class of purely universal formulae in set theory. The tutorial was given by Joanna Golińska-Pilarek, who presented specific methodological principles of constructing relational dual tableaux, also illustrating their applications to non-classical logics.

Some of the presented papers were selected and their authors were invited to submit an improved extended version for publication in this special issue. The papers accepted in this issue passed two

rounds of careful reviews by qualified international referees, to whom we express our deep gratitude for their comments which helped the authors to improve the quality of their papers.

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

Davide Ancona and Agostino Dovier study the semantics of Coinductive Logic Programming analyzing its computational limits and proposing a new operational semantics.

Alessandro Avellone, Camillo Fiorentini, and Alberto Momigliano present a new contraction-free focused multi-succedent sequent calculus for propositional intuitionistic logic.

Stefano Bistarelli, Fabio Rossi, and Francesco Santini provide a comparative study on the behavior of state-of-the-art argumentation tools.

Stefania Costantini and Andrea Formisano present a model-theoretic definition of a new Answer Set Semantics where the notion of resource is introduced, thus leading to a new interpretation of negation.

Giovanna D'Agostino, Eugenio Omodeo, Alberto Policriti, and Alexandru I. Tomescu illustrate a natural generalization of the classical Ackermann encoding of the hereditarily finite sets to the non-well-founded rational finite hypersets.

Emanuele De Angelis, Fabio Fioravanti, Alberto Pettorossi, and Maurizio Proietti present a method based on transformations of Constraint Logic Programs to verify C-like imperative programs manipulating integer arrays.

Paolo Gentilini, Maurizio Martelli, and Giuseppe Rosolini introduce a new logical formalism called Explicit Constructive Logic yielding features of uniform, intuitionistic, and paraconsistent proof systems.

Francesca Alessandra Lisi and Umberto Straccia present a method for learning within the Knowledge Representation framework of fuzzy Description Logics.

Finally, Gianfranco Rossi and Federico Bergenti show how nondeterministic programming in an object-oriented language can be supported by the Java library JSetL.

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