

# Carlo A. Furia

## *Curriculum Vitae*<sup>1</sup>

### Contact information

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### Current position

Associate professor at the Software Institute, Faculty of Informatics, USI, Lugano, Switzerland.

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<sup>1</sup>Latest update of this CV: 2025/11/27.

## Education

**Ph.D. in computer science**, 2004–2007.

*Politecnico di Milano* (Milano, Italy).

Graduated on 3 May 2007; advisor: Prof. Dino Mandrioli

**Laurea degree**<sup>2</sup> in “Ingegneria informatica” (Computer science engineering), 1998–2003.

*Politecnico di Milano* (Milano, Italy).

Graduated on 19 December 2003; grade 100/100 *cum laude*, GPA: 29.45/30.00.

Thesis advisor: Prof. Dino Mandrioli.

**Master of science in computer science**, 2002–2003.

*University of Illinois at Chicago* (Chicago, IL, USA).

Graduated on 14 December 2003; GPA 5.0/5.0.

Thesis advisors: Prof. Ugo Buy and Prof. Dino Mandrioli.

## Employment history

**June 2018–present**: Associate professor (tenured) at the Software Institute, Faculty of Informatics, USI Università della Svizzera italiana, Lugano, Switzerland.

**January 2016–May 2018**: Associate professor (“docent”, tenured) in the Software Technology division of the Department of Computer Science and Engineering, Chalmers University of Technology, Göteborg, Sweden.

**February 2009–December 2015**: Lecturer and senior researcher (“Oberassistent”) at the Chair of Software Engineering, Department of Computer Science, ETH Zurich, Switzerland.

**November 2008–January 2009**: Post-doctoral researcher at CNR IEIIT-MI (Milano, Italy).

**June 2007–September 2008**: Post-doctoral researcher at Deep-SE Group, Dipartimento di Elettronica e Informazione, Politecnico di Milano (Milano, Italy).

**September–November 2006**: Visiting scholar at the Computer Science Department, University of Virginia (Charlottesville, VA, USA). Host: Prof. John C. Knight.

**March 2004–May 2007**: PhD student, Dipartimento di Elettronica e Informazione, Politecnico di Milano (Milano, Italy).

## Research overview

### *Research interests*

My research interests center around developing rigorous techniques and tools to analyze and improve the quality, correctness, and reliability of software and systems.

Most of my research is in the area of *formal methods for software engineering*. These include a wide array of models, techniques, methods, and tools to support the analysis, rigorous development, and verification of software and software-intensive systems. Much of my work aims at making formal methods *practical* and *widely applicable* – for example by increasing the level of automation. It often features combinations and integration of diverse techniques to improve versatility and reduce limitations; and rigorous empirical evaluations to assess relevance and impact of research outcomes.

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<sup>2</sup>Equivalent to a BSc+MSc program in the pre-Bologna system.

## Publications overview

**Refereed publications:** 101 articles and 1 book:

- 27 journal articles
- 63 international conferences
- 4 invited contributions
- 7 other publications (e.g., workshops)
- 1 book

**Citation data** from my Google Scholar profile:<sup>3</sup>

h-index	31
i10-index	65
Citations	3993

## Awards

Best paper award at the 18th International Conference on Integrated Formal Methods (iFM 2023).

Distinguished paper award at the 38th IEEE International Conference on Software Maintenance and Evolution (ICSME 2022).

Best paper award at the 13th International Conference on Integrated Formal Methods (iFM 2017).

Outstanding reviewer award at the 39th International Conference on Software Engineering (ICSE 2017).

Best paper award at the 20th International Symposium on Formal Methods (FM 2015).

Best paper awards at the 7th, 8th, and 9th edition of the International Conference on Global Software Engineering (ICGSE 2012, 2013, and 2014).

ICSE 2009 certificate of appreciation for “outstanding contribution to the creation and organization of the first Student Contest in Software Engineering” (SCORE 2009).

Three-year Ph.D. scholarship of the Italian *Ministero dell’Università e della Ricerca* (Ministry of Education, University and Research), January 2004.

## Research grants

SNF Scientific Exchanges grant IZSEZo-240317 “Type-based program synthesis of multilingual programs”, CHF 10’300. Applicant: Carlo A. Furia; Duration: 3 months from February 2026.

USI Innovations in Teaching grant “Check My Recipe: An automated feedback system for programming assignments developed according to the design recipe”, CHF 15’500. Applicant: Carlo A. Furia; Duration: 8 months from February 2023.

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200021-207919 “LastMile: Narrowing the usability gap of software verification”, CHF 757’550. Applicant: Carlo A. Furia; Duration: 4 years from September 2022.

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<sup>3</sup><https://scholar.google.com/citations?user=pqbv1BAAAAAJ>

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200021-182060 “Hi-Fi: Widely applicable and usable automated program repair”, CHF 476’106. Applicant: Carlo A. Furia; Duration: 4 years from August 2019.

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200021-137931 “Complete and verifiable contracts (FullContracts)”, CHF 151’482. Applicants: Carlo A. Furia and Bertrand Meyer; Duration: 3 years from November 2011.

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200020-134974 “Large scale automatic testing (LSAT)”, CHF 157’482. Applicants: Carlo A. Furia and Bertrand Meyer; Duration: 3 years from June 2011.

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200021-153512 “Models and tools for collaboration in distributed software engineering (CloudStudio)”, CHF 23’561. Applicants: Carlo A. Furia and Bertrand Meyer; Duration: 5 months from April 2014.

## Advising and supervision

### *Postdocs at USI*

**Abhishek Tiwari.** November 2023–August 2024  
(Afterward: assistant professor at the University of Southern Denmark.)

### *PhD students at USI*

**Valentin Aebi.** October 2025–present

**Akshatha Shenoy.** October 2023–present

**Marco Paganoni.** September 2022–present

**Riccardo Felici.** (Co-supervised with Prof. Laura Pozzi) October 2020–January 2025.  
Grammar-based Program Generation for Challenging Testing Frameworks and Shell Interpreters.

**Diego Marcílio.** September 2019–November 2023.  
Practical Automated Program Analysis for Improving Java Software.  
(Afterward: software engineer at Uber’s Programming Systems Group.)

**Mohammad Rezaalipour.** August 2019–July 2024.  
Test Case Generation and Fault Localization for Data Science Programs.  
(Afterward: postdoctoral researcher at the University of Passau.)

**Bhargav Bhatt.** October 2018–September 2022.  
(Afterward: formal verification/protocol spec engineer at the Web3 foundation.)

### *PhD student at Chalmers*

**YuTing (Jeff) Chen.** June 2016–January 2022.  
Robust and flexible intermediate verification.

*PhD students at ETH Zurich*

I was the co-supervisor of these PhD students with Prof. Bertrand Meyer:

**Julian Tschannen.** Automated usable functional verification of object-oriented programs.

Defended on 18 December 2014.

(Afterward: software engineer at Google Zurich.)

**H.-Christian Estler.** Understanding and improving collaboration in distributed software development.

Defended on 18 December 2014.

(Afterward: post-doc at ETH Zurich developing a web-based IDE for teaching <https://codeboard.io/>; software engineer at Google Zurich)

**Yu (Max) Pei.** Automatic fixing of programs with contracts.

Defended on 18 December 2014.

(Afterward: assistant, associate professor at the Hong Kong Polytechnic University.)

**Nadia Polikarpova.** Specifying and verifying reusable components.

Defended on 29 April 2014.

(Afterward: post-doc at MIT CSAIL; assistant, associate professor at UCSD.)

**Marco Trudel.** Automatic translation and object-oriented reengineering of legacy code.

Defended on 26 April 2013.

(Afterward: funded by an ETH Pioneer Fellowship startup grant <https://www.mtsystems.ch/>; software engineer at Oepfelbaum IT management.)

