
Curriculum Vitae

Roberto Sebastiani

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1 Brief Resume

1.1 General Information

Born on 31.03.1966. Italian Citizen. Married, with two children. Living in Povo, Trento, Italy.

Mother tongue: Italian. Fluent in English.

Phone: +39.0461.281514;

Email: roberto.sebastiani@unitn.it.

URL: <http://disi.unitn.it/rseba/>

Orcid: orcid.org/0000-0002-0989-6101

1.2 Status

Full Professor (Professore Ordinario) of Artificial Intelligence, Automated Reasoning and Formal Methods, *DISI – Dept. of Information Science and Engineering, University of Trento. Italy*
Sector 09/H1, ING-INF/05.

1.3 Education

- (September 1997) **PhD in Computer 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).
- (June 1992) **Habilitation to Engineering Profession** (“esame di stato”).
- (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.” Advisors: Enrico Pagello (University of Padua), Fausto Giunchiglia (IRST Trento).
- (June 1985) **Diploma di Maturità Scientifica**. 60/60. *Liceo Scientifico “G.Galilei”, Trento*.

¹Before 1998, by Italian Law, both PhD and Master Theses had mandatorily to be written in Italian.

2 Teaching

2.1 PhD Courses

- (2021-22,2019-20) [3CFU] PhD Course “An Introduction to SAT and SMT” *Int. Graduate School on ICT*, Trento. (In English.)
- (2017-18, 2015-16, 2013-14, 2011-12, 2009-10, 2007-8, 2005-6, 2004-5, 2003-4, 2002-3.) [3CFU] PhD Course “Efficient Boolean Reasoning”, *Int. Graduate School on ICT*, Trento. (In English.)
- (2001-2002.) [3CFU] PhD Course “SAT: Reasoning within Booleans and Beyond”, *Int. Graduate School on ICT*, Trento. (In English.)

2.2 M.S. Courses

M.S.. Courses (at c.d.l. “Artificial Intelligence Systems”, DISI, Università di Trento.)

- (current \Leftarrow 2020-2021) [12 CFU] M.S. course “Fundamentals of Artificial Intelligence”. (In English.)
- (current \Leftarrow 2020-2021) [6CFU] M.S. Course “Automated Reasoning” (shered with “Formal Methods, Mod. 1: Automated Reasoning”)
- (current \Leftarrow 2020-2021) [6CFU] M.S. Course “Model Checking” (shered with “Formal Methods, Mod. 2: Model Checking”)

M.S. Courses (at c.d.l. “Computer Science”, DISI, Università di Trento.)

- (current \Leftarrow 2020-2021 , yearly) [12CFU] M.S. course “Formal Methods (Mod. 1: Automated Reasoning; Mod 2: Model Checking)”. (In English.)
- (2019-2020 \Leftarrow 2003-4, yearly) [12CFU] M.S. course “Formal Methods”. (In English.)

2.3 B.S. Courses

B.S. Courses (at c.d.l. “Informatica”, DISI, Università di Trento.)

- (2019-2020 \Leftarrow 2003-4, yearly) [12CFU] B.S. course “Programmazione 1” (“Programming, 1”). (In Italian.)
- (2002-2003, 2001-2002) [6 CFU] B.S. course “Laboratorio di Informatica: Programmazione 1”. (In Italian.)
- (2000-2001) [6 CFU] B.S. course “Laboratorio di Informatica: Programmazione 2”. (In Italian.)

B.S. Courses (at c.d.l. “Scienze e e Ingegneria dell’Informazione”, Free University of Bozen/Bolzano.)

- (2010-11) [8 CFU] B.S. course “Data Structures and Algorithms”. (In English.)

2.4 Students’ Evaluations

He has always received from good to excellent average marks in students’ evaluations.

Here below it is reported a table summarizing the students’ evaluations of the last 5 years of his courses at DISI. The main question is “*Overall, are you satisfied by the course?*” (in Italian) with 4 possible answers and relative scores: 1: definitively no; 2: more no than yes; 3: more yes than no; 4: definitively yes.

It is reported below the % of people who replied 3 or 4:

| | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | <i>Average</i> |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|----------------|
| <i>Programmazione 1</i> | 91.6 | 94.0 | 93.9 | 87.5 | 86.6 | 90.1 | | 90.6 |
| <i>Formal Methods</i> | 90.9 | 100.0 | 95.7 | 86.7 | 91.3 | 100.0 | 100.0 | 94.9 |
| <i>Fundamentals of AI</i> | | | | | | | 86.3 | 86.3 |

3 Student Advising

3.1 Advisor of PhD students

He is (co-)supervising/he has (co-)supervised (see <http://disi.unitn.it/rseba/students.html>):

- (2022-current.). Advisor of Gabriele Masina. Topics in automated reasoning and optimization.
- (2020-current.). Advisor of Jingwen Ding. Topics in quantum computing.
- (2020-current.). Advisor of Giuseppe Spallitta. Topics in automated reasoning and optimization.
- (2016-2020.). Co-advisor of Paolo Morettin. Topics in artificial intelligence.
- (2015-2019.). Advisor of Stefano Varotti. Topics in quantum computing.
- (2014-2019.). Advisor of Patrick Trentin. Topics in automated reasoning and optimization.
- (2012-2017.). Advisor of Mai Chi Nguyen. Topics in automated reasoning and requirement specification.
- (2012-2018.). Co-advisor of Ahmed Irfan. Topics in automated reasoning and formal verification.
- (2010-2013.). Advisor of Bastian Joost Schaafsma. Topics in automated reasoning and formal verification.
- (2009-2012.). Advisor of Jeremy Ridgeway. Topics in automated reasoning and formal verification.
- (2009-2013.). Advisor of Silvia Tomasi. Topics in automated reasoning and optimization.
- (2006-2011.). Advisor of Michele Vescovi. Topics in automated reasoning in description logics.
- (2005-2010.). Co-Advisor of Anders Franzen. Topics in automated reasoning and formal verification.
- (2005-2009.). Advisor of Alberto Griggio. Topics in automated reasoning and formal verification.
- (2004-2008.). Co-Advisor of Krishnamani Kalyanasundaram (Advisor: Alessandro Cimatti)
- (2004-2008.). Co-Advisor of Roberto Bruttomesso. Topics in automated reasoning and formal verification.
- (2003-2005.). Co-Advisor of Veselin Kirov. Topics in automated reasoning and formal verification.
- (2001-2006.). Advisor of Stefano Tonetta. Topics in automated reasoning and formal verification.

