
Curriculum Vitae et Studiorum

prof. ing. **Roberto Sebastiani**, PhD

(last update: September 23, 2009)



Brief Resume

Current Status

Associate professor, *Dipartimento di Ingegneria e Scienza dell'Informazione, Facoltà di Scienze M.F.N., Università degli Studi di Trento, Italy.*

Career Summary

- (January 2005-current.) Associate Professor at *Università degli Studi di Trento*, Facoltà di Scienze M.F.N..
- (January 2001-dec. 2004.) Assistant Professor at *Università degli Studi di Trento*, Facoltà di Scienze M.F.N..
- (February 1999-dec. 2000.) Research associate (“Ricercatore a tempo determinato”) at *Dipartimento di Informatica e Sistemi Aziendali, DISA, Università degli Studi di Trento*.
- (July 1997-january 1999.) Researcher at *Istituto per la Ricerca Scientifica e Tecnologica – ITC-IRST*, Trento.
- (November 1993-june 1997.) PhD student at Dipartimento di Informatica, Sistemistica e Telematica (DIST), Università degli Studi di Genova.

Education

- (September 1997) PhD in Computer-Science Engineering. *Dipartimento di Informatica, Sistemistica e Telematica, Università degli Studi di Genova*.
Thesis: “Una nuova classe di procedure di decisione per logiche modali e terminologiche: teoria, implementazione e testing”¹ Advisors: Mauro Di Manzo (DIST, Genova), Fausto Giunchiglia (IRST Trento).
- (December 1991) M.S. in Electronic Engineering, 110/110 cum Laude. *Università degli Studi di Padova*. Thesis: “L’astrazione in un dimostratore automatico interattivo: definizione e realizzazione.” Relatori: E.Pagello (C.N.R. Padova), F. Giunchiglia (IRST Trento).

¹In 1997, by Italian Law, both PhD and Master Theses had to be written in Italian.

Research

Research Interests

Satisfiability Modulo Theories (SMT) and its applications to Formal verification. SMT is the problem of checking satisfiability of formulas in complex theories which extend boolean satisfiability (typically decidable subclasses of First-order logic). I'm one of the inventors of the "lazy" approach to SMT (now state-of-the-art), which efficiently combines DPLL-based SAT solvers with theory-specific decision procedures. I have investigated and developed many techniques for developing efficient decision procedures for SMT in expressive theories (modal logics, description logics, linear arithmetic on reals and integers) on top of boolean SAT solvers. With my collaborators we have introduced the technique of Delayed Theory Combination as an alternative to "Classic" Nelson-Oppen combination technique for SMT solvers. Variants of this technique is now implemented in most state-of-the-art SMT solvers. We also have introduced the idea of Formal Verification of RTL circuit designs and of timed and hybrid systems based on SMT.

Formal Verification, Model Checking My research in this field focuses on new techniques for model checking with linear temporal logic (LTL) and for bounded model checking. With my coauthors, we have proposed for the first time an extension of bounded model checking for the verification of real-time and hybrid systems by means of SMT tools. From an application viewpoint, I have worked on verification of real-world, industrial systems in technology transfer projects by means of model checking techniques.

Formal Reasoning in SW Specification I have worked on applying automated reasoning techniques (mostly SAT and SMT) to goal models, a formalism used for requirements analysis within the TROPOS SW engineering methodology.

My past research activities dealt also with automated reasoning, knowledge representation, planning, SAT.