**Yi (Jason) Wei.** Putting contracts to work for better automated testing and fixing.

Defended on 29 November 2012.

(Afterward: research software development engineer at Microsoft Research Cambridge, UK; senior data scientist at AstraZeneca, UK)

## Invited talks

A PhD in Ten (false) Dichotomies. iFM 2025 Doctoral Symposium. 18 November 2025, Paris, France.

Deductive Verification at the Level of JVM Bytecode. Seminar series *Challenges and Perspectives of Formal Methods for Trustworthy Software*. 15 May 2025. University of Pisa, Italy (Hosts: Prof. Chiara Bodei, Gian-Luigi Ferrari)

Which Programming Languages are More Bug Prone? Answers (?) from empirical evidence. IFIP WG 2.16 meeting 17. 1 March 2025, Serpiano, Switzerland.

Domain Specific Automated Program Repair. 4 July 2024, The Hong Kong Polytechnic University, Hong Kong, SAR China. (Host: Prof. Yu (Max) Pei)

Practical Formal Methods: Are We There Yet? Swiss Verification Day. 10 January 2024, Neuchâtel, Switzerland.

Gaming Your PhD Career. ETAPS Mentoring Workshop. 23 April 2023, Paris, France.

Panel of DeepTest 2020 (ICSE's 2nd Workshop on Testing for Deep Learning and Deep Learning for Testing). 1 July 2020, online (in lieu of Seoul, South Korea).

Should We Use Bayesian Statistics for Empirical Software Engineering? 7 May 2019, University of Zurich, Switzerland. (Host: Prof. Alberto Bacchelli)

Automated Program Repair with and without Contracts. 8 February 2018, Imperial College London, UK. (Host: Dr. Antonio Filieri)

What Good Are Formal Methods for Software Engineering? 22 November 2017, Università della Svizzera italiana (USI), Switzerland. (Host: Prof. Michele Lanza)

Assertions Considered Helpful: from Testing to Correctness Proofs. University of Luxembourg, 24 October 2016, Luxembourg. (Host: Prof. Lionel Briand)

How Banks Can Maintain Stability: Class-invariant Based Reasoning with Semantic Collaboration. 15th KeY Symposium. 26 July 2016, Manigod, France.

Assertions Considered Helpful: from Tests to Functional Correctness Proofs. Kick-off workshop of project TheProSE (Wallenberg Academy Fellowship). 4 September 2015, Gothenburg, Sweden.

Testing, Fixing, and Proving with Contracts. Invited tutorial at the 9th International Conference on Tests & Proofs (TAP), a STAF '15 event. 22 July 2015, L'Aquila, Italy.

Contracts in Practice. 17 April 2015, DEIB, Politecnico di Milano, Italy.

Practical Formal Methods. 30 March 2015, Technical University of Denmark (DTU), Denmark.

Practical Formal Methods. 27 March 2015, University of Sheffield, UK.

Contracts in Practice. Workshop "JML: Advancing Specification Language Methodologies". 25 March 2015, Lorentz Center, Leiden, the Netherlands.

Automatic Fixing of Programs with Contracts. 11 February 2015, Birkbeck, University of London, UK.

The Gotthard Approach: Designing an Integrated Verification Environment for Eiffel. Invited talk at the 1st Workshop on Formal Integrated Development Environment (F-IDE), an ETAPS '14 event. 6 April 2014, Grenoble, France.

A Publication Culture in Software Engineering. A *panel* at ESEC/FSE '13. 22 August 2013, Saint Petersburg, Russia.

From Simple to Stronger Specifications. Saarland University, 7 March 2013, Saarbrücken, Germany. (Host: Prof. Andreas Zeller)

Contracts for Verification – a personal perspective. Eiffel at 25, 24 November 2010. Zürich, Switzerland.

Inferring Loop Invariants Using Postconditions. IFIP WG 2.3 meeting 50. 3 March 2010, Lachen, Switzerland.

Integrating Discrete- and Continuous-Time Metric Temporal Logics Through Sampling: Framework and Applications. EPFL, 25 June 2007, Lausanne, Switzerland. (Host: Prof. Thomas A. Henzinger)

Compositionality and Integration for Real-Time Systems. EPFL, 20 October 2005, Lausanne, Switzerland. (Host: Prof. Thomas A. Henzinger)

## Professional service

### *Program chair and general chair*

Organizer of the Swiss Verification Day, USI East Campus, 13 February 2025.

Co-chair of the Doctoral Symposium at the 26th Symposium on Formal Methods (FM 2024).

Program co-chair of the 12th International Conference on Formal Methods in Software Engineering (FormaliSE 2024) – a co-located event of ICSE 2024.

General chair of the 17th International Conference on Integrated Formal Methods (iFM 2022).

Program co-chair of the Software Institute Summit, USI (online), 17 February 2022.

General chair of the 16th International Conference on Integrated Formal Methods (iFM 2020, online).

Workshop co-chair of the 24th Symposium on Formal Methods (FM 2021).

Co-organizer of VerifyThis 2019 – a program verification competition part of ETAPS 2019.

Program co-chair of the 14th International Conference on Integrated Formal Methods (iFM 2018).

Program co-chair of the 10th International Conference on Tests & Proofs (TAP 2016), an event of STAF 2016.

Program co-chair of the Student Contest on Software Engineering (SCORE 2016), an event of the 38th International Conference on Software Engineering (ICSE 2016).

Program co-chair of the Tool Demonstrations Track at the 9th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2013).

Program co-chair of the 50th International Conference on Objects, Models, Components and Patterns (TOOLS Europe 2012).

### *Editorial boards and steering committees*

Member of the steering committee of the International Conference on Formal Methods in Software Engineering (FormaliSE): 2024–present.

Member of the editorial board of the Empirical Software Engineering (EMSE) journal: May 2021–present.

Member of the steering committee of the International Conference on Integrated Formal Methods (iFM): 2018–present.

### *Program committee member*

Program committee member of the International Symposium on Formal Methods (FM): 2026.

Program committee member of the IEEE/ACM International Conference on Automated Software Engineering (ASE): 2025.

Program committee member of the Workshop on Causal Methods in Software Engineering (CauSE): 2025, 2026 (@FSE).

Program committee member of the ETAPS Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS): 2024.

Program committee member of the International Conference on Evaluation and Assessment in Software Engineering (EASE): 2023.

Program committee member of the New Ideas and Emerging Results (NIER) track: ICSE 2023, 2024.

Program committee member of the ETAPS Conference on Fundamental Approaches to Software Engineering (FASE): 2022, 2023, 2025.

Committee member of the Registered Reports Track of IEEE ICSME: 2020, 2021.

Committee member of the Registered Reports Track of MSR: 2020.

Program committee member of the Software Verification and Testing Track of ACM SAC (SAC-SVT): 2020

Program committee member of the Doctoral Symposium at FM: 2019, 2023

Program committee member of the Workshop on the Design and Analysis of Robust Systems (DARS): 2019

Program committee member of the ACM Student Research Competition (SRC): PLDI 2018, ICSE 2022.

Program committee member of the International Conference on Software Engineering and Formal Methods (SEFM): 2018, 2025.

Program committee member of the Conference on Formal Methods in Software Engineering (FormaliSE): 2018, 2019, 2020, 2021, 2022, 2023, 2025, 2026.

Program committee member of the Working Conference on Verified Software: Theories, Tools, and Experiments (VSTTE): 2017, 2020, 2021, 2022.

Program committee member of the International Conference on integrated Formal Methods (iFM): 2017, 2019, 2023, 2024, 2025.

Program committee member of the International Conference on Software Engineering (ICSE): 2017.

Outstanding reviewer award for my work for ICSE 2017.

