

Antonio Filieri

PRINCIPAL APPLIED SCIENTIST, AWS · HONORARY ASSOCIATE PROFESSOR, IMPERIAL COLLEGE LONDON

📞 +1 (669) 304-0983 | ✉️ antonio.filieri@gmail.com, afilieri@amazon.com, a.filieri@imperial.ac.uk | 🏠 <https://antonio.filieri.me>

Experience

Amazon Web Services - Automated Reasoning, CodeGuru, Amazon Security, Identity, S3

Santa Clara, CA, USA

PRINCIPAL APPLIED SCIENTIST

Feb 2022 - present

- Main research areas: automated reasoning, static analysis, automated test generation, security, privacy, data integrity, LLM/agentive reasoning
- Research and development of multi-agent systems for verified synthesis of Cloud Security Controls, guardrail LLM-agents with automated reasoning and testing, and small language models fine-tuning via SFT and GRPO
- Developed the automated verification methods ensuring correctness of AWS Cloud Resources Controls serving over 1B requests per day
- Invented and implemented the partial evaluation methods that brought CodeGuru the highest score worldwide on OWASP
- Research lead on verification and testing methods for data integrity with S3-Automated Reasoning
- Research and implementation of minimal-trust privacy-aware debugging infrastructure with AWS Privacy Engineering
- Amazon Research Awards reviewer for the areas of Automated Reasoning and Privacy
- Manager of four interns (PhD candidates) to investigate generative AI for coding, program analysis, verification and fuzzing
- 5 papers published at ESEC-FSE and ASE. 2 patents awarded, 1 patent pending
- Senior Applied Scientist 2022-26, Principal Applied Scientist 2026-present

Department of Computing, Imperial College London

London, UK

HONORARY ASSOCIATE PROFESSOR

Mar 2024 - present

- Honorary position awarded in recognition of valuable contributions to the Department
- Supervisor of 2 PhD students, 14 papers

Department of Computing, Imperial College London

London, UK

ASSOCIATE PROFESSOR (TENURED)

Nov 2015 - Feb 2024

- Associate Professor: 2022 - 2024
- Assistant Professor: 2018 - 2022 (tenured), 2015 - 2018 (tenure-track)
- Director of postgraduate research (2018 - 2022)
- Design and provision of graduate courses on probabilistic model checking, probabilistic programming, software engineering for industry (program analysis), academic writing and communication, and undergraduate courses on data structures and concurrency in Java
- Leading my research group (5 members) on topics including: probabilistic symbolic execution, software behavior modeling, #SMT, performance engineering, control theoretical and safe-AI methods for software adaptation
- Published 35+ papers in international conferences and journals
- Supervisor of 4 PhD students. Supervised 8 master theses (led to 3 peer-reviewed publications, 1 ARM Project Prize for best thesis, 10 open-source projects released), 1 bachelor theses, and 3 software engineering group projects
- Scientific consultant (contractor) for Precision Design Technology Ltd on automated reasoning for software design (2020 - 2021)

University of Stuttgart

Stuttgart, Germany

ASSISTANT PROFESSOR (GERMAN JUNIORPROFESSUR)

Mar 2014 - Oct 2015

- Led the Runtime Verification and Adaptation of Software Systems unit of the Reliable Software Systems Chair
- Design and provision of graduate courses on algorithms and data structures, program analysis and verification, and software engineering
- Co-supervisor of 2 PhD students, supervised 2 master and 2 bachelor theses (led to 2 peer-reviewed publications)
- Published 13 papers in international conferences and journals
- Chair of the admissions committee of the Msc in Software Engineering
- Member of the Master Program's examiners board

University of Stuttgart

Stuttgart, Germany

POSTDOC RESEARCHER

Jan 2013 - Feb 2014

- Researcher within the Reliable Software Systems Chair
- Research on runtime verification, online monitoring, and software adaptation
- Published 4 papers in international conferences and journals

NASA Ames Research Center

Moffet Field, CA, USA

VISITING SCIENTIST

May 2012 - Aug 2012

- Researcher within Dr. Corina Pasareanu's group
- Extended Java PathFinder's symbolic execution engine with probabilistic symbolic execution capabilities
- Initial results published at ICSE 2013

