

IJCAR 2008

4th International Joint Conference on Automated Reasoning

Sydney, Australia, August 10–15, 2008

Workshop Program

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**10 - 15
August
2008**

2008.IJCAR.org

http://

The 4th International Joint Conference on Automated Reasoning, Sydney, Australia, 10-15 August 2008

Practical Aspects of Automated Reasoning – PAAR-2008/ESHOL-2008

Boris Konev

Renate Schmidt
(Chairs)

Stephan Schulz

WS 2 – August 10/11

PAAR-2008/ESHOL-2008

Practical Aspects of Automated Reasoning and Evaluation of Systems for Higher Order Logic

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1 Introduction

The first Workshop on Practical Aspects of Automated Reasoning was held on August 10–11, 2008, in Sydney, Australia, in association with the 4th International Joint Conference on Automated Reasoning (IJCAR-2008). It was held jointly with the ESHOL Workshop.

PAAR provides a forum for developers of automated reasoning tools to discuss and compare different implementation techniques, and for users to discuss and communicate their applications and requirements. The workshop brought together different groups to concentrate on practical aspects of the implementation and application of automated reasoning tools. It allowed researchers to present their work in progress, and to discuss new implementation techniques and applications.

Topics included were:

- automated reasoning in classical and non-classical logics, implementation of provers;
- automated reasoning tools for all kinds of practical problems and applications;
- practical experiences, case studies, feasibility studies;
- evaluation of implementation techniques and automated reasoning tools;
- benchmarking approaches;
- non-standard approaches to automated reasoning, non-standard forms of automated reasoning, new applications;
- implementation techniques, optimisation techniques, strategies and heuristics;
- system descriptions and demos.

We were particularly interested in contributions that help the community to understand how to build useful and powerful reasoning systems in practice, and how to apply existing systems to real problems.

2 Workshop Programme

The workshop programme included 3 invited talks, 10 regular papers, 10 ESHOL presentations and demonstrations of higher-order logic systems and a panel discussion on the *Evaluation of Systems of Higher-Order Logic*. The invited talks were:

- *Software Model Checking: New Challenges and Opportunities for Automated Reasoning* by Alessandro Armando,
- *Mechanized Reasoning for Continuous Problem Domains* by Rob Arthan.
- *Constraint Modelling: A Challenge for First Order Automated Reasoning* by John Slaney.

The contributed papers were selected with the help of the programme committee from 13 submissions. The accepted papers were:

- *Bit Inference* by Nachum Dershowitz,
- *Collaborative Programming: Applications of logic and automated reasoning* by Timothy Hinrichs,
- *Towards fully automated axiom extraction for finite-valued logics* by Joao Marcos and Dalmo Mendonca,
- *A Small Framework for Proof Checking* by Hans de Nivelle and Piotr Witkowski,
- *Integration of the TPTPWorld into SigmaKEE* by Steven Trac, Geoff Sutcliffe and Adam Pease,
- *Combining Theorem Proving with Natural Language Processing* by Björn Pelzer and Ingo Glöckner,
- *Presenting TSTP Proofs with Inference Web Tools* by Paulo Pinheiro da Silva, Geoff Sutcliffe, Cynthia Chang, Li Ding, Nick del Rio and Deborah McGuinness,
- *randoCoP: Randomizing the Proof Search Order in the Connection Calculus* by Thomas Rath and Jens Otten,
- *The Annual SUMO Reasoning Prizes at CASC* by Steven Trac, Geoff Sutcliffe and Adam Pease,
- *Contextual Rewriting in SPASS* by Christoph Weidenbach and Patrick Wischniewski.

The ESHOL sessions were organised by Christoph Benz Müller, Florian Rabe, Carsten Schürmann, and Geoff Sutcliffe. See [1] in these proceedings for more details.

3 Publication Details

These proceedings are published as CEUR Workshop Proceedings [2]. The PAAR-2008 webpage is:

<http://www.eprover.org/EVENTS/PAAR-2008/paar-2008.html>.

