Vanshika Srivastava

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Education

Shiv Nadar University - 8.00 CGPA — Greater Noida
Bachelor of Technology in Computer Science, Minor in Management — *Aug. 2023 – Jun. 2027*

Guru Nanak Academy — Dehradun
XII–93.25% — *Mar. 2022–Mar. 2023*

Internship

Intern — Dehradun
Defense Research and Development Organisation (DRDO) — *May 2025 – Jul. 2025*

- Analyzed over **5,000** network packets using **Wireshark** and **Burp Suite**, identifying **10+ vulnerabilities** aligned with the OWASP Top 10 and improving detection **accuracy by 30%**.
- Performed automated vulnerability scans and penetration testing using **Kali Linux** tools such as **Nmap, Gobuster**, and **Metasploit**, improving **vulnerability coverage by 40%**

Projects

The Route Cause – Smart Traffic Management System | *YOLOv8, OpenCV, FastAPI, React, TypeScript*

- Proposed a **real-time traffic optimization system** using **YOLOv8 and OpenCV** to analyze live CCTV feeds and dynamically control signals, achieving **60% reduction in waiting time** and **35% lower CO_2 emissions**.
- Implemented a **Q-Learning–based Reinforcement Learning engine** with **Epsilon-Greedy, Boltzmann, and UCB** to optimize green-light timing based on real-time traffic demand.
- Developed a **FastAPI + WebSocket backend** and a **React + TypeScript dashboard** to stream **live traffic metrics and signal states**, including an **emergency override** that clears ambulance paths in **15 seconds**.

Content-Aware Caching Algorithm | *C++, STL, Filesystem*

- Enhanced **caching system** using **4-factor priority scoring algorithm** that outperforms traditional LRU caching in hit rate and disk I/O reduction
- Designed a **comprehensive test framework** with **30,000 file access operations** across 100 synthetic files spanning 8 different file types, validating algorithm performance through comparative benchmarking against LRU baseline
- Implemented a **configurable 64MB cache** with **real-time performance monitoring** tracking cache hit rates, disk I/O operations, and utilization metrics, demonstrating measurable improvements in file access efficiency

Ad Click Prediction System | *Python, Pandas, Scikit-learn, Logistic Regression*

- Engineered a **machine learning classification model** to predict ad-click behavior with **98% accuracy** using **Logistic Regression** on a **1,000-record dataset**
- Performed **end-to-end data analysis** including **EDA, feature engineering, and preprocessing** using **Seaborn and Matplotlib** to identify key engagement predictors

Technical Skills

Languages: Java, Python, MySQL, JavaScript, HTML/CSS
Developer Tools: Git, VS Code, PyCharm, IntelliJ, Eclipse
Libraries: pandas, NumPy, Matplotlib, Scikit-learn, Seaborn, Plotly
Relevant Coursework: Data Structure and Algorithms(DSA), Probability Statistics, Object Oriented Programming(OOPs), Operating System, Database Management System(DBMS)
Business and Communication :Stakeholder management, Technical Documentation, Risk Management

Additional Experience

- Built a **medical web app prototype** for **real-time hospital bed availability**, selected among the **top 10 submissions** at the **HackData Hackathon**.
- Made **10+ open-source contributions** through **GirlScript Summer of Code (GSSoC)** and **Social Winter of Code (SWoC)** via GitHub.
- Solved **200+ DSA problems** on **LeetCode** and earned a **3 rating on HackerRank** in Problem Solving.