Program committee member of the AutoProof Workshop: 2016.

Program committee member of the Workshop on Formal Techniques for Java-like Programs (FTfJP): 2016, 2019, 2025.

Program committee member of the Workshop on Synthesis (SYNT): 2015.

Program committee member of the Workshop on Formal Integrated Development Environment (F-IDE): 2015, 2016, 2018, 2019, 2021, 2022.

Program committee member of the Ershov Informatics Conference (PSI): 2015, 2017, 2019.

Program committee member of the International Conference on Global Software Engineering (ICGSE): 2015.

Program committee member of the Workshop on Logic and Model-checking for Self-\* Systems (MOD\*): 2014. Workshop on Formal Verification for Self-\* Systems (VERY\*): 2015.

Program committee member of the International Workshop on Invariant Generation (WING): 2014.

Program committee member of the Tool Demonstrations Track at the International Symposium on Software Testing and Analysis (ISSTA): 2014.

Program committee member of the International Conference on Model-Driven Engineering and Software Development (Modelsward): 2014, 2015, 2016.

Program committee member of the Annual Conference on Theory and Applications of Models of Computation (TAMC): 2014, 2016, 2017.

Program committee member of the International Symposium on Temporal Representation and Reasoning (TIME): 2012.

Program committee member of the International Conference on Tests & Proofs (TAP): 2010, 2011, 2017, 2018, 2022, 2023.

Program committee member of the IEEE International Conference on Engineering of Complex Computer Systems (ICECCS): 2011, 2012, 2013, 2014, 2015, 2016, 2017.

Program committee member of the Interaction and Concurrency Experience (ICE): 2009, 2010, 2015.

Program committee member of the Student Contest in Software Engineering (SCORE), an initiative of the International Conference on Software Engineering (ICSE): 2009, 2018.

### *PhD committees*

Nikhil Parasaram: “Symbolic and quantitative methods in software model learning, model assessment, and model checking”, University College London, 29 July 2024. Thesis advisors: Sergey Mechtaev and Earl Barr.

Donato Clun: “Symbolic and quantitative methods in software model learning, model assessment, and model checking”, Imperial College London, 11 January 2024. Thesis advisor: Antonio Filieri.

Min-Hsien (Sam) Weng: “Efficient Compilation of a Verification-friendly Programming Language”, University of Waikato, 18 January 2019. Thesis advisors: Robi Malik and Mark Utting.

Alexander Kogtenkov: “Void Safety”, ETH Zurich, 31 January 2017. Thesis advisor: Bertrand Meyer.

Alessandro Rizzi: “A Syntactic-Semantic Approach for Incremental Program Verification of Matching Logic Properties”, Politecnico di Milano, November 2016. Thesis advisor: Carlo Ghezzi.

Wei Dou: “A Model-Driven Approach to Offline Trace Checking of Temporal Properties”, University of Luxembourg, 24 October 2016. Thesis advisors: Lionel Briand and Domenico Bianculli.

### *Organizational and leadership roles*

Board Member of Formal Methods Europe: April 2025–present.

Vice Dean, Faculty of Informatics, USI: 2023–2025.

Member of the *Communications Committee* of Formal Methods Europe: 2018–present.

Registration Chair of ICSE 2018.

### *Affiliations*

Formal Methods Europe, member (since 2010).

## Teaching

### *Courses*

Organizer of the PhD-level course “Software research seminar” (4 ECTS), USI, Spring 2021, 2023, 2025. With Prof. Gabriele Bavota, Paolo Tonella, Cesare Pautasso.

Lecturer for the bachelor-level course “Programming fundamentals 1” (9 ECTS), USI, Fall 2020, 2021, 2022, 2023, 2024.

Lecturer for the master-level course “Programmazione 1” (5 ECTS), USI, Fall 2020.

Lecturer for the master-level course “Software analysis” (6 ECTS), USI, Spring 2019, 2020, 2021, 2022, 2023, 2024, 2025.

Lecturer for the master-level course “Software design and modeling” (6 ECTS), USI, Fall 2018, 2019, 2020, 2021, 2022, 2023, 2024.

Co-organizer of the master-level course “Software and data engineering seminar” (6 ECTS), USI, Spring 2018, 2019, 2020, 2021, 2022, 2023, 2024. With other faculty members of USI’s Software Institute.

Lecturer for the undergraduate course “Principles of concurrent programming”, Chalmers University of Technology, Spring 2017, 2018.

Lecturer for the undergraduate course “Objektorienterad programmering (Object-oriented programming)”, Chalmers University of Technology, Fall 2016, 2017. With Dr. Alex Gerdes.

Instructor for the MOOC “Computing: Art, Magic, Science – Part II”, hosted by edX, first iteration in Fall 2015. With Prof. Bertrand Meyer and Dr. Marco Piccioni.

Lecturer for the PhD course “Modeling time in computing”, Politecnico di Milano, April 2013, 2015. With Prof. Dino Mandrioli, Angelo Morzenti, and Matteo Rossi.

Lecturer for the graduate course “Software verification”, ETH Zurich, Fall 2009, 2010, 2011, 2012, 2013, 2014, 2015. With Prof. Bertrand Meyer and Dr. Sebastian Nanz.

Lecturer for the graduate/advanced undergraduate course “Java and C# in depth”, ETH Zurich, Spring 2010, 2013, 2014. With Prof. Bertrand Meyer.

Lecturer for the undergraduate course “Software architecture”, ETH Zurich, Spring 2011. With Prof. Bertrand Meyer and Dr. Martin Nordio.

Lecturer for the compact industry course “Software testing and verification”, ETH Zurich, 1 April 2011, 18 November 2011. With Prof. Bertrand Meyer and Dr. Sebastian Nanz.

*Supervised master's theses*

Lidia Anna Maria Losavio. A lightweight executable semantics to test and intermediate verification language. Master's Thesis, USI/Milano Bicocca double degree, October 2024.

Claudio Maggioni. Deductive program verification of Java bytecode using the Why3 verification framework. Master's Thesis, USI, September 2024.

Alexios-Philippous Stoupis. Fault localization techniques for automated program repair. Master's Thesis, USI, September 2022.

Marco Paganoni. ByteBack: Auto-active verification of Java programs at the bytecode-level. Master's Thesis, USI, June 2022.

Samuele Pasi. Contract-aware test-case generation in Java. Master's Thesis, USI/Milano Bicocca double degree, October 2021.

Daniel Tisdall. Designing concurrent trees: Model checking concurrent tree data structures with TLA+. Master's Thesis, USI, June 2021.

Martin Odermatt. Automated fixing of static code analysis warnings in C# programs. Master's Thesis, USI, June 2021.

Leo Anttila and Mattias Åkesson. Incremental deductive verification for a subset of the Boogie language. Master's Thesis, Chalmers University of Technology, June 2017.

Alexandra Back and Emma Westman. Comparing programming languages in Google Code Jam. Master's Thesis, Chalmers University of Technology, June 2017.

Christoffer Medin and Pontus Doverstav. The spec is out there: Extracting contracts from code. Master's Thesis, Chalmers University of Technology, June 2017.

Michael Ameri. Supporting multiple proof engines by translating between intermediate verification languages. Master's Thesis, ETH Zurich, September 2015.

*Supervised bachelor's projects*

Sasha Toscano. Understanding arbitrary code execution. (Co-supervised with Prof. Marc Langheinrich.) Bachelor Project, USI, June 2025.

Arseni Loika. Patch summary for automated program repair. Bachelor Project, USI, June 2024.

Marco Farace. Refactoring reusable components for the Unity game engine. Bachelor Project, USI, June 2023.

Michael Ameri. Loop invariant inference from postconditions in EVE. Bachelor's Thesis, ETH Zurich, June 2013.