4 Organization

PAAR-2008 Co-Chairs

Boris Konev, University of Liverpool
Renate Schmidt, University of Manchester
Stephan Schulz, TU München

PAAR-2008 Program Committee

Serge Autexier	Hans de Nivelle
Nikolaj Bjorner	Albert Oliveras
Peter Baumgartner	Brigitte Pientka
Christoph Benzmlüller	Adam Pease
Koen Claessen	Florian Rabe
Bernd Fischer	Silvio Ranise
Ulrich Furbach	Renate Schmidt
Martin Giese	Stephan Schulz
Volker Haarslev	Carsten Schürmann
Thomas Hillenbrand	Sanjit Seshia
Tommi Junttila	Geoff Sutcliffe
Deepak Kapur	Cesare Tinelli
Boris Konev	Josef Urban
Konstantin Korovin	Luca Vigano
Bill McCune	Andrei Voronkov
Boris Motik	Uwe Waldmann
Flavio LC de Moura	

ESHOL-2008 Co-Chairs

Christoph Benzmlüller, Saarland University
Florian Rabe, Jacobs University Bremen
Carsten Schürmann, IT University of Copenhagen
Geoff Sutcliffe, University of Miami

5 Schedule

Sunday, August 10

09.00–10.00 Invited talk: Alessandro Armando (shared with CEDAR)
Software Model Checking: new challenges and opportunities for Automated Reasoning

10.00–10.30 Coffee break

10.30–12.30 Session 1

10.30 Joao Marcos and Dalmo Mendonca

Towards fully automated axiom extraction for finite-valued logics

11.10 Paulo Pinheiro da Silva, Geoff Sutcliffe, Cynthia Chang, Li Ding,
Nick del Rio and Deborah McGuinness

Presenting TSTP Proofs with Inference Web Tools

11.50 Steven Trac, Geoff Sutcliffe and Adam Pease

Integration of the TPTPWorld into SigmaKEE

12.30–14.00 Lunch break

14.00–15.00 ESHOL invited talk: Rob Arthan

Mechanized Reasoning for Continuous Problem Domains

15.00–15.30 ESHOL presentations

15.00 Rob Arthan

ProofPower

15.10 Stefan Berghofer

Isabelle

15.20 Lucas Dixon

IsaPlanner

15.30–16.00 Coffee break

16.00–17.00 ESHOL presentations

16.00 Guillaume Melquiond

Coq

16.10 Josef Urban

Mizar

16.20 Joe Hurd

HOL

16.30 Carsten Schürmann

Delphin

16.40 Christoph Benzmüller and Frank Theiss

Omega

16.50 Christoph Benzmüller and Frank Theiss

LEO II

17.00 Mark Kaminski

TPS

17.30– **ESHOL demos**
running in parallel

Monday, August 11

09.00–10.00 Invited talk: John Slaney

Constraint Modelling: A Challenge for First Order Automated Reasoning

10.00–10.30 Coffee break

10.30–12.30 Session 2

10.30 Christoph Weidenbach and Patrick Wischniewski

Contextual Rewriting in SPASS

11.10 Nachum Dershowitz

Bit Inference

11.50 Hans de Nivelle and Piotr Witkowski

A Small Framework for Proof Checking

12.30–14.00 Lunch break

14.00–15.30 Session 3

14.00 Timothy Hinrichs

Collaborative Programming: Applications of logic and automated reasoning

14.40 Björn Pelzer and Ingo Glöckner

Combining Theorem Proving with Natural Language Processing

15.30–16.00 Coffee break

16.00–17.10 Session 4

16.00 Steven Trac, Geoff Sutcliffe and Adam Pease

The Annual SUMO Reasoning Prizes at CASC

16.40 Thomas Rath and Jens Otten

randoCoP: Randomizing the Proof Search Order in the Connection Calculus

17.20–18.00 ESHOL panel: Rob Arthan, Lucas Dixon, Joe Hurd

Evaluation of Systems for Higher Order Logic

References

1. C. Benzmüller, F. Rabe, C. Schürmann, and G. Sutcliffe. Evaluation of systems for higher-order logic (ESHOL). In B. Konev, R. A. Schmidt, and S. Schulz, editors, *Proceedings of the First International Workshop on Practical Aspects of Automated Reasoning (PAAR-2008/ESHOL-2008), Sydney, Australia, August 10–11, 2008*, pages 22–25. CEUR Workshop Proceedings, 2008.
2. B. Konev, R. A. Schmidt, and S. Schulz, editors. *Proceedings of the First International Workshop on Practical Aspects of Automated Reasoning (PAAR-2008/ESHOL-2008), Sydney, Australia, August 10–11, 2008*. CEUR Workshop Proceedings, 2008.

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