Politecnico di Milano

PHD IN COMPUTER SCIENCE AND ENGINEERING, WITH HONORS

Milano, Italy

Jan 2010 - Mar 2013

- Major research topic: runtime efficient probabilistic model checking, incremental verification, control-theoretical software adaptation (Advisor: Prof. Carlo Ghezzi)
- Minor research topics: control theory, stochastic modeling (Advisor: Prof. Alberto Leva)
- Co-supervisor of 4 master and 2 bachelor theses

University of Illinois at Chicago

MSC IN COMPUTER SCIENCE

Chicago, IL, USA

Aug 2008 - Aug 2010

- Thesis: failure propagation analysis with multiple failure modes in component-based systems reliability (Advisor: Prof. Ugo Buy)
- Double degree program - GPA 3.72/4

Politecnico di Milano

MSC IN COMPUTER SYSTEMS ENGINEERING, WITH HONORS

Milano, Italy

Sep 2007 - Dec 2009

- Thesis: software failures propagation and transformation in component-based systems (Advisors: Prof. Carlo Ghezzi, Prof. Raffaella Mirandola)
- Main results published at the International Conference on Component-based Software Engineering 2010 - Best Paper Award

Politecnico di Milano

BSC IN COMPUTER SYSTEMS ENGINEERING, WITH HONORS

Milano, Italy

Sep 2004 - Jul 2007

- Thesis: decidability analysis of a temporal logic with metric on time (Advisor: Prof. Matteo Rossi)
- Best Bachelor Thesis award "C. Maffezzoni" by ACSU Cremona

Honors & Awards

- 2025 **Most Influential Paper Award**, 20th International Conference on Software Engineering for Adaptive and Self-Managing Systems (SEAMS) – 10 years impact, for the 2015 paper "Software Engineering Meets Control Theory"
- 2025 **Best Student Paper Award**, 20th International Conference on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)
- 2025 **Top 10 most cited TSE paper from 2016**, Bibliometric study of the Software Engineering research field 2013-2023, KTH, Sweden – <https://bit.ly/4poY07U>
- 2024 **ACM Distinguished Reviewer Award**, 39th IEEE/ACM International Conference on Automated Software Engineering (ASE)
- 2023 **ACM Distinguished Paper Award**, 45th ACM/IEEE International Conference on Software Engineering (ICSE)
- 2022 **Best Paper Award**, 20th International Conference on Service-Oriented Computing (ICSOC)
- 2021 **Top 20 most-influential early career researchers**, A bibliometric assessment of software engineering themes, scholars and institutions (2013–2020) – <https://doi.org/10.1016/j.jss.2021.111029>
- 2021 **Arm Project Prize**, for "outstanding individual project in the area of computer systems" to the MSc thesis of my student Kelvin Zhang
- 2019 **ACM Distinguished Reviewer Award**, 41st ACM/IEEE International Conference on Software Engineering (ICSE)
- 2018 **Student Academic Choice Award**, nomination by Imperial College Student Union for excellence in teaching and supervision
- 2017 **Best Artifact Award**, 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)
- 2017 **Nomination to the ACM SigSoft Early Career Researcher Award**,
- 2016 **ACM Distinguished Reviewer Award**, 31st IEEE/ACM International Conference on Automated Software Engineering (ASE)
- 2013 **Dimitri N. Chorafas Foundation Best PhD Thesis Award**, in Systems Engineering and Information Technology
- 2013 **Nomination to the ACM Doctoral Dissertation Award**,
- 2011 **ACM Distinguished Paper Award**, 33rd ACM/IEEE International Conference on Software Engineering (ICSE)
- 2010 **Best Paper Award**, 7th International Conference on the Quality of Information and Communications Technology (Verification and Validation track) (QUATIC)
- 2010 **Best Research Paper Award**, 13th International Symposium on Component Based Software Engineering (CBSE)
- 2008 **Best Bachelor Thesis Award "C. Maffezzoni"**, Associazione Cremonese Studi Universitari
- 2004-2009 **Distinguished Student Scholarship (GPA >29/30)**, every year, Politecnico di Milano, Italy
- 2004 **Nomination to "Alfieri del Lavoro"**, recognition by the Italian Presidente della Repubblica and Cavalieri del Lavoro for the top high-school students in the country

Teaching (selected)

UNIVERSITY COURSES

2019-2021	Probabilistic programming , graduate course, Imperial College London
2016-2021	Data structures and concurrency in Java , undergraduate course, Imperial College London
2017, 2018	Probabilistic model checking , graduate course, Imperial College London
2016	Software engineering for industry (program analysis) , graduate course, Imperial College London
2016	Academic writing and communication for PhDs , graduate course, Imperial College London
2014, 2015	Software verification , graduate course, University of Stuttgart
2013, 2014	Data structures and algorithms , graduate course, University of Stuttgart

