

Education

2023 – 2025 **Master of Computing**, *Infocomm security*, National University of Singapore

Thesis: *Automated Test Case Reduction in Query-Specific Language(s)*

2017 – 2021 **B.Tech**, *Computer Engineering*, Inderprastha Engineering College, India

Work

Aug'2024 – **Research Assistant**, *NUS TSS group*, National University of Singapore

- Present
 - Researched scheduling algorithms for exploring thread interleavings and developed tools for race detection from execution traces
 - Built experimental frameworks for evaluating fuzzing techniques across software testing benchmarks
 - Designed and evaluated agentic approaches for automating complex reasoning tasks within software testing frameworks

Jan'2024 - **Teaching Assistant**, *National University of Singapore*

- Dec'2024
 - Conducted weekly tutorial classes and assisted with exam sessions and grading assignments for CS2107 (Introduction to Information Security)

July'2021 - **Product Security Engineer**, *Red Queen Dynamics*, Washington, D.C.

- Aug'2023
 - Worked as a full-stack developer to develop a security training product from scratch (using Django/PostgreSQL)
 - Created a CI/CD pipeline for automated deployments.
 - Managed DevOps for the team; maintained cloud infrastructure (AWS) to support internal applications.
 - Performed ad-hoc penetration tests for various clients.

Aug'2020 - **Bug Bounty Hunter**, *HackerOne/BugCrowd/Intigriti*, Remote

- Aug'2023
 - Listed on the Hall-of-Fame of: Google, GitHub, PayPal, US DoD, DELL, and Atlassian.
 - Performed static and dynamic code analysis of Android and Web applications.

May – Aug 2023 **Student Developer**, *Google Summer of Code - The Honeynet Project*

- Enhanced a high-interaction honeypot (Snare/Tanner) with improved speed, persistent storage, and API functionality.

Aug'2019 - **Developer**, *Vulnhub/TryHackMe*, Remote

- Mar'2020
 - Developed Capture The Flag (CTF) challenges for TryHackme.com focused on web vulnerabilities like XXE, XSS, and JWT.
 - Created vulnerable machines for VulnHub.com with custom applications in Python and Bash.

May – Aug 2018 **Student Developer**, *Google Summer of Code - XBMC Foundation*

- Developed a Python tool for static code analysis of Kodi (media player for smart TVs) addons.

Publications

Nov 2025 **Agentic Program Verification**, *arXiv preprint arXiv:2511.17330*

Haoxin Tu, Huan Zhao, Yahui Song, **Mehtab Zafar**, Ruijie Meng, Abhik Roychoudhury

Academic Service

Aug – Sept 2024 **Artifact Evaluation Committee member**, *SOSP'24, SOSP'25*

- Reviewed and evaluated submitted research artifacts for reproducibility.

Certifications

2021 **OSCP**, Offensive Security Certified Professional