Alessandro Cimatti

Curriculum Vitæ

July 2020

PERSONAL

Born in
Office address: Fondazione Bruno Kessler; Via Sommarive 18, 38123, Povo, Trento, Italy
Mobile:
Phone:
Fax:
Email:

EDUCATION

Laurea in Electronic Engineering from Università di Genova (December 1988).
Final Degree: 110/110 with honors. Thesis worth of publication.

Esame di stato in Ingegneria Elettronica (April 1989).

CURRENT POSITIONS

Head of the High-Impact Initiative on Smart Digital Industry (FBK-ICT)

Head of the Research Unit in Embedded Systems (FBK-ICT)

WORKING EXPERIENCE

1990–2000: R3-level Researcher at ITC-irst.

2000–2007: R2-level Researcher at ITC-irst.

2007–present: R1-level Researcher at Fondazione Bruno Kessler.

LANGUAGES

Italian: native

English: fluent

French: scholastic

RESEARCH INTERESTS

Formal Metods for the specification, verification and validation of complex embedded systems.

Model-Based Safety Assessment; Requirements Validation and Contract-based Design.

Autonomous systems: Automated Planning, Synthesis, Fault Detection, Identification and Recovery.

Automated Reasoning, SAT, Satisfiability Modulo Theories

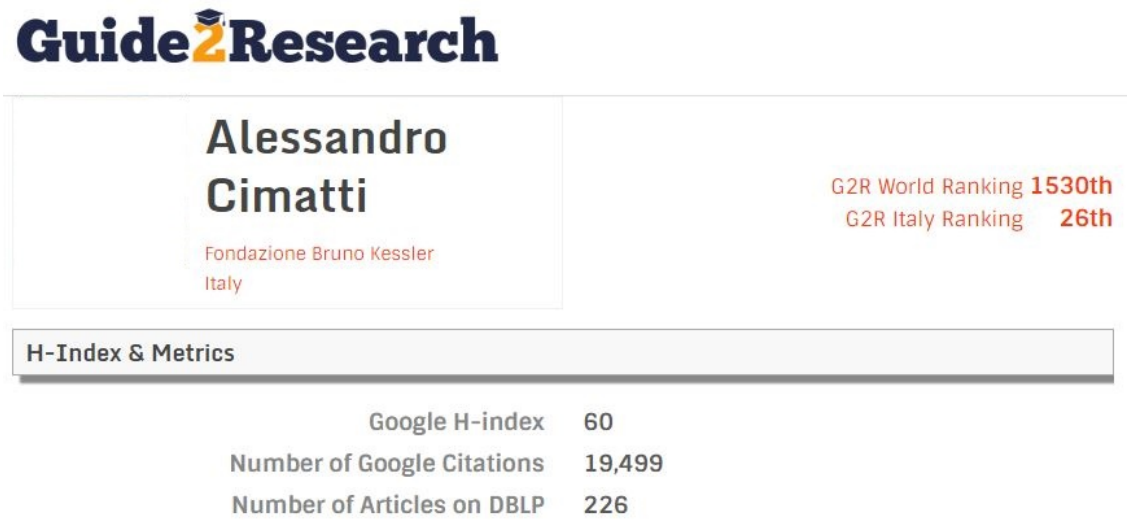
Scientific Profile

I have published more than 230 papers, primarily in the fields of Formal Verification and Artificial Intelligence.

- In formal verification, I have published at top conferences such as CAV (21 papers), TACAS (16), FM-CAD (17), ATVA (5), SAFECOMP (5), FM (3), and top journals such as FMSD, LMCS, InfoComp, FAC, IEEE-TCAD, ACM TOCL, IEEE TCAD, ACM TOSEM.
- In Artificial Intelligence, I have published at top conferences such as AAAI (13), IJCAI (5), ECAI (5), SAT (4), CADE (4), and in top journals such as Artificial Intelligence (5), JAR, JAIR.

According to google scholar, I have an H-index of 60 and almost 20K citations.
According to Guide2Research I am at the 26th place in the list of top Italian researchers in Computer Science and Engineering.
Additional bibliometric indicators are available from the following sources:

- DBLP: `https://dblp.uni-trier.de/pers/c/Cimatti:Alessandro.html`
- ORCID: `https://orcid.org/0000-0002-1315-6990`
- Research Gate: `https://www.researchgate.net/profile/Alessandro_Cimatti`
- Google Scholar: `https://scholar.google.it/citations?user=lbZ6n5IAAAAJ`
- Guide2Research: `http://www.guide2research.com/u/alessandro-cimatti`



*

Experience in Management

Project Management

Since 1994 I acquired, led and participated in numerous research and technology trainsfer projects, funded by private companies (e.g. Ansaldo Segnalamento Ferroviario, Intel, Boeing, Bosch, SAIPEM, RFI, ALES/UT, SEAC, Goriziane), local companies supported by the PAT by way of LP6 (e.g. Phox, Cinetix, GES), international funding agencies (e.g. European Space Agency, European Railway Agency), and various EU schemes (e.g. FP6, FP7, EIT digital, EIT raw material).

- The projects funded by the European Space Agency result from the selection in response to competitive Invitation to Tender: OMC-ARE, COMPASS, FAME, AUTOGEF, FoReVer, IRONCAP, HASDEL, COMPASS3, CATSY.

  These projects aim at the application of formal methods to the development process of aerospace systems and to the realization of architectures for autonomy. Project consortia include industrial partners such as Thales-Alenia Space (Italy, France), Vega, Trasys, Space Systems Finland, Astrium, Airbus.

- The projects funded The Boeing Company are cast within a five-year framework agreement signed in 2014, and renewed until 2023. Goals of the projects include the technology transfer of methods for formal verification in avionics, the delivery of software tools developed by the ES unit (e.g. OCRA, nuXmv, xSAP), and the analysis of critical architectures. The papers [112, 150] describe project activities not covered by non-disclosure agreements. The activity is funded on an yearly basis, for a total funding of more than 1.5MUSD.

The common methodological trait has been to deliver the expected results, while at the same time privileging advanced solutions with novel research, developing reusable software assets of high technology readiness, and encourage the empowerment of people and training on the job.

Management of Research Unit

I have been leading the Embedded Systems research unit since 2008. The unit has steadily grown, going from an initial budget of 0.88MEU and 14 people to the current budget of 1.950MEU and a head count of 36, including reserach staff, post docs, programmers and Ph.D. students. The self funding has constantly been above 60%, with peaks up to 80%.

The research is organized according to four main directions: Formal Verification, Applications of Model-based Engineering, Automated Planning for Adaptive and Autonomous Systems, and Predictive Maintenance.

The unit has international cooperation with several research groups and international agencies, including King's College London (Daniele Magazzeni), NASA Ames Research Center (David Smith, Min Doh), European Space Agency (Yuri Yushtein, Marcel Verhoef, Alessandro Donati), Thales Alenia Space (Regis de Ferluc, Xavier Olive), RWTH Aachen University (Joost-Pieter Katoen, Thomas Noll, Erika Ábrahám), Universita' di Trento (Roberto Sebastiani, Luigi Palopoli), fortiss GMBH (Harald Ruess, Bernhard Schätz), The Open Group (Rance DeLong, Scott Hansen), Oxford University (Daniel Kroening), EPFL (Simon Bliudze), Verimag (Joseph Sifakis, Marius Bozga, Saddek Bensalem).

Management of Research Line

I have been leading a research line called High-Impact Initiative on Smart Digital Industry (HII-SDI) since 2017. I coordinate six research units: Technologies for Vision, 3D Optical Metrology, Software Engineering, Open IoT, Embedded Systems, and Machine Translation. The head count is almost 100 people, with overall costs of 5MEU and revenues for more than 3MEU, for a self funding rate of %61.

The aim is to harmonize the activities of the units, so that heterogeneous research areas are integrated into interdisciplinary technological solutions to be transferred to the market of Digital Industry.

I created a board, composed of the heads of the units, that meets on a weekly basis. We produced a Manifesto laying down the founding operational principles. We defined an overarching management process covering the lifetime of projects, from conception to conclusions; the go/no-go analysis is a fundamental step to ensure that projects are acquired based on strategic (in contrast to tactical, short-term) considerations. We organized workshops to identify the most promising research directions. I also coordinate budget preparation, performance evaluation, compensation, and interaction with the administration.

Inventions

- Patent "Installation Optimisation", granted by United States Letters Patent. Authors: Christopher Papadopoulos, Antonella Cavallo, Alessandro Cimatti, Marco Bozzano. Filed on 21 September 2012 (United States Patent Application No. 13/623977), Granted 23 August 2016 (United States Patent No. 9,424,391). Assigned to Airbus Operations Limited, Alenia Aermacchi Spa, Fondazione Bruno Kessler. Application EP20120185314 for European Patent, priority 23 September 2011, published as EP2573695 A2, A3.

Software

I supervised the development of several software tools for model based design and formal verification.

