

# SUSHMITHA REDDY BALAJI REDDY

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## EDUCATION

**Purdue University, West Lafayette, IN**, Master of Science in Cybersecurity and Trusted Systems

May 2026

**BMS College of Engineering, Bengaluru, India**, Bachelor of Engineering in Electronics and Communication

May 2023

**Relevant Coursework:** Network security, Computer networks, Cryptography, Data Security, Distributed systems, Wireless systems and security, Vulnerability Assessment and Risk, Data Communication, Principles of System Engineering, Control systems, Data structure algorithm, Cloud Security, ML Security, IOT Security, Mobile Forensics, Incident response and digital forensics, Web Application Security, Applied Cryptography, Operating System security, Cloud Native Security.

**CERTIFICATIONS:** CEH (Certified Ethical Hacker) certification, Google cybersecurity professional by Google, Advance Cybersecurity certificate by Intellipat and IIT Guwahati, OSINT training Certification by Rivi Hacks, Web development professional by Crio.do, IBM cybersecurity analyst by IBM, CCNA, OSCP(ongoing), AWS Security Specialist, CompTIA security+ (ongoing), ISC2 certification

## PROFESSIONAL EXPERIENCE

**Amazon AWS, Seattle, WA — Application Security Intern**

May 2025 - August 2025

- Developed “Integ,” an internal TLSChecker integration with Touchdown, automating exploit validation, debugging, deployment, and reducing manual workflows by 85% across AWS-wide engineering teams.
- Discovered a Sev-3 hardware vulnerability in the IOMMU BIOS system while assessing a hardware pentest project.
- Performed penetration testing and application security assessments across cloud platforms, analyzing IP, DNS, and HTTP/TCP traffic to identify vulnerabilities and recommend mitigation controls.

**Purdue University, West Lafayette, IN — Associate Security Risk Analyst**

Feb 2025 – May 2025

- Conducted cybersecurity risk assessments by identifying compliance gaps, aligned with NIST, ISO 27001, SOC 2, and CIS Benchmarks.
- Monitored IP, DNS, HTTP/TCP traffic with SIEM tools (Splunk, QRadar, Sentinel) to strengthen incident response, compliance, and risk mitigation.

**Prophaze, Bengaluru, India — System Engineer Cybersecurity**

May 2023 - June 2024

- Created 50+ JSON formats and configurations for Prophaze’s Web Application Firewall, improving processing efficiency by 25%, strengthening application security and real-time traffic analysis.
- Analyzed 500+ attack patterns across IP, DNS, and HTTP/TCP traffic using penetration testing and advanced security tools, identified 100+ vulnerabilities, refined defense mechanisms, and reduced incident response time by 30%.
- Led my team in deploying 20+ automation scripts and custom security tools to support IDS/IPS integration, enhance WAF product architecture, and improve overall security operations efficiency by 35%.

**Prophaze, Bengaluru, India — SOC Intern**

Feb 2023 - May 2023

- Monitored and responded to 200+ real-time security incidents via SIEM, IDS/IPS, and WAF; conducted vulnerability assessments and web app testing to improve detection by 35% and reduce attack surface.
- Analysed IP/DNS/HTTP/TCP traffic patterns, optimize WAF rules, cutting false positives by 40%, improving alert accuracy by 25% enhancing IPS performance.
- Integrated threat intelligence and updated security protocols, reducing mean time to detect (MTTD) by 30% and mean time to respond (MTTR) by 20%, strengthening incident response workflows.

## ACADEMIC PROJECTS

**Asset-Aware PageRank-based Security Resource Allocation Method for Attack Graphs**

- Generated attack vector graphs for resource allocation analysis, supporting Prof. Mustafa’s research at Purdue in enhancing cybersecurity.
- Simulated 100+ exploits with Metasploit, Burp Suite, Nmap, MulVal to evaluate IP/DNS/HTTP/TCP vulnerabilities and propose mitigation strategies.

**Ramp Cast Phase II: Connected Vehicles Traffic Management Application on Indiana Highway**

- Investigated V2X communication security issues to support Dr. Feng Li’s research on Indiana’s connected traffic management system.
- Assessed potential attack vectors in connected vehicle data, contributing to a stronger security framework for V2X technology to mitigate real time risks.

### Capstone projects

- Performed cloud security risk analysis, to reduce breach probability by 30% and ensure NIST/ISO compliance.
- Built IoT-based healthcare gloves with Raspberry Pi securing transmission channels to protect patient data and improving monitoring accuracy by 25%.
- Simulated 100+ exploits using Metasploit, Burp Suite, Nmap, Nessus, and MulVal to analyze IP/DNS/HTTP/TCP vulnerabilities in attack graphs and executed SQL vulnerability and network traffic analysis through packet sniffing, CA bypass, and authentication attack simulations, delivering mitigation strategies for web application security.
- Designed a Li-Fi secure transmission system, addressing vulnerabilities in point-to-point data transfer and implementing cognitive security measures to mitigate interception attacks and enhance resilience.

**SKILLS:** Metasploit Framework, Burp Suite, Nessus, Nmap, Wireshark, Maltego, Snort, Splunk, Elastic Stack, Rapid7, Python, JavaScript, SQL, C++, JSON, Bash/Shell Scripting, PowerShell, TCP/IP, HTTP, DNS, Routing, SSL/TLS Handshake, DHCP, IPsec, VPN, Network Firewalls, IDS/IPS, Zero Trust Architecture, Excel, Jupyter Notebook, Anaconda, Tableau, Linux, Windows Server, macOS, Nginx, Apache, JavaScript, SQL, Content Security Policy, Web Application Firewalls, AWS, Docker, Kubernetes, CloudFormation, GitHub Actions, QRadar, Sentinel, CrowdStrike Falcon, Sentinel One, Vulnerability Assessment, Risk Analysis, Penetration Testing, Exploit Development, Threat Modelling, Threat Hunting, Incident Response, Digital Forensics, Secure Coding, Secure Software Development Life Cycle, Identity and Access Management, NIST CSF, SOC 2, CIS Benchmarks, MITRE ATT&CK, OWASP Top 10, FedRAMP, HIPAA, PCI-DSS.

## LEADERSHIP & AFFILIATIONS

- Currently leading international relations initiatives for Women in Cybersecurity at Purdue.
- Teaching Assistant at Purdue for CNIT 27100
- Research assistant at PARI, Purdue University
- Represented Prophaze at the World G20 Summit forum
- Founder, Access denied club, BMSIT
- Young scientist awardee, Mount Carmel College.



