

# Carlo A. Furia<sup>1</sup>

Formal Methods Division  
Department of Computer Science and Engineering  
Chalmers University of Technology  
EDIT building, room 5481  
Rännvägen 6  
SE-412 96 Göteborg, Sweden

Email: [furia@chalmers.se](mailto:furia@chalmers.se)  
Homepage: [bugcounting.net](http://bugcounting.net)  
Blog: [bugcounting.net/blog](http://bugcounting.net/blog)

## Current position

Associate professor in the Formal Methods Division<sup>2</sup> of the Department of Computer Science and Engineering, Chalmers University of Technology, Sweden.

## Personal data

**Place and date of birth:** Varese, Italy. 16 September 1979.

**Nationality:** Italian.

## Research positions

**January 2016–present:** Associate professor (“Docent”, tenured) in the Software Technology Division, 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).

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<sup>1</sup>Latest update of this CV: 2017/06/12.

<sup>2</sup>Formerly part of Software Technology.

## 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>3</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.

## 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 thorough empirical evaluations to assess relevance and impact of research outcomes.

The main topics include:

*Automatic program repair.*

*Auto-active program verification.*

*Specification-based dynamic analysis of software.*

*Understanding and supporting collaborative software development.*

*Modeling and analyzing real-time, hybrid, and cyber-physical systems.*

For a more detailed overview of my recent research see <http://bugcounting.net/research.html>.

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<sup>3</sup>MS equivalent.

## Supervised PhD students

*At Chalmers (as main supervisor)*

**YuTing (Jeff) Chen.** June 2016–present.

*At ETH Zurich (as co-supervisor)*

With Bertrand Meyer as main supervisor:

**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.)

**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.)

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

Defended on 29 April 2014.

(Afterward: post-doc at MIT CSAIL.)

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

Defended on 18 December 2014.

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

**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.

(Co-supervised also with Martin Nordio)

Defended on 18 December 2014.

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

## *Supervised Bachelor's and Master's projects*

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.

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'Ettole. 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.

## Teaching activities

### *As lecturer*

Lecturer for the course "Concurrent programming", Chalmers University of Technology, Spring 2017.

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.

### *As teaching assistant*

Guest lecturer for the course "Eiffel: Analysis, Design and Programming", ETH Zurich, Fall 2009. In collaboration with other members of the Chair of Software Engineering of ETH Zurich.

Teaching assistant for the graduate course "Software engineering seminar", ETH Zurich, Spring 2009, 2010, Prof. Bertrand Meyer.

Teaching assistant for "Informatica (CIV)", undergraduate course on fundamentals of computer science, Politecnico di Milano, Fall 2008, Dr. Matteo Rossi.

Teaching assistant for "Informatica Teorica", advanced undergraduate course on the theory of computation, Politecnico di Milano, Spring 2008, Prof. Dino Mandrioli.

Teaching assistant for “Informatica A”, undergraduate course on fundamentals of computer science, Politecnico di Milano, Fall 2007, Dr. Matteo Rossi.

Teaching assistant for the advanced undergraduate course “Theoretical Computer Science” (in English), Politecnico di Milano, Spring 2007, 2008, Prof. Angelo Morzenti.

Teaching assistant for “Informatica Teorica”, advanced undergraduate course on the theory of computation, Politecnico di Milano, Spring 2007, Dr. Matteo Pradella.

Teaching assistant for “Informatica B”, undergraduate course on fundamentals of computer science, Politecnico di Milano, Fall 2005, Dr. Paola Spoletini.

Teaching assistant for the graduate course “Formal Methods in Concurrent and Distributed Systems” (in English), Politecnico di Milano/University of Illinois at Chicago, Spring 2004, 2005, 2006, 2007, 2008, Prof. Dino Mandrioli.

Teaching assistant for “Informatica Teorica”, advanced undergraduate course on the theory of computation, Politecnico di Milano, Spring 2004, 2005, 2006, Dr. Matteo Rossi.

## Talks

### *Invited talks*

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.

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

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)

### *Conference presentations*

Why Just Boogie? Translating Between Intermediate Verification Languages. iFM '16, 1 June 2016. Reykjavik, Iceland.

A Comparative Study of Programming Languages in Rosetta Code. ICSE '15, 22 May 2015. Firenze, Italy.

Automated Program Repair in an Integrated Development Environment. ICSE '15, 21 May 2015. Firenze, Italy.

Bounded Variability of Metric Temporal Logic. TIME '14, 9 September 2014. Verona, Italy.