- The NuSMV symbolic model checker [138, 137, 21]
- The MathSAT SMT solver [8, 11, 100, 13, 120, 167].
- The nuXmv symbolic model checker [125]
- The RAT/RATSY systems for requirement analysis [227, 94]
- The fSAP/xSAP platforms for model-based safety assessment [86]
- The OCRA platform for contract-based design [213, 144, 47]
- The NuRV platform for runtime verification [212]
- the Kratos software model checker [161]
- The HyCOMP model checker for hybrid systems [185, 165]
- The CHESS platform for model based design [224, 52]
- The COMPASS platform for codesign of critical embedded systems [108, 97, 106]

Awards

- The paper *A quantifier-free SMT encoding of non-linear hybrid automata* [187] received the FM-CAD'12 Best Paper Award.
- The paper *Boosting Lazy Abstraction for SystemC with Partial Order Reduction* [189] received the EASST Best Software Science Paper Award at ETAPS'11.
- The paper *Applying SMT in symbolic execution of microcode* [215] received the FMCAD'10 Best Paper Award.
- The paper *Planning via model checking: A decision procedure for AR* [152] received in 2007 the ICAPS award for the *most influential paper* in the last 10 years in planning.
- The paper *Symbolic model checking without BDDs* [85] received in 2014 the award for the *most influential paper in the first 20 years of TACAS*.
- The paper *Symbolic model checking without BDDs* [85] also received the *ETAPS 2017 Test of Time Award*
- Co-recipient of the CAV'18 award for *Outstanding contribution to the enhancement and scalability of model checking by introducing Bounded Model Checking based on Boolean Satisfiability (SAT) for hardware (BMC) and software (CBMC)*

Academic Appointments

- Italian habilitation for Full Professor in Informatics (professore Ordinario in Informatica, settore INF09).
- Italian habilitiation for Full Professor in Computer Engineering (professore Ordinario in Sistemi per l'Elaborazione dell'Informazione, settore K05B).
- Member of the Doctoral Course Committee (Collegio dei Docenti) of the International Doctoral School in Information and Communication Technologies, Universita' di Trento (2007–2015)
- Member of the Doctoral Course Committee of the Scuola di Dottorato in Ingegneria Elettronica, Telecomunicazioni e Tecnologie dell'Informazione, Universita' di Bologna (2015–2018)
- Member of the Doctoral Course Committee, Scuola di Dottorato in Informatica, Matematica e Fisica, Universita' di Udine (2018–present)
- Supervision or co-supervision of the following Ph.D. students: Marco Roveri (Universita' di Milano, thesis defended in 2002), Roberto Bruttomesso (Universita' di Trento, 2008), Anders Franzen (Universita' di Trento, 2009), Kalyanasundaram Krishnamani (Universita' di Trento, 2010), Alberto Griggio (Universita' di Trento, 2010), Yusi Ramadian (Universita' di Trento, 2012), Sergio Mover (Universita' di Trento, 2015), Cristian Mattarei (Universita' di Trento, 2016), Andrea Micheli (Universita' di Trento, 2016), Marco Gario (Universita' di Trento, 2016), Benjamin Bittner (Universita' di Trento, 2017), Ahmed Irfan (Universita' di Trento, 2018), Mirko Sessa (Universita' di Trento, 2019), Antonio Tierno (Universita' di Trento, ongoing), Hani Beirami (Universita' di Trento, ongoing), Chun Tian (Universita' di Trento, ongoing), Luca Geatti (Universita' di Udine, ongoing).

Program Committees

2021 AAAI (Senior Member Presentation Track, Area Chair), TACAS, IEAAIE, DATE (Track Chair)

2020 TACAS, VLSI-SOC, SETTA, NFM, IEAAIE, AAAI (Senior Member Presentation Track), SEFM, IJCAI-PRICAI (Area Chair), DATE (Track Chair)

2019 OVERLAY, INTEX, SETTA, FDL, TACAS, SEFM, ATVA, IEA/AIE, AAAI (Senior Member Presentation Track, Senior TPC member), FM

2018 CPSWS, FSTTCS, SEFM, CONCUR, FORMALISE, MeTRiD, CAV, AAAI (Senior Member Presentation Track) TACAS

2017 SEFM (Program Co-Chair), CAV, HSCC, LATA, NFM, SPIN, TACAS, AFFORD, HVC, AAAI (Senior Member Presentation Track, Senior TPC member)

2016 CAV, AAAI (senior PC member), ATVA, HSCC, IJCAI (senior PC member), MOVEP, NFM, PlanHS, SEFM

2015 IJCAI (senior PC member), FMCAD, NFM, SPIN, SynCoP, TACAS, VMCAI

2014 ATVA, DEVVARTS, FMCAD, IRP-ESD, MOCHAP, SAT, TACAS, TIME, VSTTE, SynCoP

2013 DATE-D7, FMCAD, ICAPSWPCD, IPS

2012 SAT (Program Co-Chair), TACAS (Tool Chair), DATE-D7, FMCAD, MOVEP, CODES+ISSS, FMICS, ICAPS, LfSA, SPIN

2011 CODES+ISSS, TACAS (Tool Chair), ATVA, CADE, AAAI, DATE-D7, DIFTS, FMCAD, ICAPS, ICCD, SAT, SMT, TACAS, VVPS, WRiSE

2010 CAV, DATE-D8, FMCAD, HWVW, ICAPS, ICCD, LfSA, LPAR, MoChArt, SMT, CADE

2009 TACAS, CADE, FMCAD, ICAPS, ICCD, TIME, VVPS

2008 FMCAD (Program Co-Chair), BPR, CAV, HVC, IJCAR, IWIL, SMT, RTSS, DATE, SMT

2007 CAV, FMCAD, LPAR, SMT, HVC, RTAS, COCV, FMCAD, SMT, BMC, DATE

2006 BMC, FMCAD, PDPAR, SAT, HVC, ECAI, ICAPS, TACAS

2005 PDPAR (Program Co-Chair), SAT, DATE, HVC, MOCHART, CAV, AAAI, ICAPS, DALT

2004 ICAPS

2003 ICAPS, CONCUR, MOCHART

2002 MOCHART, AIPS, MOVEP

2000 MOVEP

Teaching Experience

Academic Courses

- Contract Professor for the course of "Automated Verification of Complex Systems" at the University of Verona (6 credits), academic year 2015-2016.
- Contract Professor for the course of "Logic and Functional Programming Languages" at the Free University of Bolzano (6 credits), academic year 2012-2013.
- Contract Professor for the course of "Theory of Computing" at the Free University of Bolzano (6 credits), academic year 2012-2013.
- Contract Professor for the course of "Safety Critical Systems" at the University of Trento (6 credits), academic year 2011-2012.
- Contract Professor for the course of "Logic and Functional Programming Languages" at the Free University of Bolzano (6 credits), academic year 2010-2011.
- Contract Professor for the course of "Functional Programming" at the University of Trento (total of 6 credits), academic year 2009-10
- Contract Professor for the course of "Functional Programming" at the University of Trento (total of 6 credits), academic year 2008-09
- Contract Professor for the course of "Functional Programming" at the University of Trento (total of 6 credits), academic year 2007-08
- Contract Professor for the course of "Functional Programming" at the University of Trento (6 credits), academic year 2006-07
- Contract Professor for the course of "Programming Languages" at the Free University of Bolzano (6 credits), academic year 2005-2006.
- Lecturer for a 20-hours course on "Advanced Model Checking", for the Ph.D. School in Information and Communication Technologies at the University of Trento, September 2004.

Industrial Courses

- Lecturer for a 30-hours module on "Formal Methods" at the "Master Universitario di II livello" on "Sustainability, Safety and Security in Transportation Systems and Infrastructures", April 2010. Master organized by PerForm, Ansaldo Segnalamento, and the Liguria regional district.
- Lecturer for a 40-hours module on "Formal Methods" at the Master on "Elaboration systems in industrial critical applications", Novembre-Divembre 2007. Master organized by Ansaldo Segnalamento, Ferrovie dello Stato, and Seconda Università di Napoli.
- Lecturer for a 40-hours module on "Formal Methods" at the Master on "Elaboration systems in industrial critical applications", September 2003. Master organized by Ansaldo Segnalamento, Ferrovie dello Stato, and Seconda Università di Napoli.

Lectures and Tutorials

- Invited Lecture at the CPS Summer School held in Alghero, Italy, September 2018.
- Invited tutorial "SMT and its Applications to Formal Verification", SYNASC 2018, Timisoara, Romania, September 2018.
- "SMT-based software model checking: Explict Scheduler, Symbolic Threads", keynote speech at ATVA, Hanoi, Vietnam, October 2013.
- Invited Lecture at the SAT/SMT School held in Espoo, Finland, July 2013.
- Invited tutorial "SMT-based verification of Hybrid Systems", ATVA, Hanoi, Vietnam, October 2013.
- Tutorial "Analysis of Extended AADL Models" at the 10th school of MOVEP, CIRM, in Luminy (Marseille), December 2012.
- Invited tutorial on "Application of SMT solvers to hybrid system verification", FMCAD, Cambridge, UK, October 2012.
- Invited Lecture at the SAT/SMT School held in Boston, MA, June 2011.
- Invited speaker at the 17th International SPIN Workshop on Model Checking of Software (SPIN 2010), Enschede, The Netherlands, 27 September – 29 September, 2010.
- Invited speaker at the Quantitative Model Checking PhD School, Copenhagen, 2-5 March 2010.
- Invited speaker at the First National Days of the French GDR/GPL, Toulouse (France), January 28-30, 2008.
- Invited speaker at the CV'07, the Fourth Workshop on Constraints in Formal Verification, Bremen, Germany, July 16, 2007, a satellite event of CADE-21; Special Invited Talks Session on Satisfiability Modulo Theories (joint with the DISPROVING'07 and VERIFY'07 Workshops).
- Invited speaker at the Workshop on "Model Checking and Artificial Intelligence" (Mochart'06), affiliated with the European Conference on Artificial Intelligence, Riva del Garda, August 2006.
- Invited lecturer at the Workshop on "Satisfiability Solving and Program Verification", affiliated with the Eighteenth Conference on Computer-Aided Verification (CAV'06), Seattle, August 2006.
- Invited talk at Boeing Phantom Works on "Safety Analysis based on Formal Methods", Seattle, August 2006.
- Invited talk "Effective Boolean Methods for Reasoning about Knowledge" at AgentLink/COLOGNET, 2004.
- Tutorial on "Symbolic Model Checking" held at ICAPS'03 – International Conference on Automated Planning and Scheduling, Trento, Italy, June 2003.
- Course on "Decision Procedures" at 6th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Hardware Verification (SFM-06:HV), Bertinoro, Italy (26 May 2006).

- Invited lecture at the Workshop on "Advances in Model Checking", affiliated with the FSTTCS'03 (the 23rd Conference on Foundations of Software Technology and Theoretical Computer Science), Mumbai, December 2003.
- Invited lecture on "Integrating BDD-based and SAT-based Model Checking in NuSMV2" at FROCOS'02 — the 4th International Workshop on Frontiers of Combining Systems, April 2002.
- Course on "Symbolic Model Checking" at 2nd International School on Formal Methods for the Design of Computer, Communication and Software Systems: Model Checking (SFM-02:MC), Bertinoro, Italy (9-14 September 2002).
- Course on "Symbolic Model Checking", held at the European Summer School in Logic, Language and Information (ESSLLI'02), 5-11 August 2002.
- Course on "Industrial Applications of Model Checking" at MOVEP'00 – International School on MOdellling and VErification of parallel Processes, Nantes, June 2000.
- Hands-on Tutorial on "Model Checking" at FLoC – Federated Logics Conference, Trento, Luglio 1999.