3.2 Advisor of M.S. and B.S students

He is supervising/he has supervised (see <http://disi.unitn.it/rseba/students.html>):

- 24 M.S. theses in Computer Science,
- 1 M.S. thesis in Mathematics,
- 1 M.S. thesis in Economical Science,
- 25 B.S. theses in Computer Science.

4 Service Activities

At DISI, University of Trento.

- 2024-today: Member of the Board of the “Int. Graduate School on Industrial Innovation” of University of Trento.
- 2019-today: **Responsible of the c.d.l. “Informatica” at DISI**
- 2019-today, 2002-2005: **Head of the Research Program “Software Engineering and Formal methods” at DISI.**
- 2016-2023: Delegate for student secondary-school stages (“alternanza scuola-lavoro”) at DISI.
- 2016-today: Delegate for B.S. Admission Exams (TOLC-I)
- 2012-today, 2000-2010: **Delegate for student orientation&guidance (“Delegato per l’orientamento”) at DISI.**
- 2004-today: Member of the Board of the “Int. Graduate School on ICT” of University of Trento.
- 2018-2021, 2012-2016: Member of the Executive Committee of the “Int. Graduate School on ICT” at DISI.
- 2020-2021: Member of the evaluation commission “VQR” for computer science and mathematics
- 2017-2019: **Member for student-professor joint commission (membro “Commissione Paritetica Docenti-Studenti”)**
- 2017-2017: Member of the committee for the Admission to the M.S. program at DISI.
- 2011-2011: Delegate for student tutoring (“Delegato per il tutorato”) at DISI, University of Trento.
- 2005-2006: Member of the committee for the Admission Exam of the “Int. Graduate School on ICT” at DISI.
- 2002-2005: Head of the committee for the Comprehensive Exam of the “Int. Graduate School on ICT” at DISI.

At University of Trento

- 2021-current: **Member of the Scientific Committee, College “Bernardo Clesio” at University of Trento, Italy.**
- 2019-2019: Member of the commission for the selection of grant proposals “Quantum @ TN”.
- 2019-2019: Member of the commission “Accordi Bilaterali Mobilità di Ateneo”.
- 2018-2019: Member of the commission “Esame di stato per l’abilitazione alla professione di Ingegnere”.

Outside University of Trento.

- 2019-2019: Member of the committee for the National Habilitation as Full Professor in CS for prof. Pascal Fontaine at INRIA-Lorraine, Nancy, France.
- 2019-2019: Member of the committee for a competitive evaluation for an RTD_B position at Free University of Bolzano, Italy
- 2017-2017: Member of the committee for a competitive evaluation for an RTD_B position at Free University of Genoa, Italy (2017)

5 Research

5.1 Research Activities and Contributions

His current research activities, and relative contributions so far, deal with the following topics.

Satisfiability Modulo Theories (SMT) and its applications. SMT tools are nowadays widely used in industries as horsepower reasoning engines, in particular in the verification of both SW and HW systems.

He is one of the inventors of the “lazy” approach to SMT (now implemented in most state-of-the-art SMT tools), which combines SAT solvers with decision procedures for the conjunctive fragment of the theories.²

Since 2002 he has been giving essential contributions, from both theoretical and empirical viewpoint, in SMT solving and in advanced SMT techniques, like theory combination, interpolation, unsatisfiable-core extraction. All these techniques have been implemented into the state-of-the-art SMT tool MATHSAT.

Optimization Modulo Theories (OMT) and its applications. Since 2012 he has initiated and has been pushing forward the field of Optimization Modulo Theories (OMT) as a very-useful extension of SMT –and viable alternative to MILP and Constraint Programming– in many application domains. All the OMT techniques developed have been implemented into the state-of-the-art OMT tool OPTIMATHSAT.

Formal Verification of software and hardware. His main research contributions in formal verifications are divided into two main streams. (See also “Technology transfer to industry”.)

First, he has contributed to the research on model checking (MC), by investigating novel LTL model checking algorithms, both theoretically and empirically.

Second, he is one of the main contributors of SMT-based model checking, which leverages previous SAT-based MC to much more expressive application domains –e.g., real-time & hybrid systems, RTL designs and microcode, software– by exploiting SMT technology.

Currently his main interests are on the application of Optimization Modulo Theories (OMT) to the verification of systems (parametric systems, software).

Modeling and Formal Reasoning with Software Requirements Goal models have been widely used in Computer Science to represent software requirements, business objectives, and design quality. Since 2002 he has been working on formalizing Goal Models and on applying automated reasoning techniques (SAT, SMT and OMT) so that to provide tools for modeling and reasoning with goal models within the TROPOS methodology. Recently his research focuses on modeling and reasoning with *constrained goal models*, which extend goal models with SMT constraints, so that to (i) allow to associate resources and quantitative attributes to goals, tasks, requirements and assumptions so that to find optimal realizations, and to (ii) allow for representing and reasoning on the evolution of goal models, minimizing the effort of change. In both cases the OMT tool OPTIMATHSAT is used as automated-reasoning backend.

Automated Reasoning on Modal & Description Logics. He has given important contributions to automated reasoning on Modal & Description Logics, by introducing and exploiting SAT-based reasoning techniques there. Lately he has been interested in the problem of debugging ontologies represented by \mathcal{EL}^+ logic.

Quantum Computing. He is currently collaborating with D-Wave System Inc. on solving NP-Hard problems via Quantum Annealing via encoding into Ising Models. Some results have already been published.

Probabilistic Reasoning via Weighted Model Integration. Recently he has given important contributions on SMT-based Weighted Model Integration, a very-effective framework for probabilistic reasoning.

Model Counting. Recently he has given some contributions to model counting for probabilistic reasoning.

His past research activities dealt also with the following topics:

SAT. He has given some contributions on SAT solving for non-CNF formulas.

Planning. He has given some contributions to abstraction-based planning and SAT-based planning.

Abstraction-based theorem proving. He has given some contributions to abstraction-based theorem proving.

²This fact is witnessed, e.g., by the explicit statement in the preface of the Special Issue “Satisfiability Modulo theories” by O. Strichman and D. Kroening, Formal Methods in System Designs 42:1–2, 2013. <http://dl.acm.org/citation.cfm?id=2429205>.

5.2 Development of tools for Automated Reasoning, Formal Verification and Requirement Engineering

The following is a list of tools for Automated Reasoning, Formal Verification and Requirement Engineering whose development I've been involved with.

