**Arnav Bansal**

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**Education**

**VIT Bhopal University** Madhya Pradesh

Pursuing B.tech in Computer Science and Engineering with a CGPA of 8.27 July 2021 - onwards

(Specialization in Cyber Security and Digital Forensics)

**Puna International School**  Ahmedabad

Graduated Class XII in CBSE with 82.2% June 2021

**Rachana School** Ahmedabad

Graduated Class X in CBSE Board with 85.0% May 2019

**Skills & Certifications**

### **Technical Skills**

* **Programming:** Python, C, SQL(Postgres,SQLite,Mongo,MYSQL)
* **Cybersecurity:** Network Security, Firewalls, VPNs, Active Directory, Wireshark, Nmap
* **Cloud & DevOps:** AWS, GCP, Docker,VM(VMware, HyperV)
* **Networking:** TCP/IP, DNS, DHCP, VLANs, VPNs, Subnetting, Routing
* **System Administration:** Linux (Ubuntu, Kali Linux), Windows, MacOS

**Tools & Technologies:** Wireshark, Metasploit, Nmap, Burp Suite, Git, Cisco Packet Tracer

**Certification :** Bits and Bytes of Networking (Coursera), Foundation of Cybersecurity(Google, Coursera), Manage Security Risks(Google, Coursera), Networks and Network Security(Google, Coursera)

**University Projects**

**Vault (May - July 2024)-** Encrypted File Sharing Platform (Nov 2023- May 2024) File-sharing platform that uses AES encryption to securely encrypt any file and stores it in a zip archive. The platform generates a pair of public and private keys for secure sharing and then uploads the encrypted zip file to an AWS S3 bucket, making it easily accessible for sharing

**▪ Technologies:** Typer, os, time, json, boto3, requests, typing\_extensions, pathlib, pyperclip, enum, posixpath, Crypto (AES, PKCS1\_OAEP, RSA, ECC, Padding, Hash), base64, botocore

**▪ Role:** Development and Operation in Python

**▪ Link:** https://github.com/arnavbansal172/vault-main

**Network Vulnerability Assessment using LLM (Jan 2025 - March 2025) -** Designed and implemented a hybrid network vulnerability assessment system, leveraging a fine-tuned Large Language Model (LLM) to enhance the detection and analysis of network vulnerabilities.

* Technologies: Python: Core language for development of the system. Scapy: Python library for packet manipulation; used for capturing and extracting network packet data.
* Transformers: Hugging Face library for implementing and fine-tuning the LLM.
* PEFT (QLoRA): Parameter-Efficient Fine-Tuning (Quantized Low-Rank Adaptation) for efficient LLM fine-tuning.
* TinyLlama-1.1B-Chat: The LLM fine-tuned for network vulnerability analysis.
* Click: Python library for creating the command-line interface (CLI).
* Role: Python Development: Developed the core system components, including rule engine, LLM interface, and CLI.
* LLM Fine-tuning: Fine-tuned the TinyLlama model using a custom dataset to specialize in vulnerability detection. Network Security Analysis Implementation: Integrated rule-based and LLM-based analysis for comprehensive vulnerability assessment.
* Result: Developed an automated solution for network vulnerability assessment, enabling efficient analysis of network traffic (PCAP files and live capture), accurate identification of vulnerabilities (SQL Injection, XSS, Buffer Overflow, DoS/DDoS, MitM), and generation of detailed reports with mitigation strategies..

**Responsibilities**

**Technical Team Head, NULL Chapter**

▪ planned and organized 3 CTF challenges attended by 1200+ students

▪ pioneered a Cybersecurity Awareness Week campaign, educating 6206 people through social media

**Finance Team Head, The Fusion Club, VIT Bhopal**

▪ implemented strategies to generate profits of over INR 25,000 per event

▪ managed efficient allocation of INR 6,00,000 budget at 9 events with total footfall of 2500+ student

**Additional Information**

**Extracurricular:** 2nd runner-up in KAVACH Cybersecurity Hackathon by Ministry of Education, Jul 2023

**Languages:** English, Hindi, Gujarati, Marathi

**Hobbies:** Watching Movies and TV shows and Roaming around preferred mode walking