Organized Events

- SEFM'17, 15th International Conference on Software Engineering and Formal Methods, Trento, Italy, September 2017.
- Dagstuhl Seminar 14482 on "Automated Planning and Model Checking", November 2014.
- SAT'12, 15th International Conference on Theory and Applications of Satisfiability Testing (SAT), Trento, Italy, June 2012.
- Sixth International School on Formal Methods (SFM-06:HV) on "Hardware Verification", Bertinoro, Italy, May 2006.
- Cambridge Forum on "Decision Procedures", Cambridge, September 2005.
- Fourth Workshop on "Equivalence and Assertion Checking", Madonna di Campiglio, August 2005.
- Third Workshop on "Pragmatics of Decision Procedures (PDPAR'05)", affiliated to CAV'05, Edinburgh, UK, August 2003.
- Third PLANET International Summer School on Artificial Intelligence Planning, Madonna di Campiglio, June 2003.
- ECAI'02 Workshop on Model Checking and Artificial Intelligence, Lyon, July 2002.
- IJCAI'01 Workshop on Planning in Nondeterministic Domains, Seattle, USA, August 2001.
- First International Workshop on Symbolic Model Checking, Trento, Luglio 1999.

Edited Books

[1] Marco Bernardo and Alessandro Cimatti, editors. *Formal Methods for Hardware Verification, 6th International School on Formal Methods for the Design of Computer, Communication, and Software Systems, SFM 2006, Bertinoro, Italy, May 22-27, 2006, Advanced Lectures*, volume 3965 of *Lecture Notes in Computer Science*. Springer, 2006.

[2] Alessandro Cimatti and Robert B. Jones, editors. *Formal Methods in Computer-Aided Design, FMCAD 2008, Portland, Oregon, USA, 17-20 November 2008*. IEEE, 2008.

[3] Alessandro Cimatti and Roberto Sebastiani, editors. *Theory and Applications of Satisfiability Testing - SAT 2012 - 15th International Conference, Trento, Italy, June 17-20, 2012. Proceedings*, volume 7317 of *Lecture Notes in Computer Science*. Springer, 2012.

[4] Alessandro Cimatti and Marjan Sirjani, editors. *Software Engineering and Formal Methods - 15th International Conference, SEFM 2017, Trento, Italy, September 4-8, 2017, Proceedings*, volume 10469 of *Lecture Notes in Computer Science*. Springer, 2017.

[5] Marina Zanella, Ingo Pill, and Alessandro Cimatti, editors. *28th International Workshop on Principles of Diagnosis (DX'17), Brescia, Italy, September 26-29, 2017*, volume 4 of *Kalpa Publications in Computing*. EasyChair, 2017.

Journal Articles

[6] Erika Ábrahám, John Abbott, Bernd Becker, Anna Maria Bigatti, Martin Brain, Bruno Buchberger, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Alberto Griggio, Daniel Kroening, Werner M. Seiler, and Thomas Sturm. Satisfiability checking and symbolic computation. *ACM Commun. Comput. Algebra*, 50(4):145–147, 2016.

[7] Alessandro Armando and Alessandro Cimatti. Preface. *Electron. Notes Theor. Comput. Sci.*, 144(2):1–2, 2006.

[8] Gilles Audemard, Marco Bozzano, Alessandro Cimatti, and Roberto Sebastiani. Verifying industrial hybrid systems with mathsat. *Electron. Notes Theor. Comput. Sci.*, 119(2):17–32, 2005.

[9] Piergiorgio Bertoli, Alessandro Cimatti, Marco Roveri, and Paolo Traverso. Strong planning under partial observability. *Artif. Intell.*, 170(4-5):337–384, 2006.

[10] Roderick Bloem, Alessandro Cimatti, Ingo Pill, and Marco Roveri. Symbolic implementation of alternating automata. *Int. J. Found. Comput. Sci.*, 18(4):727–743, 2007.

[11] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Ziyad Hanna, Zurab Khasidashvili, Amit Palti, and Roberto Sebastiani. Encoding RTL constructs for mathsat: a preliminary report. *Electron. Notes Theor. Comput. Sci.*, 144(2):3–14, 2006.

[12] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Tommi A. Junttila, Silvio Ranise, Peter van Rossum, and Roberto Sebastiani. Efficient theory combination via boolean search. *Inf. Comput.*, 204(10):1493–1525, 2006.

[13] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Tommi A. Junttila, Peter van Rossum, Stephan Schulz, and Roberto Sebastiani. Mathsat: Tight integration of SAT and mathematical decision procedures. *J. Autom. Reasoning*, 35(1-3):265–293, 2005.

[14] Marco Bozzano, Alessandro Cimatti, Marco Gario, and Stefano Tonetta. Formal design of asynchronous fault detection and identification components using temporal epistemic logic. *Logical Methods in Computer Science*, 11(4), 2015.

[15] Marco Bozzano, Alessandro Cimatti, Joost-Pieter Katoen, Panagiotis Katsaros, Konstantinos Mokos, Viet Yen Nguyen, Thomas Noll, Bart Postma, and Marco Roveri. Spacecraft early design validation using formal methods. *Reliab. Eng. Syst. Saf.*, 132:20–35, 2014.

[16] Marco Bozzano, Alessandro Cimatti, Joost-Pieter Katoen, Viet Yen Nguyen, Thomas Noll, and Marco Roveri. Safety, dependability and performance analysis of extended AADL models. *Comput. J.*, 54(5):754–775, 2011.

[17] Marco Bozzano, Alessandro Cimatti, Oleg Lisagor, Cristian Mattarei, Sergio Mover, Marco Roveri, and Stefano Tonetta. Symbolic model checking and safety assessment of altarica models. *ECEASST*, 46, 2011.

[18] Marco Bozzano, Alessandro Cimatti, Oleg Lisagor, Cristian Mattarei, Sergio Mover, Marco Roveri, and Stefano Tonetta. Safety assessment of altarica models via symbolic model checking. *Sci. Comput. Program.*, 98:464–483, 2015.

[19] Marco Bozzano, Alessandro Cimatti, and Cristian Mattarei. Formal reliability analysis of redundancy architectures. *Formal Asp. Comput.*, 31(1):59–94, 2019.

[20] Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Alberto Griggio, and Roberto Sebastiani. Delayed theory combination vs. nelson-oppen for satisfiability modulo theories: a comparative analysis. *Ann. Math. Artif. Intell.*, 55(1-2):63–99, 2009.

[21] Alessandro Cimatti, Edmund M. Clarke, Fausto Giunchiglia, and Marco Roveri. NUSMV: A new symbolic model checker. *Int. J. Softw. Tools Technol. Transf.*, 2(4):410–425, 2000.

[22] Alessandro Cimatti, Ramiro Demasi, and Stefano Tonetta. Tightening the contract refinements of a system architecture. *Formal Methods Syst. Des.*, 52(1):88–116, 2018.

[23] Alessandro Cimatti, Minh Do, Andrea Micheli, Marco Roveri, and David E. Smith. Strong temporal planning with uncontrollable durations. *Artif. Intell.*, 256:1–34, 2018.

[24] Alessandro Cimatti, Stefan Edelkamp, Maria Fox, Daniele Magazzeni, and Erion Plaku. Automated planning and model checking (dagstuhl seminar 14482). *Dagstuhl Reports*, 4(11):227–245, 2014.

[25] Alessandro Cimatti, Fausto Giunchiglia, Giorgio Mongardi, Dario Romano, Fernando Torielli, and Paolo Traverso. Formal verification of a railway interlocking system using model checking. *Formal Asp. Comput.*, 10(4):361–380, 1998.

[26] Alessandro Cimatti, Fausto Giunchiglia, and Richard W. Weyhrauch. A many-sorted natural deduction. *Comput. Intell.*, 14(1):134–149, 1998.

[27] Alessandro Cimatti, Alberto Griggio, Ahmed Irfan, Marco Roveri, and Roberto Sebastiani. Incremental linearization for satisfiability and verification modulo nonlinear arithmetic and transcendental functions. *ACM Trans. Comput. Log.*, 19(3):19:1–19:52, 2018.

[28] Alessandro Cimatti, Alberto Griggio, Enrico Magnago, Marco Roveri, and Stefano Tonetta. Smt-based satisfiability of first-order LTL with event freezing functions and metric operators. *Inf. Comput.*, 272:104502, 2020.

[29] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. Infinite-state invariant checking with IC3 and predicate abstraction. *Formal Methods Syst. Des.*, 49(3):190–218, 2016.

[30] Alessandro Cimatti, Alberto Griggio, and Roberto Sebastiani. Efficient generation of craig interpolants in satisfiability modulo theories. *ACM Trans. Comput. Log.*, 12(1):7:1–7:54, 2010.

[31] Alessandro Cimatti, Alberto Griggio, and Roberto Sebastiani. Computing small unsatisfiable cores in satisfiability modulo theories. *J. Artif. Intell. Res.*, 40:701–728, 2011.

[32] Alessandro Cimatti and Orna Grumberg. Preface. *Electron. Notes Theor. Comput. Sci.*, 23(2):127–128, 1999.

[33] Alessandro Cimatti, Luke Hunsberger, Andrea Micheli, Roberto Posenato, and Marco Roveri. Dynamic controllability via timed game automata. *Acta Inf.*, 53(6-8):681–722, 2016.

[34] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. An smt-based approach to weak controllability for disjunctive temporal problems with uncertainty. *Artif. Intell.*, 224:1–27, 2015.

[35] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Solving strong controllability of temporal problems with uncertainty using SMT. *Constraints An Int. J.*, 20(1):1–29, 2015.

[36] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Smt-based scenario verification for hybrid systems. *Formal Methods Syst. Des.*, 42(1):46–66, 2013.

[37] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Quantifier-free encoding of invariants for hybrid systems. *Formal Methods Syst. Des.*, 45(2):165–188, 2014.

[38] Alessandro Cimatti, Iman Narasamdya, and Marco Roveri. Software model checking with explicit scheduler and symbolic threads. *Logical Methods in Computer Science*, 8(2), 2012.