Development of tools for Automated Reasoning & Formal Verification

- (2001-current). I co-lead the development of the SMT solver MATHSAT (<http://www.mathsat4.disi.unitn.it>)
- (2000-current) I participate to the development of the Model Checker NuSMV.2 (<http://nusmv.itc.it>)
- (2003) I lead the development of the tool MODELLEA for LTL model checking. (<http://www.science.unitn.it/~stonetta/modella.html>)
- (2002-2005) I participate to the development of the tool GR-TOOL for automated reasoning in goal models for requirement engineering (<http://troposproject.org/tools/grtool/>).
- (1999-current) I lead the development of a tool for automated career planing and verification of regulations and ordinances, based on a Model Checker. (<http://p2p.science.unitn.it/~asiena/>)
- (1995-98) Development of the theorem prover KSAT for modal & description logics $K(m)/ALC$. (<ftp://ftp.mrg.dist.unige.it/pub/mrg-systems/KR98-sources/Ksat-source>)

Fundings

- (2004-2006) Local team leader of the "Fondo unico" research project "*ORCHID: Enhanced Formal Checkers for RTL Circuit Designs*" sponsored by Provincia Autonoma di Trento.
- (2003-2005) Local team leader of the technology transfer project "*BOWLING: BBoolean and Word-Level Integrated enGines for Hybrid Formal Checking of RTL Designs*" sponsored by INTEL Israel.
- (2003-2005) Participation to the research project "*Automazione dell' Ingegneria del Software basata su Conoscenza - ASTRO*" sponsored by MIUR-FIRB.
- (2003-2004) Local team leader of the research project Partecipazione al progetto di ricerca "*Sistemi avanzati di ragionamento automatico per la rappresentazione e la verifica formale di sistemi complessi basati su estensioni non booleane di decisori per soddisfabilità*" sponsored by MURST.
- (2000-2004. Trento) Participation as external consultant of ITC-IRST to the EU IHP-RTN 5th Framework project "CALCULEMUS" on the integration of computer algebra and automated deductino systems.

Teaching

Courses & Tutorials at International Schools and Conferences

- (2005-2006. Brixen) PhD course “Efficient Boolean Reasoning” at “Int. BIT summer school in ICT”.
- (2003, Acapulco, Mex) Tutorial “SAT beyond propositional satisfiability”, *International Joint Conference on Artificial Intelligence – IJCAI’03*
- (2003, Miami, USA) Tutorial “SAT beyond propositional satisfiability”, *International Conference on Automated Deduction CADE’03*
- (2002, Trento). Advanced Course “SAT beyond propositional satisfiability”, *14th European Summer School in Logic, Language and Information – ESSLLI’2002*.

PhD Courses

- (2007-8, 2005-6, 2004-5, 2003-4, 2002-3, 2001-2002. Trento) [3CFU] PhD Course “Efficient Boolean Reasoning”, “Int. Graduate School of Information and Communication Technologies”, Trento.

M.S. Courses (at c.d.l.m. “Informatica”, Facoltà di Scienze M.F.N., Università di Trento.)

- (2007-8, 2006-7, 2005-6, 2004-5, 2003-4 Trento) [12CFU] M.S. course “Introduction to Formal Methods”.

B.S. Courses (at c.d.l. “Informatica”, Facoltà di Scienze M.F.N., Università di Trento.)

- (2007-8, 2006-7, 2005-6, 2004-5, 2003-4 Trento) [12CFU] B.S. course “Programmazione 1”.
- (2002-2003, 2001-2002 Trento) [6 CFU] B.S. course “Laboratorio di Informatica: Programmazione 1”.
- (2000-2001 Trento) [6 CFU] B.S. course “Laboratorio di Informatica: Programmazione 2”.

Advisor of PhD students

- (2006-current.). Advisor of Michele Vescovi. Topics in automated reasoning e formal verification.
- (2005-current.). Advisor of Alberto Griggio. Topics in automated reasoning e formal verification.
- (2005-current.). Co-Advisor of Anders Franzen. Topics in automated reasoning e formal verification.
- (2004-2008). Co-Advisor of Roberto Bruttomesso. Topics in automated reasoning e formal verification.
- (2003-2005.). Co-Advisor of Veselin Kirov. Topics in automated reasoning e formal verification.
- (2001-marzo 2006.). Advisor of Stefano Tonetta. Topics in automated reasoning e formal verification.