Matteo Carini and Nicholas Fiorentini. Implementazione di un algoritmo ad elevata complessità per la verifica di sistemi real-time a tempo denso (in Italian). Bachelor's Thesis, Politecnico di Milano, September 2009.

Marco Maffini. Una tecnica euristica per l'esplorazione efficiente dello spazio degli stati nel model-checking (in Italian). Bachelor's Thesis, Politecnico di Milano, February 2009.

Antonio D'Ettola. Uso e comparazione di dimostratori di teoremi per la verifica di specifiche in logica temporale (in Italian). Bachelor's Thesis, Politecnico di Milano, March 2007.

Francesco Leone. Specifica e analisi di un Flexible Manufacturing System (in Italian). Bachelor's Thesis, Politecnico di Milano, March 2005.

## List of publications

Publications are listed in *reverse* chronological order in each category. Publications are available online at <https://bugcounting.net/publications.html>. The hyperlinks in the margin directly link to each paper's details and text.

### Research papers (refereed)

- P101. Lidia Losavio, Marco Paganoni, and Carlo A. Furia. Model-based testing of an intermediate verifier using executable operational semantics. In *Proceedings of the 20th International Conference on integrated Formal Methods (iFM)*, volume 16194 of *Lecture Notes in Computer Science*, pages 401–423. Springer, November 2025. (Acceptance rate: 33%) iFM 2025
- P100. Carlo A. Furia and Andrea Mocci. What makes a level hard in Super Mario Maker 2? In *IEEE Conference on Games, CoG 2025, Lisbon, Portugal, August 26-29, 2025*, pages 1–8. IEEE, August 2025. (Acceptance rate: 36%) COG 2025
- P99. Marco Paganoni and Carlo A. Furia. Reasoning about substitutability at the level of JVM bytecode. In *Proceedings of the 28th International Conference on Fundamental Approaches to Software Engineering (FASE)*, volume 15693 of *Lecture Notes in Computer Science*, pages 236–256. Springer, May 2025. (Acceptance rate: 33%) FASE 2025
- P98. Marco Paganoni and Carlo A. Furia. Reasoning about exceptional behavior at the level of Java bytecode with ByteBack. *Formal Aspects of Computing*, 2025. Accepted in December 2024 FAC
- P97. Carlo A. Furia and Abhishek Tiwari. Challenges of multilingual program specification and analysis. In *Proceedings of the 12th International ISoLA Symposium on Leveraging Applications of Formal Methods, Verification and Validation*, volume 15221 of *Lecture Notes in Computer Science*, pages 124–143. Springer, October 2024 ISoLA 2024
- P96. Abhishek Tiwari, Jyoti Prakash, Zhen Dong, and Carlo A. Furia. Automated repair of information flow security in Android implicit inter-app communication. In *Proceedings of the 26th International Symposium on Formal Methods (FM)*, volume 14933 of *Lecture Notes in Computer Science*, pages 285–303. Springer, September 2024. (Acceptance rate: 25%) FM 2024
- P95. Mohammad Rezaalipour and Carlo A. Furia. An empirical study of fault localization in Python programs. *Empirical Software Engineering*, 29(2):92, June 2024. Accepted in March 2024 EMSE
- P94. Riccardo Felici, Laura Pozzi, and Carlo A. Furia. HyperPUT: Generating synthetic faulty programs to challenge bug-finding tools. *Empirical Software Engineering*, 29(2):38, 2024. Accepted in November 2023 EMSE
- P93. Diego Marcilio and Carlo A. Furia. Lightweight precise automatic extraction of exception preconditions in Java methods. *Empirical Software Engineering*, 29(1):30, 2024. Accepted in September 2023 EMSE

Extended version of [P85], invited to a special issue with the best papers from ICSME 2022.

- P92. Marco Paganoni and Carlo A. Furia. Reasoning about exceptional behavior at the level of Java bytecode. In *Proceedings of the 18th International Conference on integrated Formal Methods (iFM)*, volume 14300 of *Lecture Notes in Computer Science*, pages 113–133. Springer, November 2023. (Acceptance rate: 33%) iFM 2023
- Best paper award at iFM 2023.
- P91. Diego Marcilio and Carlo A. Furia. Towards code improvements suggestions from client exception analysis. In *Proceedings of the 39th IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pages 363–368. IEEE Computer Society, October 2023. New ideas and emerging results track, (Acceptance rate: 39%) ICSME 2023
- P90. Mohammad Rezaalipour and Carlo A. Furia. aNNoTest: An annotation-based test generation tool for neural network programs. In *Proceedings of the 39th IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pages 574–579. IEEE Computer Society, October 2023. Tool demo track, (Acceptance rate: 61%) ICSME 2023
- P89. Carlo A. Furia, Richard Torkar, and Robert Feldt. Towards causal analysis of empirical software engineering data: The impact of programming languages on coding competitions. *ACM Transactions on Software Engineering and Methodology*, 33(1):13:1–35, November 2023. Accepted in July 2023 TOSEM
- P88. Mohammad Rezaalipour and Carlo A. Furia. An annotation-based approach for finding bugs in neural network programs. *Journal of Systems and Software*, 201:111669, July 2023. Online since March 2023 JSS
- P87. Marco Paganoni and Carlo A. Furia. Verifying functional correctness properties at the level of Java bytecode. In *Proceedings of the 25th International Symposium on Formal Methods (FM)*, volume 14000 of *Lecture Notes in Computer Science*, pages 343–363. Springer, March 2023. (Acceptance rate: 29%) FM 2023
- P86. Bhargav Nagaraja Bhatt and Carlo A. Furia. Automated repair of resource leaks in Android applications. *Journal of Systems and Software*, 192:111417, October 2022. Online since July 2022 JSS
- P85. Diego Marcilio and Carlo A. Furia. What is thrown? Lightweight precise automatic extraction of exception preconditions in Java methods. In *Proceedings of the 38th IEEE International Conference on Software Maintenance and Evolution (ICSME)*, pages 340–351. IEEE Computer Society, October 2022. Distinguished paper award, (Acceptance rate: 23%) ICSME 2022
- Distinguished paper award at ICSME 2022.
- P84. Liushan Chen, Yu Pei, Minxue Pan, Tian Zhang, Qixin Wang, and Carlo A. Furia. Program repair with repeated learning. *IEEE Transactions on Software Engineering*, 49(2):831–848, February 2023. Online since April 2022 TSE
- P83. Martin Odermatt, Diego Marcilio, and Carlo A. Furia. Static analysis warnings and automatic fixing: A replication for C# projects. In *Proceedings of the 29th International Conference on Software Analysis, Evolution and Reengineering (SANER)*, pages 805–816. IEEE, March 2022. RENE (Reproducibility Studies and Negative Results) track, (Acceptance rate: 43%) SANER 2022
- P82. Carlo A. Furia, Richard Torkar, and Robert Feldt. Applying Bayesian analysis guidelines to empirical software engineering data: The case of programming languages and code quality. *ACM Transactions on Software Engineering and Methodology*, 31(3):40:1–40:38, July 2022. Accepted in October 2021 TOSEM

