

## Ratan Gupta

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### EDUCATION

#### University of Maryland

*Master of Engineering in Cybersecurity, GPA: 3.9*

College Park, MD

*Aug 2021 – May 2023*

#### Guru Gobind Singh Indraprastha University

*Bachelor of Technology in Computer Science and Engineering, GPA: 8.2*

New Delhi, India

*Aug 2017 – Jul 2021*

### TECHNICAL SKILLS

- **Languages:** C++, C#, Python, C, Golang, HTML, CSS, JavaScript
- **Security Engineering:** Application Security, Network Security, Threat Modelling, OWASP Top 10, Code Reviews, Exploit Development, Binary Exploitation, Security Assessments, Cryptography, Cloud Security, Penetration Testing, Threat Hunting
- **Software Development:** ASP .NET, MySQL
- **Technologies:** Burp Suite, Wireshark, GDB, Docker, AWS, Metasploit, MITRE Framework, SonarQube, Git, MS Office, Windows, Linux
- **Protocols:** TCP/IP, DNS, DHCP, ICMP, UDP, IPSEC, RIP, BGP, OSPF, STP, RSTP, HTTP, TLS, SSH, Encryption Protocols

### CERTIFICATIONS

- CompTIA Security+ SY-601 *May 2023 – May 2026*
- CodePath Cybersecurity Program *Apr 2022 – N/A*

### WORK EXPERIENCE

#### FourCore Labs

New Delhi, India

##### *Security Research Intern*

*Jun 2022 – Aug 2022*

- Worked on creating attack simulations for FourCore's open-source platform. Developed exploits for FourCore's proprietary software to emulate common attack behaviours in accordance with MITRE ATTACK and rate the security posture of the target. Mirrored the famous Lockbit 3.0 ransomware's behaviour to exploit Windows systems.
- Raised the social media awareness of the startup by writing highly technical security blogs and creating short informational posts.

#### Wobot Intelligence Pvt Ltd

New Delhi, India

##### *Computer Vision Intern*

*May 2020 – Aug 2020*

- Worked with the research team to test novel machine learning solutions against the current solutions and create comparison charts to determine the most optimal ones for the development team.
- Scripted solutions to integrate machine learning algorithms with live video recordings to satisfy use-cases for different POCs.

#### Minedenim

New Delhi, India

##### *Founding Member, App Development*

*Mar 2019 – Apr 2020*

- Founding Core Team Member of the start-up to launch a smart grocery-bag system in collaboration with local grocery vendors.
- Worked with the development team to launch the mobile application and created content for company website.

### PROJECT EXPERIENCE

#### Security Solutions Design: LifeCare Hospital

*Apr 2023 – May 2023*

- Led a team to conduct vulnerability assessments and evaluate the IT infrastructure of a hospital. Designed and recommended security solutions in accordance with HIPPA regulations to improve the overall security posture of the hospital.

#### Secure Software Design and Implementation: Web Auction System

*Sep 2022 – Dec 2022*

- Created a web application following the SDLC, best secure code practices, threat modelling, and OWASP Top 10. Performed an extensive secure code review to identify weaknesses in code using Burp Suite, SonarQube, and manual code review techniques.

#### Cloud Migration: Cobra Kai

*Oct 2022 – Dec 2022*

- Designed a recommendation proposal providing a strategy to migrate from an on-premises architecture to AWS Cloud. Developed a strategy to rearchitect the application using AWS services to ensure proper access management, secure system administration, resiliency, high availability, data protection and compliance.

#### A Pentest Activity: The Masked DJ

*Oct 2021 – Dec 2021*

- Managed a team of 3 to conduct a penetration testing security assessment on a virtual IT environment using MITRE ATTACK tactics. Breached all 4 systems and was able to maintain persistence and gain all secrets from the AWS account. Recommended solutions to harden their systems and improve security.

#### Buffer Overflow – Bypassing ASLR

*Oct 2021 – Nov 2021*

- Used problem solving and reverse engineering to find the exploits for 10 binaries with ASLR turned on. Created shellcode using NOP slides to exploit the heap, text, data, BSS, and GOT table regions.

#### 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](#).