

# Ali Akhavani

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**About Me:** Ph.D. candidate at Northeastern University specializing in Web Security and Vulnerability Analysis. Experienced in http request smuggling and bypassing web application firewalls (WAFs), ML/AI-driven automation for vulnerability detection, and browser security. I also bring 4 years of industry experience, building production infrastructure as an SRE, DevOPS, and Software Engineer.

## EDUCATION

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- PhD in Computer Science, Northeastern University** - Boston, MA Sept 2019 - 2026 (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, Northeastern University** - Boston, MA April 2024
- BSc in Computer Engineering, 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

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- 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)
  - Built AI-based pipelines for automated vulnerability detection in open-source supply chain and online scam identification.
  - 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 Software Engineer (SRE) 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. (ML, 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. Full list on [Google Scholar](https://scholar.google.com)

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- WAFFLED: Exploiting Parsing Discrepancies to Bypass Web Application Firewalls - (Akhavani et al.) (ACSAC 2025)
- Evaluating the Performance of Generative AI Models (LLMs) for Scam Detection - (Topcuoglu et al.) (COMPSAC 2026)
- Open Source, Open Threats? Investigating Security Challenges in Open Source Software - (Akhavani et al.) (Preprint)
- Browserprint: An Analysis of the Impact of Browser Features on Fingerprintability and Web Privacy - (Akhavani et al.) (ISC 2021)

## SELECTED HONORS AND AWARDS

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- **Google Cloud Priority 1 & Severity 2 Bug Bounty** - Discovered a Tier 1 Vulnerability; \$3,100 Award - (2025)
- **BlackHat USA Student Scholarship** (2022, 2023, 2024)
- **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

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**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