- (2018-today) I co-lead the development of PYWMI, a tool tool for weighted model integration for probabilistic reasoning.
(<https://pypi.org/project/pywmi/>).
- (2017-today) I co-lead the development of WMI_PA, a tool tool for weighted model integration for probabilistic reasoning.
(<https://github.com/unitn-sml/wmi-pa/>).
- (2016-today) I participated to the development of PYLMT, a tool for Learning Modulo Theories for Hybrid Machine Learning
(<https://bitbucket.org/stefanoteso/pylmt/src/master/>).
- (2015-2016) I participated to the development of VERILOG2SMV, a FV tool which converting Verilog designs to a model checking RTL problem.
(<https://es-static.fbk.eu/tools/verilog2smv/>).
- (2014-today). I co-lead the development of CGMTOOL, a tool for modeling and reasoning on *constrained goal models* for requirement engineering
(<http://www.cgm-tool.eu/>).
- (2011-today). I lead the development of OPTIMATHSAT, a tool for *optimization modulo theories* built on top of the SMT solver MATHSAT
(<http://optimathsat.disi.unitn.it/>).
- (2010-today). I lead the development of EL+SAT, a SAT/SMT-based tool for debugging medical ontologies via axiom pinpointing in the description logic \mathcal{EL}^+
(<http://disi.unitn.it/rseba/elsat/>).
- (2001-today). I co-lead the development of MATHSAT, a state-of-the-art SMT solver
(<http://mathsat.fbk.eu>).
- (2000-2011) I have participated to the development of the Model Checker NuSMV.2
(<http://nusmv.fbk.eu>).

The following is a list of tools for Automated Reasoning and Formal Verification, whose development I was involved with in the past, which are no more available or maintained.

- (2002-2005) I have participated to the development of the tool GR-TOOL for automated reasoning in goal models for requirement engineering
- (2003) I led the development of the tool MODELLEA for LTL model checking.
- (1999-2004) I led the development of a tool for automated career planing and verification of regulations and ordinances, based on a Model Checker.
- (1997-1998) I participated to the development of the decision procedure TABLEAU* for SAT-encoded planning (interfaced with the planner MEDIC).
- (1995-1998) I developed the theorem prover KSAT for modal & description logics $K(m)/ALC$.
- (1993) I developed NC_GSAT, a prototype SAT tool extending of GSAT to non-CNF Boolean formulas.
- (1990-1992) I participated to the development of GETFOL, an interactive theorem prover for first-order logic.

6 Technology Transfer and External Fundings

6.1 Technology transfer to industry

Tech-transfer projects with D-Wave Systems Inc. Since 2015 he has been collaborating with D-Wave Systems Inc. at Burnaby (CA), “The First Quantum Computer Company” (<https://www.dwavesys.com>) on solving SAT and other NP-complete problems with D-Wave’s Quantum Annealers (QAs).

This work, which is currently ongoing and whose first results are presented in two joint publications [C15,J6], aims at developing encoding techniques for D-Wave’s QA’s so that to effectively and efficiently encode and solve SAT problems and related NP-complete problems.

He is currently the P.I. of the D-Wave-sponsored project QuASi (Quantum Annealing for SAT Solving), started on 01-04-2018.

Tech-transfer projects with Intel Corporation. Since 2003, he has been collaborating with the Formal Verification Group of Intel at Haifa, Israel, on SMT-based Formal Verification of industrial RTL designs and microcode, in four projects which were fully or partly funded by Intel (namely BOWLING, ORCHID, WOLFLING, WOLF, see “Fundings”).

Remarkably, this work, which is described in five joint publications [C50, J22, C40, J20, C32], led to the development of a customized version of our SMT solver MATHSAT v.4, which was embedded as backend engine into the production version of Intel’s microcode symbolic simulator μ Formal, leading to an average speedup of one order magnitude in the verification processes [C32]. Since then this customized version of MATHSAT v.4 had been used for years by Intel, as backend engine of μ Formal, for verifying the microcode of its processors (in particular, the microcode for the Sandy Bridge architecture developed by Intel in Haifa).

The success of this work is witnessed by the following quote from the statement motivating the best-paper award of our joint paper at Formal Methods in Computer-Aided Design conference in 2010 [C32]:³

“The FMCAD10 best paper award goes to the paper “Applying SMT in Symbolic Execution of Microcode” by Anders Franzen, Alessandro Cimatti, Alexander Nadel, Roberto Sebastiani, and Jonathan Shalev. The paper is a pleasure to read, and provides impressive results. The paper shows that SMT-based techniques can beat SAT-techniques in an industrial setting, even for problems where SAT has previously been the dominating technique. These results, although anticipated by the SMT community for a long time, had not been established this conclusively so far. Bravo and congratulations!”

Tech-transfer projects with Ansaldo Segnalamento Ferroviario. From 1997 to 1998, when employed at IRST, Trento, he has very actively participated to the following technology transfer projects with Ansaldo Segnalamento Ferroviario for the usage of formal specification, design and verification methods for safety-critical railway signalling systems:

SCAPIII - Safety Critical Applications: formal specification, design and verification of a train-to-station communication protocol;

ETCS – European Train Control System: formal specification of a Train-Management system;

RBC – Radio Block Center: formal specification of a train-to-station transmission system.

These projects led to two joint publications [C64, C65].

³See <http://fmcad10.iaik.tugraz.at/>.

6.2 Fundings

- (2023-2025) Principal Investigator. “*Probabilistic Formal Verification for Provably Trustworthy AI– PFV-4-PTAI*” Mary-Curie Postdoctoral Fellowship H2020-MSCA-ITN-2018 [188K EU]
- (2020-2023) Co-investigator of the project “*Foundations of Trustworthy AI - Integrating Reasoning, Learning and Optimization – TAILOR*” Research and Innovation Action funded by the European Commission. [180K EU]
- (2020-2024) Awarded a PhD Grant in Hybrid Quantum Computing for the project “*“Making Quantum Annealing Useful for Real: Compiling Effectively and Efficiently Very-Hard Combinatorial Problems into Ising Problems”*” funded by the Q@TN Initiative, a joint initiative of University of Trento, FBK and CNR. [67KEU]
- (2018-2021) Principal investigator of the 3-year project “*QuASi, Quantum Annealing for SAT Solving*” sponsored by D-Wave Systems Inc. [150K CA\$]
- (2017-2019) Co-investigator of the project “*Ricerca e sviluppo di algoritmi di calcolo quantistico e protocolli di crittografia quantistica*” sponsored by Fondazione Caritro, TN: RIF 2017.0409. [125K EU]
- (2012-2016) Principal investigator of the SRC-GRC 3-year project “*WOLF, Advanced SMT techniques for Word-level formal Verification*” sponsored by Semiconductor Research Corporation. [210K US\$]
- (2011-2017) Co-investigator of the project “*LUCRETIUS: Foundations for Software Evolution*”, ERC Advanced Grant # 267856. [2462K EU]
- (2009-2012) Principal investigator of the 3-year SRC-GRC project “*WOLFLING, Word-level formal verification via SMT solving*” sponsored by Intel Corporation via Semiconductor Research Corporation. [180K US\$]
- (2007-2009) Local team leader of the 3-year PRIN project “*Integrating automated reasoning in model checking: towards push-button formal verification of large-scale and infinite-state systems*” funded by MIUR. [24,5K EU]
- (2004-2006) Local team leader of the “Fondo unico” research project “*ORCHID: Enhanced Formal Checkers for RTL Circuit Designs*” sponsored by PAT in collaboration with Intel Corporation. [120K EU]
- (2003-2005) Local team leader “*BOWLING: Bolean and Word-Level INtegrated enGines for Hybrid Formal Checking of RTL Designs*” by Intel Corporation. [37,5K US\$]
- (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) Participation as external consultant of ITC-IRST to the EU IHP-RTN 5th Framework project “*CALCULEMUS*” on the integration of computer algebra and automated deduction systems.
- (2000-2001) Participation to the project “*SAfety Critical Software for planning in space robotics*” sponsored by Agenzia Spaziale Italiana.
- (2000-2001) Participation to the project “*Model checking e satisfiability: sviluppo di nuove procedure di decisione, loro valutazione ed analisi sperimentale comparata in ambito applicativo*” sponsored by MURST.

