Ratan Gupta

+1 (240) 704-4362 | rgupta.apps@gmail.com | [LinkedIn](#) | [GitHub](#)

EDUCATION

University of Maryland — **College Park, MD**
Master of Engineering in Cybersecurity, GPA: 3.9 — *Aug 2021 – May 2023*
- **Coursework:** Hacking of C programs and Unix Binaries, Networks and Protocols, Penetration Testing, Network Security, Secure Coding for Software Engineering, Cloud Security, TCP/IP Networking, Information Assurance, Secure Operating Systems.

Bharati Vidyapeeth's College of Engineering — **New Delhi, India**
Bachelor of Technology in Computer Science and Engineering, GPA: 8.2 — *Aug 2017 – Jul 2021*

TECHNICAL SKILLS AND CERTIFICATIONS

- **Certifications:** CodePath Cybersecurity Pathway, CompTIA Security+ SY-601
- **Programming Languages:** C, C++, C#, Python, Assembly, Golang.
- **Web Application Security:** XSS, SQLi, IDOR, CSRF, Session and Cookie Management, Cryptography, Authentication, Authorization, Threat Modelling, OWASP Top 10, Secure Code Review.
- **Security Tools**: Burp Suite, Wireshark, GDB, Docker, AWS, Metasploit, MITRE Framework.
- **Networks:** TCP/IP, DNS, DHCP, ICMP, UDP, IP Subnetting, RIP, BGP, OSPF, LAN, VLAN, WAN, STP, RSTP

WORK EXPERIENCE

FourCore Labs — **New Delhi, India**
Security Research Intern — *Jun 2022 – Aug 2022*
- Developed ransomware binaries for FourCore's open-source attack simulation library ([Firedrill](#)). Emulated the behaviour of Lockbit 3.0 ransomware and myriad other exploits for FourCore's proprietary attack library.
- Raised the social media awareness of the startup by writing security-centred technical [blogs](#) and informational posts on LinkedIn.

Wobot Intelligence Pvt Ltd — **New Delhi, India**
Computer Vision Intern — *May 2020 – Aug 2020*
- Researched and implemented novel ML/AI algorithms and solutions to gain insight and compare pre-existing models.
- Scripted solutions to integrate ML/AI algorithms with live video recordings.

Minedenim — **New Delhi, India**
App Developer/Content Writer — *Mar 2019 – Apr 2020*
- Founding Core Team Member of start-up to launch a smart carry-bag system and integrate with local grocery vendors.
- Devised the mobile application using Flutter and created content for company website.

PROJECT EXPERIENCE

Secure Software Design and Implementation: Web Auction System — *Nov 2022 – Dec 2022*
- Created a web application following secure code practices. Used .NET Core framework and SQLite database to develop the application. Used Microsoft's STRIDE for threat modelling.
- Conducted a secure code review to identify weaknesses in code. Incorporated tools such as Burp Suite, SonarQube, and manual code review. Submitted my findings along with potential mitigations and security ratings in a Code Review document.

Cobra Kai Cloud Migration — *Dec 2022*
- Designed a recommendation proposal providing a strategy to migrate from an on-premises architecture to AWS Cloud in a secure manner. Submitted a short executive summary outlining the fundamental pillars of rearchitecting the existing application.
- Built a migration pipeline to elucidate integration steps between the Cobra Kai application and AWS services and tools. Submitted a technical report focussing on recommendations to implement the application migration to AWS Cloud.

Docker Compose Application — *Dec 2022*
- Emulated the DNS resolution process by writing a Docker Compose application comprising of two containers - custom DNS server and a custom DNS client.

The Masked DJ: A Pentest Activity — *Dec 2021*
- Performed penetration testing on a virtual IT environment using MITRE framework tactics like recon, initial access (using Eternal Blue exploit), privilege escalation, password cracking and lateral movement. Exposed secrets and gained access to the final flag.

Buffer Overflow – Bypassing ASLR — *Nov 2021*
- Executed binary exploitation techniques such as ret2text, ret2bss, ret2ret, ret2pop, ret2got, and format string vulnerabilities to exploit stack-based buffer overflow vulnerabilities and gain shell access.

License Plate Recognition System Using Machine Learning — *Jun 2019 – Jul 2019*
- Invented a system capable of analysing an image of an automobile captured by a camera, detect the registration plate, and identify the registration number of the automobile. Achieved 4-fold cross validation accuracies - 96.07%, 99.01%, 97.05% and 100%.
- Research paper published in the [International Conference on Innovative Trends in Engineering Technology & Management](#).