Loop Invariants by Mutation, Dynamic Validation, and Static Checking. WING '14, a workshop of the Vienna Summer of Logic, 23 July 2014. Vienna, Austria.

Really Automatic Scalable Object-Oriented Reengineering. ECOOP '13, 5 July 2013. Montpellier, France.

The Search for the Laws of Automatic Random Testing. SAC '13, 21 March 2013. Coimbra, Portugal.

A Verifier for Functional Properties of Sequence-Manipulating Programs. ATVA'12, 5 October 2012. Thiruvananthapuram (Trivandrum), India.

Automata-based Verification of Linear Temporal Logic Models with Bounded Variability. TIME'12, 12 September 2012. Leicester, UK.

On Relaxing Metric Information in Linear Temporal Logic. TIME'11, 13 September 2011. Lübeck, Germany.

What's Decidable about Sequences? ATVA'10, 22 September 2010. Singapore.

Using Compositionality to Formally Model and Analyze Systems Built of a High Number of Components. ICECCS'10, 25 March 2010. Oxford, UK.

Towards Relaxing Metric Information in Linear Temporal Logic. ICTCS'09, 29 September 2009. Cremona, Italy.

Practical Automated Partial Verification of Multi-Paradigm Real-Time Models. ICFEM'08, 30 October 2008. Kitakyushu, Japan.

Practical Efficient Modular Linear-Time Model-Checking. ATVA'08, 22 October 2008. Seoul, South Korea.

MTL with Bounded Variability: Decidability and Complexity. FORMATS'08, 15 September 2008, Saint-Malo, France.

Tomorrow and All Our Yesterdays: MTL Satisfiability over the Integers. ICTAC'08, 2 September 2008, Istanbul, Turkey.

Automated Verification of Dense-Time MTL Specifications via Discrete-Time Approximations. FM'08, 28 May 2008, Turku (Åbo), Finland.

On the Expressiveness of MTL Variants. FORMATS'07, 4 October 2007, Salzburg, Austria.

Modeling the Environment in Software-Intensive Systems. MiSE@ICSE'07, 20 May 2007, Minneapolis, MN, USA.

Integrating Discrete- and Continuous-Time Metric Temporal Logics Through Sampling. FORMATS'06, 25 September 2006, Paris, France.

Automated Compositional Proofs for Real-Time Systems. FASE'05, 8 April 2005, Edinburgh, UK.

Semi-Formal and Formal Models Applied to Flexible Manufacturing Systems. ISCIS'04, 29 October 2004, Kemer–Antalya, Turkey.

Compositional Proofs for Real-Time Systems. GIIS meeting (“Gruppo di Interesse in Ingegneria del Software” (software engineering interest group)), 30 September 2004, Università del Sannio, Benevento, Italy.

## Research grants

SNF (Schweizerischer Nationalfonds – Swiss National Science Foundation) grant 200021-137931 “Complete and verifiable contracts (FullContracts)”, 151'482 CHF. 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)”, 157'482 CHF. 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)”, 23'561 CHF. Applicants: Carlo A. Furia and Bertrand Meyer; Duration: 5 months (from April 2014).

## Awards

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.

## Professional service

### *Program chair*

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).

### *Program committee member*

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

Program committee member of the International Conference on integrated Formal Methods (iFM): 2017.

Program committee member of the International Conference on Software Engineering (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.

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.

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

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.



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.

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 2009), an initiative of the 31st International Conference on Software Engineering (ICSE 2009).

### *PhD external examiner*

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.

### *Miscellanea (partial list)*

Review Editor for the *Formal Methods* section of *Frontiers (in ICT)*, an open-access publication platform.<sup>4</sup>

Reviewer of national grant proposals: the Netherlands Organisation for Scientific Research (NWO), the Italian Ministry of Education, University and Research (MIUR).

Reviewer for the PhD Dissertation Award 2012 of the Italian Association for Logic Programming (GULP).

Reviewer for various conferences – including FM, FSE, ICSE, CAV, and VMCAI (see also PC memberships) – and journals – including the IEEE Transactions on Software Engineering, the Formal Aspects of Computing Journal, the ACM Computing Surveys, the Journal of Software: Evolution and Process, the Journal of Applied Non-Classical Logics, the ACM Transactions on Autonomous and Adaptive Systems, the Journal of Systems and Software, the Scientific Annals of Computer Science, the Annals of Mathematics and Artificial Intelligence, the Journal on Computer Virology.

PhD students delegate, Dipartimento di Elettronica e Informazione, Politecnico di Milano, years 2005–2007.

