

Lecture Notes in Computer Science

2919

Edited by G. Goos, J. Hartmanis, and J. van Leeuwen

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Enrico Giunchiglia Armando Tacchella (Eds.)

Theory and Applications of Satisfiability Testing

6th International Conference, SAT 2003
Santa Margherita Ligure, Italy, May 5-8, 2003
Selected Revised Papers



Springer

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Cataloging-in-Publication Data applied for

A catalog record for this book is available from the Library of Congress.

Bibliographic information published by Die Deutsche Bibliothek
Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data is available in the Internet at <<http://dnb.ddb.de>>.

CR Subject Classification (1998): F.4.1, I.2.3, I.2.8, I.2, F.2.2, G.1.6

ISSN 0302-9743

ISBN 3-540-20851-8 Springer-Verlag Berlin Heidelberg New York

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Printed in Germany

Typesetting: Camera-ready by author, data conversion by Boller Mediendesign
Printed on acid-free paper SPIN: 10982143 06/3142 5 4 3 2 1 0

Preface

This book is devoted to the *6th International Conference on Theory and Applications of Satisfiability Testing (SAT 2003)* held in Santa Margherita Ligure (Genoa, Italy), during May 5–8, 2003. SAT 2003 followed the Workshops on Satisfiability held in Siena (1996), Paderborn (1998), and Renesse (2000), and the Workshop on Theory and Applications of Satisfiability Testing held in Boston (2001) and in Cincinnati (2002). As in the last edition, the SAT event hosted a SAT solvers competition, and, starting from the 2003 edition, also a Quantified Boolean Formulas (QBFs) solvers comparative evaluation.

There were 67 submissions of high quality, authored by researchers from all over the world. All the submissions were thoroughly evaluated, and as a result 42 were selected for oral presentations, and 16 for a poster presentation. The presentations covered the whole spectrum of research in propositional and QBF satisfiability testing, including proof systems, search techniques, probabilistic analysis of algorithms and their properties, problem encodings, industrial applications, specific tools, case studies and empirical results. Further, the program was enriched by three invited talks, given by Riccardo Zecchina (on “*Survey Propagation: from Analytic Results on Random k -SAT to a Message-Passing Algorithm for Satisfiability*”), Toby Walsh (on “*Challenges in SAT (and QBF)*”) and Wolfgang Kunz (on “*ATPG Versus SAT: Comparing Two Paradigms for Boolean Reasoning*”). SAT 2003 thus provided a unique forum for the presentation and discussion of research related to the theory and applications of propositional and QBF satisfiability testing.

The book includes 38 contributions. The first 33 are revised versions of some of the articles that were presented at the conference. The last 5 articles present the results of the SAT competition and of the QBF evaluation, solvers that won the SAT competition, and results on survey and belief propagation. All 38 papers were thoroughly reviewed.

We would like to thank the many people who contributed to the SAT 2003 organization (listed in the following pages), the SAT 2003 participants for the lively discussions, and the sponsors.

September 2003

Enrico Giunchiglia
Armando Tacchella

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Table of Contents

Satisfiability and Computing van der Waerden Numbers	1
<i>Michael R. Dransfield, Victor W. Marek, Mirosław Truszczyński</i>	
An Algorithm for SAT Above the Threshold	14
<i>Hubie Chen</i>	
Watched Data Structures for QBF Solvers	25
<i>Ian Gent, Enrico Giunchiglia, Massimo Narizzano, Andrew Rowley, Armando Tacchella</i>	
How Good Can a Resolution Based SAT-solver Be?	37
<i>Eugene Goldberg, Yakov Novikov</i>	
A Local Search SAT Solver Using an Effective Switching Strategy and an Efficient Unit Propagation	53
<i>Xiao Yu Li, Matthias F. Stallmann, Franc Brglez</i>	
Density Condensation of Boolean Formulas	69
<i>Youichi Hanatani, Takashi Horiyama, Kazuo Iwama</i>	
SAT Based Predicate Abstraction for Hardware Verification	78
<i>Edmund Clarke, Muralidhar Talupur, Helmut Veith, Dong Wang</i>	
On Boolean Models for Quantified Boolean Horn Formulas	93
<i>Hans Kleine Büning, K. Subramani, Xishun Zhao</i>	
Local Search on SAT-encoded Colouring Problems	105
<i>Steven Prestwich</i>	
A Study of Pure Random Walk on Random Satisfiability Problems with “Physical” Methods	120
<i>Guilhem Semerjian, Rémi Monasson</i>	
Hidden Threshold Phenomena for Fixed-Density SAT-formulae	135
<i>Hans van Maaren, Linda van Norden</i>	
Improving a Probabilistic 3-SAT Algorithm by Dynamic Search and Independent Clause Pairs	150
<i>Sven Baumer, Rainer Schuler</i>	
Width-Based Algorithms for SAT and CIRCUIT-SAT	162
<i>Elizabeth Broering, Satyanarayana V. Lokam</i>	
Linear Time Algorithms for Some Not-All-Equal Satisfiability Problems . .	172
<i>Stefan Porschen, Bert Randerath, Ewald Speckenmeyer</i>	