Advisor of M.S. and B.S students (at c.d.l.m. and c.d.l. “Informatica” Università di Trento.)

- I’ve supervised 6 M.S. theses in Computer Science,
- I’ve supervised 1 M.S. thesis in Mathematics,
- I’ve supervised 1 M.S. thesis in Economical Science,
- I’ve supervised 7 B.S. theses in Computer Science.

International visibility

Citation Indexes

- h-index: 19, h_{norm} -index: 11, g-index: 34, average # of authors: 3.14
(fonte: Herzig's pop2 – <http://www.harzing.com/resources.htm#/pop.htm>).
- Occurs in the list of the 10.000 (over 790.000) most-cited authors in computer science:
 - # 5097 according to RESEARCHINDEX (<http://citeseer.ist.psu.edu/allcitedn.html>)
 - # 4714 according to LIBRA (http://libra.msra.cn/author_category_24_1.htm)

Editing & Membership of Editorial Boards

- (2006-current): Associate editor “*Journal on Boolean Modeling, Reasoning and Computation*”. IOS Press.
- (2003-current) Member of the Ed. Board of “*Journal on Boolean Modeling, Reasoning and Computation*”.
- (2007) Guest co-editor, with dr. B. Cook of Microsoft Research, of *Journal on Satisfiability, Boolean Modeling and Computation, JSAT.*, “Special Issue on Satisfiability Modulo Theories”. IOS Press.
- (2001-02). Guest Co-Editor, with prof. S. Linton of St. Andrews University, of *Journal of Symbolic Computation: Special Issue on Integration of Automated Reasoning and Computer Algebra Systems*. Elsevier.

Chairmanships & Memberships of Program Committees

- (2009) Co-chair of *Frontier on Combining Systems - FroCoS'09*.
- (2006) Co-chair of *Pragmatics of Decision Procedures in Automated Reasoning - PDPAR'06*.
- (2001) Co-chair of *CALCULEMUS-2001, 9th Symposium on the Integration of Symbolic Computation and Mechanized Reasoning*.
- Member of th Program committee of the following conferences AIMS'98, CALCULEMUS-2001, CALCULEMUS-2002, CALCULEMUS-2003, CALCULEMUS-2006, FROCO'02, IJCAR'04, KR'00, PDPAR'03, PDPAR'05, SAT'07, SAT'08, SMT'07, SMT'08.

International collaborations

I've published 59 papers with more than 50 coauthors. Among them there are world-class scientists, namely:

- Prof. Edmund Clarke, CMU (ACM Turing Award 2007, # 20 most-cited author in CS),
- Prof. Moshe Vardi, Rice Univ, TX (ACM Goedel Prize 2000, ACM Kanellakis Award 2005, # 81),
- Prof. Ian Horrocks, Oxford Univ. (BCS Needham award 2005, # 157),
- Dr. Peter Patel-Schneider, Lucent (# 389),
- Prof. John Mylopoulos, Univ. of Toronto, now at University of Trento (# 551),
- Dr. Alessandro Cimatti, FBK-IRST (# 1137)
- Prof. Toby Walsh, Camberra (# 1201),
- Prof. Alan Bundy, Univ. of Edimburgh (# 2119).

Invited Talks at conferences

- “Lazy Satisfiability Modulo Theories” at DoD Workshop on Advances in Satisfiability (2008)
- “Delayed theory combination” at Dagstuhl Seminar on Decision Procedures (2007)
- “From KSAT to Delayed Theory Combination: Exploiting DPLL Outside the SAT Domain” at Frontier on Combining Systems (2007)
- “On Efficiently Integrating Boolean and Theory-Specific Solving Procedures” at STRATEGIES (2004)
- “Evaluating the Efficiency of Decision Procedures for Modal Logics” Methods for Modalities (1999)

