

Ali Akhavani

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About Me: Ph.D. candidate at Northeastern University specializing in Web Security, Vulnerability Analysis, and Online Privacy. Experienced in http request smuggling and bypassing web application firewalls (WAFs), browser fingerprinting, and automated vulnerability detection using Generative AI and machine learning. I also bring 4 years of industry experience as a DevOps and Software Engineer, building infrastructure and solving complex challenges in agile environments.

EDUCATION

PhD in Computer Science at Northeastern University - Boston, MA Sept 2019 - 2025 (expected)

- Thesis: Improving Security for the Everyday Internet User: From Web Applications to Open-Source Software and Browser Security
- Relevant Coursework: Machine Learning, Software Vulnerabilities and Security, Network Fundamentals, Advanced Algorithms

MSc in Computer Science at [Northeastern University](#) - Boston, MA April 2024

BSc in Computer Engineering at University of Tehran Sept 2014 - July 2019

- Board Member of ACM Student Chapter. (2015-2017)
- Mentored 5 students in the Summer of Code, teaching web programming concepts while building a project. (2017)

SELECTED PROFESSIONAL EXPERIENCE

Research Assistant at System Security Lab (SecLab) - Boston, MA Sept 2019 - Present

- Designed, deployed, and evaluated over 10 production-grade web applications to test and bypass enterprise WAF defenses, discovering 1,000+ novel request-smuggling-based cloud security bypasses through smart fuzzing. (AWS, Azure, GCP, Docker)
- Applied Generative AI to automate vulnerability detection in the open-source software supply chain and identifying online scams.
- Conducted research on browser fingerprinting and cookie synchronization for smarter online ads while protecting user privacy.
- Served as Teaching Assistant for the Software Vulnerabilities and Security (2022, 2023, 2025) course, assisting with projects on topics including System Security, XSS, SQL Injection, Reverse Engineering, and Buffer Overflow.

Senior DevOps Engineer at TAPSI Jun 2017 – Aug 2019

Tapsi is a ride-sharing platform serving millions daily. Started as an intern, advanced to full-time, and promoted to senior.

- Boosted system performance and increased concurrent rides by 300%, from 5k to more than 25k rides, and cut response time by 50% using message queues, pub-sub messaging and load balancing. (RabbitMQ, Redis, Nginx)
- Led deployment automation and containerization. (Docker, Docker Swarm, Traefik, Kubernetes, Salt, GitLab CI).
- Developed key application features, including user management and dynamic pricing. (Node.js, Python)
- Established microservice log and monitoring systems. (Elastic, Prometheus, Grafana)
- Set up data storage, caching, replication, and object storage. (Redis, MongoDB, PostgreSQL, MinIO)

Co-Founder and Software Engineer at Lambede Jun 2016 - Jul 2017

- Designed and built Lambede from scratch, a web platform that connected service seekers with skilled experts, inspired by Task Rabbit. This project was my own startup initiative during undergrad. (Node.js, MongoDB, HTML, CSS)

SELECTED PUBLICATIONS

WAFFLED: Exploiting Parsing Discrepancies to Bypass Web Application Firewalls - (Akhavani et al.) (ACSAC 2025)

Open Source, Open Threats? Investigating Security Challenges in Open Source Software - (Akhavani et al.) (Preprint)

Evaluating the Performance of Generative AI Models (LLMs) for Scam Detection - (Topcuoglu et al.) (In Submission)

Browserprint: An Analysis of the Impact of Browser Features on Fingerprintability and Web Privacy - (Akhavani et al.) (ISC 2021)

HONORS AND AWARDS

- [BlackHat](#) USA Student Scholarship (2022, 2023, 2024)
- Google Cloud Priority 1 & Severity 2 Bug Bounty Award (\$3,100) – Discovered a Tier 1 Vulnerability (2025)
- Media Coverage: Research Featured on [1. Northeastern University News \(2025\)](#) and [2. Open Source Security Podcast \(2025\)](#)
- Best Undergraduate Thesis Project Award (2018)

TECHNICAL SKILLS

Advanced: C, Node.js, Python, JavaScript, Bash Scripting, Linux, Docker, Docker Swarm, CI/CD, Redis, RabbitMQ, Nginx, PostgreSQL, Grafana, Elastic, Git, Amazon AWS, Google Cloud Platform (GCP)

Experienced: Rust, C++, Java, Kubernetes, GDB, Ghidra, Selenium, Ansible, Microsoft Azure