7 International Visibility

7.1 Awards

- **Thoralf SKOLEM AWARD**, 2023. [C56]

“CADE-18: International Conference on Automated Deduction (CADE) Skolem Award for a CADE paper that has Passed the Test of Time, by being a Most Influential Paper in the field. Presented to Gilles Audemard, Piergiorgio Bertoli, Alessandro Cimatti, Artur Kornilowicz, and Roberto Sebastiani for the paper “A SAT Based Approach for Solving Formulas over Boolean and Linear Mathematical Propositions”, (...) The paper by Audemard et al. is recognised for proposing pioneering techniques for the efficient integration of arithmetic decision procedures into a framework for satisfiability modulo theories. Many of those techniques are used in state-of-the-art SMT solvers and contribute to their efficiency. (...)”

See <https://cadeinc.org/Skolem-Award>.

- **COMPUTER-AIDED-VERIFICATION (CAV) AWARD**, 2021.

“For pioneering contributions to the foundations of the theory and practice of satisfiability modulo theories (SMT).”

See <http://i-cav.org/2021/cav-award/>.

- **AWARD “EAAI Top-Cited Article 2005-2010” by Elsevier** (J25).

for the paper “Goal-Oriented Requirements Analysis and Reasoning in the Tropos Methodology” by P. Giorgini, J. Mylopoulos, R. Sebastiani, Engineering Application of Artificial Intelligence Journal. Volume 18/2, March 2005. Ed. Elsevier.

- **BEST PAPER AWARD at Formal Methods for Computed-Aided Design conference, 2010** (C32).

for the paper “Applying SMT in Symbolic Execution of Microcode” by A. Franzen, A. Cimatti, A. Nadel, R. Sebastiani, J. Shalev. Lugano, Switzerland, October 2010.

(...) The paper is a pleasure to read, and provides impressive results. The paper shows that SMT-based techniques can beat SAT-techniques in an industrial setting, even for problems where SAT has previously been the dominating technique. These results, although anticipated by the SMT community for a long time, had not been established this conclusively so far. Bravo and congratulations!

See <http://fmcad10.iaik.tugraz.at/>.

- *Official nomination for Best Paper Award* at TACAS’11 conference for the paper “Efficient interpolant generation in satisfiability modulo linear integer algebra” [C31] by A. Griggio, T.T.H. Le and R. Sebastiani (see <http://www.etaps.org/index.php/2011/best-papers>)
- Several gold, silver and bronze medals won by our MathSAT SMT solver at the yearly SMT competitions (<https://smt-comp.github.io/previous.html>).

7.2 Ranking of publications

As author, at present date he has published:

- 4 book chapters, among which 2 chapters of *Handbook of Satisfiability*;
- 33 papers on refereed journals, among which
 - 14 of class A* or A according to CORE⁴ (J5, J7, J8, J9, J11, J12, J14, J16, J17, J20, J23, J27, J31, J32)
 - 17 of class A according to GRIN⁵ (J5, J6, J7, J8, J9, J11, J12, J14, J16, J17, J20, J21, J23, J27, J28, J31, J32).
- 74 papers on refereed conference proceedings, among which 46 of rating A⁺⁺ “Flagship” (AAAI, CADE, CAV, IJCAI, IJCAR, KR) or A “Excellent” (CAISE, ER, FME, LPAR, SAT, TACAS) according to CORE.⁴
- 8 papers on other refereed non-archival workshops proceedings.

7.3 Citation Indexes & Rankings

Google Scholar:⁶

- # citations: 12499,
- h-index: 51,
- 2 papers with more than 2000 citations, 22 papers with more than 100.

Scopus:⁷

- # citations: 5206,
- h-index: 34,
- 1 paper with more than 1000 citations, 8 papers with more than 100.

Ranking of Top Scientists in Computer Science (Computer Science in Italy Leader Award):⁸

- World ranking: #4543,
- Italian ranking: #92.

Top Italian Scientists: Occurs in the list of Top Italian Scientists.⁹

7.4 Editing & Membership of Editorial Boards

- (2003-today) Member of the Ed. Board of “*Journal on Boolean Modeling, Reasoning and Computation*”.
- (2006-2018): Associate editor “*Journal on Boolean Modeling, Reasoning and Computation*”. IOS Press.
- (2018-2020) Guest editor, with D. Galmiche and S. Schulz, of *Journal on Automated Reasoning*, “Special Issue on Selected Extended papers of IJCAR’18”. Springer.
- (2007) Guest editor, with B. Cook, of *Journal on Satisfiability, Boolean Modeling and Computation, JSAT*, “Special Issue on Satisfiability Modulo Theories”. IOS Press.
- (2001-02). Guest Editor, with S. Linton, of *Journal of Symbolic Computation: Special Issue on Integration of Automated Reasoning and Computer Algebra Systems*. Elsevier.

7.5 Chairmanships

- (2018) chair of *International Joint Conference on Automated Reasoning (IJCAR’18)*. Proc. in LNCS, Springer. (Classified A* (Flagship) by CORE⁴.)
- (2012) chair of *Theory and Applications of Satisfiability Testing (SAT’12)*. Proc. in LNCS, Springer. (Classified A (Excellent) by CORE⁴.)
- (2009) chair of *Frontier on Combining Systems - FroCoS’09*. Proc. in LNCS, Springer.

⁴ Computer Research & Education International Conference Ranking, CORE: <http://core.edu.au>.

