

Prem Lodhia

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PROFILE

First-year Computer Science with Artificial Intelligence student specialising in cloud security, detection engineering, and application security.

Builds production-style security labs to simulate real attack scenarios, generate telemetry, and engineer detection logic. Strong focus on understanding systems by breaking and securing them, with hands-on experience across logging, alert triage, vulnerability exploitation, and secure development practices.

Actively developing at the intersection of cloud infrastructure, security engineering, **and** AI-driven workflows.

SELECTED PROJECTS

BlueTrace Lab — Detection Engineering Lab

- Built a full detection engineering lab simulating authentication, process, file, and network events
- Normalised logs and developed rule-based detections to generate triage-ready alerts
- Integrated MITRE ATT&CK mapping, alert severity tracking, and detection tuning workflows
- Demonstrates end-to-end pipeline from event generation → detection → alert analysis

VulnShop Lab — Web Application Security Lab

- Developed a vulnerable vs remediated web application environment for hands-on security testing
- Identified and documented vulnerabilities including SQL injection, XSS, IDOR, SSRF, insecure file uploads, and session flaws
- Produced structured remediation and retesting workflows aligned with real-world security practices
- Built using Node.js, Express, SQLite, and Docker

Cyber Security Toolkit (Python)

- Developed modular CLI toolkit including password analysis, hashing demonstrations, port scanning, and log analysis
- Implemented encryption/decryption utilities and brute-force detection logic
- Focused on practical security tooling and understanding attack techniques

EXPERIENCE

Security Software Engineer (Freelance) — Mercor

Apr 2026 – Present

- Design and implement secure software solutions to protect platform functionality across distributed environments
- Conduct security assessments, identify vulnerabilities, and apply secure coding practices to reduce risk exposure
- Monitor systems and support incident response processes, improving resilience against potential threats
- Apply core security principles including least privilege, input validation, and secure authentication mechanisms

AI Training Contributor / Data Specialist (Freelance) — Outlier

Nov 2025 – Present

- Delivered high-accuracy AI training and data annotation tasks contributing to model performance and reliability
- Analysed datasets to identify patterns, anomalies, and inconsistencies, improving data quality and alignment
- Produced structured reasoning to support model behaviour and decision-making processes
- Maintained strict quality control under time constraints, demonstrating precision and consistency

IT Support Practice — Birmingham City University

- Diagnosed and resolved user technical issues, building practical troubleshooting and communication skills
- Supported system access, reliability, and day-to-day operational stability

Sep 2025 – Oct 2025

TECHNICAL SKILLS

Security & Detection

Detection engineering fundamentals, alert triage, log analysis, MITRE ATT&CK, OWASP Top 10, vulnerability assessment, incident response concepts

Cloud & Infrastructure

AWS (IAM, EC2, S3, Lambda, VPC), Azure fundamentals, Docker, Terraform (basic), cloud security principles

Tools & Technologies

Splunk, Microsoft Sentinel (concepts), Nmap, Wireshark, Nessus, Qualys

Programming & Automation

Python, Bash, PowerShell, SQL, Git/GitHub

Networking

TCP/IP, DNS, HTTP/HTTPS, subnetting, firewalls, VPNs, TLS/SSL

ADDITIONAL SKILLS

AI & Machine Learning: PyTorch, pandas, NumPy, scikit-learn, data preprocessing, feature encoding, supervised learning, linear regression, decision trees, model evaluation, data visualisation with Matplotlib and seaborn

Web & Backend Development: website design, Node.js, Express, backend development, REST-style application logic, debugging, authentication flows, and secure coding fundamentals

Databases: SQLite, SQL querying, schema design fundamentals, relational database management, and structured data handling
Hardware & Systems: computer hardware architecture fundamentals, system-level troubleshooting, and understanding how software interacts with operating systems and underlying components

EDUCATION

Birmingham City University | BSc Computer Science with Artificial Intelligence

- First-year student building hands-on capability through coursework, labs, and security project development.

George Dixon Academy | A Levels

- Biology, Chemistry, Physics

ADDITIONAL

- Captained a cricket team, demonstrating leadership, decision-making, and teamwork under pressure
- Actively building and documenting projects on GitHub
- Continuously developing skills in cloud security, detection engineering, and secure software development