SCIENTIFIC TUTORIALS AND TECHNICAL BRIEFINGS

2017	Probabilistic programming and probabilistic program analysis , ACM/IEEE International Conference on Automated Software Engineering (ASE)
2016	Technical briefing on control theory for software engineering , ACM/IEEE International Conference on Software Engineering (ICSE)

INTERNATIONAL PHD SCHOOLS

2021	STFC PhD School on Data Intensive Science , Durham University, UK
2018	Probabilistic symbolic execution , RioCuarto International Summer School, Rio Cuarto, Argentina
2018	Control theory for self-adaptive software , ECI International Winter School, Buenos Aires, Argentina
2015	Control-theoretical adaptation for software systems , International Spring School on Trustworthy Self-Organizing Systems, Augsburg, Germany

PHD SUPERVISION AND MENTORING

At Amazon, I am the mentor of two scientists (an official role in the company). I have also been the manager of 4 interns and mentor to 6 interns.

2026	Xiatong Ji , Safe and Robust Reinforcement Learning: From Probabilistic Model Checking to Applications in Large Model Control
2024	Donato Clun , Symbolic and quantitative methods in software model learning, model assessment, and model checking
2024	Runan Wang , Automated learning of performance models for cloud-native applications (joint supervision with Dr Giuliano Casale)
2015	Alessandro Maria Rizzi , A syntactic-semantic approach for incremental program verification of matching logic properties (co-supervised with Prof. Carlo Ghezzi at Politecnico di Milano)

Service (selected)

@IMPERIAL COLLEGE LONDON:

	Director of postgraduate research
2018 - 2022	- Led a team of ten academics and admins to coordinate the PhD program of the Department of Computing - Represented Computing within the university's graduate school and the research committee of the Faculty of Engineering - Defined policies and procedures of the PhD school, including managing COVID-19's impact and EDI - Managed budget allocation for PhD students research activities and dissemination events - Responsible for students welfare, diversity, equity, and inclusion (200+ students)
2018 - 2022	Voting member of the PhD admissions and scholarships award committee
2017 - 2018	Deputy director of postgraduate research
2016 - 2019	PhD cohort mentor
2016 - 2019	Personal tutor , 65 students in total, between undergraduate and masters

@UNIVERSITY OF STUTTGART:

2014 - 2015	Chair of the admissions committee of the MSc in Software Engineering
2014 - 2015	Member of the Master Program's examiners board

PROFESSIONAL MEMBERSHIPS AND HABILITATIONS:

ACM	2010-present; elected Senior Member since 2022
ACM SigSoft	2010-present
Formal Methods Europe	2018-present
Chartered Engineer Qualification	Ordine degli Ingegneri, Italy, since 2021
Full-professor habilitation INF 01/B1	Ministero dell'Università e della Ricerca, Italy, since 2025
Full-professor habilitation ING-INF 09/H1	Ministero dell'Università e della Ricerca, Italy, since 2026

CHAIR OR ORGANIZATION COMMITTEE:

2027	Program chair - Software Engineering in Practice , IEEE/ACM International Conference on Software Engineering (ICSE-SEIP)
2026	Program chair , International Conference on Reliable Software Technologies (ADA-Europe)
2025	Artifact evaluation chair , ACM International Conference on the Foundations of Software Engineering (FSE)
2024	Posters track chair , ACM International Conference on the Foundations of Software Engineering (FSE)
2018	Program chair , Java PathFinder Workshop (JPF)
2018	Program chair , International Workshop on Autonomic High Performance Computing (AHPC)
2018	Program chair , 4th International Workshop on Quality-Aware DevOps @ICPE (QUDOS)
2017	Program chair , International Workshop on Autonomic High Performance Computing (AHPC)
2017	Workshops chair , 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE)
2017	Publicity chair , 14th International Conference on Quantitative Evaluation of SysTems (QEST)
2015	Organizer , Dagstuhl Seminar 15491 "Approximate and Probabilistic Computing: Design, Coding, Verification"
2015	Program chair and organizer , 1st International Workshop on Control Theory for Software Engineering (CTSE@ESEC-FSE)
2015	Publicity chair , 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC-FSE)
2014	Organizer , GI-Dagstuhl Seminar 14382 "Control Theory meets Software Engineering"

EDITORIAL BOARDS/TECHNICAL PROGRAM COMMITTEES (SELECTED):

(ICSE, ESEC-FSE (later renamed FSE), and ASE are the top conferences in my research areas.)

