

SeyedHamed Ghavamnia

Assistant Professor, University of Connecticut

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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: <i>Attack Surface Reduction through System Call Filtering</i>	
• Advisor: <i>Michalis Polychronakis</i>	
M.S. in Information Technology Engineering Sharif University of Technology	09/2009 - 12/2011
• Thesis: <i>Traffic Analysis for Packets Encrypted at the IP Level</i>	
• Advisor: <i>Mehdi Kharrazi</i>	
B.E. in Information Technology Engineering University of Isfahan	09/2005 - 08/2009

Work Experience

Assistant Professor Computer Science and Engineering Department - University of Connecticut	08/2023 – present
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

- 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. **Syedhamed 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.
2. Md Mehedi Hasan, **Syedhamed 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.
3. **Syedhamed 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.
4. **Syedhamed 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.
5. Sergej Proskurin, Marius Momeu, **Syedhamed 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.
6. Nguyen Phong Hoang, Ivan Lin, **Syedhamed Ghavamnia**, Michalis Polychronakis
K-Resolver: Towards Decentralizing Encrypted DNS Resolution
2nd NDSS Workshop on Measurements, Attacks, and Defenses for the Web (MADWeb), February 2020.
7. Mohammadhosein Mirshahjafar, **Syedhamed Ghavamnia**.
Classifying IDS Alerts Automatically for use in Correlation Systems
In Proceedings of the 11th International ISC Conference, 2014.

Workshops

1. Hyungjoon Koo, **Syedhamed 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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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	

Posters, Presentations, and Talks

C2C: Fine-grained Configuration-driven System Call Filtering	11/2022
<ul style="list-style-type: none">• CCS 2022, Los Angeles, CA	
Decap: Deprivileging Programs by Reducing their Capabilities	10/2022
<ul style="list-style-type: none">• RAID 2022, Limassol, Cyprus	
Temporal System Call Specialization for Attack Surface Reduction (<i>Poster</i>)	8/2022
<ul style="list-style-type: none">• Usenix Security Symposium, Boston, MA	
Temporal System Call Specialization for Attack Surface Reduction	10/2020
<ul style="list-style-type: none">• Georgia Tech Institute for Information Security & Privacy, Atlanta, GA (<i>Online</i>)	
Confine: Automated System Call Policy Generation for Container Attack Surface Reduction	10/2020
<ul style="list-style-type: none">• RAID 2020, San Sebastian, Spain (<i>Online</i>)	
Temporal System Call Specialization for Attack Surface Reduction	8/2020
<ul style="list-style-type: none">• Usenix Security Symposium, Boston, MA (<i>Online</i>)	
Automated System Call Policy Generation for Container Attack Surface Reduction	7/2019
<ul style="list-style-type: none">• 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
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PhD Students

- Triet Hyunh Minh (September 2024 - present)
 - Md. Rayhanul Islam (September 2024 - present)
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Undergraduate Students

- Dylan Cassidy (January 2024 - May 2024)
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Service

Service at University of Connecticut

- Search Committee Member, September 2023 - May 2024.

Program Committees

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

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
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