⁵<http://www.grin-informatica.it/>

⁶http://scholar.google.com/citations?user=qmnmYsAAAAJ&view_op=list_works&pagesize=100.

⁷<http://www.scopus.com/authid/detail.url?authorId=8859979400>

⁸<https://research.com/u/roberto-sebastiani>

⁹<http://www.topitalianscientists.org>

- (2006) chair of *Pragmatics of Decision Procedures in Automated Reasoning - PDPAR'06 (now called "SMT")*. Proc. in ENTCS, Elsevier.
- (2001) chair of *CALCULEMUS!-2001, 9th Symposium on the Integration of Symbolic Computation and Mechanized Reasoning*.

7.6 Memberships of Steering and Program Committees

- Coordinator of the joint SAT/SMT/IJCAR Steering Committee of the International SAT/SMT/AR Summer School, <https://sat-smt-ar-school.gitlab.io/www/>
- Member of the Steering Committee of:
 - ▷ *IJCAR, International Joint Conference on Automated Reasoning*
 - ▷ *SAT: International Conference on Theory and Applications of Satisfiability Testing*
 - ▷ *FroCoS: Frontier on Combining Systems*
 - ▷ *SMT: Satisfiability Modulo Theories*
- Senior Program Committee member of International Joint Conference on Artificial Intelligence (IJCAI)
- Member of the Program Committee of:
 - ▷ AAI (2016): AAI Conference on Artificial Intelligence
 - ▷ AIMS (1998): Int. Conference on Artificial Intelligence: Methodology, Systems, Applications
 - ▷ CADE (2019, 2017, 2011): Int. Conference on Automated DEduction
 - ▷ CAV (2011): Int. Conference on Computer-Aided Verification
 - ▷ FMCAD (2023) : Int. Conference on Formal Methods in Computer-Aided Design
 - ▷ FroCoS (2023, 2021, 2017, 2015, 2013, 2011, 2009, 2002): Int. Symp. on Frontiers of Combining Systems
 - ▷ IJCAI (2024, 2023, 2022, 2021, 2020, 2019, 2015): Int. Joint Conference on Artificial Intelligence
 - ▷ IJCAR (2024, 2022, 2020, 2018, 2016, 2014, 2010, 2004): Int. Joint Conference on Automated Reasoning
 - ▷ KR (2000): Int. Conference on Principles of Knowledge Representation and Reasoning
 - ▷ ModRef (2014): Int. Workshop on Constraint Modelling and Reformulation
 - ▷ PDPAR (2006, 2005, 2003): Int. Workshop on Pragmatics of Decision Procedures in Automated Reasoning
 - ▷ SAT (2024, 2020, 2019, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007): Int. Conference on Theory and Applications of Satisfiability Testing
 - ▷ SMT (2016, 2012, 2010, 2009, 2008, 2007): Int. Workshop on Satisfiability Modulo Theories
 - ▷ VMCAI (2013): International Conference on Verification, Model Checking, and Abstract Interpretation

7.7 Invited Talks at conferences

- “From Satisfiability to Optimization Modulo Theories”, ICALP Workshop on Arithmetical Theories, Paris, 2022.
- “Solving SAT (and MaxSAT) with a quantum annealer: Foundations, encodings, and preliminary results” at Pragmatics of SAT Workshop, 2021.
- “SMT-Based Weighted Model Integration” at 17th International Workshop on Satisfiability Modulo Theories, Lisbon, PT, 2019
- “SMT: From Satisfiability to Optimization” at Alpine Verification Meeting (AVM13) workshop, 2013.
- “From SAT to Satisfiability Modulo Theories” at Guangzhou Symposium on Satisfiability in Logic-Based Modeling, 2010
- “From Description Logics to Satisfiability Modulo Theories (and back?)” at DL’10 Workshop (2010)
- “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)

7.8 Courses & Tutorials at International Schools and Conferences

- (2019. Macao, China) “From Satisfiability to Optimization Modulo Theories” at *International Joint Conference on Artificial Intelligence - IJCAI’19*.
- (2019. Lisbon, Portugal.) “Optimization Modulo Theories” at *International SAT/SMT/AR School*.
- (2015. Stanford, CA, USA) “Optimization Modulo Theories” at *International SAT/SMT School*.
- (2011. Barcelona, Spain) Tutorial “Satisfiability Modulo Theories” at *International Joint Conference on Artificial Intelligence - IJCAI’11*.
- (2008. Gargnano, Italy). “Logic at Work.” Summer School of Logic, Gargnano, Italy.
- (2005-2006. Brixen, Italy.) “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*.

7.9 International collaborations

He has published more than 100 refereed papers with more than 80 coauthors, the majority of which from foreign institutions, including world-class scientists:

- Prof. Edmund Clarke, CMU (ACM Turing Award 2007, Herbrand Award 2008);
- Prof. Moshe Vardi, Rice Univ, TX (ACM Goedel Prize 2000, ACM Kanellakis Award 2005, Herbrand Award 2023);
- Prof. Alan Bundy, Univ. of Edimburgh (Herbrand Award, 2007);
- Prof. Ian Horrocks, Oxford Univ. (BCS Needham award 2005);
- Prof. John Mylopoulos, Univ. of Ottawa, CA (Chen Award 2010).
- Prof. Toby Walsh, Camberra; (Humboldt Prize 2014),
- Prof. Armin Biere, Univ. Freiburg; (ETAPS Award 2017, CAV Award 2018, DAC Award 2023, Herbrand Award 2024)
- Prof. Luc De Raedt, Katholieke Universiteit Leuven
- Dr. Ziyad Hanna, Vice President of R&D, Cadence Design Systems;
- Dr. Peter Patel-Schneider, Lucent;
- Prof. James Davenport, University of Bath
- Dr. William Macready, D-Wave Systems Inc.

8 Publication List

8.1 Publications – Editor

Edited Journal Special Issues

- (i) D. Galmiche, S. Schulz, R. Sebastiani, Editors. *Journal of Automated Reasoning*. Special issue on selected papers from IJCAR'18. 2020. Springer.
- (ii) B. Cook, R. Sebastiani, Editors. "Special Issue on Satisfiability Modulo Theories". *Journal on Satisfiability, Boolean Modeling and Computation, JSAT*. Vol. 3, 2007. IOS Press.
- (iii) S. Linton, R. Sebastiani, Editors. "Special Issue on Integration of Automated Reasoning and Computer Algebra Systems." *Journal of Symbolic Computation*, Vol 34 (4) October 2002, Elsevier.