- P81. Claire Dross, Carlo A. Furia, Marieke Huisman, Rosemary Monahan, and Peter Müller. VerifyThis 2019: A program verification competition. *International Journal on Software Tools for Technology Transfer*, 23:883–893, May 2021. Special issue with invited papers from ETAPS 2019’s TOOLympics STTT
- P80. Diego Marcilio and Carlo A. Furia. How Java programmers test exceptional behavior. In *Proceedings of the 18th Mining Software Repositories Conference (MSR)*, pages 207–218. IEEE, May 2021. (Acceptance rate: 34%) MSR 2021
- P79. Richard Torkar, Carlo A. Furia, Robert Feldt, Francisco Gomes de Oliveira Neto, Lucas Gren, Per Lenberg, and Neil A. Ernst. A method to assess and argue for practical significance in software engineering. *IEEE Transactions on Software Engineering*, 48(6):2053–2065, June 2022. Online since January 2021 TSE
- P78. Richard Torkar, Robert Feldt, and Carlo A. Furia. Bayesian data analysis in empirical software engineering—The case of missing data. In *Contemporary Empirical Methods in Software Engineering*, chapter 11, pages 289–324. Springer, August 2020 CEMSE
- P77. Diego Marcilio, Carlo A. Furia, Rodribo Bonifácio, and Gustavo Pinto. SpongeBugs: Automatically generating fix suggestions in response to static code analysis warnings. *Journal of Systems and Software*, 168:110671, October 2020. Online since June 2020 JSS  
Extended version of [P73].
- P76. Tongtong Xu, Liushan Chen, Yu Pei, Tian Zhang, Minxue Pan, and Carlo A. Furia. RESTORE: Retrospective fault localization enhancing automated program repair. *IEEE Transactions on Software Engineering*, 48(1):309–326, January 2022. Online since April 2020 TSE
- P75. Liushan Chen, Yu Pei, and Carlo A. Furia. Contract-based program repair without the contracts: An extended study. *IEEE Transactions on Software Engineering*, 47(12):2841–2857, December 2021. Online since January 2020 TSE  
Extended version of [P70].
- P74. Carlo A. Furia, Robert Feldt, and Richard Torkar. Bayesian data analysis in empirical software engineering research. *IEEE Transactions on Software Engineering*, 47(9):1786–1810, September 2021. Publication date: August 2019 TSE  
Presented in ICSE 2020’s Journal First track.
- P73. Diego Marcilio, Carlo A. Furia, Rodrigo Bonifácio, and Gustavo Pinto. Automatically generating fix suggestions in response to static code analysis warnings. In *Proceedings of the 18th International Working Conference on Source Code Analysis and Manipulation (SCAM)*, pages 34–44. IEEE Computer Society, September 2019. (Acceptance rate: 40%) SCAM 2019
- P72. Francisco Gomes de Oliveira Neto, Richard Torkar, Robert Feldt, Lucas Gren, Carlo A. Furia, and Ziwei Huang. Evolution of statistical analysis in empirical software engineering research: Current state and steps forward. *Journal of Systems and Software*, 156:246–267, October 2019 JSS
- P71. YuTing Chen and Carlo A. Furia. Robustness testing of intermediate verifiers. In *Proceedings of the 16th International Symposium on Automated Technology for Verification and Analysis (ATVA)*, volume 11138 of *Lecture Notes in Computer Science*, pages 91–108. Springer, September 2018. (Acceptance rate: 32%) ATVA 2018

- P70. Liushan Chen, Yu Pei, and Carlo A. Furia. Contract-based program repair without the contracts. In *Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 637–647. ACM, November 2017. (Acceptance rate: 21%) ASE 2017
- P69. Nadia Polikarpova, Julian Tschannen, and Carlo A. Furia. A fully verified container library. *Formal Aspects of Computing*, 2017. Accepted in June 2017 FAOC  
 Extended version of [P61], invited to a special issue with the best papers from FM 2015.
- P68. YuTing Chen and Carlo A. Furia. Triggerless happy – intermediate verification with a first-order prover. In *Proceedings of the 13th International Conference on integrated Formal Methods (iFM)*, volume 10510 of *Lecture Notes in Computer Science*, pages 295–311. Springer, September 2017. Best paper award, (Acceptance rate: 37%) iFM 2017  
 Best paper award at iFM 2017.
- P67. Carlo A. Furia. What good is Bayesian data analysis for software engineering? In *Proceedings of the 39th International Conference on Software Engineering (ICSE) Companion*, pages 374–376. ACM, May 2017. Invited submission to the Posters Track ICSE 2017
- P66. Carlo A. Furia and Paola Spoletini. Bounded variability of metric temporal logic. *Annals of Mathematics and Artificial Intelligence*, 80(3):283–316, August 2017. Online since December 2016. Special issue with invited papers from TIME 2014 AMAI
- P65. Carlo A. Furia, Martin Nordio, Nadia Polikarpova, and Julian Tschannen. AutoProof: Auto-active functional verification of object-oriented programs. *International Journal on Software Tools for Technology Transfer*, 19(6):697–716, October 2016. Online since April 2016. Special issue with invited papers from TACAS 2015 STTT  
 Extended version of [P58], invited to a special issue of with the best papers from TACAS 2015.
- P64. Michael Ameri and Carlo A. Furia. Why just Boogie? Translating between intermediate verification languages. In *Proceedings of the 12th International Conference on integrated Formal Methods (iFM)*, volume 9681 of *Lecture Notes in Computer Science*, pages 79–95. Springer, June 2016. (Acceptance rate: 30%) iFM 2016
- P63. Carlo A. Furia, Christopher M. Poskitt, and Julian Tschannen. The AutoProof verifier: Usability by non-experts and on standard code. In *Proceedings of the 2nd Workshop on Formal Integrated Development Environment (F-IDE)*, volume 187 of *Electronic Proceedings in Theoretical Computer Science*, pages 42–55. EPTCS, June 2015. Workshop co-located with FM 2015 F-IDE 2015
- P62. Juan Pablo Galeotti, Carlo A. Furia, Eva May, Gordon Fraser, and Andreas Zeller. Inferring loop invariants by mutation, dynamic analysis, and static checking. *IEEE Transactions on Software Engineering*, 41(10):1019–1037, October 2015 TSE
- P61. Nadia Polikarpova, Julian Tschannen, and Carlo A. Furia. A fully verified container library. In *Proceedings of the 20th International Symposium on Formal Methods (FM)*, volume 9109 of *Lecture Notes in Computer Science*, pages 414–434. Springer, June 2015. Best paper award, (Acceptance rate: 26%) FM 2015  
 Best paper award at FM 2015.
- P60. Yu Pei, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Automated program repair in an integrated development environment. In *Proceedings of the 37th International Conference on Software Engineering (ICSE) – Volume 2*, pages 681–684. ACM, May 2015. Demonstrations Track, (Acceptance rate: 59%) ICSE 2015