2025-present	Steering Committee (Voting Member) of the International Conference on Software Engineering (ICSE)
2020-present	Associate editor of Elsevier's Journal of Software and Systems (JSS) - 2nd highest impact factor Software Engineering journal
2019-2023	Distinguished reviewers board of ACM Transactions on Software Engineering Methodology
2018-2023	Reviewers board of IEEE Transactions on Software Engineering (TSE)
2027	FSE, CAV, SEAMS, ADAConf
2026	ICSE, ASE, NFM, ISSTA, SEAMS, ICSE-SEIP, NeuroSymbolicSE@ICSE
2025	ICSE, FSE, ASE, ICSE-SEIP, ASE-Industry, SEAMS
2024	ICSE, ASE (ACM Distinguished Reviewer Award), SEAMS, FormaliSE, NFM, SAS
2023	ICSE, ASE, SEAMS, FormaliSE, ICPE
2022	ICSE, ESEC-FSE, ASE, ICST, ICPE, SEAMS, SEFM, FAACS, JPF
2021	ICST, ACSOS, SEAMS, ISSRE, SEFM, DeepTest, SE4ICPS, ASE-Artifacts, SeAC, MRT
2020	ICSE, ICSE-DoctoralSymposium, ISSTA, ISSTA-DoctoralSymposium, ICPE, ACSOS, SEAMS, GAUSS
2019	ICSE (ACM Distinguished Reviewer Award), ESEC-FSE, SEAMS, SEAMS-DoctoralSymposium
2018	ESEC-FSE, ASE, JPF, SEAMS, SASO, Programming, FAACS, SEAA, AKSAS, FAILSAFE, MRT
2017	ICSE, ASE, QEST, SASO, SEAMS, ICCAC, QAPL, FormaliSE, SEAA, FC, WAX@ASPLOS, FAACS, MRT@ICAC, SEsCPS, SCAV
2016	ICSE, ASE (ACM Distinguished Reviewer Award), SEAMS, JPF, CBSE, FormaliSE, ICAC, ICSE-Posters
2015	CAV, ASE, CBSE, SEAMS, CAC, MRT, ESEC-FSE-Tools, SEsCPS
2014	MRT, ASE-DoctoralSymposium, SEAA
2013	QASBA, SEAA

OTHER SERVICE:

2023, 2024, 2026	Amazon Research Awards proposals evaluation committee for Automated Reasoning and Privacy Engineering
2023	Most influential paper award committee - IEEE/ACM International Conference on Automated Software Engineering
2020	Co-author of the Official ACM SigSoft Empirical Standards
2015-present	ACM SigSoft Doctoral Dissertation Awards committee - reviewer
2014-present	Proposal reviewer/panel member/panel chair for ERC, EPSRC (UK), ISF (Israel), NRF (South Africa), PRIN (Italy)
2014-present	PhD external examiner at several universities, including University of Illinois at Urbana-Champaign, University of Virginia (2), University College London, Università della Svizzera Italiana, University of Luxembourg, University of Birmingham, Linnaeus University, Politecnico di Milano, University of Stuttgart

INVITED TALKS (SELECTED):

