Lecture Notes in Computer Science 6898

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

Marko Van Eekelen Herman Geuvers
Julien Schmaltz Freek Wiedijk (Eds.)

Interactive Theorem Proving

Second International Conference, ITP 2011
Berg en Dal, The Netherlands, August 22-25, 2011
Proceedings

Springer

Volume Editors

Marko Van Eekelen
Open Universiteit, Faculteit Informatica
Postbus 2960, 6401 DL Heerlen, The Netherlands
E-mail: marko.vaneekelen@ou.nl

Herman Geuvers
Radboud Universiteit Nijmegen, FNWI/ICIS/IS
Postbus 9010, 6500 GL Nijmegen, The Netherlands
E-mail: herman@cs.ru.nl

Julien Schmaltz
Open Universiteit, Faculteit Informatica
Postbus 2960, 6401 DL Heerlen, The Netherlands
E-mail: julien.schmaltz@ou.nl

Freek Wiedijk
Radboud Universiteit Nijmegen, FNWI/ICIS/IS
Postbus 9010, 6500 GL Nijmegen, The Netherlands
E-mail: freek@cs.ru.nl

ISSN 0302-9743 e-ISSN 1611-3349
ISBN 978-3-642-22862-9 e-ISBN 978-3-642-22863-6
DOI 10.1007/978-3-642-22863-6
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011933581

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

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

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

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This volume contains the papers presented at ITP 2011: the Second International Conference on Interactive Theorem Proving. It was held during August 22–25, 2011 in Berg en Dal, The Netherlands.

ITP brings together researchers working in all areas of interactive theorem proving. ITP is the evolution of the TPHOLs conference series to the broad field of interactive theorem proving. The inaugural meeting of ITP was held during July 11–14, 2010 in Edinburgh, Scotland, as part of the Federated Logic Conference (FLoC, July 9–21, 2010). TPHOLs meetings took place every year from 1988 until 2009.

There were 50 submissions to ITP 2011, each of which was reviewed by at least four Program Committee members. Out of the 50 submissions, 42 were regular papers and 8 were rough diamonds. The Program Committee accepted 21 regular papers, including one proof pearl and four rough diamonds. All 25 papers are included in the proceedings. The Program Committee also invited two leading researchers from Industry, Georges Gonthier (Microsoft Research) and Mike Kishinevsky (Intel Corporation), and two leading researchers from academia, Don Batory (University of Texas at Austing) and Bart Jacobs (Radboud University Nijmegen), to present invited lectures.

Two system demos were given at ITP 2011. Each demo consisted in an in-depth presentation of 90 minutes about the application of an ITP system on a real example. Details about the practical use of ACL2 and KeY were presented.

ITP 2011 featured seven associated workshops that took place on August 26 and August 27. The workshops were the following: The Third Coq Workshop, the Third Workshop on Dependently Typed Programming, the 10th KeY Symposium, the 6th International Workshop on Logical Frameworks and Meta-Languages: Theory and Practice, the ITP 2011 Workshop on Mathematical Wikis, the Third Workshop on Modules and Libraries for Proof Assistants, the 6th International Workshop on Systems Software Verification.

We would like to thank our Local Chair Nicole Messink for the valuable and efficient support in planning and running ITP. We would like to thank all the local organizers for their help during the event.

The work of the Program Committe and the editorial process were facilitated by the EasyChair conference management system. We are grateful to Springer for publishing these proceedings, as they have done for ITP 2010 and TPHOLs and its predecessors since 1993.

Finally, we would like to thank our sponsors: The Netherlands Organisation for Scientific Research (NWO) and The Royal Netherlands Academy of Arts and Sciences (KNAW).