Contributor to the Italian translation of *Algorithmics* by D. Harel, Springer.

Trainer for the Italian regional trials of the International Olympiad in Informatics, year 2006.

Lecturer for the series of talks: *Lezioni di Ingegneria dell’Informazione*, organized by the Politecnico di Milano for high-school students, winters 2006/2007, 2007/2008, and 2008/2009.

<sup>4</sup><http://journal.frontiersin.org/journal/all/section/formal-methods>

## Affiliations

Association for Computing Machinery, member (since 2004).

Formal Methods Europe, member (since 2010).

Free Software Foundation, associate member (since 2005).

Electronic Frontier Foundation, member (since 2005).

## Conferences and schools attended

39th International Conference on Software Engineering (ICSE). 20–28 May 2017, Buenos Aires, Argentina.

15th KeY Symposium. 25–28 July 2016, Manigod, France.

10th International Conference on Tests and Proofs (TAP) at STAF. 5–7 July 2016, Vienna, Austria.

12th International Conference on integrated Formal Methods (iFM). 1–5 June 2016, Reykjavik, Iceland.

38th International Conference on Software Engineering (ICSE). 14–22 May 2016, Austin, TX, USA.

3rd Workshop on Software Correctness and Reliability. 2–3 October 2015, ETH Zürich, Switzerland.

12th LASER Summer School on Software Engineering: “Concurrency: The Next Frontiers”. 6–12 September 2015, Elba Island, Italy.

Kick-off Workshop of project “TheProSE: Theorem Proving and Symbol Elimination for Software Analysis and Verification” – a Wallenberg Academy Fellowship. 4 September 2015, Gothenburg, Sweden.

9th International Conference on Tests and Proofs (TAP) at STAF. 22–24 July 2015, L’Aquila, Italy.

20th International Symposium on Formal Methods (FM). 24–26 June 2015, Oslo, Norway.

2nd Workshop on Integrated Development Environment (F-IDE) at FM 2015. 22 June 2015, Oslo, Norway.

37th International Conference on Software Engineering (ICSE). 16–24 May 2015, Firenze, Italy.

18th European Joint Conferences on Theory and Practice of Software (ETAPS). 11–18 April 2015, London, UK.

4th VerifyThis Verification Competition at ETAPS. 12 April 2015, London, UK.

Workshop “JML: Advancing Specification Language Methodologies”. 23–27 March 2015, Lorentz Center, Leiden, the Netherlands.

2nd Workshop on Software Correctness and Reliability. 3–4 October 2014, ETH Zürich, Switzerland.

- 11th LASER Summer School on Software Engineering: “Leading-Edge Software Engineering”. 7–13 September 2014, Elba Island, Italy.
- 21st International Symposium on Temporal Representation and Reasoning (TIME’14). 8–10 September 2014, Verona, Italy.
- 5th International Workshop on Invariant Generation (WING), at the Vienna Summer of Logic 2014. 23 July 2014, Vienna, Austria.
- 1st Workshop on Formal Integrated Development Environment (F-IDE) at ETAPS 2014. 6 April 2014, Grenoble, France.
- 1st Workshop on Software Correctness and Reliability. 4–5 October 2013, ETH Zürich, Switzerland.
- 9th Joint Meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE). 18–26 August 2013, Saint Petersburg, Russia.
- 27th European Conference on Object-Oriented Programming (ECOOP). 1–5 July 2013, Montpellier, France.
- 35th International Conference on Software Engineering (ICSE). 18–26 May 2013, San Francisco, CA, USA.
- 28th Symposium on Applied Computing (SAC 2013). 18–22 March 2013, Coimbra, Portugal.
- 10th International Symposium on Automated Technology for Verification and Analysis (ATVA’12). 3–6 October 2012, Thiruvananthapuram (Trivandrum), India.
- 19th International Symposium on Temporal Representation and Reasoning (TIME’12). 12–14 September 2012, Leicester, UK.
- 9th LASER Summer School on Software Engineering: “Innovative Languages for Software Engineering”. 2–8 September 2012, Elba Island, Italy.
- 34th International Conference on Software Engineering (ICSE’12). 2–9 June 2012, Zürich, Switzerland.
- TOOLS 2012 Federated Conferences. 28 May–1 June 2012, Prague, Czech Republic.
- 18th International Symposium on Temporal Representation and Reasoning (TIME’11). 12–14 September 2011, Lübeck, Germany.
- 8th LASER Summer School on Software Engineering: “Tools for Practical Software Verification”. 4–10 September 2011, Elba Island, Italy.
- TOOLS 2011 Federated Conferences. 27 June–1 July 2011, Zürich, Switzerland.
- 33rd International Conference on Software Engineering (ICSE’11). 21–28 May 2011, Honolulu, HI, USA.
- Eiffel at 25. 24 November 2010, Zürich, Switzerland.
- The Future of Software Engineering Symposium (FOSE). 22–23 November 2010, Zürich, Switzerland.
- 8th International Symposium on Automated Technology for Verification and Analysis (ATVA’10). 21–24 September 2010, Singapore.

