

# N. Ege Saraç

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## 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\*  
*13<sup>th</sup> 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\*  
*24<sup>th</sup> Intl. Conf. on Runtime Verification (RV)*
- 2024 Strategic Dominance: A New Preorder for Nondeterministic Processes  
T. A. Henzinger, N. Mazzocchi, N. E. Saraç\*  
*35<sup>th</sup> Intl. Conf. on Concurrency Theory (CONCUR)*
- 2023 Safety and Liveness of Quantitative Automata  
U. Boker, T. A. Henzinger, N. Mazzocchi, N. E. Saraç\*  
*34<sup>th</sup> Intl. Conf. on Concurrency Theory (CONCUR)*
- 2023 Regular Methods for Operator Precedence Languages  
T. A. Henzinger, P. Kebis, N. Mazzocchi, N. E. Saraç  
*50<sup>th</sup> Intl. Coll. on Automata, Languages, and Programming (ICALP)*
- 2023 Quantitative Safety and Liveness  
T. A. Henzinger, N. Mazzocchi, N. E. Saraç\*  
*26<sup>th</sup> 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\*  
*22<sup>nd</sup> Intl. Conf. on Runtime Verification (RV)*
- 2021 Quantitative and Approximate Monitoring  
T. A. Henzinger, N. E. Saraç\*  
*36<sup>th</sup> 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\*  
*20<sup>th</sup> Intl. Conf. on Runtime Verification (RV)*
- 2018 A Theory of Register Monitors  
T. Ferrère, T. A. Henzinger, N. E. Saraç  
*33<sup>rd</sup> 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 • [Alpine Verification Meeting](#)
- 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 • [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)