

Burak Sahin

E-mail: buraksahin@gatech.edu

Website: sahinburak.github.io

E1011, CODA, 756 West Peachtree Street NW, Atlanta, GA 30308-4016, USA

RESEARCH INTERESTS

Critical infrastructure is foundational to national security and public safety, yet the underlying control systems remain high-value targets for sophisticated adversaries. My research aims to strengthen the security and resilience of these cyber-physical systems through practical methods for vulnerability discovery, forensic investigation, and malware analysis. I specialize in applying security testing techniques, including fuzzing and symbolic execution, to identify flaws and investigate failures across industrial and emerging autonomous systems.

EDUCATION

Georgia Institute of Technology <i>Ph.D. Candidate, Computer Science</i> <i>Advisor (2023-Present): Saman Zonouz, co-advisor: Brendan Saltaformaggio</i>	Aug 2017 – Present Atlanta, GA, USA
Georgia Institute of Technology <i>Master of Science, Computer Science</i> <i>Advisor: William R. Harris</i>	Aug 2015 – May 2017 Atlanta, GA, USA
TOBB University of Economics and Technology <i>Bachelor of Science, Computer Science</i> <i>Advisor: Ahmet Murat Ozbayoglu</i>	May 2004 – May 2009 Ankara, Turkey

PUBLICATIONS

Conferences (accepted/published)

- *Fuzzing the Physical Space: Physics-Aware Testing of Black-Box Industrial Control Systems*
[Burak Sahin](#), David Oygenblik, Mingxuan Yao, Yizhi Huang, Brendan Saltaformaggio, Saman Zonouz
IEEE Symposium on Security and Privacy (S&P), 2026. (Acceptance rate: 12.6%)
- *FIRA: Enabling Automatic Forensic Investigation of Unmanned Aerial Vehicles*
Yizhi Huang, David Oygenblik, Runze Zhang, Mingxuan Yao, Muhammad Ibrahim, [Burak Sahin](#),
Haichuan Xu, Saman Zonouz, and Brendan Saltaformaggio
USENIX Security Symposium (Security), 2026. (Acceptance rate: TBD)
- *ICSBoM: Uncovering Hidden Supply Chain Vulnerabilities in ICS Firmware*
Yongyu Xie, Daniel Khoshkhou, Hithem Lamri, Constantine Douranidis, Brian Davidson, [Burak Sahin](#),
Ryan Pickren, Raheem Beyah, Katherine Davis, Mihalis Maniatakos, Saman Zonouz
International Conference on Applied Cryptography and Network Security (ACNS), 2026.
- *The Challenges and Opportunities with Cybersecurity Regulations: A Case Study of the US Electric Power Sector*
Sena Sahin, [Burak Sahin](#), Robin Berthier, Kate Davis, Saman Zonouz, Frank Li
ACM Conference on Computer and Communications Security (CCS), 2025. (Acceptance rate: 13.8%)
- *Was This You? Investigating the Design Considerations for Suspicious Login Notifications*
Sena Sahin, [Burak Sahin](#), Frank Li
The Network and Distributed System Security Symposium (NDSS), 2025. (Acceptance rate: 16.1%)
- *Your Control Host Intrusion Left Some Physical Breadcrumbs: Physical Evidence-Guided Post-Mortem Triage of SCADA Attacks*
Moses Ike, Keaton Sadoski, Romuald Valme, [Burak Sahin](#), Saman Zonouz, Wenke Lee
ACM ASIA Conference on Computer and Communications Security (AsiaCCS), 2025.

- *Identifying behavior dispatchers for malware analysis*
KyuHong Park, [Burak Sahin](#), Yongheng Chen, Jisheng Zhao, Evan Downing, Hong Hu, Wenke Lee
ACM Asia Conference on Computer and Communications Security (AsiaCCS), 2021.
- *Complexity Verification Using Guided Theorem Enumeration*
Akhilash Srikanth, [Burak Sahin](#), William R. Harris
Principles of Programming Languages (POPL), 2017.

Conferences (submitted / under review)

- *Details available upon request.*

Journals and Magazines

- *Dissecting the Industrial Control Systems Software Supply Chain*
Constantine Doumanidis, Yongyu Xie, Prashant HN Rajput, Ryan Pickren, [Burak Sahin](#), Saman Zonouz, Michail Maniatakos
IEEE Security and Privacy (S&P) Magazine, 2023.