On Fixed-Parameter Tractable Parameterizations of SAT	188
<i>Stefan Szeider</i>	
On the Probabilistic Approach to the Random Satisfiability Problem	203
<i>Giorgio Parisi</i>	
Comparing Different Prenexing Strategies for Quantified Boolean Formulas	214
<i>Uwe Egly, Martina Seidl, Hans Tompits, Stefan Woltran, Michael Zolda</i>	
Solving Error Correction for Large Data Sets by Means of a SAT Solver .	229
<i>Renato Bruni</i>	
Using Problem Structure for Efficient Clause Learning	242
<i>Ashish Sabharwal, Paul Beame, Henry Kautz</i>	
Abstraction-Driven SAT-based Analysis of Security Protocols	257
<i>Alessandro Armando, Luca Compagna</i>	
A Case for Efficient Solution Enumeration	272
<i>Sarfraz Khurshid, Darko Marinov, Ilya Shlyakhter, Daniel Jackson</i>	
Cache Performance of SAT Solvers: a Case Study for Efficient Implementation of Algorithms	287
<i>Lintao Zhang, Sharad Malik</i>	
Local Consistencies in SAT	299
<i>Christian Bessière, Emmanuel Hebrard, Toby Walsh</i>	
Guiding SAT Diagnosis with Tree Decompositions	315
<i>Per Bjesse, James Kukula, Robert Damiano, Ted Stanion, Yunshan Zhu</i>	
On Computing k -CNF Formula Properties	330
<i>Ryan Williams</i>	
Effective Preprocessing with Hyper-Resolution and Equality Reduction ..	341
<i>Fahiem Bacchus, Jonathan Winter</i>	
Read-Once Unit Resolution	356
<i>Hans Kleine Büning, Xishun Zhao</i>	
The Interaction Between Inference and Branching Heuristics	370
<i>Lyndon Drake, Alan Frisch</i>	
Hypergraph Reductions and Satisfiability Problems	383
<i>Daniele Pretolani</i>	

SBSAT: a State-Based, BDD-Based Satisfiability Solver	398
<i>John Franco, Michal Kouril, John Schlipf, Jeffrey Ward, Sean Weaver, Michael Dransfield, W. Mark Vanfleet</i>	
Computing Vertex Eccentricity in Exponentially Large Graphs: QBF Formulation and Solution	411
<i>Maher Mneimneh, Karem Sakallah</i>	
The Combinatorics of Conflicts between Clauses	426
<i>Oliver Kullmann</i>	
Conflict-Based Selection of Branching Rules	441
<i>Marc Herbstritt, Bernd Becker</i>	
The Essentials of the SAT 2003 Competition	452
<i>Daniel Le Berre, Laurent Simon</i>	
Challenges in the QBF Arena: the SAT'03 Evaluation of QBF Solvers . . .	468
<i>Daniel Le Berre, Laurent Simon, Armando Tacchella</i>	
<i>kcnfs</i> : an Efficient Solver for Random k -SAT Formulae	486
<i>Gilles Dequen, Olivier Dubois</i>	
An Extensible SAT-solver	502
<i>Niklas Eén, Niklas Sörensson</i>	
Survey and Belief Propagation on Random K -SAT	519
<i>Alfredo Braunstein, Riccardo Zecchina</i>	
Author Index	529