7th LASER Summer School on Software Engineering: “Empirical Software Engineering”. 5–11 September 2010, Elba Island, Italy.

15th International Conference on Engineering of Complex Computer Systems. 22–26 March 2010, Oxford, UK.

SEMAT (Software Engineering Method and Theory) kickoff workshop. 17–18 March 2010, Zürich, Switzerland.

IFIP WG 2.3 meeting 50. 1–5 March 2010, Lachen, Switzerland.

11th Italian Conference on Theoretical Computer Science. 28–30 September 2009, Cremona, Italy.

47th International Conference on Objects, Models, Components, Patterns. 29 June–3 July 2009, Zürich, Switzerland.

31st International Conference on Software Engineering (ICSE’09). 16–24 May 2009, Vancouver, Canada.

10th International Conference on Formal Engineering Methods (ICFEM’08). 27–31 October 2008. Kitakyushu, Japan.

6th International Symposium on Automated Technology for Verification and Analysis (ATVA’08). 20–23 October 2008, Seoul, South Korea.

Developments and New Tracks in Trace Theory (DNTTT’08). 9–11 October 2008, Cremona, Italy.

6th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS’08). 15–17 September 2008, Saint-Malo, France.

5th International Colloquium on Theoretical Aspects of Computing (ICTAC’08). 1–3 September 2008, Istanbul, Turkey.

15th International Symposium on Formal Methods (FM’08). 26–30 May 2008, Turku (Åbo), Finland.

5th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS’07). 3–5 October 2007, Salzburg, Austria.

29th International Conference on Software Engineering (ICSE’07). 19–17 May 2007, Minneapolis, MN, USA.

4th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS’06). 25–27 September 2006, Paris, France.

17th International School for Computer Science Researchers on Formal Methods: Theory and Practice. 10–23 July 2005, Lipari Island, Italy.

8th International Conference on Fundamental Approaches to Software Engineering (FASE’05). 2–10 April 2005, Edinburgh, Scotland, UK.

19th International Symposium on Computer and Information Sciences (ISCIS’04). 27–29 October 2004, Kemer–Antalya, Turkey.

4th Canadian Summer School on Quantum Information. 21–25 June 2004, University of Waterloo, Waterloo, Canada.

## Software

DynaMate: automating the full functional verification of program with loops.

<http://www.st.cs.uni-saarland.de/dynamate/>

Role: contributor (invariant generator module). Languages: Python, Java, JML.

QFIS, a verifier for programs annotated in the first-order theory of sequences.

<https://bitbucket.org/caf/qfis/>

Role: main developer. Languages: Eiffel, CVC3.

For more projects and software see <http://bugcounting.net/research.html>.

## Spoken languages

Italian (native), English (fluent), German (basic).

## Publication list<sup>5</sup>

Publications are listed in *reverse* chronological order in each category.

My DBLP page: [http://dblp.uni-trier.de/pers/hd/f/Furia:Carlo\\_A=](http://dblp.uni-trier.de/pers/hd/f/Furia:Carlo_A=).

My Google Scholar profile: <http://scholar.google.com/citations?user=pqbv1BAAAAAJ>.

My ORCID id: 0000-0003-1040-3201.

### *Books and edited proceedings*

- 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

### *Research papers (refereed)*

- P68. YuTing Chen and Carlo A. Furia. Triggerless happy – intermediate verification with a first-order prover. In Nadia Polikarpova and Steve Schneider, editors, *Proceedings of the 13th International Conference on integrated Formal Methods (iFM)*, volume XXXX of *Lecture Notes in Computer Science*, pages XX–XX. Springer, September 2017. (Acceptance rate: 37%) 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) – Volume 2*. 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*, 2016. 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*, 2016. Online since April 2016 STTT
- P64. Michael Ameri and Carlo A. Furia. Why just Boogie? Translating between intermediate verification languages. In Erika Ábrahám and Marieke Huisman, editors, *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 Catherine Dubois, Paolo Masci, and Dominique Mery, editors, *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
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