- P59. Sebastian Nanz and Carlo A. Furia. A comparative study of programming languages in Rosetta Code. In *Proceedings of the 37th International Conference on Software Engineering (ICSE)*, pages 778–788. ACM, May 2015. (Acceptance rate: 18%) ICSE 2015
- P58. Julian Tschannen, Carlo A. Furia, Martin Nordio, and Nadia Polikarpova. AutoProof: Auto-active functional verification of object-oriented programs. In *Proceedings of the 21st International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 9035 of *Lecture Notes in Computer Science*, pages 566–580. Springer, April 2015. (Acceptance rate: 23%) TACAS 2015
- P57. Juan P. Galeotti, Carlo A. Furia, Eva May, Gordon Fraser, and Andreas Zeller. DynaMate: Dynamically inferring loop invariants for automatic full functional verification. In *Proceedings of the 10th Haifa Verification Conference (HVC)*, volume 8855 of *Lecture Notes in Computer Science*, pages 48–53. Springer, November 2014. Tool paper, (Acceptance rate: 49%) HVC 2014
- P56. Carlo A. Furia and Paola Spoletini. Bounded variability of metric temporal logic. In *Proceedings of the 21st International Symposium on Temporal Representation and Reasoning (TIME'14)*. IEEE Computer Society, September 2014. (Acceptance rate: 53%) TIME 2014
- P55. H.-Christian Estler, Martin Nordio, Carlo A. Furia, and Bertrand Meyer. Awareness and merge conflicts in distributed software development. In *Proceedings of the 9th International Conference on Global Software Engineering (ICGSE)*, pages 26–35. IEEE Computer Society, August 2014. Best paper award, (Acceptance rate: 36%) ICGSE 2014
- Best paper award at ICGSE 2014.
- P54. Yu Pei, Carlo A. Furia, Martin Nordio, Yi Wei, Bertrand Meyer, and Andreas Zeller. Automated fixing of programs with contracts. *IEEE Transactions on Software Engineering*, 40(5):427–449, May 2014 TSE
- P53. Nadia Polikarpova, Julian Tschannen, Carlo A. Furia, and Bertrand Meyer. Flexible invariants through semantic collaboration. In *Proceedings of the 19th International Symposium on Formal Methods (FM)*, volume 8442 of *Lecture Notes in Computer Science*, pages 514–530. Springer, May 2014. (Acceptance rate: 28%) FM 2014
- P52. H.-Christian Estler, Carlo A. Furia, Martin Nordio, Marco Piccioni, and Bertrand Meyer. Contracts in practice. In *Proceedings of the 19th International Symposium on Formal Methods (FM)*, volume 8442 of *Lecture Notes in Computer Science*, pages 230–246. Springer, May 2014. (Acceptance rate: 28%) FM 2014
- P51. Yu Pei, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Automatic program repair by fixing contracts. In *Proceedings of the 17th International Conference on Fundamental Approaches to Software Engineering (FASE)*, volume 8411 of *Lecture Notes in Computer Science*, pages 246–260. Springer, April 2014. (Acceptance rate: 23%) FASE 2014
- P50. Julian Tschannen, Carlo A. Furia, and Martin Nordio. AutoProof meets some verification challenges. *International Journal on Software Tools for Technology Transfer*, 17(6):745–755, October 2015. Online since February 2014. Special section on the VerifyThis 2012 Verification Competition STTT
- P49. Carlo A. Furia, Bertrand Meyer, and Sergey Velder. Loop invariants: Analysis, classification, and examples. *ACM Computing Surveys*, 46(3):Article 34, January 2014 ACM CSUR

- P48. Julian Tschannen, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Program checking with less hassle. In *Proceedings of the 5th Working Conference on Verified Software: Theories, Tools and Experiments (VSTTE 2013)*, volume 8164 of *Lecture Notes in Computer Science*, pages 149–169. Springer, 2014. (Acceptance rate: 48%) VSTTE 2013
- P47. Nadia Polikarpova, Carlo A. Furia, and Scott West. To run what no one has run before: Executing an intermediate verification language. In *Proceedings of the 4th International Conference on Runtime Verification (RV)*, volume 8174 of *Lecture Notes in Computer Science*, pages 251–268. Springer, September 2013. (Acceptance rate: 41%) RV 2013
- P46. Marco Piccioni, Carlo A. Furia, and Bertrand Meyer. An empirical study of API usability. In *Proceedings of the 7th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, pages 5–14. IEEE Computer Society, October 2013. (Acceptance rate: 27%) ESEM 2013
- P45. Hans-Christian Estler, Martin Nordio, Carlo A. Furia, Bertrand Meyer, and Johannes Schneider. Agile vs. structured distributed software development: A case study. *Empirical Software Engineering*, 19(5):1197–1224, October 2014. Online since August 2013 ESE
- Extended version of [P33], invited to a special issue of with the best papers from ICGSE 2012.
- P44. H.-Christian Estler, Martin Nordio, Carlo A. Furia, and Bertrand Meyer. Collaborative debugging. In *Proceedings of the 8th International Conference on Global Software Engineering (ICGSE)*, pages 110–119. IEEE Computer Society, August 2013. Best paper award, (Acceptance rate: 34%) ICGSE 2013
- Best paper award at ICGSE 2013.
- P43. Marco Trudel, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Really automatic scalable object-oriented reengineering. In *Proceedings of the 27th European Conference on Object-Oriented Programming (ECOOP)*, volume 7920 of *Lecture Notes in Computer Science*, pages 477–501. Springer, July 2013. (Acceptance rate: 25%) ECOOP 2013
- The tool AutoOO, described in the paper, has been successfully evaluated by the ECOOP artifact evaluation committee and found to meet expectations; it has also been invited to ECOOP's Demonstrations satellite event.
- P42. H.-Christian Estler, Martin Nordio, Carlo A. Furia, and Bertrand Meyer. Unifying configuration management with merge conflict detection and awareness systems. In *Proceedings of the 22nd Australasian Software Engineering Conference (ASWEC)*, pages 201–210. IEEE Computer Society, June 2013. (Acceptance rate: 39%) ASWEC 2013
- P41. Martin Nordio, Cristiano Calcagno, and Carlo A. Furia. Javanni: A verifier for JavaScript. In *Proceedings of the 16th International Conference on Fundamental Approaches to Software Engineering (FASE)*, volume 7793 of *Lecture Notes in Computer Science*, pages 231–234. Springer, March 2013. Tool demonstration paper, (Acceptance rate: 23%) FASE 2013
- P40. Nadia Polikarpova, Carlo A. Furia, Yu Pei, Yi Wei, and Bertrand Meyer. What good are strong specifications? In *Proceedings of the 35th International Conference on Software Engineering (ICSE)*, pages 257–266. ACM, May 2013. (Acceptance rate: 18%) ICSE 2013
- P39. Carlo A. Furia, Bertrand Meyer, Manuel Oriol, Andrey Tikhomirov, and Yi Wei. The search for the laws of automatic random testing. In *Proceedings of the 28th ACM Symposium on Applied Computing (SAC 2013)*, pages 1214–1219. ACM, March 2013. Software Verification and Testing Track, (Acceptance rate: 23%) SAC 2013

- P38. Julian Tschannen, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Automatic verification of advanced object-oriented features: The AutoProof approach. In *Tools for Practical Software Verification – LASER 2011, International Summer School*, volume 7682 of *Lecture Notes in Computer Science*, pages 134–156. Springer, 2012. LASER 2011
- P37. Marco Trudel, Carlo A. Furia, Martin Nordio, Bertrand Meyer, and Manuel Oriol. C to O-O: Beyond the easy stuff. In *Proceedings of the 19th Working Conference on Reverse Engineering (WCRE'12)*, pages 19–28. IEEE Computer Society, October 2012. (Acceptance rate: 33%) WCRE 2012
- P36. Marco Trudel, Carlo A. Furia, and Martin Nordio. Automatic C to O-O translation with C2Eiffel. In *Proceedings of the 19th Working Conference on Reverse Engineering (WCRE'12)*, pages 508–509. IEEE Computer Society, October 2012. Tool demonstration paper WCRE 2012
- Tool paper based on [P37].
- P35. Carlo A. Furia. A verifier for functional properties of sequence-manipulating programs. In *Proceedings of the 10th International Symposium on Automated Technology for Verification and Analysis (ATVA'12)*, volume 7561 of *Lecture Notes in Computer Science*, pages 183–186. Springer, October 2012. (Acceptance rate: 32%) ATVA 2012
- Tool paper based on the theory of [P24].
- P34. Carlo A. Furia and Paola Spoletini. Automata-based verification of linear temporal logic models with bounded variability. In *Proceedings of the 19th International Symposium on Temporal Representation and Reasoning (TIME'12)*, pages 89–96. IEEE Computer Society, September 2012. (Acceptance rate: 50%) TIME 2012
- P33. H.-Christian Estler, Martin Nordio, Carlo A. Furia, Bertrand Meyer, and Johannes Schneider. Agile vs. structured distributed software development: A case study. In *Proceedings of the 7th International Conference on Global Software Engineering (ICGSE'12)*, pages 11–20. IEEE Computer Society, August 2012. Best paper award, (Acceptance rate: 25%) ICGSE 2012
- Best paper award at ICGSE 2012.
- P32. Yi Wei, Hannes Roth, Carlo A. Furia, Yu Pei, Alexander Horton, Michael Steindorfer, Martin Nordio, and Bertrand Meyer. Stateful testing: Finding more errors in code and contracts. In *Proceedings of the 26th IEEE/ACM International Conference on Automated Software Engineering (ASE'11)*, pages 440–443. ACM, November 2011. (Acceptance rate: 43%) ASE 2011
- P31. Yu Pei, Yi Wei, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Code-based automated program fixing. In *Proceedings of the 26th IEEE/ACM International Conference on Automated Software Engineering (ASE'11)*, pages 392–395. ACM, November 2011. (Acceptance rate: 43%) ASE 2011
- P30. Julian Tschannen, Carlo A. Furia, Martin Nordio, and Bertrand Meyer. Usable verification of object-oriented programs by combining static and dynamic techniques. In *9th International Conference on Software Engineering and Formal Methods (SEFM'11)*, volume 7041 of *Lecture Notes in Computer Science*, pages 382–398. Springer, November 2011. (Acceptance rate: 28%) SEFM 2011
- P29. Carlo A. Furia and Paola Spoletini. On relaxing metric information in linear temporal logic. In *Proceedings of the 18th International Symposium on Temporal Representation and Reasoning (TIME'11)*, pages 72–79. IEEE Computer Society, September 2011. (Acceptance rate: 44%) TIME 2011