Edited Archival Conference Proceedings

- (a) D. Galmiche, S. Schulz, R. Sebastiani, Editors. "Automated Reasoning - IJCAR'18, 9th International Joint Conference". Oxford, UK, July 14-17, 2018. LNCS/LNAI, vol 10900, Springer.
- (b) A. Cimatti, R. Sebastiani, Editors. "Theory and Applications of Satisfiability Testing - SAT 2012 - 15th International Conference". Trento, Italy, June 17-20, 2012. Vol. 7317 LNCS, Springer.
- (c) S. Ghilardi, R. Sebastiani, Editors. "Frontiers of Combining Systems, 7th International Symposium, FroCoS 2009", Trento, Italy, September 16-18, 2009. Vol. 5749 LNCS, Springer.
- (d) B. Cook, R. Sebastiani, Editors. "Proceedings of the Fourth Workshop on Pragmatics of Decision Procedures in Automated Reasoning (PDPAR 2006)". ENTCS, Vol 174, (8) June 1007, Elsevier.

(a) and (b) are classified respectively as A* (Flagship) and A (Excellent) by CORE ⁴.

Edited Workshop Proceedings (non archival)

- (a) S. Linton and R. Sebastiani editors. Proc. *CALCULEMUS-2001, 9th Symposium on the Integration of Symbolic Computation and Mechanized Reasoning*. Siena, Italy, 21-22 June 2001.

8.2 Publications – Author

All publications are available from <http://disi.unitn.it/rseba/publist.html>.

Book Chapters

- B1. P. Giorgini, J. Mylopoulos, R. Sebastiani “Goal Modelling and Reasoning in TROPOS.” *Social Modeling for Requirements Engineering*. January 2011. Ed. MIT press.
URL: <https://mitpress.mit.edu/books/social-modeling-requirements-engineering>
- B2. R. Sebastiani e A. Tacchella “SAT Techniques for Modal and Description Logics” *Part II, Ch. 32, Handbook of Satisfiability*. 2021 Ed. Ios Press.
DOI: <https://doi.org/10.3233/FAIA201016>
- B3. C. Barrett, R. Sebastiani, S. Seshia, C. Tinelli. “Satisfiability Modulo Theories” *Part II, Ch. 33, Handbook of Satisfiability*. 2021 Ed. Ios Press.
DOI: <https://doi.org/10.3233/FAIA201017>
- B4. A. Cimatti, R. Sebastiani. “Building Efficient Decision Procedures on top of SAT solvers.” *Formal Methods for Hardware Verification*. May 2006. LNCS, 3965. Ed. Springer.
DOI: https://doi.org/10.1007/11757283_6

Papers on Journals

- J1. S. Möhle, R. Sebastiani, A. Biere “On Enumerating Short Projected Models”. *Discrete Applied Mathematics*. Vol 361, January 2025, P. 412-439. Elsevier.
DOI: <https://doi.org/10.1016/j.dam.2024.10.021>
- J2. J. Ding, G. Spallitta, R. Sebastiani “Experimenting with D-Wave Quantum Annealers on Prime Factorization Problems”. *Frontiers in Computer Science, – Sec. Theoretical Computer Science*. Vol. 6, June 2024.
DOI: <https://doi.org/10.3389/fcomp.2024.1335369>
- J3. J. Ding, G. Spallitta, R. Sebastiani “Effective Prime Factorization via Quantum Annealing by Modular Locally-structured Embedding”. *Nature Scientific Reports*. Vol. 14, n. 3518. February 2024.
DOI: <https://doi.org/10.1038/s41598-024-53708-7>
- J4. Giuseppe Spallitta, Gabriele Masina, Paolo Morettin, Andrea Passerini, Roberto Sebastiani. “Enhancing SMT-based Weighted Model Integration by Structure Awareness”. *Artificial Intelligence*. 328, January 2024.
DOI: <https://doi.org/10.1016/j.artint.2024.104067>
- J5. P. Trentin, R. Sebastiani. “Optimization Modulo the Theories of Signed Bit-Vectors and Floating-Point Numbers”. *Journal of Automated Reasoning - JAR*. 65(7), pp. 1071-1096, September 2021. Springer.
DOI: <https://doi.org/10.1007/s10817-021-09600-4>
- J6. Z. Bian, F. Chudak, W. Macready, A. Roy, R. Sebastiani, S. Varotti. “Solving SAT (and MaxSAT) with a Quantum Annealer: Foundations, Encodings, and Preliminary Results”. *Information and Computation*. Vol 275, December 2020.
DOI: <https://doi.org/10.1016/j.ic.2020.104609>
- J7. R. Sebastiani, P. Trentin. “OptiMathSAT: A Tool for Optimization Modulo Theories”. *Journal of Automated Reasoning - JAR*. 2020. Vol. 64, pages 423–460. Springer.
DOI: <https://doi.org/10.1007/s10817-018-09508-6>.
- J8. P. Morettin, A. Passerini, R. Sebastiani “Advanced SMT Techniques for Weighted Model Integration”. *Artificial Intelligence*, vol. 275, October 2019.
DOI: <https://doi.org/10.1007/s10817-018-09508-6>

