

# Hafiz Farhad

Security Engineer (Researcher)

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## Research Interests

My research interest lies within AI Security/AI for Security, Application Security, Reverse Engineering, Vulnerability Assessment, and Exploit Development. In addition, I enjoy the challenges provided in Capture the Flag competitions and currently I am involved with team - pwnFAST.

## Education

2022–2026 **B.Sc. in Cyber Security**, GPA: 3.09/4, National University of Computer and Emerging Sciences, Karachi, Pakistan (expected)

- **Relevant Courses:** Programming Fundamentals, Object Oriented Programming, Data Structures in C++, Computer Organization & Assembly Language, Operating Systems, Database Systems, Networks and Cyber Security -I, Vulnerability Analysis & Reverse Engineering, Networks and Cyber Security -II, Ethical Hacking Tools & Techniques

## Open Source Contributions

### Mandiant (part of Google Cloud)

- Contributed detection rules for malware capabilities to capa-rules.
- Added UDP protocol functionality and refactored rules for improved maintainability.
- Merged PRs:
  - <https://github.com/mandiant/capa-testfiles/pull/280>
  - <https://github.com/mandiant/capa-rules/pull/1017>

## Projects

### Identity & Access Management (IAM)

- Developed an Identity and Access Management (IAM) system using Flask and JWT to enable secure user authentication, role management, and RBAC.
- Designed and implemented a modern admin dashboard using Next.js for intuitive user and role management.
- Ensured security and reliability by conducting robust testing and following industry best practices.

### Real-Time Network Intrusion Detection System

- Developed a machine learning-based NIDS using Python and PyTorch to detect network anomalies and security threats in real-time.
- Implemented packet capture and analysis using Scapy to identify port scans, DoS attacks, and anomalous connection patterns.
- Designed neural network architecture for traffic classification with configurable anomaly detection thresholds and comprehensive logging system.

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## Teaching Experiences

Aug 2024–Dec 2024	<b>Teaching Assistant</b> , Computer Organization and Assembly Language (COAL), National University of Computer and Emerging Sciences, Karachi, Pakistan
Jan 2025–May 2025	<b>Teaching Assistant</b> , Computer Organization and Assembly Language (COAL), National University of Computer and Emerging Sciences, Karachi, Pakistan
Sep 2025– present	<b>Teaching Assistant</b> , Computer Organization and Assembly Language (COAL), National University of Computer and Emerging Sciences, Karachi, Pakistan

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## Certifications & Skills

- **Certifications:**

- Machine Learning Specialization by DeepLearning.AI (2023), Ethical Hacking Essentials (EHE) by EC-Council (2024), CompTIA Security+ (In progress)

- **Languages:**

- C/C++, Python, JavaScript/CSS/HTML, SQL

- **Tools:**

- VSCode, git/github, docker, Ghidra, Radare2, BurpSuite, Wireshark, nmap, ffuf, john, Metasploit Framework

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## Honors & Awards

- 1st Place in the inter-university Capture the Flag (CTF) competition organized by DevDay'24.
- Top 10% AWS DeepRacer Student Nationals March 2023.