- P28. Marco Trudel, Manuel Oriol, Carlo A. Furia, and Martin Nordio. Automated translation of Java source code to Eiffel. In *Objects, Components, Models, Patterns. 49th International Conference, TOOLS Europe 2011*, volume 6705 of *Lecture Notes in Computer Science*, pages 20–35. Springer, June 2011. (Acceptance rate: 28%) TOOLS 2011
- P27. Yi Wei, Carlo A. Furia, Nikolay Kazmin, and Bertrand Meyer. Inferring better contracts. In *Proceedings of the 33rd International Conference on Software Engineering (ICSE'11)*, pages 191–200. ACM, May 2011. (Acceptance rate: 14%) ICSE 2011
- P26. Carlo A. Furia and Matteo Rossi. A theory of sampling for continuous-time metric temporal logic. *ACM Transactions on Computational Logic*, 12(1):1–40, October 2010. Article 8 ACM TOCL
- P25. Carlo A. Furia and Bertrand Meyer. Inferring loop invariants using postconditions. In *Fields of Logic and Computation: Essays Dedicated to Yuri Gurevich on the Occasion of His 70th Birthday*, volume 6300 of *Lecture Notes in Computer Science*, pages 277–300. Springer, August 2010 Gurevich Festschrift
- P24. Carlo A. Furia. What's decidable about sequences? In *Proceedings of the 8th International Symposium on Automated Technology for Verification and Analysis (ATVA'10)*, volume 6252 of *Lecture Notes in Computer Science*, pages 128–142. Springer, September 2010. (Acceptance rate: 41%) ATVA 2010
- P23. Dino Mandrioli, Stephen Fickas, Carlo A. Furia, Mehdi Jazayeri, Matteo Rossi, and Michal Young. SCORE: the first student contest on software engineering. *SIGSOFT Software Engineering Notes*, 35(4):24–30, July 2010 SIGSOFT SEN
- P22. Nadia Polikarpova, Carlo A. Furia, and Bertrand Meyer. Specifying reusable components. In *Proceedings of the 3rd International Conference on Verified Software: Theories, Tools, and Experiments (VSTTE'10)*, volume 6217 of *Lecture Notes in Computer Science*, pages 127–141. Springer, August 2010. (Acceptance rate: 36%) VSTTE 2010
- P21. Yi Wei, Yu Pei, Carlo A. Furia, Lucas S. Silva, Stefan Buchholz, Bertrand Meyer, and Andreas Zeller. Automated fixing of programs with contracts. In *Proceedings of the 19th International Symposium on Software Testing and Analysis (ISSTA'10)*, pages 61–72. ACM, July 2010. (Acceptance rate: 23%) ISSTA 2010
- P20. Carlo A. Furia, Dino Mandrioli, Angelo Morzenti, and Matteo Rossi. Modeling time in computing: a taxonomy and a comparative survey. *ACM Computing Surveys*, 42(2):1–59, February 2010. Article 6 ACM CSUR
- P19. Luca Cavallaro, Elisabetta Di Nitto, Carlo A. Furia, and Matteo Pradella. A tile-based approach for self-assembling service compositions. In *Proceedings of the 15th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS'10)*, pages 43–52. IEEE, March 2010. (Acceptance rate: 23%) ICECCS 2010
- P18. Silvia Bindelli, Elisabetta Di Nitto, Carlo A. Furia, and Matteo Rossi. Using compositionality to formally model and analyze systems built of a high number of components. In *Proceedings of the 15th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS'10)*, pages 85–94. IEEE, March 2010. (Acceptance rate: 23%) ICECCS 2010
- P17. Marcello M. Bersani, Carlo A. Furia, Matteo Pradella, and Matteo Rossi. Integrated modeling and verification of real-time systems through multiple paradigms. In *Proceedings of the 7th IEEE International Conference on Software Engineering and Formal Methods (SEFM'09)*, pages 13–22. IEEE Computer Society Press, November 2009. (Acceptance rate: 35%) SEFM 2009

- P16. Carlo A. Furia, Matteo Pradella, and Matteo Rossi. Comments on “Temporal logics for real-time system specification”. *ACM Computing Surveys*, 41(2):1–5, February 2009. Extended version as Technical Report 2008.7, Dipartimento di Elettronica e Informazione, Politecnico di Milano, April 2008 ACM CSUR
- P15. Carlo A. Furia and Paola Spoletini. Practical efficient modular linear-time model-checking. In *Proceedings of the 6th International Symposium on Automated Technology for Verification and Analysis (ATVA’08)*, volume 5311 of *Lecture Notes in Computer Science*, pages 408–417. Springer-Verlag, October 2008. (Acceptance rate: 34%) ATVA 2008
- P14. Carlo A. Furia and Matteo Rossi. MTL with bounded variability: Decidability and complexity. In *Proceedings of the 6th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS’08)*, volume 5215 of *Lecture Notes in Computer Science*, pages 109–123. Springer-Verlag, September 2008. (Acceptance rate: 45%) FORMATS 2008
- P13. Carlo A. Furia, Matteo Pradella, and Matteo Rossi. Practical automated partial verification of multi-paradigm real-time models. In *Proceedings of the 10th International Conference on Formal Engineering Methods (ICFEM’08)*, volume 5256 of *Lecture Notes in Computer Science*, pages 298–317. Springer-Verlag, October 2008. (Acceptance rate: 32%) ICFEM 2008
- P12. Carlo A. Furia and Paola Spoletini. Tomorrow and all our yesterdays: MTL satisfiability over the integers. In *Proceedings of the 5th International Colloquium on Theoretical Aspects of Computing (ICTAC’08)*, volume 5160 of *Lecture Notes in Computer Science*, pages 126–140. Springer-Verlag, September 2008. (Acceptance rate: 38%) ICTAC 2008
- P11. Carlo A. Furia, Marco Mazzucchelli, Paola Spoletini, and Mara Tanelli. Towards the exhaustive verification of real-time aspects in controller implementation. In *Proceedings of the 9th IEEE International Symposium on Computer-Aided Control System Design (CACSD’08)*, pages 1265–1270. IEEE Press, September 2008. CACSD’08 is part of the 2nd IEEE Multi-conference on Systems and Control CACSD 2008
- P10. Carlo A. Furia, Matteo Pradella, and Matteo Rossi. Automated verification of dense-time MTL specifications via discrete-time approximation. In *Proceedings of the 15th International Symposium on Formal Methods (FM’08)*, volume 5014 of *Lecture Notes in Computer Science*, pages 132–147. Springer-Verlag, May 2008. (Acceptance rate: 21%) FM 2008
- P9. Carlo A. Furia and Matteo Rossi. On the expressiveness of MTL variants over dense time. In *Proceedings of the 5th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS’07)*, volume 4763 of *Lecture Notes in Computer Science*, pages 163–178. Springer-Verlag, October 2007. (Acceptance rate: 45%) FORMATS 2007
- P8. Carlo A. Furia and Matteo Rossi. No need to be strict: on the expressiveness of metric temporal logics with (non-)strict operators. *Bulletin of the European Association for Theoretical Computer Science*, 92:150–160, June 2007 EATCS Bulletin
- P7. Carlo A. Furia, Matteo Rossi, Dino Mandrioli, and Angelo Morzenti. Automated compositional proofs for real-time systems. *Theoretical Computer Science*, 376(3):164–184, 2007 TCS
- Extended version of [P3].  
Special issue with invited papers from FASE 2004 and 2005.

