ege.sarac@cispa.de
egesarac.github.io
Google Scholar profile
DBLP profile

N. Ege Saraç – CV

Employment and Education

2025–now **Postdoctoral researcher**, *CISPA Helmholtz Center for Information Security*, Saarbrücken
Supervisor: Bernd Finkbeiner

2019–2025 **PhD** in Computer Science, *Institute of Science and Technology Austria (ISTA)*, Klosterneuburg
Thesis: A Monitoring-Oriented Theory and Classification of Quantitative Specifications
Supervisor: Thomas A. Henzinger
Committee: Krishnendu Chatterjee, Bernd Finkbeiner, Dejan Ničković

2014–2019 **BSc** in Computer Science (Minor: Mathematics), *Sabancı University*, Istanbul
Rank: 1st out of 544

Research Visits and Internships

Jul-Oct 2023 Center for Digital Safety & Security, *Austrian Institute of Technology (AIT)*
Topic: Approximate runtime verification of distributed systems

Jun-Sep 2017 T. Henzinger Group, *Institute of Science and Technology Austria (ISTA)*
Topic: Infinite-state safety monitors

2018–2019 Formal Methods and High-Performance Computing Groups, *Sabancı University*
Topic: Synchronizing heuristics for finite-state automata

Awards and Recognition

2025 Finalist for the ISTA Outstanding PhD Thesis Award (top 8% of all theses), *ISTA*
2024 Research paper selected for post-conference journal special issue, *RV 2024*
2023 Research paper selected for post-conference journal special issue, *CONCUR 2023*
2019 Sakıp Sabancı Award for the Highest Ranking Student, *Sabancı University*
2018 Logic Mentoring Workshop Student Travel Grant, *ACM SIGLOG*
2017 Scholarship for Student Researchers, *Österreichischer Austauschdienst (OeAD)*
2014 Merit-based full scholarship for BSc studies, *Sabancı University*

Publications (*: first or corresponding author)

[CONCUR'25] **Quantitative Language Automata**
Thomas A. Henzinger, Pavol Kebis, Nicolas Mazzocchi, N. Ege Saraç*
36th Intl. Conf. on Concurrency Theory, 2025

[LMCS'25] **Safety and Liveness of Quantitative Properties and Automata**
Udi Boker, Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
Logical Methods in Computer Science, Volume 21, Issue 2, 2025

[TACAS'25] **Automating the Analysis of Quantitative Automata with QuAK**
Marek Chalupa, Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
31st Intl. Conf. on Tools and Algorithms for the Construction and Analysis of Systems, 2025

[ISoLA'24] **QuAK: Quantitative Automata Kit** (invited paper)
Marek Chalupa, Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
12th Intl. Symp. on Leveraging Applications of Formal Methods, 2024

[RV'24] **Approximate Distributed Monitoring Under Partial Synchrony: Balancing Speed and Accuracy**
Borzoo Bonakdarpour, Anik Momtaz, Dejan Ničković, N. Ege Saraç*
24th Intl. Conf. on Runtime Verification, 2024 – selected for STTT special issue

[CONCUR'24] **Strategic Dominance: A New Preorder for Nondeterministic Processes**
Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
35th Intl. Conf. on Concurrency Theory, 2024

[CONCUR'23] **Safety and Liveness of Quantitative Automata**
Udi Boker, Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
34th Intl. Conf. on Concurrency Theory, 2023 – selected for LMCS special issue

[ICALP'23] **Regular Methods for Operator Precedence Languages**
Thomas A. Henzinger, Pavol Kebis, Nicolas Mazzocchi, N. Ege Saraç
50th Intl. Coll. on Automata, Languages and Programming, 2023

[FoSSaCS'23] **Quantitative Safety and Liveness**
Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
26th Intl. Conf. on Foundations of Software Science and Computation Structures, 2023

[RV'22] **Abstract Monitors for Quantitative Specifications**
Thomas A. Henzinger, Nicolas Mazzocchi, N. Ege Saraç*
22nd Intl. Conf. on Runtime Verification, 2022

[LICS'21] **Quantitative and Approximate Monitoring**
Thomas A. Henzinger, N. Ege Saraç*
36th Ann. ACM/IEEE Symp. on Logic in Computer Science, 2021

[ESWA'21] **Boosting Expensive Synchronizing Heuristics**
N. Ege Saraç*, Ömer Faruk Altun, Kamil Tolga Atam, Sertaç Karahoda, Kamer Kaya, Hüsnü Yenigün
Expert Systems with Applications, Volume 167, 2021

[RV'20] **Monitorability Under Assumptions** (invited paper)
Thomas A. Henzinger, N. Ege Saraç*
20th Intl. Conf. on Runtime Verification, 2020

