Bir Amrit Singh

Linux and Cloud Computing Enthusiast
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Education

Manipal Institute of Technology Bangalore, India
Bachelor of Technology in Computer Science, Major in Cyber Security *Aug. 2023 – May 2027*
CGPA 7.97

Technical Skills

- **Cybersecurity:** Hands on experience in binary exploitation, web application attacks (XSS, CSRF, IDOR, command injection, broken auth/session hijacking), network recon exploitation, and OSINT. Defensive experience includes SSH hardening, VPN/tunneling, log analysis, iptables. Proficient with Burp Suite, Ghidra, Wireshark, Nmap, and Netcat. Active CTF competitor
- **Languages:** Python, Java, Bash, C++, SQL
- **Operating Systems:** 7+ years daily driving Linux (Arch), shell scripting, Docker, QEMU, Virtual Machine config.
- **Additional Skills:** AWS(EC2, VPC, RDS), Raspberry Pi(projects), EV security

Projects

secNet | python, AWS Mar 2026
- Built a secure network supporting end to end encrypted communication between n parties simultaneous, with multiple key exchange protocols
- Key exchange protocols include ECDH, DH chain, Tree KEM, Chained KDF and more. AES GCM and ChaCha20-Poly for packet encryption
- Central node deployed on an EC2 with traffic tunneled and routed outbound through a VPC

Offline Password Manager | C++ Jan 2026
- Developed a cli based password manager with encrypted vaults. Using key derivation instead of plain text
- Completely offline and with features for vault management and password hygiene checks
- Has capability for exporting/importing vaults securely, Has capibility to do tamper checks using AEAD
- Argon2id for key derivation, ChaCha20 Poly1305 for encryption with AEAD

BGP sim | Python, AWS Apr 2026
- Simulating a BGP routing network across multiple AWS ASG in different AWS regions, routing traffic through the geographically optimal exit nodes.
- Routing occurs using IP geolocation to determine exit node based on destination country.
- Single central EC2 acts as the routing controller, maintaining the routing table and forwarding decisions across all regional exit nodes. One Lambda trigger spins up the entire multi-region topology and terminates it when done

Experience

Cybersecurity Lead *in CEAM (College's capstone EV Project) | CAN Systems* Ongoing
- Developed a CAN intrusion detection system to identify unauthorized CAN nodes for node flooding, garbage data, deviating data, timing attacks and replay attacks.
- Implemented end to end encryption for secure EV data transmission, using Asymmetric for key exchange and Symmetric for actual data encryption

Summary

Actively developing Cybersecurity skills through TryHackMe. Am obsessive about finding solutions to odd technical problems. I despise badly configured systems where the software does not live up to the hardware. Thanks for reading.