

Lecture Notes in Artificial Intelligence 6173

Edited by R. Goebel, J. Siekmann, and W. Wahlster

Subseries of Lecture Notes in Computer Science

Jürgen Giesl Reiner Hähnle (Eds.)

Automated Reasoning

5th International Joint Conference, IJCAR 2010
Edinburgh, UK, July 16-19, 2010
Proceedings



Springer

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Library of Congress Control Number: 2010929611

CR Subject Classification (1998): F.4.1, I.2.3, F.3, I.2, D.2.4, D.1.6

LNCS Sublibrary: SL 7 – Artificial Intelligence

ISSN 0302-9743

ISBN-10 3-642-14202-8 Springer Berlin Heidelberg New York

ISBN-13 978-3-642-14202-4 Springer Berlin Heidelberg New York

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Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper 06/3180

Preface

This volume contains the proceedings of the 5th International Joint Conference on Automated Reasoning (IJCAR 2010). IJCAR 2010 was held during July 16-19 as part of the 2010 Federated Logic Conference, hosted by the School of Informatics at the University of Edinburgh, Scotland. Support by the conference sponsors – EPSRC, NSF, Microsoft Research, Association for Symbolic Logic, CADE Inc., Google, Hewlett-Packard, Intel – is gratefully acknowledged.

IJCAR is the premier international joint conference on all topics in automated reasoning, including foundations, implementations, and applications. Previous IJCAR conferences were held at Siena (Italy) in 2001, Cork (Ireland) in 2004, Seattle (USA) in 2006, and Sydney (Australia) in 2008. IJCAR comprises several leading conferences and workshops. In 2010, IJCAR was the fusion of the following events:

- **CADE:** International Conference on Automated Deduction
- **FroCoS:** International Symposium on Frontiers of Combining Systems
- **FTP:** International Workshop on First-Order Theorem Proving
- **TABLEAUX:** International Conference on Automated Reasoning with Analytic Tableaux and Related Methods

There were 89 submissions (63 regular papers and 26 system descriptions) of which 40 were accepted (28 regular papers and 12 system descriptions). Each submission was assigned to at least three Program Committee members, who carefully reviewed the papers, with the help of 92 external referees. Afterwards, the submissions were discussed by the Program Committee during two weeks by means of Andrei Voronkov’s *EasyChair* system. We want to thank Andrei very much for providing his system, which was very helpful for the management of the submissions and reviews and for the discussion of the Program Committee. We are extremely grateful to the members of the Program Committee and to the external reviewers for all of their hard work in putting together an excellent technical program spanning the entire spectrum of research in automated reasoning.

IJCAR 2010 had invited talks by Leonardo de Moura and Johan van Benthem. Moreover, together with CAV, CSF, and ICLP, IJCAR had an invited plenary talk by David Basin and an invited keynote talk by Deepak Kapur. These proceedings contain a full paper and two abstracts corresponding to the invited talks. We want to thank the invited speakers for their interesting and inspiring presentations.

The Herbrand Award for distinguished contributions to automated reasoning was given to David Plaisted in recognition of his many outstanding seminal results in the field. The selection committee for the Herbrand Award included the previous award winners of the last ten years, the CADE trustees, and the IJCAR

2010 Program Committee. The Herbrand Award ceremony and the acceptance speech were part of the conference program.

We are grateful to the IJCAR 2010 Workshop Chair Aaron Stump for attracting the following workshops that took place in association with IJCAR:

- **Automatheo:** Workshop on Automated Mathematical Theory Exploration
- **CLoDeM:** International Workshop on Comparing Logical Decision Methods
- **EMSQMS:** Workshop on Evaluation Methods for Solvers and Quality Metrics for Solutions
- **LfSA:** Logics for System Analysis
- **MLPA:** Workshop on Module Systems and Libraries for Proof Assistants
- **PAAR:** Workshop on Practical Aspects of Automated Reasoning
- **SVARM:** Synthesis, Verification and Analysis of Rich Models
- **UITP:** International Workshop on User Interfaces for Theorem Provers
- **UniDL:** Workshop on Uncertainty in Description Logics
- **UNIF:** International Workshop on Unification
- **VERIFY:** International Verification Workshop
- **WING:** Workshop on Invariant Generation
- **WST:** International Workshop on Termination

Moreover, the following competitions were held as part of IJCAR:

- **CASC-J5:** 5th IJCAR ATP System Competition
- **Termination Competition 2010:** 7th International Termination Competition

Many people helped to make IJCAR 2010 a success. We want to thank the IJCAR Publicity Chair Viorica Sofronie-Stokkermans and we are grateful to Geoff Sutcliffe for hosting the IJCAR website. The IJCAR 2010 Steering Committee consisted of Peter Baumgartner, Maria Paola Bonacina (Chair), Alan Bundy, Jürgen Giesl, Rajeev Goré, Bernhard Gramlich, Reiner Hähnle, and Ullrich Hustadt. We are particularly indebted to the IJCAR 2010 Conference Chair and IJCAR representative in the FLoC Steering Committee Alan Bundy, the FLoC Steering Committee Chair Moshe Y. Vardi, the FLoC Conference Chairs Leonid Libkin and Gordon Plotkin, and all the other members of the FLoC Organizing Committee and the Local Organizing Committee, who organized IJCAR and the other conferences and workshops of FLoC in a very careful way.

May 2010

Jürgen Giesl
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