Publications

Papers on Journals

1. R. Sebastiani, M. Vescovi “Automated Reasoning in Modal and Description Logics via SAT Encoding: the Case Study of $K(m)/ALC$ -Satisfiability” *Journal of Artificial Intelligence Research, JAIR*. To appear.
2. R. Bruttomesso, A. Cimatti, A. Franzén, A. Griggio, R. Sebastiani “Delayed Theory Combination vs. Nelson-Oppen for Satisfiability Modulo Theories: a Comparative Analysis.” Extended version. *Annals of Mathematics and Artificial Intelligence*. Ed. Springer. To appear.
3. R. Sebastiani “Lazy Satisfiability Modulo Theories”. *Journal on Satisfiability, Boolean Modeling and Computation, JSAT*, Vol 3, 2007, pag 141-224. IOS Press.
4. R. Sebastiani, E. Siengeman, S. Tonetta, M. Vardi “GSTE is partitioned Model Checking”. Extended version. *Formal methods in System Designs* vol. 31, 2007. pp. 177–196. Kluwer.
5. M. Bozzano, R. Bruttomesso, A. Cimatti, T. Junttila, P. van Rossum, S. Ranise, R. Sebastiani “Efficient Theory Combination via Boolean Search” *Information and Computation*, vol. 204 (10), Ottobre 2006. Elsevier.
6. M. Bozzano, R. Bruttomesso, A. Cimatti, Z. Hanna, A. Palti, Z. Kashidashvili, R. Sebastiani “Encoding RTL Constructs for MathSAT: a Preliminary Report” *Electronic Notes in Theoretical Computer Science* vol 144, (2), 2006. Ed. Elsevier.
7. M. Bozzano, R. Bruttomesso, A. Cimatti, T. Junttila, P. van Rossum, S. Schulz, R. Sebastiani “MathSAT: A Tight Integration of SAT and Mathematical Decision Procedure” *Journal of Automated Reasoning, Volume 35, (1-3), October, 2005*. Ed. Kluwer/Springer.
8. G. Audemard, M. Bozzano, A Cimatti, R. Sebastiani “Verifying Industrial Hybrid Systems with MathSAT” *Electronic Notes in Theoretical Computer Science*. Vol 119, No 2, 2005. Ed. Elsevier.
9. P. Giorgini, J. Mylopoulos, R. Sebastiani “Goal-Oriented Requirements Analysis and Reasoning in the Tropos Methodology”. *Engineering Application of Artificial Intelligence Journal*. Volume 18/2, March 2005. Ed. Elsevier.
10. P. Giorgini, E. Nicchiarelli, J. Mylopoulos, R. Sebastiani “Formal Reasoning Techniques for Goal Models”. 2003. *Journal of Data Semantics*, vol. 1, September 2003. Ed. Springer.
11. P. F. Patel-Schneider, R. Sebastiani “A New General Method to Generate Random Modal Formulae for Testing Decision Procedures”. *Journal of Artificial Intelligence Research - JAIR*, Vol. 18, pp. 351-389, Maggio 2003, Ed Morgan Kaufmann.
12. S. Linton and R. Sebastiani. “Editorial: The Integration of Automated Reasoning and Computer Algebra Systems” *Journal of Symbolic Computation*, Special Issue on the Integration of Automated Reasoning and Computer Algebra Systems, vol 34, n. 4. Ottobre 2002. Ed. Elsevier.
13. F. Giunchiglia e R. Sebastiani “Building decision procedures for modal logics from propositional decision procedures - the case study of modal $K(m)$ ”. *Information and Computation*. Volume 162 (1/2), October/Novembre 2000, pp. 158–178. Ed. Academic Press.
14. E. Giunchiglia, F. Giunchiglia, R. Sebastiani, A. Tacchella. “SAT vs. Translation Based decision procedures for modal logics: a comparative evaluation”. 1998. *Journal of Applied Non-Classical Logics - JANCL*. Volume 10 (2), pp. 145-172, Settembre 2000. Ed. Hermès International, Oxford.
15. I. Horrocks, P. F. Patel-Schneider, R. Sebastiani. “An Analysis of Empirical Testing for Modal Decision Procedures”. *Logic Journal of the Interest Group in Pure and Applied Logics (IGPL)*. Volume 8, Issue 3, pp. 293–323, Maggio 2000. Ed. Oxford Press.
16. A. Bundy, F. Giunchiglia, R. Sebastiani, T. Walsh. “Calculating Criticalities”. *Artificial Intelligence*. Vol. 88, Issue 1-2, pp. 39-67. Dicembre 1996. Ed. Elsevier.