[LICS'18] **A Theory of Register Monitors**
Thomas Ferrère, Thomas A. Henzinger, N. Ege Saraç
33rd Ann. ACM/IEEE Symp. on Logic in Computer Science, 2018

Scientific Talks

Quantitative Language Automata
Oct 2025 19th Intl. Conf. on Reachability Problems (RP)
Aug 2025 36th Intl. Conf. on Concurrency Theory (CONCUR)

Approximate Distributed Monitoring under Partial Synchrony
Oct 2024 24th Intl. Conf. on Runtime Verification (RV)
Oct 2024 AIT Dependable Systems Engineering Seminar Series

Safety and Liveness of Quantitative Properties and Automata
Mar 2025 RWTH Aachen Software Modeling and Verification Group Seminar Series
Feb 2025 CISPA Reactive Systems Group Seminar Series
Jan 2025 TU Dresden Algebraic and Logic Foundations of Computer Science Seminar Series
Sep 2024 18th Intl. Conf. on Reachability Problems (RP)
Sep 2024 TU Wien CPS Research Unit Seminar Series
Sep 2024 16th Alpine Verification Meeting (AVM)
Jun 2024 DEVINE Research Team (Inria and IRISA) Formal Methods Seminar

Oct 2023 AIT Dependable Systems Engineering Seminar Series

Apr 2023 26th Intl. Conf. on Foundations of Software Science and Computation Structures (FoSSaCS)
Advancing the Theory of Quantitative Algorithmic Monitoring

Sep 2022 FBK Embedded Systems Seminar Series

Apr 2022 IMT Lucca It-Matters Seminar Series
Quantitative and Approximate Monitoring

Jul 2021 36th Ann. ACM/IEEE Symp. on Logic in Computer Science (LICS)

Jun 2021 ISTA & TU Wien FORSYTE Joint Seminar Series
Monitorability Under Assumptions

Dec 2020 ISTA & TU Wien FORSYTE Joint Seminar Series

Teaching Experience

Guest Lecturer

2023 **Foundations of Model Checking**, *ISTA*
Delivered a lecture on the model checking tools PRISM, UPPAAL, and Kind 2

Teaching Assistant

2023–2024 **Formalisms Every Computer Scientist Should Know**, *ISTA*
Managed student support and evaluated assignments

2022 **Formal Methods: Algorithmic Approaches**, *ISTA*
Conducted office hours and assessed student understanding by grading assignments

2018–2019 **Algorithms**, *Sabancı University*
Instructed recitation sessions for 100+ students, designed problem sets, and graded exams

Workshop and Peer-Study Moderator

2015–2018 **Mathematics & Natural Sciences**, *Sabancı University*
Led 75+ foundational knowledge study sessions for 600+ undergraduate students

Mentoring Experience

Mentored Graduate Students

2025, 2022 **Pavol Kebis**, *ISTA*: Co-authored two conference publications

Mentored Undergraduate Students

2025 **Harun Yılmaz**, *ISTA*: Supervising a project for a conference submission

Additional Experience

2025 **Alumni Speaker** at the Graduate School Welcome Event, *ISTA*
Shared insights with incoming students

2023, 2020 **Student Mentor** for three incoming PhD students, *ISTA*
Provided guidance on research, coursework, and campus integration

Professional Development

2026–2027 COMPASS Mentoring Program, *Helmholtz Association*

2025 ProLehre Onboarding – Effective Teaching, *TU Munich*

2022 Basics in Didactics – Teaching and Learning in Higher Education, *ISTA*

2019 Science Research Writing – A Technical Introduction, *ISTA*

Professional Service

Committee *Organizing:* HYPER 2026 (planned as a FLoC/CAV 2026 workshop)
Artifact Evaluation: VMCAI 2026, CAV 2025, CAV 2024

Reviewer *Conferences:* CONCUR 2025, RV 2024 (x2), MFCS 2024, FSTTCS 2023, ATVA 2023, CONCUR 2023
Journals: Innovations in Systems and Software Engineering
Books: Principles of Systems Design (Tom Henzinger Festschrift)

Pre-screener for PhD applications, *ISTA* (2024, 2023)

Maintainer of the publication database for the T. A. Henzinger Group, *ISTA* (2020–2025)

Open-Source Software

2025–now **QuAK**: C++ library and CLI tool for quantitative automata analysis and monitoring
https://github.com/ista-vamos/QuAK

2023–2024 **ApxDistMon**: Prototype for novel approximate monitoring algorithms for distributed systems
https://github.com/egesarac/ApxDistMon

2019 **SyncBoost**: GPU-accelerated implementations of finite-automata synchronizing heuristics
https://bitbucket.org/egesarac/boostexpsyncheur

Miscellaneous

Languages English (fluent), German (intermediate), Turkish (native)