19/12/2025	<i>Formal Methods between Academia and Industry</i> , Politecnico di Milano, Italy
29/04/2025	<i>Software Engineering Meets Control Theory: a 10 years retrospective</i> , Most Influential Paper Award, International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS), Ottawa, Canada
13/03/2025	<i>A random walk through probabilistic software verification, control, and security</i> , CISPA Helmholtz Center for Information Security, Saarbruecken, Germany
24/09/2024	<i>Automated data integrity analysis at Amazon scale</i> , Amazon Formal Methods Workshop (FReE), Boston, USA
11/09/2023	<i>Privacy-preserving debugging and benchmarking</i> , Amazon Formal Methods Workshop (FReE), Santa Clara, USA
29/05/2023	<i>A random walk across software and probabilities</i> , Politecnico di Milano, Italy
14/09/2021	<i>Probabilistic programming: a software engineering perspective</i> , STFC School on Data Intensive Science, Durham, UK
17/05/2021	<i>Your program is at least 95% correct</i> , Amazon AWS, USA
19/11/2019	<i>Control theoretical guarantees for adaptive software</i> , NASA Ames Research Center
13/06/2019	<i>The stochastic life of your software and its probabilistic symbolic execution</i> , at Verification Futures Industrial Conference, Reading, UK
9/7/2019	<i>Probabilistic symbolic execution for quantifiable security</i> , at Queen Mary University of London, London, UK
5/4/2019	<i>Probabilistic symbolic execution</i> , at GSSI Seminars, L'Aquila, Italy
15/10/2018	<i>Towards Conditional Probabilistic Software Analysis</i> , at International Colloquium on Theoretical Aspects of Computing (ICTAC), Stellenbosch, SA
15/10/2018	<i>Conditional quantitative analysis</i> , at the Finding software errors before the find us workshop, Stellenbosch
02/10/2018	<i>Probabilistic symbolic execution</i> , at Università della Svizzera Italiana, Lugano, Switzerland
25/07/2018	<i>Code-level probabilistic software analysis</i> , at University of Buenos Aires, Argentina
23/05/2017	<i>Early career in academia: the good, the bad, the ugly</i> , talk and panel, New Faculty Symposium, International Conference on Software Engineering (NFS-ICSE), Buenos Aires, Argentina
22-25/09/2016	<i>Bringing probabilistic verification at runtime</i> , Automata, Logic and Games, Institute for Mathematical Sciences, National University of Singapore, Singapore
25-28/04/2016	<i>Control theory for Software Engineering: the good, the bad, ... the missing</i> , at NII Shonan Meeting on Controlled Adaptation of Self-adaptive Systems (CASaS), Shonan Village Center, Japan
2-3/04/2016	<i>Keep your software under control: control theory for adaptive software</i> , at the 14th International Workshop on Quantitative Aspects of Programming Languages and Systems (QAPL@ETAPS 16), Eindhoven, The Netherlands
14/03/2016	<i>Probabilistic Symbolic Execution: Bringing quantitative analysis at code level</i> , at The University of Edinburgh, Informatics Forum, Edinburgh, UK
09/03/2016	<i>Probabilistic Symbolic Execution: Moving quantitative analysis from models to code</i> , at Oxford University, Oxford, UK
23-24/11/2015	<i>Lightweight Adaptive Filters for Tracking Software Behavior @Runtime</i> , at the 44th CREST Open Workshop - Predictive Modelling for Software Engineering, University College London, UK
17/06/2015	<i>Models in the middle and automated control synthesis: how to improve a software... engineer</i> , Charles University, Prague, Czech Republic
19/03/2015	<i>Statistical Symbolic Execution with Informed Sampling</i> , SE 2015, Dresden, Germany
20/03/2015	<i>Automated Design of Self-Adaptive Software with Control-Theoretical Formal Guarantees</i> , SE 2015, Dresden, Germany
04/11/2014	<i>Automated Control for Self-adaptive Software Design</i> , 2nd Workshop on Autonomic Computing and Control, Grenoble, France
13/06/2014	<i>On the Probabilistic Symbolic Analysis of Programs</i> , Approx2014@PLDI, Edinburgh, UK
27/02/2014	<i>Reliability Analysis in Symbolic Pathfinder: A brief summary</i> , SE 2014, Kiel, Germany
20/11/2013	<i>Control Theory for Self-adaptive Software</i> , Politecnico di Milano, Milan, Italy
17/09/2013	<i>Model-based Verification and Adaptation of Software Systems @Runtime</i> , University of Stuttgart, Stuttgart, Germany
05/07/2013	<i>From Dynamic Binding to Dynamic Allocation: QoS-driven adaptation in the Cloud</i> , Department of Control Automation, Lund University, Sweden