17. R. Sebastiani. "Applying GSAT to non-clausal formulas". *Journal of Artificial Intelligence Research - JAIR*, Vol.1, pp.309-314. Giugno 1994. Ed. Morgan Kauffman.
18. R. Sebastiani. "Astrazione: dalla Teoria alla Realizzazione di un Abstract Proof Checker". *AI*IA Notizie*, n.2, Giugno 1993, pp. 41-53. Ed. S.S. Reiss Romoli.

Book Chapters

19. R. Sebastiani e A. Tacchella "SAT Techniques for Modal and Description Logics" *Part IV, Ch. 7, Handbook of Satisfiability*. 2008 Ed. Ios Press. To appear.
20. C. Barret, R. Sebastiani, S. Seshia, C. Tinelli. "Satisfiability Modulo Theories" *Part IV, Ch. 8, Handbook of Satisfiability*. 2008 Ed. Ios Press. To appear.
21. P. Giorgini, J. Mylopoulos, R. Sebastiani "Goal Modelling and Reasoning in TROPOS." *Social Modeling for Requirements Engineering*. 2006. Ed. MIT press. To appear.
22. A. Cimatti, R. Sebastiani. "Building Efficient Decision Procedures on top of SAT solvers." *Formal Methods for Hardware Verification*. Tutorial. May 2006. LNCS, 3965. Ed. Springer.

Papers on Archival Conference Proceedings

23. D. Beyer, A. Cimatti, A. Griggio, E. Keremoglu, R. Sebastiani "Software Model Checking via Large-Block Encoding" In proc. *Int. Conference on Formal Methods in Computer Aided Design (FMCAD'09)*. Austin, TX, USA, November 2009. To appear.
24. A. Cimatti, A. Griggio, R. Sebastiani "Interpolant Generation for UTVPI". *Atti International Conference on Automated Deduction, CADE'09*. Montreal, Canada, August 2009. LNCS, Springer. To appear.
25. R. Sebastiani, M. Vescovi "Axiom Pinpointing in Lightweight Description Logics via Horn-SAT Encoding and Conflict Analysis". *Atti International Conference on Automated Deduction, CADE'09*. Montreal, Canada, August 2009. LNCS, Springer. To appear.
26. R. Bruttomesso, A. Cimatti, A. Franzen, A. Griggio, R. Sebastiani "The MathSAT 4 SMT solver". *Proc. International Conference on Computer-Aided Verification, CAV 2008*. July 2008, Princeton, USA. LNCS, Vol. 5123, Springer.
27. A. Cimatti, A. Griggio and R. Sebastiani. "Efficient Interpolant Generation in Satisfiability Modulo Theories" *Proc. Tools and Algorithms for the Construction and Analysis of Systems, TACAS'08* 22-29 March, 2008, York, UK. LNCS, Vol. 4963, Springer.
28. R. Sebastiani. "From KSAT to Delayed Theory Combination: Exploiting DPLL Outside the SAT Domain". Invited Lecture. *Proc. FroCoS 2007 - 6th International Symposium on Frontiers of Combining Systems* Liverpool, UK, September 10-12 2007. LNAI, volume 4720, Springer.
29. R. Bruttomesso and A. Cimatti and A. Franzen and A. Griggio and Z. Hanna and A. Nadel and A. Palti and R. Sebastiani. "A Lazy and Layered SMT(BV) Solver for Hard Industrial Verification Problems." *Proc. Int. Conf. on Computer-Aided Verification, CAV'07, LNCS, volume 4590 Springer*. Berlin, Germany, August 2007.
30. A. Cimatti, A. Griggio, R. Sebastiani. "A Simple and Flexible Way of Computing Small Unsatisfiable Cores in Satisfiability Modulo Theories." *Proc. Tenth International Conference on Theory and Applications of Satisfiability Testing, SAT 2007*. May 28 - 31 2007, Lisbon, Portugal. LNCS, volume 4501, Ed.Springer.
31. R. Sebastiani, S. Tonetta, M. Vardi "Property-Driven Partitioning for Abstraction Refinement". In *proc. Thirteenth International Conference on Tools and Algorithms for the Construction and Analysis of Systems - TACAS'07*. LNCS, volume n. 4424, Ed.Springer.

