N. Ege Saraç

E-mail: ege.sarac@ist.ac.at **Profile:** Google Scholar, DBLP

Education

2019 - 2024 (expected) Ph.D. in Computer Science, *Institute of Science and Technology Austria (ISTA)*
- Focus: Runtime verification
- Supervisor: Thomas A. Henzinger

2014 - 2019 B.Sc. in Computer Science and Engineering, *Sabancı University*
- Minor: Mathematics
- GPA: 3.98 / 4.00
- Honor Scholarship
- Rank: 1 / 544

Research Interests

- Runtime verification
- Formal methods
- Automata theory

Research Experience

2017 - cont. Advancing the Theory of Quantitative Algorithmic Monitoring, *ISTA*
- 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.

2017 - 2019 Synchronizing Heuristics for Finite-State Automata, *Sabancı University*
- Implemented new sequential heuristics for finding short synchronizing words faster.
- Programmed a hybrid parallel heuristic resulting in more than 1000x speedup.

Publications

2022 T. A. Henzinger, N. Mazzocchi, N. E. Saraç. Quantitative and Approximate Monitoring. In *Proc. Conf. Runtime Verification* (RV), in press.

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), Lecture Notes in Computer Science 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 *It-Matters Seminar Series* on Quantitative and Approximate Monitoring.
2021 At *LICS 2021*, on Quantitative and Approximate Monitoring. [video]
2021 At *FORSYTE-IST Seminar Series*, on Quantitative and Approximate Monitoring.
2020 At *FORSYTE-IST Seminar Series*, on Monitorability Under Assumptions.

Professional Service

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

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" 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

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

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

References

- Available upon request.