15-19/12/2013	<i>Software Engineering for Self-Adaptive Systems: Assurances</i> , Dagstuhl, Germany
28/01/2013	<i>Reliability Analysis in Symbolic PathFinder: a Few Steps Further</i> , Microsoft Research, Cambridge, UK
4-5/10/2012	<i>Run-Time Verification and Model Update</i> , DeepSE with GRACE Joint Workshop with Japanese National Institute of Informatics, Milan, Italy
27/07/2012	<i>Reliability Analysis in Symbolic PathFinder</i> , Intelligent Systems Division, NASA Ames Research Center, Moffet Field, CA, USA
20-25/05/2012	<i>Quality-of-Service Attributes in Service- and Cloud-based Systems: Specification, Modeling, Monitoring, Prediction, and Optimization</i> , Dagstuhl, Germany
19-21/09/2011	<i>Run-Time Verification and Model Update</i> , Joint Workshop of five ERC-funded Projects on Software Quality, Venice, Italy
14/09/2011	<i>Quality Assurance in SMSCom: QoS Verification and Model Tuning @Runtime</i> , QASBA International Workshop, Lugano, Switzerland
26/05/2010	<i>Failure Propagation Analysis with Multiple Failure Modes</i> , ASE 2010: PC meeting and ASE workshop, Milan, Italy
29/11-2/12/2009	<i>Model-Driven Quality Prediction</i> , Dagstuhl, Germany

Publications

Preprints and supplementary material available at <https://antonio.filieri.name>

Google scholar page (including citations count) <http://goo.gl/BST9y7>

DBLP page: <http://goo.gl/vvYmNj>

CS Ranking (under Imperial College London): <http://bit.ly/4esncDU>

[DOIs and patent numbers are clickable]

PATENTS

2. United States Patent 12,675,391. *Minimal trust debugging*, 2026
1. United States Patent 12,314,712. *Partitioning code bases for parallel execution of code analysis*, 2025

UNDER REVIEW/SUBMISSION (SELECTED)

1. D. Clun, A. Filieri, *Quantitative Model Checking for Visibly Pushdown Models*, ACM Transactions on Software Engineering and Methodology (TOSEM)

JOURNALS

14. X. Ji, H. Wang, A. Filieri, *Robust Policy Optimization and Verification with Moment-Based Distributional Constraints*, ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2026 [DOI: 10.1145/3848513]
13. X. Ji, A. Filieri, *Safe Reinforcement Learning under Regularised Probabilistic Counterexample Guidance*, ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2026 [DOI: 10.1145/3831680]
12. R. Wang, G. Yu, G. Casale, P. Chen, A. Filieri. *Fine-grained Tracing for Performance Anomaly Diagnosis of Serverless Functions*, ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2026. [DOI: 10.1145/3785005]
11. D. Clun, D. Shin, A. Filieri, D. Bianculli. *Rigorous Assessment of Model Inference Accuracy using Language Cardinality*, ACM Transactions on Software Engineering and Methodology (TOSEM), 2024. [DOI: 10.1145/3640332]
10. R. Wang, G. Casale, A. Filieri. *Estimating multiclass service demand distributions using Markovian arrival processes* ACM Transactions on Modeling and Computer Simulation. 33, (2023). [DOI: 10.1145/3570924]
9. A. Alnafessah, A.U. Gias, R. Wang, L. Zhu, G. Casale, A. Filieri. *Quality-Aware DevOps Research: Where Do We Stand?* IEEE Access. 9, (2021), 44476–44489. [DOI: 10.1109/ACCESS.2021.3064867]
8. M. Gerrard, M. Borges, M.B. Dwyer, A. Filieri. *Conditional Quantitative Program Analysis*. In IEEE Transactions on Software Engineering (TSE), 2020. [DOI: 10.1109/TSE.2020.3016778]
7. S. Heiden, L. Grunske, T. Kehler, F. Keller, A. van Hoorn, A. Filieri, D. Lo. *An evaluation of pure spectrum based fault localization techniques for large scale software systems*. In Software: Practice and Experience (SPE), 2019. [DOI: 10.1002/spe.2703]
6. A. Filieri, et al. *Control Strategies for Self-Adaptive Software Systems*. In ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2017. [DOI: 10.1145/3024188]
5. A. Filieri, C. Ghezzi, and G. Tamburrelli. *Supporting Self-adaptation via Quantitative Verification and Sensitivity Analysis at Run Time*. In IEEE Transactions on Software Engineering (TSE), 2016. [DOI: 10.1109/TSE.2015.2421318] - **Top 10 most cited TSE papers from 2016 (ref)**