June 2011

Herman Geuvers
Freek Wiedijk
Marko Van Eekelen
Julien Schmaltz

Organization

Program Committee

David Aspinall	University of Edinburgh, UK
Jeremy Avigad	Carnegie Mellon University, USA
Stefan Berghofer	Technische Universität München, Germany
Yves Bertot	INRIA, France
Sandrine Blazy	IRISA - Université Rennes 1, France
Jens Brandt	University of Kaiserslautern, Germany
Jared Davis	The University of Texas at Austin, USA
Amy Felty	University of Ottawa, Canada
Jean-Christophe Filliâtre	CNRS, France
Herman Geuvers	Radboud University Nijmegen, The Netherlands
Elsa Gunther	University of Illinois at Urbana-Champaign, USA
John Harrison	Intel Corporation, USA
Reiner Hähnle	Chalmers University of Technology, Sweden
Matt Kaufmann	University of Texas at Austin, USA
Gerwin Klein	NICTA and UNSW, Australia
Assia Mahboubi	INRIA Saclay – Île-de-France, France
Panagiotis Manolios	Northeastern University, USA
John Matthews	Galois Connections, Inc., USA
Paul Miner	NASA, USA
J Moore	University of Texas at Austin, USA
Greg Morrisett	Harvard University, USA
Magnus O. Myreen	University of Cambridge, UK
Tobias Nipkow	Technische Universität München, Germany
Michael Norrish	NICTA, Australia
Sam Owre	SRI International, USA
Christine Paulin-Mohring	Université Paris-Sud, France
Lawrence Paulson	University of Cambridge, UK
Brigitte Pientka	McGill University, Canada
Lee Pike	Galois, Inc., USA
Sandip Ray	University of Texas at Austin, USA
Jose-Luis Ruiz-Reina	University of Seville, Spain
David Russinoff	AMD, USA
Julien Schmaltz	Open University of The Netherlands / Radboud University Nijmegen, The Netherlands
Konrad Slind	Rockwell Collins Advanced Technology Center

Sofiène Tahar	Concordia University, Canada
Marko Van Eekelen	Radboud University Nijmegen, The Netherlands
Makarius Wenzel	University of Paris Sud, France
Freek Wiedijk	Radboud University Nijmegen, The Netherlands

Additional Reviewers

Abbasi, Naeem
Ahrendt, Wolfgang
Akbarpour, Behzad
Andronick, June
Baelde, David
Bai, Yu
Bardou, Romain
Bobot, Francois
Boespflug, Mathieu
Bosma, Wieb
Campbell, Brian
Cave, Andrew
Chamarthi, Harsh Raju
Cohen, Cyril
Contejean, Evelyne
Delahaye, David
Diatchki, Iavor
Dixon, Lucas
Erkok, Levent
Forest, Julien
Goodloe, Alwyn
Gunter, Elsa
Hasan, Osman
Hendrix, Joe
Herencia-Zapana, Heber
Huffman, Brian
Hurd, Joe
Jain, Mitesh
Ji, Ran
Kersten, Rody
Khan-Afshar, Sanaz
Klebanov, Vladimir
Krauss, Alexander
Kunz, César
Lensink, Leonard
Liu, Hanbing
Longuet, Delphine
Madlener, Ken
Maier, Patrick
Martin-Mateos, Francisco-Jesus
McKinna, James
Mhamdi, Tarek
Munoz, Cesar
Naumann, David
Papavasileiou, Vasilis
Pasca, Ioana
Pollack, Randy
Popescu, Andrei
Pottier, Loïc
Preoteasa, Viorel
Rager, David
Rutten, Luc
Sacchini, Jorge Luis
Schaefer, Ina
Schfer, Jan
Seidel, Peter-Michael
Sewell, Thomas
Shankar
Smetsers, Sjaak
Spitters, Bas
Starostin, Artem
Tankink, Carst
Tews, Hendrik
Théry, Laurent
Urban, Christian
Verbeek, Freek
Weber, Tjark
Whiteside, Iain
Winwood, Simon
Wolff, Burkhart

Table of Contents

Invited Papers

Regular Papers

Proof Pearls

Rough Diamonds