Harshit Saroha

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Profile Summary

Aspiring software and systems engineer with strong foundations in C/C++, operating systems, and backend development. Experienced in building data-driven backend services and performance-critical pipelines on Linux and distributed microcontroller platforms, with a focus on concurrency, scalability, and system-level design.

Education

R V College of Engineering — Bengaluru, Karnataka
Bachelor of Engineering in Electronics and Telecommunications Engineering — *Sept 2023 – Aug 2027*

Government Model Sanskriti SSS — Karnal, Haryana
Class 12 — *Aug. 2021 – March 2023*

Experience

Joint Secretary — January 2024 – Present
Coding Club, RVCE — *Bengaluru, Karnataka*

- Led technical collaborations with industry mentors, contributing to system design reviews, performance analysis, and debugging discussions.
- Drove technical initiatives focusing on performance optimization, multithreading concepts, and system-level debugging for student projects.
- Delivered hands-on workshops on algorithms, time complexity, and problem-solving techniques in C++ for 100+ students.

Projects

SmartBeamX | *STM32, Raspberry Pi, Arduino, OpenCV* — Sept 2024 – Jan 2025

- Engineered a real-time embedded system on STM32 and Raspberry Pi for an **8x16 LED matrix PCB**, ensuring deterministic headlight adjustment to prevent glare for oncoming vehicles.
- Programmed STM32 and Arduino microcontrollers in C/C++ for low-latency LED matrix control and sensor interfacing using timers and interrupt-driven routines.
- Designed and optimized inter-device data pipelines between microcontrollers and a Linux-based Raspberry Pi, ensuring reliable, low-latency data transfer and actuation.

Safeguard-AI | *Python, Flask, Machine Learning* — March 2025 – May 2025

- Designed a real-time video data ingestion and pre-processing pipeline using OpenCV for continuous camera streams.
- Built a Flask-based backend service to expose model inference results via APIs for downstream consumption.
- Optimized buffering and batching to improve throughput and reduce end-to-end latency in real-time inference.

LeetCode-Helper | *Node.js, Express, React TS, Groq LLaMA 3* — September 2025 – Ongoing

- Built a Chrome extension to dynamically parse LeetCode problem titles and descriptions from the browser DOM and send them to a backend service for analysis.
- Developed a Node.js + Express backend to manage user-specific requests and orchestrate calls to an AI microservice.
- Integrated a Python Flask microservice using Groq LLaMA 3–70B to generate structured problem-solving strategies and algorithmic approaches without revealing final code.
- Designed asynchronous, distributed request flows between browser extension, backend, and AI service, focusing on scalability, fault isolation, and sub-second response latency.

Technical Skills

Languages: C, C++, Python, Embedded C, SQL
Systems & Tools: Linux, Shell Scripting, Git, GDB, Valgrind, Make, Docker
CS Foundations: Data Structures, Algorithms, Operating Systems Concepts
Libraries: STL, multithreading (C++11), OpenCV, NumPy, Pandas
Data & Backend Concepts: REST APIs, asynchronous systems, data ingestion pipelines, schema design, latency and throughput optimization