4. D. Bianculli, A. Filieri, C. Ghezzi, and D. Mandrioli. *Syntactic-Semantic Incrementality for Agile Verification*. In Science of Computer Programming (SciCo), v. 97, no. 1, pp.47-54, 2015. [DOI: 10.1016/j.scico.2013.11.026]
3. A. Ciancone, M. L. Drago, A. Filieri, V. Grassi, H. Kozirolek, and R. Mirandola. *The KlaperSuite Framework for Model-Driven Reliability Analysis of Component-Based Systems*. In Software and Systems Modeling (SoSyM), v. 13, no. 4, pp. 1269-1290, 2013. [DOI: 10.1007/s10270-013-0334-8]
2. A. Ciancone, A. Filieri, and R. Mirandola. *Testing Operational Transformations in Model-Driven Engineering*. In Innovations in Systems and Software Engineering (ISSE), v. 10, no. 1, pp. 19-32, 2013. [DOI: 10.1007/s11334-013-0208-9]
1. A. Filieri, C. Ghezzi, and G. Tamburrelli. *A Formal Approach to Adaptive Software: Continuous Assurance of Non-Functional Requirements*. In Formal Aspects of Computing (FAoC), v. 24, no. 2, pp. 163-186, 2012. [DOI: 10.1007/s00165-011-0207-2]

CONFERENCES

36. Alair et al., *ControlsDSL: A Language for Verifiable Cloud Configuration Controls*, In Automated Software Engineering - Industry (ASE-Industry, 2026), [DOI: 10.1145/3832783.3834488]
35. Filieri et al., *IAM Policy Autopilot: Static Analysis for Policy Generation from Application Code*, In Automated Software Engineering - Industry (ASE-Industry, 2026), [DOI: 10.1145/3832783.3834512]
34. X. Ji, H. Wang, A. Filieri, I. Epifani. *Robust Probabilistic Model Checking with Continuous Reward Domains*. In 20th International Conference on Software Engineering for Adaptive and Self-Managing Systems (SEAMS, 2025). [Acceptance rate: 11/61, 18%, DOI: 10.1109/SEAMS66627.2025.00010] - **Best Student Paper Award**
33. S.B. Hossain, A. Filieri, M.B. Dwyer, S. Elbaum, W. Visser. *Neural-Based Test Oracle Generation: A Large-scale Evaluation and Lessons Learned*. In ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC-FSE, 2023). [Acceptance rate: 127/465, 27%, DOI: 10.1145/3611643.3616265]
32. S. Banerjee, S. Cui, M. Emmi, A. Filieri, L. Hadarean, P. Li, L. Luo, G. Piskachev, N. Rosner, A. Sengupta, O. Tripp, J. Wang. *Compositional Taint Analysis for Enforcing Security Policies at Scale*. In ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC-FSE, 2023). [Acceptance rate: 127/465, 27%, DOI: 10.1145/3611643.3613889]
31. X. Ji, A. Filieri. *Probabilistic Counterexample Guidance for Safer Reinforcement Learning*. In 20th International Conference on Quantitative Evaluation of SysTems (QEST, 2023). [Acceptance rate: 23/44, 52%, DOI: 10.1007/978-3-031-43835-6_22]
30. W. Leeson, M.B. Dwyer, A. Filieri. *Sibyl: Improving Software Engineering Tools with SMT Selection*. In IEEE/ACM 45th International Conference on Software Engineering (ICSE 2023). [Acceptance rate: 208/797, 26.5%, DOI: 10.1109/ICSE48619.2023.00184] - **ACM Distinguished Paper Award**
29. R. Wang, G. Casale, A. Filieri. *Enhancing performance modeling of serverless functions via static analysis*. In International Conference on Service-Oriented Computing (ICSOC 2022). [Acceptance rate: 35/208, 16.8%, DOI: 10.1007/978-3-031-20984-0_5] - **Best Paper Award**
28. M. Christakis, T. Cottenier, A. Filieri, L. Luo, M.N. Mansur, L. Pike, N. Rosner, M. Schaef, A. Sengupta, W. Visser. *Input splitting for cloud-based static application security testing platforms*. In ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2022). [Acceptance rate: 99/469, 22%, DOI: 10.1145/3540250.3558944]
27. Y. Luo, A. Filieri, Y. Zhou. *Symbolic Parallel Adaptive Importance Sampling for Probabilistic Program Analysis*. In ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2021). [Acceptance rate: 97/396, 24%, DOI: 10.1145/3468264.3468593]
26. R. Wang, G. Casale, A. Filieri. *Service Demand Distribution Estimation for Microservices Using Markovian Arrival Processes*. In 18th International Conference on Quantitative Evaluation of SysTems (QEST 2021). [Acceptance rate: 23/47, 48.9%, DOI: 10.1007/978-3-030-85172-9_17]
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