

Aabish Malik

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PROFESSIONAL SUMMARY

Computer Science Engineering student specializing in AI/ML with strong systems programming and low-level software engineering experience. Focused on compiler design, networking, backend infrastructure, and performance-oriented development using C, Rust, and Linux-based tooling. Experienced in building custom parsers, HTTP infrastructure, semantic analyzers, and developer tooling through open-source and independent engineering projects.

EDUCATION

Bachelor of Engineering in Computer Science and Engineering (AI/ML) **2023 - Present**

Model Institute of Engineering and Technology, Jammu | CGPA: 8.2

Senior Secondary Education (12th Grade) **2022 - 2023**

M.V. International School, Vijaypur, Samba

PROJECTS

Mopi | *Local Semantic Search Engine in Rust* **March 2026 - May 2026**

- Developed a high-performance local semantic search engine in Rust combining lexical (Tantivy) and vector (HNSW) search.
- Integrated local embedding inference using FastEmbed-RS and ONNX Runtime with INT8 quantization for private search.
- Built a modular daemon-client architecture (mopid/mopictl) with low-overhead Unix socket IPC.
- Designed structure-aware semantic chunking and hybrid ranking using Reciprocal Rank Fusion (RRF).
- Developed kiwi, a Wayland-friendly launcher-style GUI for interactive search-as-you-type functionality.

Narva P3 | *Stereo Vision & Pathfinding for Planetary Terrain* **February 2026 - Present**

- Developed a stereo vision pipeline in Python to transform Mars/Moon satellite imagery (HiRISE) into 3D terrain maps.
- Implemented SGBM disparity algorithms to derive relative depth, slope, and traversability cost maps.
- Built a pathfinding module using the A* algorithm to enable autonomous agent navigation over generated cost maps.
- Created an interactive 3D terrain viewer using Pygame, utilizing depth for elevation and cost for color visualization.
- Engineered a modular CLI tool for automated data ingestion, preprocessing, and pipeline orchestration.

Libserver | *High-Performance Lightweight HTTP Server Library in C99* **November 2025 - Present**

- Designed and developed a lightweight HTTP server library in C99 focused on performance and modularity.
- Built a custom routing system with support for Express-style dynamic routing and middleware patterns.
- Developed a minimal JSON parser in C99 for efficient request and response processing.
- Implemented an FTP-compliant file transfer module supporting streamlined file handling workflows.
- Structured the project for extensibility and low-overhead server-side application development.

Silver | *Minimalist Frontend for LLVM* **April 2025 - Present**

- Designed and developed a complete LLVM frontend in Rust for experimental language development.
- Implemented a custom parser capable of handling complex template syntax with advanced error recovery.
- Built a lexical analyzer and semantic analyzer supporting compile-time evaluation of complex expressions.
- Developed compiler infrastructure focused on language tooling, syntax analysis, and semantic validation.
- Integrated LLVM-based compilation workflows for efficient intermediate representation generation.

TECHNICAL SKILLS

Languages: C, C++, Rust, Python, JavaScript, Bash

Systems & Infrastructure: Linux, Networking, HTTP, FTP, Compiler Design, Operating Systems, Systems Programming

Tools & Platforms: Git, LLVM, Docker, Linux CLI, GitHub Actions, ONNX Runtime, OpenCV, Pygame

Domains: Backend Development, Compiler Engineering, DevOps, Embedded Systems, AI/ML, Semantic Search, Vector Search, Computer Vision, Pathfinding

LEADERSHIP & ACTIVITIES

DevOps Lead | GDGoC MIET Jammu (2025 - Present)

- Led DevOps-related initiatives and infrastructure activities within the student developer community.
- Assisted in organizing technical workshops, development sessions, and collaborative engineering events.

Open Source Contributor (2022 - Present)

- Contributed to open-source software projects and collaborative development initiatives.
- Worked with Linux-focused tooling, developer infrastructure, and community-driven repositories.

Competitive Programming & Problem Solving (2022 - Present)

- Regularly practice data structures and algorithms on LeetCode.
- Focused on problem-solving, optimization, and algorithmic thinking.

HACKATHONS & TECHNICAL PROGRAMS

- Runner-up, Innovation Design and Entrepreneurship Bootcamp 2026, Guru Nanak Dev Engineering College
- Smart India Hackathon (SIH) 2025
- Innovation, Design and Entrepreneurship Bootcamp (AICTE), 2025
- Smart India Hackathon (SIH) 2024

CERTIFICATIONS

- Deep Learning Specialization | DeepLearning.AI | April 2026
- Building Quantum Intuition with IBM Qiskit | December 2025
- Deep Learning | IIT Ropar | November 2025
- IBM AI Developer | IBM | October 2025
- Machine Learning | University of Washington | October 2025
- Machine Learning with TensorFlow on Google Cloud | Google Cloud | October 2025
- Machine Learning on Google Cloud | Google Cloud | September 2025