[39] Alessandro Cimatti, Iman Narasamdya, and Marco Roveri. Software model checking systemc. *IEEE Trans. on CAD of Integrated Circuits and Systems*, 32(5):774–787, 2013.

[40] Alessandro Cimatti, Marco Pistore, Marco Roveri, and Paolo Traverso. Weak, strong, and strong cyclic planning via symbolic model checking. *Artif. Intell.*, 147(1-2):35–84, 2003.

[41] Alessandro Cimatti and Marco Roveri. Conformant planning via symbolic model checking. *J. Artif. Intell. Res.*, 13:305–338, 2000.

[42] Alessandro Cimatti, Marco Roveri, and Piergiorgio Bertoli. Conformant planning via symbolic model checking and heuristic search. *Artif. Intell.*, 159(1-2):127–206, 2004.

[43] Alessandro Cimatti, Marco Roveri, Angelo Susi, and Stefano Tonetta. Formalizing requirements with object models and temporal constraints. *Software and Systems Modeling*, 10(2):147–160, 2011.

[44] Alessandro Cimatti, Marco Roveri, Angelo Susi, and Stefano Tonetta. Validation of requirements for hybrid systems: A formal approach. *ACM Trans. Softw. Eng. Methodol.*, 21(4):22:1–22:34, 2012.

[45] Alessandro Cimatti, Marco Roveri, and Stefano Tonetta. Symbolic compilation of PSL. *IEEE Trans. on CAD of Integrated Circuits and Systems*, 27(10):1737–1750, 2008.

[46] Alessandro Cimatti, Marco Roveri, and Stefano Tonetta. HRELTL: A temporal logic for hybrid systems. *Inf. Comput.*, 245:54–71, 2015.

[47] Alessandro Cimatti and Stefano Tonetta. Contracts-refinement proof system for component-based embedded systems. *Sci. Comput. Program.*, 97:333–348, 2015.

[48] Alessandro Cimatti and Paolo Traverso. Computational reflection via mechanized logical deduction. *Int. J. Intell. Syst.*, 11(5):279–293, 1996.

[49] Enrico Giunchiglia, Alessandro Armando, Paolo Traverso, and Alessandro Cimatti. Visual representation of natural language scene descriptions. *IEEE Trans. Syst. Man Cybern. Part B*, 26(4):575–589, 1996.

[50] Vicky Hartonas-Garmhausen, Sérgio Vale Aguiar Campos, Alessandro Cimatti, Edmund M. Clarke, and Fausto Giunchiglia. Verification of a safety-critical railway interlocking system with real-time constraints. *Sci. Comput. Program.*, 36(1):53–64, 2000.

[51] Paolo Traverso, Alessandro Cimatti, Luca Spalazzi, Alessandro Armando, and Enrico Giunchiglia. MRG: building planers for real-world complex applications. *Applied Artificial Intelligence*, 8(3):333–357, 1994.

Book Chapters

[52] Laura Baracchi, Alessandro Cimatti, Gerald Garcia, Silvia Mazzini, Stefano Puri, and Stefano Tonetta. Requirements refinement and component reuse: The forever contract-based approach. In *Handbook of Research on Embedded Systems Design*, pages 209–241. IGI Global, 2014.

[53] Armin Biere, Alessandro Cimatti, Edmund M. Clarke, Ofer Strichman, and Yunshan Zhu. Bounded model checking. *Adv. Comput.*, 58:117–148, 2003.

[54] Alessandro Cimatti, Silvio Ghilardi, and Silvio Ranise. Model checking: teoria ed applicazioni. In Hykel Hosni, Gabriele Lolli, and Carlo Toffalori, editors, *Le direzioni della ricerca logicain Italia*, volume 2 of *Analitica*, pages 141–193. Edizioni ETS, 2018.

[55] Alessandro Cimatti, Marco Pistore, and Paolo Traverso. Automated planning. In *Handbook of Knowledge Representation*, volume 3 of *Foundations of Artificial Intelligence*, pages 841–867. Elsevier, 2008.

[56] Alessandro Cimatti and Roberto Sebastiani. Building efficient decision procedures on top of SAT solvers. In *SFM*, volume 3965 of *Lecture Notes in Computer Science*, pages 144–175. Springer, 2006.

Conferences and Workshops

[57] Alessandro Abate, Alessandro Cimatti, Andrea Micheli, and Muhammad Syifa'ul Mufid. Computation of the transient in max-plus linear systems via smt-solving. In *FORMATS*, 2020.

[58] Erika Ábrahám, John Abbott, Bernd Becker, Anna Maria Bigatti, Martin Brain, Bruno Buchberger, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Alberto Griggio, Daniel Kroening, Werner M. Seiler, and Thomas Sturm. Sc^2: Satisfiability checking meets symbolic computation - (project paper). In *CICM*, volume 9791 of *Lecture Notes in Computer Science*, pages 28–43. Springer, 2016.

[59] Erika Ábrahám, John Abbott, Bernd Becker, Anna Maria Bigatti, Martin Brain, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Vijay Ganesh, Alberto Griggio, Daniel Kroening, and Werner M. Seiler. Sc-square: when satisfiability checking and symbolic computation join forces. In *ARCADE@CADE*, volume 51 of *EPiC Series in Computing*, pages 6–10. EasyChair, 2017.

[60] Elena Alaña, Hector Naranjo, Yuri Yushtein, Marco Bozzano, Alessandro Cimatti, Marco Gario, Regis De Ferluc, and Gerald Garcia. Automated generation of fdir for the compass integrated toolset (autogef). In *European Space Agency, (Special Publication) ESA SP-701, DASIA 2012 DAta Systems In Aerospace*, Dubrovnik, Croatia, 2012.

[61] Giuliano Antoniol, Bruno Caprile, Alessandro Cimatti, Roberto Fiutem, and Gianni Lazzari. Experiencing real-life interaction with the experimental platform of MAIA. In *Proceedings of the 1st European Workshop on Human Comfort and Security*, 1994. Held in conjunction with EITC'94.

[62] Alessandro Armando, Andrea Caiti, Giorgio Cannata, Giorgio Bartolini, Giuseppe Casalino, and Alessandro Cimatti. Modelling and Simulation of Complex Mechanical Systems. In *Proceedings of the IFAC symposium on Low Cost Automation*, Milano - Italy, November 1989.

[63] Alessandro Armando, Alessandro Cimatti, and Luca Viganò. Building and executing proof strategies in a formal metatheory. In *AI*IA*, volume 728 of *Lecture Notes in Computer Science*, pages 11–22. Springer, 1993.

[64] Gilles Audemard, Piergiorgio Bertoli, Alessandro Cimatti, Artur Kornilowicz, and Roberto Sebastiani. Integrating boolean and mathematical solving: Foundations, basic algorithms, and requirements. In *AISC*, volume 2385 of *Lecture Notes in Computer Science*, pages 231–245. Springer, 2002.

[65] Gilles Audemard, Piergiorgio Bertoli, Alessandro Cimatti, Artur Kornilowicz, and Roberto Sebastiani. A SAT based approach for solving formulas over boolean and linear mathematical propositions. In *CADE*, volume 2392 of *Lecture Notes in Computer Science*, pages 195–210. Springer, 2002.

[66] Gilles Audemard, Alessandro Cimatti, Artur Kornilowicz, and Roberto Sebastiani. Bounded model checking for timed systems. In *FORTE*, volume 2529 of *Lecture Notes in Computer Science*, pages 243–259. Springer, 2002.

[67] Anna Becchi, Alessandro Cimatti, and Enea Zaffanella. Synthesis of p-stable abstraction. In *SEFM*, Lecture Notes in Computer Science. Springer, 2020.

[68] Hani Beirami, Davide Calzá, Alessandro Cimatti, Manjurul Islam, Marco Roveri, and Piergiorgio Svaizer. A data-driven approach for rul prediction of an experimental filtration system. In *PHM Society European Conference*, 2020.

[69] Hani Beirami, Davide Calzá, Alessandro Cimatti, Manjurul Islam, Marco Roveri, and Piergiorgio Svaizer. Predicting rul of bearings in the pumps of a critical industrial air treatment system. In *PHM Society European Conference*, 2020.

[70] Marco Benedetti and Alessandro Cimatti. Bounded model checking for past LTL. In *TACAS*, volume 2619 of *Lecture Notes in Computer Science*, pages 18–33. Springer, 2003.

[71] Massimo Benerecetti and Alessandro Cimatti. Validation of multiagent systems by symbolic model checking. In *AOSE*, volume 2585 of *Lecture Notes in Computer Science*, pages 32–46. Springer, 2002.

[72] Massimo Benerecetti, Alessandro Cimatti, Enrico Giunchiglia, Fausto Giunchiglia, and Luciano Serafini. Formal specification of beliefs in multi-agent systems. In *ATAL*, volume 1193 of *Lecture Notes in Computer Science*, pages 117–130. Springer, 1996.

[73] Piergiorgio Bertoli, Marco Bozzano, and Alessandro Cimatti. A symbolic model checking framework for safety analysis, diagnosis, and synthesis. In *MoChArt*, volume 4428 of *Lecture Notes in Computer Science*, pages 1–18. Springer, 2006.

[74] Piergiorgio Bertoli and Alessandro Cimatti. Improving heuristics for planning as search in belief space. In *AIPS*, pages 143–152. AAAI, 2002.

[75] Piergiorgio Bertoli, Alessandro Cimatti, Fausto Giunchiglia, and Paolo Traverso. A structured approach to the formal certification of safety of computer aided development tools. In *SAFECOMP*, volume 1516 of *Lecture Notes in Computer Science*, pages 221–230. Springer, 1998.

[76] Piergiorgio Bertoli, Alessandro Cimatti, and Marco Pistore. Strong cyclic planning under partial observability. In *ECAI*, volume 141 of *Frontiers in Artificial Intelligence and Applications*, pages 580–584. IOS Press, 2006.

[77] Piergiorgio Bertoli, Alessandro Cimatti, and Marco Pistore. Towards strong cyclic planning under partial observability. In *ICAPS*, pages 354–357. AAAI, 2006.

[78] Piergiorgio Bertoli, Alessandro Cimatti, Marco Pistore, and Paolo Traverso. A framework for planning with extended goals under partial observability. In *ICAPS*, pages 215–225. AAAI, 2003.

