

Introduction to the special issue on Verification and Computational Logic

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The past decade has seen dramatic growth in the application of model checking techniques to the validation and verification of correctness properties of hardware, and more recently software systems. Recently, there has been increasing interest in applying logic programming techniques to model checking in particular and verification in general. For example, table-based logic programming can be used as an efficient means of performing explicit model checking. Other research has successfully exploited set-based logic program analysis, constraint logic programming, and logic program transformation techniques to verify systems.

The aim of this special issue on *Verification and Computational Logic* is to present high quality research papers on the interplay between verification techniques (e.g. model checking, reduction and abstraction) and logic programming techniques (e.g. constraints, abstract interpretation, program transformation). The special issue emerged from the *First and Second International Workshops on Verification and Computational Logic* (VCL'2000 and VCL'2001) held July 27–28 2000 in London, UK, and September 4 2001 in Florence, Italy, respectively. The special issue had an open call for papers, hence not only papers presented at the workshops were considered for publication. The topics of interest and motivation to publish this special issue can be characterised as follows. Papers on the following topics were solicited, but other topics related both to verification and computational logic were also considered:

- techniques,
- abstraction techniques for verification of infinite-state systems,
- constraint representations and constraint processing algorithms for verification,
- logic programming approaches to model checking,
- program analysis/abstract interpretation approaches to verification,
- program transformation/specialization approaches to verification,
- state-space reduction techniques for model checking,

- applying model checking techniques to logic programming,
- tools, and
- case studies.

Revised and enhanced versions of papers published in conferences that have not appeared in archival journals were eligible for submission.

We believe that, from the number of submitted high-quality papers, we have managed to put together an interesting selection of excellent papers on *Verification and Computational Logic* in this special issue, and hope that readers will agree. We are particularly grateful to the external reviewers for their help in evaluating the papers.

Finally, we would also like to express our gratitude to Maurice Bruynooghe, editor in chief of *Theory and Practice of Logic Programming*, as well as to Cambridge University Press for their support in editing the special issue.