- J9. A. Cimatti, A. Griggio, A. Irfan, M. Roveri, R. Sebastiani “Incremental Linearization for Satisfiability and Verification Modulo Nonlinear Arithmetic and Transcendental Functions”. 2018. *ACM Transactions on Computational Logics, TOCL*. Volume 19 Issue 3, Article 19. August 2018.
DOI: <https://dl.acm.org/doi/10.1145/3230639>
- J10. M. C. Nguyen, R. Sebastiani, P. Giorgini, J. Mylopoulos “Multi-Objective Reasoning with Constrained Goal Models”. *Requirements Engineering*, June 2018, Volume 23, Issue 2, pp 189-225.
DOI: <http://dx.doi.org/10.1007/s00766-016-0263-5>
- J11. S. Teso, R. Sebastiani, A. Passerini. “Structured Learning Modulo Theories”. *Artificial Intelligence*. Volume 244, pages 166-187, March 2017.
DOI: <https://doi.org/10.1016/j.artint.2015.04.002>
- J12. R. Sebastiani and S. Tomasi “Optimization Modulo Theories with Linear Rational Costs” *ACM Transactions on Computational Logics, TOCL*. Volume 16, Issue 2, March 2015.
DOI: <https://dl.acm.org/doi/10.1145/2699915>
- J13. A. Griggio, T.T.H. Le, and R. Sebastiani “Efficient Interpolant Generation in Satisfiability Modulo Linear Integer Arithmetic” *Logical Methods in Computer Science*. Volume 8, Issue 3, pages 1-31, August 2012.
DOI: [https://doi.org/10.2168/LMCS-8\(3:3\)2012](https://doi.org/10.2168/LMCS-8(3:3)2012)
- J14. A. Cimatti, A. Griggio and R. Sebastiani “Computing Small Unsatisfiable Cores in Satisfiability Modulo Theories”. *Journal of Artificial Intelligence Research, JAIR*. Volume 40, pages 701-728, April 2011.
DOI: <https://dl.acm.org/doi/10.5555/2016945.2016964>
- J15. R. Sebastiani, S. Tonetta, M. Y. Vardi “Symbolic Systems, Explicit Properties: on Hybrid Approaches for LTL Symbolic Model Checking”. *International Journal on Software Tools for Technology Transfer (STTT)* © Springer. Volume 13, Number 4, p. 319-335 2011.
DOI: <https://doi.org/10.1007/s10009-010-0168-4>
- J16. A. Cimatti, A. Griggio and R. Sebastiani “Efficient Interpolant Generation in Satisfiability Modulo Theories”. *ACM Transactions on Computational Logics, TOCL*, vol. 12, number 1, October 2010.
DOI: <https://dl.acm.org/doi/10.1145/1838552.1838559>
- J17. 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*. Volume 35, June 2009
DOI: <https://dl.acm.org/doi/10.5555/1641503.1641511>
- J18. 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*, 55(1-2), pp. 63-99, February 2009. Ed. Springer.
DOI: <https://dl.acm.org/doi/10.1007/s10472-009-9152-7>
- J19. R. Sebastiani “Lazy Satisfiability Modulo Theories”. *Journal on Satisfiability, Boolean Modeling and Computation, JSAT*, Vol 3, Number 3-4, 2007, pag 141-224. IOS Press.
DOI: <https://doi.org/10.3233/SAT190034>
- J20. 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.
DOI: <https://doi.org/10.1007/s10703-007-0036-3>
- J21. 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), October 2006. Elsevier.
DOI: <https://doi.org/10.1016/j.ic.2005.05.011>
- J22. 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.
DOI: <https://doi.org/10.1016/j.entcs.2005.12.001>

- J23. 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.
DOI: <https://doi.org/10.1007/s10817-005-9004-z>
- J24. 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.
DOI: <https://doi.org/10.1016/j.entcs.2004.12.022>
- J25. 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. **Awarded by Elsevier “EAAI Top-Cited Article 2005-20102”**.
DOI: <https://doi.org/10.1016/j.engappai.2004.11.017>
- J26. 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.
DOI: https://doi.org/10.1007/978-3-540-39733-5_1
- J27. 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, May 2003, Ed Morgan Kaufmann.
DOI: <https://dl.acm.org/doi/abs/10.5555/1622420.1622430>
- J28. 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), Octobre/November 2000, pp. 158–178. Ed. Academic Press.
DOI: <https://doi.org/10.1006/inco.1999.2850>
- J29. E. Giunchiglia, F. Giunchiglia, R. Sebastiani, A. Tacchella. “SAT vs. Translation Based decision procedures for modal logics: a comparative evaluation”. *Journal of Applied Non-Classical Logics - JANCL*. Volume 10 (2), pp. 145-172, September 2000. Ed. Hermès International, Oxford.
DOI: <https://www.tandfonline.com/doi/abs/10.1080/11663081.2000.10510994>
- J30. 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, May 2000. Ed. Oxford Press.
DOI: <https://doi.org/10.1093/jigpal/8.3.293>
- J31. A. Bundy, F. Giunchiglia, R. Sebastiani, T. Walsh. “Calculating Criticalities”. *Artificial Intelligence*. Vol. 88, Issue 1-2, pp. 39-67. December 1996. Ed. Elsevier.
DOI: [https://doi.org/10.1016/S0004-3702\(96\)00019-7](https://doi.org/10.1016/S0004-3702(96)00019-7)
- J32. R. Sebastiani. “Applying GSAT to non-clausal formulas”. *Journal of Artificial Intelligence Research - JAIR*, Vol.1, pp.309-314. June 1994. Ed. Morgan Kauffman.
DOI: <https://dl.acm.org/doi/10.5555/1618595.1618608>
- J33. R. Sebastiani. “Astrazione: dalla Teoria alla Realizzazione di un Abstract Proof Checker”. *AI*IA Notizie*, n.2, June 1993, pp. 41-53. Ed. S.S. Reiss Romoli.

Papers on Archival Conference Proceedings

- C1. M. Michelutti, G. Masina, G. Spallitta, R. Sebastiani. “Canonical Decision Diagrams Modulo Theories”. *In proc. 27th European Conference on Artificial Intelligence (ECAI-2024)*.
DOI: <https://doi.org/10.3233/FAIA241007>
- C2. D. Fried, A. Nadel, R. Sebastiani and Y. Shalmon. “Entailing Generalization Boosts Enumeration” *In proc. 26th International Conference on Theory and Applications of Satisfiability Testing –SAT 2024*. LIPICs Dagstuhl Publishing.
DOI: <https://doi.org/10.4230/LIPICs.SAT.2024.13>