[79] Piergiorgio Bertoli, Alessandro Cimatti, and Marco Roveri. Heuristic search + symbolic model checking = efficient conformant planning. In *IJCAI*, pages 467–472. Morgan Kaufmann, 2001.

[80] Piergiorgio Bertoli, Alessandro Cimatti, Marco Roveri, and Paolo Traverso. Planning in nondeterministic domains under partial observability via symbolic model checking. In *IJCAI*, pages 473–478. Morgan Kaufmann, 2001.

[81] Piergiorgio Bertoli, Alessandro Cimatti, John K. Slaney, and Sylvie Thiébaux. Solving power supply restoration problems with planning via symbolic model checking. In *ECAI*, pages 576–580. IOS Press, 2002.

[82] Piergiorgio Bertoli, Alessandro Cimatti, and Paolo Traverso. Interleaving execution and planning for nondeterministic, partially observable domains. In *ECAI*, pages 657–661. IOS Press, 2004.

[83] Dirk Beyer, Alessandro Cimatti, Alberto Griggio, M. Erkan Keremoglu, and Roberto Sebastiani. Software model checking via large-block encoding. In *FMCAD*, pages 25–32. IEEE, 2009.

[84] Armin Biere, Alessandro Cimatti, Edmund M. Clarke, Masahiro Fujita, and Yunshan Zhu. Symbolic model checking using SAT procedures instead of bdds. In *DAC*, pages 317–320. ACM Press, 1999.

[85] Armin Biere, Alessandro Cimatti, Edmund M. Clarke, and Yunshan Zhu. Symbolic model checking without bdds. In *TACAS*, volume 1579 of *Lecture Notes in Computer Science*, pages 193–207. Springer, 1999.

[86] Benjamin Bittner, Marco Bozzano, Roberto Cavada, Alessandro Cimatti, Marco Gario, Alberto Griggio, Cristian Mattarei, Andrea Micheli, and Gianni Zampedri. The xsap safety analysis platform. In *TACAS*, volume 9636 of *Lecture Notes in Computer Science*, pages 533–539. Springer, 2016.

[87] Benjamin Bittner, Marco Bozzano, and Alessandro Cimatti. Automated synthesis of timed failure propagation graphs. In *IJCAI*, pages 972–978. IJCAI/AAAI Press, 2016.

[88] Benjamin Bittner, Marco Bozzano, and Alessandro Cimatti. Timed failure propagation analysis for spacecraft engineering: The ESA solar orbiter case study. In *IMBSA*, volume 10437 of *Lecture Notes in Computer Science*, pages 255–271. Springer, 2017.

[89] Benjamin Bittner, Marco Bozzano, Alessandro Cimatti, Régis De Ferluc, Marco Gario, Andrea Guiotto, and Yuri Yushtein. An integrated process for FDIR design in aerospace. In *IMBSA*, volume 8822 of *Lecture Notes in Computer Science*, pages 82–95. Springer, 2014.

[90] Benjamin Bittner, Marco Bozzano, Alessandro Cimatti, Marco Gario, and Alberto Griggio. Towards pareto-optimal parameter synthesis for monotonic cost functions. In *FMCAD*, pages 23–30. IEEE, 2014.

[91] Benjamin Bittner, Marco Bozzano, Alessandro Cimatti, and Xavier Olive. Symbolic synthesis of observability requirements for diagnosability. In *AAAI*. AAAI Press, 2012.

[92] Benjamin Bittner, Marco Bozzano, Alessandro Cimatti, and Gianni Zampedri. Automated verification and tightening of failure propagation models. In *AAAI*, pages 907–913. AAAI Press, 2016.

[93] Simon Bliudze, Alessandro Cimatti, Mohamad Jaber, Sergio Mover, Marco Roveri, Wajeb Saab, and Qiang Wang. Formal verification of infinite-state BIP models. In *ATVA*, volume 9364 of *Lecture Notes in Computer Science*, pages 326–343. Springer, 2015.

[94] Roderick Bloem, Alessandro Cimatti, Karin Greimel, Georg Hofferek, Robert Könighofer, Marco Roveri, Viktor Schuppan, and Richard Seeber. RATSY - A new requirements analysis tool with synthesis. In *CAV*, volume 6174 of *Lecture Notes in Computer Science*, pages 425–429. Springer, 2010.

[95] Roderick Bloem, Alessandro Cimatti, Ingo Pill, Marco Roveri, and Simone Semprini. Symbolic implementation of alternating automata. In *CIAA*, volume 4094 of *Lecture Notes in Computer Science*, pages 208–218. Springer, 2006.

[96] M. Bozzano, A. Villafiorita, O. Åkerlund, P. Bieber, C. Bougnol, E. Böde, M. Bretschneider, A. Cavallo, C. Castel, M. Cifaldi, A. Cimatti, A. Griffault, C. Kehren, B. Lawrence, A. Lüdtke, S. Metge, C. Papadopoulos, R. Passarello, T. Peikenkamp, P. Persson, C. Seguin, L. Trotta, L. Valacca, and G. Zacco. ESACS: An Integrated Methodology for Design and Safety Analysis of Complex Systems. In *Proceedings of the European Safety and Reliability Conference (ESREL'03)*, Maastricht, The Netherlands, June 2003.

[97] Marco Bozzano, Harold Bruintjes, Alessandro Cimatti, Joost-Pieter Katoen, Thomas Noll, and Stefano Tonetta. COMPASS 3.0. In *TACAS (1)*, volume 11427 of *Lecture Notes in Computer Science*, pages 379–385. Springer, 2019.

[98] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Tommi A. Junttila, Silvio Ranise, Peter van Rossum, and Roberto Sebastiani. Efficient satisfiability modulo theories via delayed theory combination. In *CAV*, volume 3576 of *Lecture Notes in Computer Science*, pages 335–349. Springer, 2005.

[99] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Tommi A. Junttila, Peter van Rossum, Stephan Schulz, and Roberto Sebastiani. An incremental and layered procedure for the satisfiability of linear arithmetic logic. In *TACAS*, volume 3440 of *Lecture Notes in Computer Science*, pages 317–333. Springer, 2005.

[100] Marco Bozzano, Roberto Bruttomesso, Alessandro Cimatti, Tommi A. Junttila, Peter van Rossum, Stephan Schulz, and Roberto Sebastiani. The mathsat 3 system. In *CADE*, volume 3632 of *Lecture Notes in Computer Science*, pages 315–321. Springer, 2005.

[101] Marco Bozzano, Alessandro Cimatti, Marco Gario, and Andrea Micheli. Smt-based validation of timed failure propagation graphs. In *AAAI*, pages 3724–3730. AAAI Press, 2015.

[102] Marco Bozzano, Alessandro Cimatti, Marco Gario, and Stefano Tonetta. A formal framework for the specification, verification and synthesis of diagnosers. In *AAAI (Late-Breaking Developments)*, volume WS-13-17 of *AAAI Workshops*. AAAI, 2013.

[103] Marco Bozzano, Alessandro Cimatti, Marco Gario, and Stefano Tonetta. Formal design of fault detection and identification components using temporal epistemic logic. In *TACAS*, volume 8413 of *Lecture Notes in Computer Science*, pages 326–340. Springer, 2014.

[104] Marco Bozzano, Alessandro Cimatti, Alberto Griggio, and Cristian Mattarei. Efficient anytime techniques for model-based safety analysis. In *CAV (1)*, volume 9206 of *Lecture Notes in Computer Science*, pages 603–621. Springer, 2015.

[105] Marco Bozzano, Alessandro Cimatti, Andrea Guiotto, Andrea Martelli, Marco Roveri, Anrey Tchaltsev, and Yuri Yushtein. On-Board Autonomy via Symbolic Model Based Reasoning. In *10th ESA Workshop on Advanced Space Technologies for Robotics and Automation (ASTRA'2008)*, ESA/ESTEC, Noordwijk, The Netherlands, Nov 2008. ESA.

[106] Marco Bozzano, Alessandro Cimatti, Joost-Pieter Katoen, Viet Yen Nguyen, Thomas Noll, and Marco Roveri. The COMPASS approach: Correctness, modelling and performability of aerospace systems. In *SAFECOMP*, volume 5775 of *Lecture Notes in Computer Science*, pages 173–186. Springer, 2009.

[107] Marco Bozzano, Alessandro Cimatti, Joost-Pieter Katoen, Viet Yen Nguyen, Thomas Noll, and Marco Roveri. Model-based codesign of critical embedded systems. In *CEUR Workshop Proceedings*, volume 507, pages 87–91, 2009.

[108] Marco Bozzano, Alessandro Cimatti, Joost-Pieter Katoen, Viet Yen Nguyen, Thomas Noll, Marco Roveri, and Ralf Wimmer. A model checker for AADL. In *CAV*, volume 6174 of *Lecture Notes in Computer Science*, pages 562–565. Springer, 2010.

[109] Marco Bozzano, Alessandro Cimatti, and Cristian Mattarei. Automated analysis of reliability architectures. In *ICECCS*, pages 198–207. IEEE Computer Society, 2013.

[110] Marco Bozzano, Alessandro Cimatti, and Cristian Mattarei. Efficient analysis of reliability architectures via predicate abstraction. In *Haifa Verification Conference*, volume 8244 of *Lecture Notes in Computer Science*, pages 279–294. Springer, 2013.

[111] Marco Bozzano, Alessandro Cimatti, Cristian Mattarei, and Stefano Tonetta. Formal safety assessment via contract-based design. In *ATVA*, volume 8837 of *Lecture Notes in Computer Science*, pages 81–97. Springer, 2014.

[112] Marco Bozzano, Alessandro Cimatti, Anthony Fernandes Pires, D. Jones, Greg Kimberly, T. Petri, R. Robinson, and Stefano Tonetta. Formal design and safety analysis of AIR6110 wheel brake system. In *CAV (1)*, volume 9206 of *Lecture Notes in Computer Science*, pages 518–535. Springer, 2015.

[113] Marco Bozzano, Alessandro Cimatti, Marco Roveri, Joost-Pieter Katoen, Viet Yen Nguyen, and Thomas Noll. Codesign of dependable systems: A component-based modeling language. In *MEMOCODE*, pages 121–130. IEEE, 2009.