Thesis

- *Physics-Aware Cybersecurity for Cyber Physical Systems*
Ph.D. in Computer Science
Georgia Institute of Technology, 2026.
- *Complexity Verification for Java Programs*
M.S. in Computer Science
Georgia Institute of Technology, 2017.
- *TUHAFLIC: TURkish HAnds Free LIttle Calculator*
B.S in Computer Science
TOBB University of Economics and Technology, 2004.

HONORS & AWARDS

Professional activities grant to attend POPL '17 France – <i>ACM SIGPLAN</i>	2017
Featured in the School of Computer Science Annual Report – <i>Georgia Tech</i>	2016
Graduate Program Merit Scholarship – <i>The Republic of Turkey</i>	2014
Best Intern Award - Excellence in Coop Education – <i>TOBB Univ. of Econ. and Tech.</i>	2007
Undergraduate Program Merit Scholarship – <i>TOBB Univ. of Econ. and Tech.</i>	2004

SERVICE

External Reviewer

The Network and Distributed System Security Symposium (NDSS)	2024-2025
USENIX Security Symposium (Security)	2021-2025
ACM Conference on Computer and Communications Security (CCS)	2020-2025
IEEE Symposium on Security and Privacy (S&P)	2020-2025

TEACHING & MENTORING

Selected Teaching Experience

CS-8903: Special Problems	2023-2026
CS-4699: Undergraduate Research	2023-2026
ECE-8903: Special Problems	2023-2026
ECE-4903: Undergraduate Research	2024-2026
CS-6262: Network Security	2018-2021
CS-6264: Infosec Labs - System and Network Defenses	2020-2021

Selected Advising & Mentoring

Tyler Boyer, joining as Undergrad RA Fall 2026

BS CS expected 2027

Research topic: *Developing ICS Plant Automation Testbed*

Joshua Leroy, joined as Georgia Tech Summer Intern 2025

BS CS student, University of Wisconsin–Madison

Research topic: *Analyzing the Cybersecurity of Autonomous Robots: A Case Study of Robot Dogs*

Santhana Bharathi Narasimmachari, joined NVIDIA 2023

MS ECE 2023

Research topic: *Embedded Software Analysis*

RESEARCH EXPERIENCE

Georgia Institute of Technology, College of Computing

Aug 2015 – Present

Graduate Research Assistant

Atlanta, GA, USA

Research spanning malware analysis, security testing, forensics, and program analysis for cyber-physical systems, industrial control systems, and autonomous systems security

- Developed practical analysis techniques for malware analysis, vulnerability discovery, and attack investigation using static, dynamic, and symbolic methods.
- Designed security analyses to identify denial-of-service and other exploitable flaws in complex software systems.
- Applied symbolic and program-analysis methods to support software security testing and verification.
- Developed automated techniques for detecting unintended information disclosure and other security weaknesses.

SELECTED PRIOR INDUSTRY EXPERIENCE

BiSoft Information Technologies

Aug 2012 – Mar 2014

Software Team Leader

Ankara, Turkey

- Led two engineering teams developing internal software for public-sector organizations, including systems for anti-smuggling enforcement, illicit mobile phone detection, and financial-flow tracking
- Mentored junior developers across Java, .NET, and PL/SQL technologies.
- Developed large-scale enterprise software supporting municipal and international-institution agreements using Java, Struts, and Oracle.

Fujitsu Technology Solutions

Jan 2011 – Aug 2012

Configuration Manager

Ankara, Turkey

- Developed software used by more than 75,000 users per day using C# and the .NET Framework.
- Improved inter-department processes in collaboration with CMMI consultants and supported risk evaluation and reporting.

Oratech Technology Systems

Dec 2009 – Nov 2010

Software Developer

Ankara, Turkey

- Led software teams developing internal systems for public-sector organizations, including anti-smuggling enforcement, illicit mobile phone detection, and financial-flow tracking.

Siemens Enterprise Communications

Apr 2008 – Aug 2009

Software Developer Intern / Part-Time Software Developer

Ankara, Turkey

- Led an intern team performing test automation, quality-management tool porting, and related engineering tasks for HiPath IP communication software, and developed Java-based automation tools to improve test quality.

TECHNICAL SKILLS

Languages and Platforms

- **Programming:** Python, C, C++, Java, C#, MATLAB, Coq, L^AT_EX
- **Security and Analysis:** Fuzzing, symbolic execution, binary analysis, malware analysis, digital forensics, program analysis, vulnerability analysis
- **Systems and Platforms:** Industrial control systems, cyber-physical systems, autonomous systems, Android, Linux

REFERENCES

Available upon request.