- P6. Carlo A. Furia, Matteo Rossi, and Dino Mandrioli. Modeling the environment in software-intensive systems. In *Proceedings of the Workshop on Modeling in Software Engineering (MISE'07)*, May 2007. A Workshop of the 29th International Conference on Software Engineering (ICSE'07), (Acceptance rate: 43%) MiSE 2007
- P5. Carlo A. Furia, Angelo Morzenti, Matteo Pradella, and Matteo G. Rossi. Comments on “A temporal logic for real-time system specification”. *IEEE Transactions on Software Engineering*, 32(6):424–427, June 2006. Comments paper IEEE TSE
- P4. Carlo A. Furia and Matteo Rossi. Integrating discrete- and continuous-time metric temporal logics through sampling. In *Proceedings of the 4th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS'06)*, volume 4202 of *Lecture Notes in Computer Science*, pages 215–229. Springer-Verlag, September 2006. (Acceptance rate: 44%) FORMATS 2006
- P3. Carlo A. Furia, Matteo Rossi, Dino Mandrioli, and Angelo Morzenti. Automated compositional proofs for real-time systems. In *Proceedings of the 8th International Conference on Fundamental Approaches to Software Engineering (FASE'05)*, volume 3442 of *Lecture Notes in Computer Science*, pages 326–340. Springer-Verlag, March 2005. Conference held as part of the Joint European Conferences on Theory and Practice of Software (ETAPS'05), (Acceptance rate: 22%) FASE 2005
- P2. Andrea Matta, Carlo A. Furia, and Matteo Rossi. Semi-formal and formal models applied to flexible manufacturing systems. In *Proceedings of the 19th International Symposium on Computer and Information Sciences (ISCIS'04)*, volume 3280 of *Lecture Notes in Computer Science*, pages 718–728. Springer-Verlag, October 2004. (Acceptance rate: 29%) ISCIS 2004
- P1. Carlo A. Furia and Matteo Rossi. A compositional framework for formally verifying modular systems. In *Proceedings of the International Workshop on Test and Analysis of Component Based Systems (TACoS'04)*, volume 116 of *Electronic Notes in Theoretical Computer Science*, pages 185–198. Elsevier, January 2004 TACoS 2004

### Books and edited proceedings

- B7. Nico Plat, Stefania Gnesi, Carlo A. Furia, and Antónia Lopes, editors. *Proceedings of the 2024 IEEE/ACM 12th International Conference on Formal Methods in Software Engineering (FormaliSE), Lisbon, Portugal, April 14-15, 2024*. ACM, 2024 FormaliSE 2024
- B6. Carlo A. Furia and Kirsten Winter, editors. *Integrated Formal Methods – 14th International Conference, IFM 2018. Maynooth, Ireland, September 5–7, 2018.*, volume 11023 of *Lecture Notes in Computer Science*. Springer, 2018 iFM 2018
- B5. Bernhard K. Aichernig, Carlo A. Furia, Marie-Claude Gaudel, and Robert M. Hierons. Special section of Tests and Proofs 2016. *Formal Aspects Comput.*, 30(6):627–628, 2018 FAC 2018
- B4. Bernhard K. Aichernig and Carlo A. Furia, editors. *Tests and Proofs – 10th International Conference, TAP 2016. Held as Part of STAF 2016, Vienna, Austria, July 5–7, 2016. Proceedings*, volume 9762 of *Lecture Notes in Computer Science*. Springer, 2016 TAP 2016
- B3. Carlo A. Furia and Sebastian Nanz. TOOLS Europe 2012 special section. *Journal of Object Technology*, 12(3), August 2013. (editorial) JOT 2013
- B2. Carlo A. Furia, Dino Mandrioli, Angelo Morzenti, and Matteo Rossi. *Modeling Time in Computing*. Monographs in Theoretical Computer Science. An EATCS series. Springer, 2012 Time Modeling

- B1. Carlo A. Furia and Sebastian Nanz, editors. *Objects, Models, Components, Patterns – 50th International Conference, TOOLS 2012, Prague, Czech Republic, May 29–31, 2012. Proceedings*, volume 7304 of *Lecture Notes in Computer Science*. Springer, 2012

TOOLS 2012

### Position papers, reviews, and tutorials

- S6. Richard Torkar, Carlo A. Furia, and Robert Feldt. Bayesian data analysis for software engineering. In *43rd International Conference on Software Engineering: Companion Proceedings (ICSE-Companion)*, pages 328–329. IEEE Computer Society, 2021. Abstract of technical briefing
- S5. Carlo A. Furia. Testing, fixing, and proving with contracts. In *Proceedings of the 9th International Conference on Tests & Proofs (TAP) – A STAF event*, volume 9154 of *Lecture Notes in Computer Science*, pages XIII–XV. Springer, July 2015. Abstract of invited tutorial
- S4. Carlo A. Furia, Julian Tschannen, and Bertrand Meyer. The Gotthard approach: Designing an integrated verification environment for Eiffel. In *Proceedings of the 1st Workshop on Formal Integrated Development Environment (F-IDE) – An ETAPS event*, volume 149 of *Electronic Proceedings in Theoretical Computer Science*, pages 1–2. EPTCS, April 2014. Abstract of invited talk
- S3. Steven Fraser, Luciano Baresi, Jane Cleland-Huang, Carlo A. Furia, Georges Gonthier, Paola Inverardi, and Moshe Y. Vardi. A publication culture in software engineering (panel). In *Proceedings of the 9th Joint Meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, pages 19–23. ACM, August 2013
- S2. Carlo A. Furia and Dino Mandrioli. Turing: la vita, l’opera, l’impatto. *La Matematica nella Società e nella Cultura – Rivista dell’Unione Matematica Italiana*, V(2):105–148, August 2012. Series I; in Italian
- S1. Carlo A. Furia. Review of *The Calculus of Computation* by A. R. Bradley and Z. Manna. *ACM SIGACT News*, 42(1):32–35, March 2011

### Theses

- T3. Carlo Alberto Furia. *Scaling Up the Formal Analysis of Real-Time Systems*. PhD thesis, Dipartimento di Elettronica e Informazione, Politecnico di Milano, May 2007
- T2. Carlo Alberto Furia. Compositional proofs for real-time modular systems. Master’s thesis, Politecnico di Milano, December 2003. (Tesi di Laurea)
- T1. Carlo Alberto Furia. Compositional proofs for real-time modular systems. Master’s thesis, University of Illinois at Chicago, October 2003