[114] Marco Bozzano, Alessandro Cimatti, Marco Roveri, Joost-Pieter Katoen, Viet Yen Nguyen, and Thomas Noll. Verification and performance evaluation of aadl models. In *ESEC/SIGSOFT FSE*, pages 285–286. ACM, 2009.

[115] Marco Bozzano, Alessandro Cimatti, Marco Roveri, and Andrei Tchaltsev. A comprehensive approach to on-board autonomy verification and validation. In *IJCAI*, pages 2398–2403. IJCAI/AAAI, 2011.

[116] Marco Bozzano, Alessandro Cimatti, and Francesco Tapparo. Symbolic fault tree analysis for reactive systems. In *ATVA*, volume 4762 of *Lecture Notes in Computer Science*, pages 162–176. Springer, 2007.

[117] Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Alberto Griggio, Ziyad Hanna, Alexander Nadel, Amit Palti, and Roberto Sebastiani. A lazy and layered smt($\mathcal{BV}$) solver for hard industrial verification problems. In *CAV*, volume 4590 of *Lecture Notes in Computer Science*, pages 547–560. Springer, 2007.

[118] Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Alberto Griggio, Alessandro Santuari, and Roberto Sebastiani. To ackermann-ize or not to ackermann-ize? on efficiently handling uninterpreted function symbols in *SMT*(*EUF* è*T*). In *LPAR*, volume 4246 of *Lecture Notes in Computer Science*, pages 557–571. Springer, 2006.

[119] Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Alberto Griggio, and Roberto Sebastiani. Delayed theory combination vs. nelson-oppen for satisfiability modulo theories: A comparative analysis. In *LPAR*, volume 4246 of *Lecture Notes in Computer Science*, pages 527–541. Springer, 2006.

[120] Roberto Bruttomesso, Alessandro Cimatti, Anders Franzén, Alberto Griggio, and Roberto Sebastiani. The mathsat 4smt solver. In *CAV*, volume 5123 of *Lecture Notes in Computer Science*, pages 299–303. Springer, 2008.

[121] Lei Bu, Alessandro Cimatti, Xuandong Li, Sergio Mover, and Stefano Tonetta. Model checking of hybrid systems using shallow synchronization. In *FMOODS/FORTE*, volume 6117 of *Lecture Notes in Computer Science*, pages 155–169. Springer, 2010.

[122] Daniele Campana, Alessandro Cimatti, Iman Narasamdya, and Marco Roveri. An analytic evaluation of systemc encodings in promela. In *SPIN*, volume 6823 of *Lecture Notes in Computer Science*, pages 90–107. Springer, 2011.

[123] Michael Cashmore, Alessandro Cimatti, Daniele Magazzeni, Andrea Micheli, and Parisa Zehtabi. Robustness envelopes for temporal plans. In *AAAI*, pages 7538–7545. AAAI Press, 2019.

[124] Roberto Cavada, Alessandro Cimatti, Luigi Crema, Mattia Roccabruna, and Stefano Tonetta. Model-based design of an energy-system embedded controller using taste. In *FM*, volume 9995 of *Lecture Notes in Computer Science*, pages 741–747, 2016.

[125] Roberto Cavada, Alessandro Cimatti, Michele Dorigatti, Alberto Griggio, Alessandro Mariotti, Andrea Micheli, Sergio Mover, Marco Roveri, and Stefano Tonetta. The nuxmv symbolic model checker. In *CAV*, volume 8559 of *Lecture Notes in Computer Science*, pages 334–342. Springer, 2014.

[126] Roberto Cavada, Alessandro Cimatti, Anders Franzén, Krishnamani Kalyanasundaram, Marco Roveri, and R. K. Shyamasundar. Computing predicate abstractions by integrating bdds and SMT solvers. In *FMCAD*, pages 69–76. IEEE Computer Society, 2007.

[127] Roberto Cavada, Alessandro Cimatti, Alessandro Mariotti, Cristian Mattarei, Andrea Micheli, Sergio Mover, Marco Pensallorto, Marco Roveri, Angelo Susi, and Stefano Tonetta. Supporting requirements validation: The eurailcheck tool. In *ASE*, pages 665–667. IEEE Computer Society, 2009.

[128] Roberto Cavada, Alessandro Cimatti, Andrea Micheli, Marco Roveri, Angelo Susi, and Stefano Tonetta. Othelloplay: a plug-in based tool for requirement formalization and validation. In *TOPI@ICSE*, page 59. ACM, 2011.

[129] Roberto Cavada, Alessandro Cimatti, Sergio Mover, Mirko Sessa, Giuseppe Cadavero, and Giuseppe Scaglione. Analysis of relay interlocking systems via smt-based model checking of switched multi-domain kirchhoff networks. In *FMCAD*, pages 1–9. IEEE, 2018.

[130] Angelo Chiappini, Alessandro Cimatti, Luca Macchi, Oscar Rebollo, Marco Roveri, Angelo Susi, Stefano Tonetta, and Berardino Vittorini. Formalization and validation of a subset of the european train control system. In *ICSE (2)*, pages 109–118. ACM, 2010.

[131] Angelo Chiappini, Alessandro Cimatti, Carmen Porzia, G. Rotondo, Roberto Sebastiani, Paolo Traverso, and Adolfo Villafiorita. Formal specification and development of a safety-critical train management system. In *SAFECOMP*, volume 1698 of *Lecture Notes in Computer Science*, pages 410–419. Springer, 1999.

[132] Alessandro Cimatti. Industrial applications of model checking. In *MOVEP*, volume 2067 of *Lecture Notes in Computer Science*, pages 153–168. Springer, 2000.

[133] Alessandro Cimatti. Beyond Boolean SAT: Satisfiability Modulo Theories. In *Discrete Event Systems, 2008. 9th International Workshop on (WODES'08)*, pages 68–73, Goteborg, Sweden, May 2008. IEEE Press.

[134] Alessandro Cimatti. Smt-based software model checking. In *SPIN*, volume 6349 of *Lecture Notes in Computer Science*, pages 1–3. Springer, 2010.

[135] Alessandro Cimatti. Application of SMT solvers to hybrid system verification. In *FMCAD*, page 4. IEEE, 2012.

[136] Alessandro Cimatti. Smt-based software model checking - explicit scheduler, symbolic threads. In *ATVA*, volume 8172 of *Lecture Notes in Computer Science*, page 23. Springer, 2013.

[137] Alessandro Cimatti, Edmund M. Clarke, Enrico Giunchiglia, Fausto Giunchiglia, Marco Pistore, Marco Roveri, Roberto Sebastiani, and Armando Tacchella. Nusmv 2: An opensource tool for symbolic model checking. In *CAV*, volume 2404 of *Lecture Notes in Computer Science*, pages 359–364. Springer, 2002.

[138] Alessandro Cimatti, Edmund M. Clarke, Fausto Giunchiglia, and Marco Roveri. NUSMV: A new symbolic model verifier. In *CAV*, volume 1633 of *Lecture Notes in Computer Science*, pages 495–499. Springer, 1999.

[139] Alessandro Cimatti, Raffaele Corvino, Armando Lazzaro, Iman Narasamdya, Tiziana Rizzo, Marco Roveri, Angela Sanseviero, and Andrei Tchaltsev. Formal verification and validation of ERTMS industrial railway train spacing system. In *CAV*, volume 7358 of *Lecture Notes in Computer Science*, pages 378–393. Springer, 2012.

[140] Alessandro Cimatti, Rance DeLong, Davide Marcantonio, and Stefano Tonetta. Combining MILS with contract-based design for safety and security requirements. In *SAFECOMP Workshops*, volume 9338 of *Lecture Notes in Computer Science*, pages 264–276. Springer, 2015.

[141] Alessandro Cimatti, Rance DeLong, Ivan Stojic, and Stefano Tonetta. Towards adaptive MILS system: Model- based design, verification and run-time adaptation: Slides. In *MILS@DSN*. Zenodo, 2018.

[142] Alessandro Cimatti, Rance DeLong, Ivan Stojic, and Stefano Tonetta. Model-based run-time synthesis of architectural configurations for adaptive MILS systems. In *SAFECOMP*, volume 11698 of *Lecture Notes in Computer Science*, pages 200–215. Springer, 2019.

[143] Alessandro Cimatti, Ramiro Demasi, and Stefano Tonetta. Tightening a contract refinement. In *SEFM*, volume 9763 of *Lecture Notes in Computer Science*, pages 386–402. Springer, 2016.

[144] Alessandro Cimatti, Michele Dorigatti, and Stefano Tonetta. OCRA: A tool for checking the refinement of temporal contracts. In *ASE*, pages 702–705. IEEE, 2013.

[145] Alessandro Cimatti, Jori Dubrovin, Tommi A. Junttila, and Marco Roveri. Structure-aware computation of predicate abstraction. In *FMCAD*, pages 9–16. IEEE, 2009.

[146] Alessandro Cimatti, Anders Franzén, Alberto Griggio, Krishnamani Kalyanasundaram, and Marco Roveri. Tighter integration of bdds and SMT for predicate abstraction. In *DATE*, pages 1707–1712. IEEE Computer Society, 2010.

[147] Alessandro Cimatti, Anders Franzén, Alberto Griggio, Roberto Sebastiani, and Cristian Stenico. Satisfiability modulo the theory of costs: Foundations and applications. In *TACAS*, volume 6015 of *Lecture Notes in Computer Science*, pages 99–113. Springer, 2010.

[148] Alessandro Cimatti, Marco Gario, and Stefano Tonetta. A lazy approach to temporal epistemic logic model checking. In *AAMAS*, pages 1218–1226. ACM, 2016.

[149] Alessandro Cimatti, Luca Geatti, Nicola Gigante, Angelo Montanari, and Stefano Tonetta. Reactive synthesis from extended bounded response ltl specifications. In *FMCAD*, 2020.

[150] Alessandro Cimatti, Luca Geatti, Alberto Griggio, Greg Kimberly, and Stefano Tonetta. Safe decomposition of startup requirements: Verification and synthesis. In *TACAS (1)*, volume 12078 of *Lecture Notes in Computer Science*, pages 155–172. Springer, 2020.

