

N. Ege Saraç

E-mail: esarac@ista.ac.at Homepage: egesarac.github.io Profile: [Google Scholar](#), [DBLP](#)

Education

- 2019 - 2025 (expected) Ph.D. in Computer Science, *Institute of Science and Technology Austria (ISTA)*
- Thesis topic: Classification, verification, and monitoring of quantitative properties
 - Supervisor: Thomas A. Henzinger
- 2014 - 2019 B.Sc. in Computer Science and Engineering, *Sabancı University*
- Graduation project: Blockchain-based marketplace for computational services
 - Minor: Mathematics
 - Rank: 1 / 544

Research Interests

- Runtime verification
- Formal methods
- Automata theory

Selected Research Experience

- 2023 Research Intern, *Center for Digital Safety & Security at Austrian Institute of Technology (AIT)*
- Project: Approximate monitoring of distributed systems
 - Conceptualized, formalized, and implemented an approximate monitoring algorithm.
- 2017 Undergraduate Research Intern (ISTern), *Thomas Henzinger Group at ISTA*
- Project: Infinite-state safety monitors
 - Studied expressiveness of several automata models with integer-valued registers.
- 2017 - 2019 Undergraduate Research Assistant, *Sabancı University*
- Project: Synchronizing heuristics for finite-state automata
 - Implemented novel heuristics for finding short synchronizing words faster.

Publications (*: first or corresponding author)

- 2024 QuAK: Quantitative Automata Kit (invited paper)
M. Chalupa, T. A. Henzinger, N. Mazzocchi, N. E. Saraç*
13th Intl. Symp. on Leveraging Applications of Formal Methods (ISoLA)
- 2024 Approximate Distributed Monitoring under Partial Synchrony
B. Bonakdarpour, A. Momtaz, D. Ničković, N. E. Saraç*
24th Intl. Conf. on Runtime Verification (RV)
- 2024 Strategic Dominance: A New Preorder for Nondeterministic Processes
T. A. Henzinger, N. Mazzocchi, N. E. Saraç*
35th Intl. Conf. on Concurrency Theory (CONCUR)
- 2023 Safety and Liveness of Quantitative Automata
U. Boker, T. A. Henzinger, N. Mazzocchi, N. E. Saraç*
34th Intl. Conf. on Concurrency Theory (CONCUR)
- 2023 Regular Methods for Operator Precedence Languages
T. A. Henzinger, P. Kebis, N. Mazzocchi, N. E. Saraç
50th Intl. Coll. on Automata, Languages, and Programming (ICALP)
- 2023 Quantitative Safety and Liveness
T. A. Henzinger, N. Mazzocchi, N. E. Saraç*
26th Intl. Conf. on Foundations of Software Science and Computation Structures (FoSSaCS)

- 2022 Abstract Monitors for Quantitative Specifications
T. A. Henzinger, N. Mazzocchi, N. E. Saraç*
22nd Intl. Conf. on Runtime Verification (RV)
- 2021 Quantitative and Approximate Monitoring
T. A. Henzinger, N. E. Saraç*
36th Ann. ACM/IEEE Symp. on Logic in Computer Science (LICS)
- 2021 Boosting Expensive Synchronizing Heuristics
N. E. Saraç*, Ö. F. Altun, K. T. Atam, S. Karahoda, K. Kaya, H. Yenigün
Expert Systems with Applications (ESWA), Volume 167
- 2020 Monitorability Under Assumptions (invited paper)
T. A. Henzinger, N. E. Saraç*
20th Intl. Conf. on Runtime Verification (RV)
- 2018 A Theory of Register Monitors
T. Ferrère, T. A. Henzinger, N. E. Saraç
33rd Ann. ACM/IEEE Symp. on Logic in Computer Science (LICS)

Teaching Experience

- 2023 - 2024 “Formalisms Every Computer Scientist Should Know” Teaching Assistant, *ISTA*
- 2023 “Foundations of Model Checking” Guest Lecturer, *ISTA*
- 2022 “Formal Methods” Teaching Assistant, *ISTA*
- 2018 - 2019 “Algorithms” Teaching Assistant, *Sabancı University*
- 2015 - 2018 “Mathematics & Natural Sciences” Peer Study & Workshop Moderator, *Sabancı University*

Professional Service

- PC Member CAV’24 Artifact Evaluation
- Reviewer RV’24 (x2), MFCS’24, FSTTCS’23, ATVA’23, CONCUR’23;
Innovations in Systems and Software Engineering,
Principles of Systems Design (Thomas Henzinger Festschrift)
- Prescreener PhD applications at ISTA (2023, 2024)
- Maintainer Publication database of Thomas Henzinger Group at ISTA (2020 - now)

Scientific Talks

- Safety and Liveness of Quantitative Properties and Automata
- 2024 • 18th Intl. Conf. on Reachability Problems (RP)
- 2024 • TU Wien CPS Research Unit Seminar Series
- 2024 • 16th Alpine Verification Meeting (AVM)
- 2024 • DEVINE Research Team (Inria and IRISA) Formal Methods Seminar
- 2023 • AIT Dependable Systems Engineering Seminar Series
Advancing the Theory of Quantitative Algorithmic Monitoring
- 2022 • FBK Embedded Systems Seminar Series
- 2022 • IMT Lucca It-Matters Seminar Series
- Quantitative and Approximate Monitoring
- 2021 • ISTA & TU Wien FORSYTE Joint Seminar Series
- Monitorability Under Assumptions
- 2020 • ISTA & TU Wien FORSYTE Joint Seminar Series

Mentoring Experience

2024 Pavol Kebis, Rotation Student in Thomas Henzinger Group at ISTA
 Project: Probabilistic semantics of an automata model for quantitative hyperproperties

Academic Honors & Awards

2019 Highest Ranking Student (Sakıp Sabancı Award), *Sabancı University*
2018 Logic Mentoring Workshop Student Travel Grant, *ACM SIGLOG*
2017 Scholarship for Student Researchers, *Österreichischer Austauschdienst (OeAD)*

Skills

- C/C++ (intermediate), Python (basic), OpenMP (basic), CUDA (basic), Solidity (basic), Z3 (basic)
- English (fluent), German (intermediate), Turkish (native)