






# Narayan Ram Narayanan

Graduate Teaching Assistant | Security Researcher

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## EDUCATION

### University Of Maryland

**Master of Engineering**, Major: **Cybersecurity**, GPA 3.71/4.0

• **Relevant Coursework:** Binary Exploitation, Application Security, Reverse Engineering, Penetration Testing & Vulnerability Analysis.

College Park, MD, USA

Expected: **May 2024**

### Amrita University

**Bachelor of Technology**, Major: **Computer Science and Engineering**

• **Relevant Coursework:** Network & Information Security, Secure Coding, Data Structures & Algorithms, Cloud Computing.

Coimbatore, India

Jun 2020

## WORK EXPERIENCE

### University Of Maryland

**Graduate Teaching Assistant - Secure Operating Systems**

• Facilitated in delivering a secure operating system course for 80 students, covering Linux and Windows OS security, including SELinux and secure kernel development, and locking down Linux OS.

• Facilitated discussions on 20+ research papers, aiding in comprehending modern OS security components and exploits.

• Guided in crafting 15+ zero knowledge threat models for systems and applications, enriching comprehension of OS security.

**Graduate Teaching Assistant - Applied Cryptography**

Aug 2023 - Dec 2023

• Coordinated a graduate course on Classical & Post Quantum Cryptography for 20 students, emphasizing practical application.

• Facilitated exposure to cutting-edge cryptographic research and practices by analyzing 10+ research paper, discussing implications and applications, resulting in 20% increase in student engagement.

• Constructed an AES-CBC 128-bit key PKCS7 cryptosystem to elucidate padding oracle attacks.

College Park, MD, USA

Jan 2024 - Present

### Oracle Health (Cerner)

**Software Engineer** (Security Champion | DevSecOps)

Bangalore, India

Mar 2020 - Jul 2022

• Performed through Security Audits including Static Code Analysis (SCA), Static & Dynamic Application Security Testing (SAST, DAST) and conducted Vulnerability Assessment & Penetration Testing (VAPT).

• Mitigated and documented over 10 critical, 30 high, 50+ medium and low level CVEs in the US Veteran Affairs domain.

• Conducted secure code reviews for 100+ containers, pinpointing CWEs and offering actionable mitigation suggestions.

• Updated 25+ cybersecurity policies (GDPR, HIPAA) to meet regulations, resulting in an 80% increase in compliance.

• Implemented CI/CD pipeline tools for efficient vulnerability scanning, deployment checks, automated reporting & dependency updates, saving 40+ manual hours weekly.

• Optimized 50+ detection rules & use-cases within Splunk SIEM, achieving 30% increase in identification of security incidents.

• Monitored security training which resulted 75% decrease in bad code instances & 60% improvement in awareness scores.

**Software Engineering Intern**

Jan 2020 - Mar 2020

• Pioneered interactive coding platform for 50+ developers, fostering continuous learning.

• Integrated back-end judging system, code lint evaluation in Java & Splunk, leading to 30% decrease in code vulnerabilities.

### Zoho Corporation

**Software Engineering Intern**

Chennai, India

Apr 2019 - Jul 2019

• Built Patch Updater for on-premise server, by reverse engineering JVM runtime binaries to cut testing time by 30 hours weekly.

## TECHNICAL SKILLS & CERTIFICATIONS

**Programming Languages:** C, C++, Java, Python, Assembly, Shell, NIX, SQL, Haskell, JavaScript.

**Cryptography:** Symmetric & Asymmetric Encryption, Digital Signatures, Hashing, PRNGs, MAC, PKI, PBKDF, PQC.

**Network Protocols:** TCP/IP, UDP, DNS, DHCP, HTTP, HTTPS, ARP, TLS, IPSec, BGP, OSPF, NAT, OSI, VLAN.

**Tools and Technologies:** Fortify, Prisma Cloud, Burp Suite, Metasploit, Wireshark, Sonar Qube, Semgrep Playground, Snort, OWASP Top 10, ZAP, Ghidra, GDB, Splunk, Jenkins, New Relic, Grafana, GDB, MySQL, Git, JIRA.

**Operating Systems:** Nix, Linux, Gentoo, Kali, Debian, CentOS, Arch, RHEL, OpenBSD, Windows.

**Certifications:** elearn Junior Penetration Tester (eJPT) , CISSP (Pursuing)

## PROJECTS

• **FrodoKEM: An IND-CCA secure Post-Quantum Key Encapsulation Mechanism** | C, Python [[GitHub](#)]

• Created and evaluated bit flipping, oracle based attacks on the FrodoKEM variant susceptible to chosen plaintext attack.

• **Job Portal - Secure Coding, Secure SDLC** | Java, Springboot, MySQL, React [[GitHub](#)]

• Led the development, ensuring adherence to OWASP Top 10, integrating MVC framework & STRIDE threat modeling.

• **Binary Exploitation** | Python, Shell, x86 Assembly

• Proficient in reverse engineering binaries & exploiting buffer overflow, format string, integer overflow, race condition, sandboxing, injection vulnerabilities with expertise in bypassing ASLR and stack canaries using ROP and shellcode injection techniques.

## EXTRACURRICULAR ACTIVITIES (CONFERENCES AND TRAININGS)

• **NIST Workshop on Block Cipher Modes of Operation** @ NCCoE - Oct 2023, **PQCrypto 2023** @ UMD - Aug 2023.

• **OWASP Global Appsec** @ San Fransico & Washington D.C - Sep 2022 & Nov 2023, **BSides NoVA** @ Virginia - Sep 2023.

• Delivered Java Full Stack Development training for corporates like GE, Wipro & Deloitte as a freelance trainer - Aug 2022

• Volunteered in 10+ security meetups, conferences & CTFs, while staying up to date on current issues and trends through TL;DR.