[151] Alessandro Cimatti, Enrico Giunchiglia, Marco Pistore, Marco Roveri, Roberto Sebastiani, and Armando Tacchella. Integrating bdd-based and sat-based symbolic model checking. In *FroCoS*, volume 2309 of *Lecture Notes in Computer Science*, pages 49–56. Springer, 2002.

[152] Alessandro Cimatti, Fausto Giunchiglia, Enrico Giunchiglia, and Paolo Traverso. Planning via model checking: A decision procedure for *AR*. In *ECP*, volume 1348 of *Lecture Notes in Computer Science*, pages 130–142. Springer, 1997.

[153] Alessandro Cimatti, Fausto Giunchiglia, Giorgio Mongardi, Dario Romano, Fernando Torielli, and Paolo Traverso. Model checking safety critical software with SPIN: an application to a railway interlocking system. In *SAFECOMP*, volume 1516 of *Lecture Notes in Computer Science*, pages 284–295. Springer, 1998.

[154] Alessandro Cimatti, Fausto Giunchiglia, Paolo Pecchiari, Bruno Pietra, Joe Profeta, Dario Romano, Paolo Traverso, and Bing Yu. A provably correct embedded verifier for the certification of safety critical software. In *CAV*, volume 1254 of *Lecture Notes in Computer Science*, pages 202–213. Springer, 1997.

[155] Alessandro Cimatti and Alberto Griggio. Software model checking via IC3. In *CAV*, volume 7358 of *Lecture Notes in Computer Science*, pages 277–293. Springer, 2012.

[156] Alessandro Cimatti, Alberto Griggio, Ahmed Irfan, Marco Roveri, and Roberto Sebastiani. Invariant checking of NRA transition systems via incremental reduction to LRA with EUF. In *TACAS (1)*, volume 10205 of *Lecture Notes in Computer Science*, pages 58–75, 2017.

[157] Alessandro Cimatti, Alberto Griggio, Ahmed Irfan, Marco Roveri, and Roberto Sebastiani. Satisfiability modulo transcendental functions via incremental linearization. In *CADE*, volume 10395 of *Lecture Notes in Computer Science*, pages 95–113. Springer, 2017.

[158] Alessandro Cimatti, Alberto Griggio, Ahmed Irfan, Marco Roveri, and Roberto Sebastiani. Experimenting on solving nonlinear integer arithmetic with incremental linearization. In *SAT*, volume 10929 of *Lecture Notes in Computer Science*, pages 383–398. Springer, 2018.

[159] Alessandro Cimatti, Alberto Griggio, Ahmed Irfan, Marco Roveri, and Roberto Sebastiani. Incremental linearization: A practical approach to satisfiability modulo nonlinear arithmetic and transcendental functions. In *SYNASC*, pages 19–26. IEEE, 2018.

[160] Alessandro Cimatti, Alberto Griggio, Enrico Magnago, Marco Roveri, and Stefano Tonetta. Extending nuxmv with timed transition systems and timed temporal properties. In *CAV (1)*, volume 11561 of *Lecture Notes in Computer Science*, pages 376–386. Springer, 2019.

[161] Alessandro Cimatti, Alberto Griggio, Andrea Micheli, Iman Narasamdya, and Marco Roveri. Kratos - A software model checker for systemc. In *CAV*, volume 6806 of *Lecture Notes in Computer Science*, pages 310–316. Springer, 2011.

[162] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. Parameter synthesis with IC3. In *FMCAD*, pages 165–168. IEEE, 2013.

[163] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. IC3 modulo theories via implicit predicate abstraction. In *TACAS*, volume 8413 of *Lecture Notes in Computer Science*, pages 46–61. Springer, 2014.

[164] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. Verifying LTL properties of hybrid systems with k-liveness. In *CAV*, volume 8559 of *Lecture Notes in Computer Science*, pages 424–440. Springer, 2014.

[165] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. Hycomp: An smt-based model checker for hybrid systems. In *TACAS*, volume 9035 of *Lecture Notes in Computer Science*, pages 52–67. Springer, 2015.

[166] Alessandro Cimatti, Alberto Griggio, Sergio Mover, and Stefano Tonetta. Parameter synthesis with IC3 (informal presentation). In *SynCoP*, volume 44 of *OASICS*, pages 106–107. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2015.

[167] Alessandro Cimatti, Alberto Griggio, Bastiaan Joost Schaafsma, and Roberto Sebastiani. The mathsat5 SMT solver. In *TACAS*, volume 7795 of *Lecture Notes in Computer Science*, pages 93–107. Springer, 2013.

[168] Alessandro Cimatti, Alberto Griggio, Bastiaan Joost Schaafsma, and Roberto Sebastiani. A modular approach to maxsat modulo theories. In *SAT*, volume 7962 of *Lecture Notes in Computer Science*, pages 150–165. Springer, 2013.

[169] Alessandro Cimatti, Alberto Griggio, and Roberto Sebastiani. A simple and flexible way of computing small unsatisfiable cores in SAT modulo theories. In *SAT*, volume 4501 of *Lecture Notes in Computer Science*, pages 334–339. Springer, 2007.

[170] Alessandro Cimatti, Alberto Griggio, and Roberto Sebastiani. Efficient interpolant generation in satisfiability modulo theories. In *TACAS*, volume 4963 of *Lecture Notes in Computer Science*, pages 397–412. Springer, 2008.

[171] Alessandro Cimatti, Alberto Griggio, and Roberto Sebastiani. Interpolant generation for UTVPI. In *CADE*, volume 5663 of *Lecture Notes in Computer Science*, pages 167–182. Springer, 2009.

[172] Alessandro Cimatti, Luke Hunsberger, Andrea Micheli, Roberto Posenato, and Marco Roveri. Sound and complete algorithms for checking the dynamic controllability of temporal networks with uncertainty, disjunction and observation. In *TIME*, pages 27–36. IEEE Computer Society, 2014.

[173] Alessandro Cimatti, Luke Hunsberger, Andrea Micheli, and Marco Roveri. Using timed game automata to synthesize execution strategies for simple temporal networks with uncertainty. In *AAAI*, pages 2242–2249. AAAI Press, 2014.

[174] Alessandro Cimatti, Andrea Micheli, Iman Narasamdya, and Marco Roveri. Verifying systemc: A software model checking approach. In *FMCAD*, pages 51–59. IEEE, 2010.

[175] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Solving temporal problems using SMT: strong controllability. In *CP*, volume 7514 of *Lecture Notes in Computer Science*, pages 248–264. Springer, 2012.

[176] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Solving temporal problems using SMT: weak controllability. In *AAAI*. AAAI Press, 2012.

[177] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Timelines with temporal uncertainty. In *AAAI*. AAAI Press, 2013.

[178] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Strong temporal planning with uncontrollable durations: A state-space approach. In *AAAI*, pages 3254–3260. AAAI Press, 2015.

[179] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Dynamic controllability of disjunctive temporal networks: Validation and synthesis of executable strategies. In *AAAI*, pages 3116–3122. AAAI Press, 2016.

[180] Alessandro Cimatti, Andrea Micheli, and Marco Roveri. Validating domains and plans for temporal planning via encoding into infinite-state linear temporal logic. In *AAAI*, pages 3547–3554. AAAI Press, 2017.

[181] Alessandro Cimatti, Sergio Mover, Marco Roveri, and Stefano Tonetta. From sequential extended regular expressions to NFA with symbolic labels. In *CIAA*, volume 6482 of *Lecture Notes in Computer Science*, pages 87–94. Springer, 2010.

[182] Alessandro Cimatti, Sergio Mover, and Mirko Sessa. From electrical switched networks to hybrid automata. In *FM*, volume 9995 of *Lecture Notes in Computer Science*, pages 164–181, 2016.

[183] Alessandro Cimatti, Sergio Mover, and Mirko Sessa. Smt-based analysis of switching multi-domain linear kirchhoff networks. In *FMCAD*, pages 188–195. IEEE, 2017.

[184] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Efficient scenario verification for hybrid automata. In *CAV*, volume 6806 of *Lecture Notes in Computer Science*, pages 317–332. Springer, 2011.

[185] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Hydi: A language for symbolic hybrid systems with discrete interaction. In *EUROMICRO-SEAA*, pages 275–278. IEEE Computer Society, 2011.

[186] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Proving and explaining the unfeasibility of message sequence charts for hybrid systems. In *FMCAD*, pages 54–62. FMCAD Inc., 2011.

[187] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. A quantifier-free SMT encoding of non-linear hybrid automata. In *FMCAD*, pages 187–195. IEEE, 2012.

[188] Alessandro Cimatti, Sergio Mover, and Stefano Tonetta. Smt-based verification of hybrid systems. In *AAAI*. AAAI Press, 2012.

[189] Alessandro Cimatti, Iman Narasamdya, and Marco Roveri. Boosting lazy abstraction for systemc with partial order reduction. In *TACAS*, volume 6605 of *Lecture Notes in Computer Science*, pages 341–356. Springer, 2011.

[190] Alessandro Cimatti, Iman Narasamdya, and Marco Roveri. Verification of parametric system designs. In *FMCAD*, pages 122–130. IEEE, 2012.

[191] Alessandro Cimatti, Luigi Palopoli, and Yusi Ramadian. Symbolic computation of schedulability regions using parametric timed automata. In *RTSS*, pages 80–89. IEEE Computer Society, 2008.

[192] Alessandro Cimatti, Charles Pecheur, and Roberto Cavada. Formal verification of diagnosability via symbolic model checking. In *IJCAI*, pages 363–369. Morgan Kaufmann, 2003.

[193] Alessandro Cimatti, P. L. Pieraccini, Roberto Sebastiani, Paolo Traverso, and Adolfo Villafiorita. Formal specification and validation of a vital communication protocol. In *World Congress on Formal Methods*, volume 1709 of *Lecture Notes in Computer Science*, pages 1584–1604. Springer, 1999.

[194] Alessandro Cimatti, Marco Pistore, Marco Roveri, and Roberto Sebastiani. Improving the encoding of LTL model checking into SAT. In *VMCAI*, volume 2294 of *Lecture Notes in Computer Science*, pages 196–207. Springer, 2002.