32. R. Bruttomesso, A. Cimatti, A. Franzén, A. Griggio, R. Sebastiani “Delayed Theory Combination vs. Nelson-Oppen for Satisfiability Modulo Theories: a Comparative Analysis.” *13th International Conference on Logic for Programming, Artificial Intelligence and Reasoning - LPAR’06*. Phnom Penh, Cambodia, November 2006. LNAI, n. 4246, Ed. Springer.
33. R. Bruttomesso, A. Cimatti, A. Franzén, A. Griggio, A. Santuari, R. Sebastiani “To Ackermann-ize or not to Ackermann-ize? On Efficiently Handling Uninterpreted Function Symbols in $SMT(\mathcal{EUF} \cup \mathcal{T})$.” *13th International Conference on Logic for Programming, Artificial Intelligence and Reasoning - LPAR’06*. Phnom Penh, Cambodia, November 2006. LNAI, n. 4246. Ed. Springer.
34. M. Vescovi, R. Sebastiani “Encoding the satisfiability of modal and description logics into SAT: the case study of $K(m)/\mathcal{ALC}$.” Proc. *9th International Conference on Theory and Applications of Satisfiability Testing (SAT’06)*. Seattle, USA, Agosto 2006. LNCS n. 4121, Ed. Springer.
35. M. Bozzano, R. Bruttomesso, A. Cimatti, T. Junttila, P. van Rossum, S. Schulz, R. Sebastiani “The MathSAT 3 System” Proc. *CADE-20, Int. Conference on Automated Deduction*. Tallinn, Estonia, 2005. vol. 3632. Ed. Springer.
36. M. Bozzano, R. Bruttomesso, A. Cimatti, T. Junttila, P. van Rossum, S. Ranise, R. Sebastiani “Efficient Satisfiability Modulo Theories via Delayed Theory Combination” Proc. *Int. Conf. on Computer-Aided Verification, CAV 2005*. Edinburgh, Scotland. LNCS, vol. 3576. Ed. Springer.
37. R. Sebastiani, S. Tonetta, M. Vardi “Symbolic Systems, Explicit Properties: on Hybrid Approaches for LTL Symbolic Model Checking” Proc. *Int. Conf. on Computer-Aided Verification, CAV 2005*. Edinburgh, Scotland. LNCS, vol. 3576. Ed. Springer.
38. M. Bozzano, R. Bruttomesso, A. Cimatti, T. Junttila, P. van Rossum, S. Schulz, R. Sebastiani “An Incremental and Layered Procedure for the Satisfiability of Linear Arithmetic Logic” Proc. *TACAS2005, Tools and Algorithms for the Construction and Analysis of Systems*. Edinburgh, Scotland. LNCS, vol. 3440. Ed. Springer.