- C3. G. Spallitta, R. Sebastiani, A. Biere. “Disjoint Partial Enumeration without Blocking Clauses”. *In proc. 38th AAAI Conference on Artificial Intelligence (AAAI-24)*. March 2024.
DOI: <https://doi.org/10.1609/aaai.v38i8.28652>
- C4. G. Masina, G. Spallitta, R. Sebastiani. “On CNF Conversion for Disjoint SAT Enumeration”. *In proc. 25th International Conference on Theory and Applications of Satisfiability Testing –SAT 2023*. LIPICs Dagstuhl Publishing.
DOI: [10.4230/LIPICs.SAT.2023.15](https://doi.org/10.4230/LIPICs.SAT.2023.15)
- C5. E. Lipparini, A. Cimatti, A. Griggio and R. Sebastiani “Handling Polynomial and Transcendental Functions in SMT via Unconstrained Optimisation and Topological Degree Test” *Proc. of 20th International Symposium on Automated Technology for Verification and Analysis - ATVA22*.
DOI: https://doi.org/10.1007/978-3-031-19992-9_9
- C6. G. Spallitta, G. Masina, P. Morettn, A. Passerini, R. Sebastiani. “SMT-based Weighted Model Integration with Structure Awareness”. *Proc 38th Conference on Uncertainty in Artificial Intelligence (UAI 2022)*.
DOI: [10.48550/arXiv.2206.13856](https://doi.org/10.48550/arXiv.2206.13856)
- C7. F. Bigarella, A. Cimatti, A. Griggio, A. Irfan, M. Jonas, M. Roveri, R. Sebastiani and P. Trentin “Optimization Modulo Non-Linear Arithmetic via Incremental Linearization” *Proc The 13th International Symposium on Frontiers of Combining Systems, FroCoS 2021*. LNCS/LNAI, vol 12941, Springer.
DOI: https://doi.org/10.1007/978-3-030-86205-3_12
- C8. S. Möhle, R. Sebastiani, A. Biere “Four Flavors of Entailment” *In proc. 23rd International Conference on Theory and Applications of Satisfiability Testing –SAT 2020*. LNCS vol. 12178, Springer.
DOI: [http://doi-org-443.webvpn.fjmu.edu.cn/10.1007/978-3-030-58942-4_10](https://doi.org/10.1007/978-3-030-58942-4_10)
- C9. F. Contaldo, P. Trentin, R. Sebastiani “From MiniZinc to Optimization Modulo Theories, and Back” *Seventeenth International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research – CPAIOR’20*. LNCS, vol 12296, Springer.
DOI: https://doi.org/10.1007/978-3-030-58942-4_10
- C10. S. Kolb, P. Morettn, P. Zuidberg, F. Somnavilla, A. Passerini, R. Sebastiani, L. De Raedt “The pywmi Framework and Toolbox for Probabilistic Inference using Weighted Model Integration” *In proc. Int. Joint Conference on Artificial Intelligence, IJCAI, 2019*.
DOI: <https://doi.org/10.24963/ijcai.2019/946>
- C11. P. Trentin, R. Sebastiani “Optimization Modulo the Theory of Floating-Point Numbers” *In proc. The 27th International Conference on Automated Deduction - CADE-27 2019*. LNAI/LNCS vol. 11716, Springer.
DOI: https://doi.org/10.1007/978-3-030-29436-6_33
- C12. A. Cimatti, A. Griggio, A. Irfan, M. Roveri, R. Sebastiani “Incremental Linearization: A practical approach to Satisfiability Modulo Nonlinear Arithmetic and Transcendental Functions” *In proc. 20th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, SYNASC’18*. IEEE. Invited paper.
DOI: <https://doi.org/10.1109/SYNASC.2018.00016>
- C13. E. Cardoso, J. Horkoff, R. Sebastiani and J. Mylopoulos “Planning with Strategic Goals” *In proc. 22nd IEEE Enterprise Distributed Object Computing Conference – EDOC 2018*. IEEE.
DOI: <https://doi.org/10.1109/EDOC.2018.00016>
- C14. A. Cimatti, A. Griggio, A. Irfan, M. Roveri, R. Sebastiani “Experimenting on Solving Nonlinear Integer Arithmetic with Incremental Linearization” *In proc. 21st International Conference on Theory and Applications of Satisfiability Testing, SAT 2018*. LNCS, vol 10929, Springer.
DOI: https://doi.org/10.1007/978-3-319-94144-8_23
- C15. Z. Bian, F. Chudak, W. Macready, A. Roy, R. Sebastiani, S. Varotti “Solving SAT and MaxSAT with a Quantum Annealer: Foundations and a Preliminary Report.” *In proc. 11th International Symposium on Frontiers of Combining Systems, FroCoS 2017*. LNCS, vol. 10483, Springer.
DOI: https://doi.org/10.1007/978-3-319-66167-4_9

- C16. C. M. Nguyen, R. Sebastiani, P. Giorgini, J. Mylopoulos “Modeling and Reasoning on Requirements Evolution with Constrained Goal Models” *In proc. 5th International Conference on Software Engineering and Formal Methods, SEFM 2017*. LNCS vol. 10469, Springer.
DOI: https://doi.org/10.1007/978-3-319-66197-1_5
- C17. P. Morettin, A. Passerini, R. Sebastiani “Efficient Weighted Model Integration via SMT-Based Predicate Abstraction” *In proc. Int. Joint Conference on Artificial Intelligence, IJCAI, 2017*.
DOI: <https://dl.acm.org/doi/10.5555/3171642.3171745>
- C18. A. Cimatti, A. Griggio, A. Irfan, M. Roveri, R. Sebastiani “Satisfiability Modulo Transcendental Functions via Incremental Linearization” *In proc. Int. Conference on Automated Deduction, CADE, 2017*. LNCS vol. 10395, Springer.
DOI: https://doi.org/10.1007/978-3-319-63046-5_7
- C19. R. Sebastiani, P. Trentin “On Optimization Modulo Theories, MaxSMT and Sorting Networks” *In proc. Tools and Algorithms for the Construction and Analysis of Systems, TACAS’17, 2017*. LNCS, vol. 10205, Springer.
DOI: https://doi.org/10.1007/978-3-662-54580-5_14
- C20. A. Cimatti, A. Griggio, A. Irfan, M. Roveri, R. Sebastiani “Invariant Checking of NRA Transition Systems via Incremental Reduction to LRA with EUF” *In proc. Tools and Algorithms for the Construction and Analysis of Systems, TACAS’17, 2017*. LNCS, vol. 10205, Springer.
DOI: https://doi.org/10.1007/978-3-662-54577-5_4
- C21. C. M. Nguyen, R. Sebastiani, P. Giorgini, J. Mylopoulos “Requirements Evolution and Evolution Requirements with Constrained Goal Models.” *In proc. ER 2016 - International Conference on Conceptual Modeling*. November 2016.
DOI: https://doi.org/10.1007/978-3-319-46397-1_42
- C22. R. Sebastiani “Colors Make Theories Hard” *Proc. IJCAR 2016 - International Joint Conference on Automated Reasoning*. 2016. July 2016. LNCS, 9706, Springer.
DOI: https://doi.org/10.1007/978-3-319-40229-1_11
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9 Personal Interests

Yes, I do have a life outside my DISI office (I wish I had more, actually).

Hobbies & Interests. In my (too few) free time, apart from enjoying my family, I also like going out with friends, going to the cinema, reading novels and comics, do some DIY.

Traveling. When it was safer and I had more time and freedom to do that, I liked traveling very much. Apart from many places in Italy (of course!), Europe and USA, I visited wonderful countries like Australia, Bali, Brazil, Cambodia, Canada, China, Egypt, Guatemala, Kenya, Israel, Jordan, Maldives, Macao, Mexico, Seychelles, Tanzania, Thailand, Turkey, Venezuela, Yemen and Socotra, Zanzibar.

Sports. Long ago, I used to play volleyball in a team (C2 series). Once I occasionally got a PADI diving certification, but I haven't practised it since then. Now I enjoy hiking, skiing, a little ski mountaineering, a little biking.

Music. Long ago, I used to play guitar & keyboards. Now I enjoy listening music, mainly progressive rock and songwriters, some rock, a little pop, a little jazz.

Trento, February 12, 2025