Preface

This volume contains the papers presented at IJCAR 2008, the 4th International Joint Conference on Automated Reasoning, held on August 12-15, 2008, in Sydney (Australia). The IJCAR conference series is aimed at unifying the different research principles within Automated Reasoning. IJCAR 2008 is the fusion of several major international events:

- **CADE**: The International Conference on Automated Deduction,
- **FroCoS**: The Symposium on Frontiers of Combining Systems,
- **FTP**: The Workshop on First-order Theorem Proving, and
- **TABLEAUX**: The Conference on Analytic Tableaux and Related Methods.

Previous versions of IJCAR were held at Seattle (USA) in 2006, Cork (Ireland) in 2004 and Siena (Italy) in 2001.

These proceedings comprise 4 contributions by invited speakers, 26 research papers and 13 system descriptions. It also includes a short overview of the CASC-J4 competition for automated theorem proving systems that was conducted during IJCAR 2008. The invited speakers were Hubert Comon-Lundh, Nachum Dershowitz, Aarti Gupta, and Carsten Lutz. Their talks covered a broad spectrum of Automated Reasoning, viz., verification of security protocols, proof theoretical frameworks for first-order logic, automated decision procedures and software verification, and description logics.

The contributed papers were selected from 80 research paper submissions and 17 system description submissions. Each submission was reviewed by at least three reviewers, and decisions were reached after two weeks of discussion through an electronic Program Committee meeting. The submissions, reviews and discussion were coordinated using the EasyChair conference management system. The accepted papers spanned a wide spectrum of research in Automated Reasoning, including saturation, equational reasoning and unification, automata-based methods, description logics and related logics, satisfiability modulo theory, decidable logics, reasoning about programs, and higher-order logics.

The Herbrand Award for distinguished contributions to automated reasoning was presented to Edmund M. Clarke in recognition of his role in the invention of model checking and his sustained leadership in the area for more than two decades. The selection committee for the Herbrand Award consists of the previous award winners of the last ten years, the trustees of CADE Inc., and the IJCAR 2008 Program Committee. The Herbrand award ceremony and the acceptance speech by Professor Clarke were part of the conference programme.

In addition to the Program Committee and the reviewers, many people contributed to the success of IJCAR 2008. Geoff Sutcliffe served as the publicity chair and organized the systems competition, CASC-J4. The IJCAR steering committee consisted of Alessandro Armando, Franz Baader (chair), Peter Baumgartner, Alan Bundy, Gilles Dowek, Rajeev Goré, Bernhard Gramlich, John Harrison, and Ullrich Hustadt. Special thanks go to Andrei Voronkov for his EasyChair system, which makes many tasks of a program chair much easier.
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We would like to thanks all people involved in organizing IJCAR 2008, as well as the sponsors the Australian National University, Intel, Microsoft Research and NICTA.

May 2008

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