39. R. Sebastiani, E. Siengeman, S. Tonetta, M. Vardi “GSTE is partitioned Model Checking”. 2004. Proc. *16th Int. Conf. on Computer Aided Verification- CAV’04*. LNCS series, vol. 3114. Springer.
40. R. Sebastiani, P. Giorgini, J. Mylopoulos “Simple and Minimum-Cost Satisfiability for Goal Models”. 2004. Proc. *Int. conference on Advanced Information Systems Engineering, CAISE’04*. Riga, Latvia, June 2004. LNCS series, No.3084. Ed. Springer.
41. R. Sebastiani and S. Tonetta ““More Deterministic” vs. “Smaller” Büchi Automata for Efficient LTL Model Checking”. Proc. *2th Advanced Research Working Conference on Correct Hardware Design and Verification Methods (CHARME’03)*. L’Aquila, Italia, 2003. LNCS series, n. 2860. Ed. Springer.
42. G. Audemard, A. Cimatti, A. Kornilowicz, R. Sebastiani “Bounded Model Checking for Timed Systems.” Proc. *In Proc. 22nd Joint International Conference on Formal Techniques for Networked and Distributed Systems —FORTE 2002*. Houston, TX, USA, November 2002. LNCS series, n. 2529. Ed. Springer.
43. P. Giorgini, E. Nicchiarelli, J. Mylopoulos, R. Sebastiani “Reasoning with Goal Models” Proc. *Int. Conference of Conceptual Modeling – ER2002* Tampere, Finland, October 2002. n. 2503 LNCS series. Ed. Springer.
44. A. Cimatti, E. Clarke, E. Giunchiglia, F. Giunchiglia, M. Pistore, M. Roveri, R. Sebastiani, A. Tacchella “NuSMV 2: An OpenSource Tool for Symbolic Model Checking”. Proc. *Int. Conference of Computer-Aided verification, CAV’02*. Copenhagen, Denmark, July 2002. N. 2404 LNCS series. Ed. Springer.
45. G. Audemard, P. Bertoli, A. Cimatti, A. Kornilowicz, R. Sebastiani “A SAT Based Approach for Solving Formulas over Boolean and Linear Mathematical Propositions ”. In proc. *18th Int. Conference on Automated DEduction, CADE’02* . Copenhagen, Denmark, July 2002. LNAI series, n. 2392 Ed. Springer.
46. G. Audemard, P. Bertoli, A. Cimatti, A. Kornilowicz, R. Sebastiani “Integrating Boolean and Mathematical Solving: Foundations, Basic Algorithms and Requirements”. Proc. *Artificial Intelligence, Automated Reasoning, and Symbolic Computation. Proc. of Joint AISC 2002 and Calculemus 2002 conferences*. Marseille, France, June 2002. LNAI series, N.2385. Ed. Springer.

