

N. Ege Saraç

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Education

- 2019 - 2024 Ph.D. in Computer Science, *Institute of Science and Technology Austria (ISTA)*
(expected) • Focus: Runtime verification • Supervisor: [Thomas A. Henzinger](#)
- 2014 - 2019 B.Sc. in Computer Science and Engineering, *Sabanci University*
• Minor: Mathematics • GPA: 3.98 / 4.00
• Honor Scholarship • Rank: 1 / 544

Research Interests

- Runtime verification
- Formal methods
- Automata theory

Research Experience

- 2019 - now, Advancing the Theory of Quantitative Algorithmic Monitoring, *ISTA*
- 2017 • Study expressiveness of several automata models with integer-valued registers.
• Formalize and investigate how prior knowledge can be leveraged in monitoring.
• Propose a framework for approximate monitoring of quantitative specifications.
• Explore precision-resource trade-offs in quantitative approximate monitoring.
- 2020 Quantitative Aspects of Transducer Analysis, *ISTA*
• Defined and studied a quantitative measure of transducer sequentialization.
- 2020 An Attempt to Simplify Adversarial Training, *ISTA*
• Derived a simple optimization objective from a linear programming based method.
• Implemented the new training method and evaluated its performance.
- 2017 - 2019 Synchronizing Heuristics for Finite-State Automata, *Sabanci University*
• Implemented new sequential heuristics for finding short synchronizing words faster.
• Programmed a hybrid parallel heuristic resulting in more than 1000x speedup.

Publications

- 2023 T. A. Henzinger, N. Mazzocchi, N. E. Saraç. Quantitative Safety and Liveness. Under review.
- 2022 T. A. Henzinger, N. Mazzocchi, N. E. Saraç. Abstract Monitors for Quantitative Specifications. In *Proc. Conf. Runtime Verification (RV)*, LNCS 13498, 2022, pp. 200–220.
- 2021 T. A. Henzinger, N. E. Saraç. Quantitative and Approximate Monitoring. In *Proc. Symp. Logic in Computer Science (LICS)*, IEEE, 2021, pp. 1–14.
- 2021 N. E. Saraç, Ö. F. Altun, K. T. Atam, S. Karahoda, K. Kaya, H. Yenigün. Boosting Expensive Synchronizing Heuristics. *Expert Systems with Applications* 167:114203, 2021.
- 2020 T. A. Henzinger, N. E. Saraç. Monitorability Under Assumptions. In *Proc. Conf. Runtime Verification (RV)*, LNCS 12399, 2020, pp. 3–18.
- 2018 T. Ferrère, T. A. Henzinger, N. E. Saraç. A Theory of Register Monitors. In *Proc. Symp. Logic in Computer Science (LICS)*, ACM Press, 2018, pp. 394–403.

Scientific Talks

- 2022 At [FBK Embedded Systems Seminar Series](#),
on Advancing the Theory of Quantitative Algorithmic Monitoring.
- 2022 At [It-Matters Seminar Series](#),
on Advancing the Theory of Quantitative Algorithmic Monitoring.
- 2021 At [LICS 2021](#),
on Quantitative and Approximate Monitoring. [\[video\]](#)
- 2021 At *ISTA & TU Wien FORSYTE Joint Seminar Series*,
on Quantitative and Approximate Monitoring.
- 2020 At *ISTA & TU Wien FORSYTE Joint Seminar Series*,
on Monitorability Under Assumptions.

Professional Service

- Subreviewer, *Thomas Henzinger Festschrift - Int. Conf. Celebrating His 60th Birthday (Henzinger-60)*, 2022.
- Publication database maintainer for Thomas A. Henzinger Group, *ISTA*, 2020 – now.

Trainings and Workshops Attended

- Basics in Didactics – Teaching and Learning in Higher Education, *ISTA*, 2022.
- Research Integrity and Research Ethics, *ISTA*, 2020.
- Science Research Writing – A Technical Introduction, *ISTA*, 2019.

Teaching Experience

- 2022 “Formal Methods” Teaching Assistant, *ISTA*
 - Offered recitations to clarify student questions and graded homework assignments.
- 2018 - 2019 “Algorithms” Teaching Assistant, *Sabancı University*
 - Held weekly office hours and recitation sessions for up to 105 students.
 - Discussed student difficulties and contributed to improving the course structure
- 2015 - 2018 “Calculus I” Peer Study & Workshop Moderator, *Sabancı University*
 - Conducted weekly study sessions for students from a wide variety of backgrounds.
 - Prepared and delivered bi-monthly workshops for up to 120 students.

Academic Honors & Awards

- 2022 Runtime Verification 2022 PhD Bursary, *Runtime Verification 2022*.
- 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)*.
- 2015 - 2017 Dean’s High Honor List (x5), *Sabancı University*.

Skills

- Technical: C/C++ (intermediate), Python (intermediate), LaTeX.
- Languages: English (fluent), German (basic), Turkish (native).

References

- Available upon request.