[195] Alessandro Cimatti and Marco Roveri. Conformant planning via model checking. In *ECP*, volume 1809 of *Lecture Notes in Computer Science*, pages 21–34. Springer, 1999.

[196] Alessandro Cimatti, Marco Roveri, and Piergiorgio Bertoli. Searching powerset automata by combining explicit-state and symbolic model checking. In *TACAS*, volume 2031 of *Lecture Notes in Computer Science*, pages 313–327. Springer, 2001.

[197] Alessandro Cimatti, Marco Roveri, Viktor Schuppan, and Andrei Tchaltsev. Diagnostic information for realizability. In *VMCAI*, volume 4905 of *Lecture Notes in Computer Science*, pages 52–67. Springer, 2008.

[198] Alessandro Cimatti, Marco Roveri, Viktor Schuppan, and Stefano Tonetta. Boolean abstraction for temporal logic satisfiability. In *CAV*, volume 4590 of *Lecture Notes in Computer Science*, pages 532–546. Springer, 2007.

[199] Alessandro Cimatti, Marco Roveri, Simone Semprini, and Stefano Tonetta. From PSL to NBA: a modular symbolic encoding. In *FMCAD*, pages 125–133. IEEE Computer Society, 2006.

[200] Alessandro Cimatti, Marco Roveri, and Daniel Sheridan. Bounded verification of past LTL. In *FMCAD*, volume 3312 of *Lecture Notes in Computer Science*, pages 245–259. Springer, 2004.

[201] Alessandro Cimatti, Marco Roveri, Angelo Susi, and Stefano Tonetta. From informal requirements to property-driven formal validation. In *FMICS*, volume 5596 of *Lecture Notes in Computer Science*, pages 166–181. Springer, 2008.

[202] Alessandro Cimatti, Marco Roveri, Angelo Susi, and Stefano Tonetta. Object models with temporal constraints. In *SEFM*, pages 249–258. IEEE Computer Society, 2008.

[203] Alessandro Cimatti, Marco Roveri, and Stefano Tonetta. Syntactic optimizations for PSL verification. In *TACAS*, volume 4424 of *Lecture Notes in Computer Science*, pages 505–518. Springer, 2007.

[204] Alessandro Cimatti, Marco Roveri, and Stefano Tonetta. Requirements validation for hybrid systems. In *CAV*, volume 5643 of *Lecture Notes in Computer Science*, pages 188–203. Springer, 2009.

[205] Alessandro Cimatti, Marco Roveri, and Paolo Traverso. Automatic obdd-based generation of universal plans in non-deterministic domains. In *AAAI/IAAI*, pages 875–881. AAAI Press / The MIT Press, 1998.

[206] Alessandro Cimatti, Marco Roveri, and Paolo Traverso. Strong planning in non-deterministic domains via model checking. In *AIPS*, pages 36–43. AAAI, 1998.

[207] Alessandro Cimatti and Luciano Serafini. Multi-agent reasoning with belief contexts: The approach and a case study. In *ECAI Workshop on Agent Theories, Architectures, and Languages*, volume 890 of *Lecture Notes in Computer Science*, pages 71–85. Springer, 1994.

[208] Alessandro Cimatti and Luciano Serafini. Multiagent reasoning with belief contexts II: elaboration tolerance. In *ICMAS*, pages 57–64. The MIT Press, 1995.

[209] Alessandro Cimatti and Luciano Serafini. Mechanizing multi-agent reasoning with belief contexts. In *FAPR*, volume 1085 of *Lecture Notes in Computer Science*, pages 694–696. Springer, 1996.

[210] Alessandro Cimatti, Ivan Stojic, and Stefano Tonetta. Formal specification and verification of dynamic parametrized architectures. In *FM*, volume 10951 of *Lecture Notes in Computer Science*, pages 625–644. Springer, 2018.

[211] Alessandro Cimatti, Chun Tian, and Stefano Tonetta. Assumption-based runtime verification with partial observability and resets. In *RV*, volume 11757 of *Lecture Notes in Computer Science*, pages 165–184. Springer, 2019.

[212] Alessandro Cimatti, Chun Tian, and Stefano Tonetta. Nurv: A nuxmv extension for runtime verification. In *RV*, volume 11757 of *Lecture Notes in Computer Science*, pages 382–392. Springer, 2019.

[213] Alessandro Cimatti and Stefano Tonetta. A property-based proof system for contract-based design. In *EUROMICRO-SEAA*, pages 21–28. IEEE Computer Society, 2012.

[214] Jakub Daniel, Alessandro Cimatti, Alberto Griggio, Stefano Tonetta, and Sergio Mover. Infinite-state liveness-to-safety via implicit abstraction and well-founded relations. In *CAV (1)*, volume 9779 of *Lecture Notes in Computer Science*, pages 271–291. Springer, 2016.

[215] Anders Franzén, Alessandro Cimatti, Alexander Nadel, Roberto Sebastiani, and Jonathan Shalev. Applying SMT in symbolic execution of microcode. In *FMCAD*, pages 121–128. IEEE, 2010.

[216] Goran Frehse, Alessandro Abate, Dieky Adzkiya, Anna Becchi, Lei Bu, Alessandro Cimatti, Mirco Giacobbe, Alberto Griggio, Sergio Mover, Muhammad Syifa'ul Mufid, Idriss Riouak, Stefano Tonetta, and Enea Zaffanella. ARCH-COMP19 category report: Hybrid systems with piecewise constant dynamics. In *ARCH@CPSIoTWeek*, volume 61 of *EPiC Series in Computing*, pages 1–13. EasyChair, 2019.

[217] Marco Gario, Alessandro Cimatti, Cristian Mattarei, Stefano Tonetta, and Kristin Yvonne Rozier. Model checking at scale: Automated air traffic control design space exploration. In *CAV (2)*, volume 9780 of *Lecture Notes in Computer Science*, pages 3–22. Springer, 2016.

[218] Fausto Giunchiglia and Alessandro Cimatti. Introspective metatheoretic reasoning. In *META*, volume 883 of *Lecture Notes in Computer Science*, pages 425–439. Springer, 1994.

[219] Andrea Guiotto, Regis De Ferluc, Marco Bozzano, Alessandro Cimatti, Marco Gario, and Yuri Yushtein. Fame process: A dedicated development and v&v process for fdir. In *European Space Agency, (Special Publication) ESA SP-725*, Warsaw, Poland, 2014.

[220] Vicky Hartonas-Garmhausen, Sérgio Vale Aguiar Campos, Alessandro Cimatti, Edmund M. Clarke, and Fausto Giunchiglia. Verification of a safety-critical railway interlocking system with real-time constraints. In *FTCS*, pages 458–463. IEEE Computer Society, 1998.

[221] Ahmed Irfan, Alessandro Cimatti, Alberto Griggio, Marco Roveri, and Roberto Sebastiani. Verilog2smv: A tool for word-level verification. In *DATE*, pages 1156–1159. IEEE, 2016.

[222] Thi Thieu Hoa Le, Luigi Palopoli, Roberto Passerone, Yusi Ramadian, and Alessandro Cimatti. Parametric analysis of distributed firm real-time systems: A case study. In *ETFA*, pages 1–8. IEEE, 2010.

[223] Cristian Mattarei, Alessandro Cimatti, Marco Gario, Stefano Tonetta, and Kristin Y. Rozier. Comparing different functional allocations in automated air traffic control design. In *FMCAD*, pages 112–119. IEEE, 2015.

[224] Silvia Mazzini, Laura Baracchi, Gerald Garcia, Alessandro Cimatti, and Stefano Tonetta. The forever methodology: a mbse framework for formal verification. In *13th International Space System Engineering Conference*. DASIA, 2013.

[225] Sergey Mechtaev, Alberto Griggio, Alessandro Cimatti, and Abhik Roychoudhury. Symbolic execution with existential second-order constraints. In *ESEC/SIGSOFT FSE*, pages 389–399. ACM, 2018.

[226] Sergio Mover, Alessandro Cimatti, Ashish Tiwari, and Stefano Tonetta. Time-aware relational abstractions for hybrid systems. In *EMSOFT*, pages 14:1–14:10. IEEE, 2013.

[227] Ingo Pill, Simone Semprini, Roberto Cavada, Marco Roveri, Roderick Bloem, and Alessandro Cimatti. Formal analysis of hardware requirements. In *DAC*, pages 821–826. ACM, 2006.

[228] Zvonimir Rakamaric, Roberto Bruttomesso, Alan J. Hu, and Alessandro Cimatti. Verifying heap-manipulating programs in an SMT framework. In *ATVA*, volume 4762 of *Lecture Notes in Computer Science*, pages 237–252. Springer, 2007.

[229] Floris Roelofsen, Luciano Serafini, and Alessandro Cimatti. Many hands make light work: Localized satisfiability for multi-context systems. In *ECAI*, pages 58–62. IOS Press, 2004.

[230] Robin Steel, Alexander Hoffman, Alessandro Cimatti, Marco Roveri, Konstantinos Kapellos, Alessandro Donati, and Nicola Policella. Innovative rover operations concepts–autonomous planning: Keeping a dog on the lead. In *International Workshop on Planning and Scheduling for Space, IWPSS 2011*, 2011.

[231] Robin Steel, Alexander Hoffman, Marc Niézette, Alessandro Cimatti, Marco Roveri, Konstantinos Kapellos, Alessandro Donati, and Nicola Policella. Innovative rover operations concepts - autonomous planner (ironcap) - supporting rover operations planning on ground. In *SpaceOps 2012 Conference*, 2012.

[232] Robin Steel, Alexander Hoffmann, Marc Niézette, Alessandro Cimatti, Marco Roveri, Konstantinos Kapellos, Alessandro Donati, and Nicola Policella. Innovative rover operations concepts - autonomous planner (ironcap) - concluding the adventure. In *13th International Conference on Space Operations 2014*, 2014.

[233] Paolo Traverso, Alessandro Cimatti, and Luca Spalazzi. Beyond the single planning paradigm: Introspective planning. In *ECAI*, pages 643–647. John Wiley and Sons, 1992.

[234] Alessandro Valentini, Andrea Micheli, and Alessandro Cimatti. Temporal planning with intermediate conditions and effects. In *AAAI*, pages 9975–9982. AAAI Press, 2020.