SeyedHamed Ghavamnia

Security Researcher, Bloomberg
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https://shamedgh.github.io
https://scholar.google.com/citations?user=6Zldz1MAAAAJ&hl=en

Education

Ph.D. in Computer Science
Stony Brook University   *08/2017 - 05/2023*
- Thesis: *Attack Surface Reduction through System Call Filtering*
- Advisor: *Michalis Polychronakis*

M.S. in Information Technology Engineering
Sharif University of Technology   *09/2009 - 12/2011*
- Thesis: *Traffic Analysis for Packets Encrypted at the IP Level*
- Advisor: *Mehdi Kharrazi*

B.E. in Information Technology Engineering
University of Isfahan   *09/2005 - 08/2009*

Work Experience

Security Researcher
Bloomberg   *01/2025 – current*

Assistant Professor
Computer Science and Engineering Department - University of Connecticut   *08/2023 – 12/2024*

Research Assistant
Hexlab, Stony Brook University (Advisor: Prof. Michalis Polychronakis)   *05/2018 – 05/2023*

Software Engineering Intern
CTO Office, Bloomberg (Mentor: Peter Martin, Manager: Julien Vanegue)   *05/2022 – 08/2022*

Software Engineering Intern
CTO Office, Bloomberg (Mentor: Jatin Kataria, Manager: Julien Vanegue)   *05/2021 – 08/2021*

Technical Team Lead
Irisa Company   *08/2013 – 08/2017*

Software Engineer
Irisa Company   *12/2011 – 08/2013*

Teaching

University of Connecticut
- CSE3100: Systems Programming, Fall 2024
- CSE5095: Special Topics in Computer Science and Engineering, Fall 2023, Fall 2024
- CSE4100: Programming Language Translations, Spring 2024

Teaching Assistant Department of Computer Science - Stony Brook University   *09/2017 – 05/2018*
- Computer Security Fundamentals, Fall 2017
- System Fundamentals, Spring 2018

Lecturer - Faiz al-Islam Institute of Higher Education   *01/2015 – 12/2015*
- Fundamentals of Computer Networks, Spring & Fall 2015

Teaching Assistant - Sharif University of Technology   *09/2010 – 05/2011*
- Advanced Computer Networks, Fall 2010
- Advanced Computer Security, Spring 2011

Peer-Reviewed Publications

Journal

1. Maryam Rostamipoor, **Seyedhamed Ghavamnia**, and Michalis Polychronakis.
   Confine: Fine-grained System Call Filtering for Container Attack Surface Reduction
   Computers & Security (2023): 103325.

Conference Proceedings

1. Maryam Rostamipoor, **Seyedhamed Ghavamnia**, and Michalis Polychronakis.
   LeakLess: Selective Data Protection against Memory Leakage Attacks for Serverless Platforms
   In Proceedings of the Network and Distributed System Security Symposium (NDSS). February 2025, San Diego, CA.

2. **Seyedhamed Ghavamnia**, Tapti Palit, and Michalis Polychronakis.
   C2C: Fine-grained Configuration-driven System Call Filtering
   In Proceedings of the 29th ACM SIGSAC Conference on Computer and Communications Security (CCS), November 2022.

3. Md Mehedi Hasan, **Seyedhamed Ghavamnia**, and Michalis Polychronakis.
   Decap: Deprivileging programs by reducing their capabilities.
   In Proceedings of the 25th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), October 2022.

4. **Seyedhamed Ghavamnia**, Tapti Palit, Azzedine Benameur and Michalis Polychronakis.
   Confine: Automated System Call Policy Generation for Container Attack Surface Reduction
   In Proceedings of the 23rd International Symposium on Research in Attacks, Intrusions and Defenses (RAID), October 2020.

5. **Seyedhamed Ghavamnia**, Tapti Palit, Shachee Mishra and Michalis Polychronakis.
   Temporal System Call Specialization for Attack Surface Reduction
   In Proceedings of the 29th USENIX Security Symposium, August 2020.

6. Sergej Proskurin, Marius Momeu, **Seyedhamed Ghavamnia**, Vasileios Kemerlis and Michalis Polychronakis.
   xMP: Selective Memory Protection for Kernel and User Space
   In Proceedings of the 41st IEEE Symposium on Security and Privacy (S&P), May 2020.

7. Nguyen Phong Hoang, Ivan Lin, **Seyedhamed Ghavamnia**, Michalis Polychronakis
   K-Resolver: Towards Decentralizing Encrypted DNS Resolution
   2nd NDSS Workshop on Measurements, Attacks, and Defenses for the Web (MADWeb), February 2020.

8. Mohammadhosein Mirshahjafar, **Seyedhamed Ghavamnia**.
   Classifying IDS Alerts Automatically for use in Correlation Systems
   In Proceedings of the 11th International ISC Conference, 2014.

Workshops

1. Hyungjoon Koo, **Seyedhamed Ghavamnia**, and Michalis Polychronakis.
   Configuration-Driven Software Debloating
   In Proceedings of the 12th European Workshop on System Security (EuroSec), March 2019.

Tutorials

Tutorial on Multi-phased Confine - Software Security Summer School   11/2021
- Created hands-on exercises for multi-phase system call filtering
- Taught how to improve container hardening by considering its phases of execution

Tutorial on Confine - Software Security Summer School   08/2020
- Created hands-on step-by-step exercises for Confine
- Participants were more than 50 software engineer and security architects
- Taught how to harden their container ecosystem through applying Confine

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Posters, Presentations, and Talks

C2C: Fine-grained Configuration-driven System Call Filtering   11/2022
- CCS 2022, Los Angeles, CA

Decap: Deprivileging Programs by Reducing their Capabilities   10/2022
- RAID 2022, Limassol, Cyprus

Temporal System Call Specialization for Attack Surface Reduction (*Poster*)   8/2022
- Usenix Security Symposium, Boston, MA

Temporal System Call Specialization for Attack Surface Reduction   10/2020
• Georgia Tech Institute for Information Security & Privacy, Atlanta, GA (*Online*)

Confine: Automated System Call Policy Generation for Container Attack Surface Reduction   10/2020
• RAID 2020, San Sebastien, Spain (*Online*)

Temporal System Call Specialization for Attack Surface Reduction   8/2020
• Usenix Security Symposium, Boston, MA (*Online*)

Automated System Call Policy Generation for Container Attack Surface Reduction   7/2019
• Stony Brook University Research Proficiency Exam, Stony Brook, NY

Grants & Awards

- 2018: IEEE Security and Privacy Conference Student Travel Grant
- 2017: Stony Brook CS Chairman's Fellowship
- 2011: National CTF Contest - Ranked among top 5 teams

Service

Program Committees
- IEEE Symposium on Security and Privacy (S&P), 2025.
- Annual Computer Security Applications Conference (ACSAC), 2024, 2025.
- Information Security Conference (ISC), 2024, 2025.

Reviewer
- Conference on Data and Applications Security and Privacy External Reviewer (DBSec'23)
- IEEE Internet of Things Journal
- Journal of Supercomputing
- OSDI 2020 Artifact Evaluation Committee Member
- IEEE S&P 2021 External Reviewer
- IEEE S&P 2020 Shadow PC Member
- CCS 2020 External Reviewer
- RAID 2019 External Reviewer

Student Committee Member
- Iranian Graduate Student Association Treasurer (2018-2021)
- Member of the Central Student Scientific Association, Isfahan University, 2005-2008