47. A. Cimatti, E. Giunchiglia, M. Pistore, M. Roveri, R. Sebastiani, A. Tacchella “Integrating BDD-based and SAT-based Symbolic Model Checking”. December 2001. Proc. *Frontiers of Combinig Systems, FROCOS’2002*. S. Margherita Ligure, Italy, April 2002. LNAI series, N. 2309. Ed. Springer.
48. A. Cimatti, M. Pistore, M. Roveri, R. Sebastiani “Improving the Encoding of LTL Model Checking into SAT”. Proc. *Verification, Model Checking and Abstract Interpretation, VMCAI’02*. Venice, Italy, January 2002. LNCS series, N. 2294. Ed. Springer.
49. P. F. Patel-Schneider, R. Sebastiani “A System and Methodology for Generating Random Modal Formulae”. Proc. *IJCAR-2001, International Joint Conference on Automated reasoning* Siena, Italy, July 2001. LNAI series, N. 2083. Ed. Springer.
50. R. Sebastiani, A. Tomasi, F. Giunchiglia. “Model Checking Syllabi and Student Careers.” Proc. *International conference on Tools and Algorithms for the Construction and Analysis of Systems – TACAS2001*. Genova, Italy, April 2001. LNCS series, N. 2031. Ed. Springer.
51. F. Giunchiglia, R. Sebastiani, P. Traverso “Combining SAT deciders with domain-dependent reasoners”. *Symbolic Computation and Automated Reasoning*, 2001. Ed. A.K. Peters.
52. E. Giunchiglia, R. Sebastiani. “Applying the Davis-Putnam procedure to non-clausal formulas” In *Advances in Artificial Intelligence*. Proc. *International Conference of the Italian Association for Artificial Intelligence - AI*IA’99*. Bologna, Italy, Settembre 1999. LNAI series, N.1792. Ed. Springer.
53. A. Cimatti, P. Pieraccini, R. Sebastiani, P. Traverso, A. Villafiorita. “Formal specification and validation of a vital protocol” Proc. *World Congress on Formal Methods 1999 - FM’99*. Toulouse, Francia, Settembre 1999. LNCS series, N. 1709. Ed. Springer.
54. A. Chiappini, A. Cimatti, C. Porzia, G. Rotondo, R. Sebastiani, P. Traverso, A. Villafiorita. “Formal Specification and Development of a Safety-Critical Train Management System” Proc. *International Conference Computer Safety, Reliability ans Security - SAFECOMP’99*. Toulouse, Francia, Settembre 1999. LNCS series, N. 1698. Ed. Springer.
55. R. Sebastiani, A. Villafiorita “SAT-based decision procedures for normal modal logics: a theoretical framework”. Proc. *8th International Conference on Artificial Intelligence: Methodology, Systems, Applications - AIMSA’98*. Sozopol, Bulgaria, Settembre 1998. LNAI series, N. 1480. Ed. Springer.
56. E. Giunchiglia, A. Massarotto e R. Sebastiani. “Act, and the rest will follow – exploiting determinism in planning as satisfiability.”. Proc. *15th National Conference on Artificial Intelligence - AAAI’98*. Madison, Wisconsin. Luglio 1998. Ed. AAAI Press.
57. E. Giunchiglia, F. Giunchiglia, R. Sebastiani e A. Tacchella “More evaluation of decision procedures for modal logics”. Proc. *6th International Conference on Principles of Knowledge Representation and Reasoning - KR’98*. Trento, Italia. Giugno 1998. Ed. Morgan Kauffman.
58. F. Giunchiglia, M. Roveri e R. Sebastiani “A new method for testing decision procedures in modal logics”. *14th International Conference on Automated Deduction - CADE14* - LNAI series, N.1249. Townsville, Australia. Luglio 1997. Ed. Springer.
59. F. Giunchiglia e R. Sebastiani “A SAT-based decision procedure for ALC”. Proc. *5th International Conference on Principles of Knowledge Representation and Reasoning - KR’96*. Cambridge, MA, USA, November 96. Ed. AAAI Press.
60. A. Bundy, F. Giunchiglia, R. Sebastiani, T. Walsh. “Computing Abstraction Hierarchies by Numerical Simulation”. Proc. *14th National Conference on Artificial Intelligence - AAAI96*. Portland, Oregon, USA, Agosto 1996. Ed. AAAI Press/ The MIT Press.
61. F. Giunchiglia e R. Sebastiani “Building decision procedures for modal logics from propositional decision procedures - the case study of modal K”. Proc. *13th International Conference on Automated Deduction - CADE13* - LNAI series, N.1104. New Brunswick, New Jersey, USA. Luglio 1996. Ed. Springer.

62. F.Giunchiglia, R.Sebastiani, A.Villafiorita, T.Walsh. "A General Purpose Reasoner for Abstraction". Proc. *Canadian Conference on Artificial Intelligence - AI96*. Toronto, Canada. Maggio 1996. LNAI series, N. 1081. Ed. Springer.
63. R. Sebastiani, A. Villafiorita, F. Giunchiglia "Proving Theorems by Using Abstraction Interactively". In *Trends in Theoretical Informatics*, Innsbruk, 1996. Ed. Die Deutsche Bibliothek.

Theses

64. R.Sebastiani. "Una nuova classe di procedure di decisione per logiche modali e terminologiche: teoria, implementazione e testing". - Tesi di Dottorato. DIST, Università di Genova, Febbraio 1997.
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