

# Krishnav Mahajan

☎ +91 9417041021 ✉ [krishnav5555@gmail.com](mailto:krishnav5555@gmail.com) 🔗 [linkedin.com/in/krishnav-mahajan](https://linkedin.com/in/krishnav-mahajan) 🐙 [github.com/THEN01EXPLORER](https://github.com/THEN01EXPLORER)

## PROFILE

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Second-year Computer Science Engineering student (AI & ML) focused on engineering applied AI systems, production-ready backend APIs, and scalable server-side architectures. Strong interest in LLM orchestration, RAG pipelines, and secure system design.

## EDUCATION

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**B.Tech in Computer Science Engineering (AI & ML Honours with IBM)** 2024 – 2028  
Chandigarh University, Mohali

- **Relevant Coursework:** Advanced Data Structures (DSA), Artificial Intelligence, Operating Systems, Software Engineering, Discrete Mathematics.

## TECHNICAL SKILLS

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- **Programming Languages:** Python, C++, Java, Rust
- **Backend & APIs:** FastAPI, REST APIs, Async Programming, Microservices Concepts
- **AI Systems:** LLM Integration, Retrieval-Augmented Generation (RAG), LangChain, Prompt Engineering
- **Data & Systems:** Vector Databases (FAISS), Caching (Redis/In-memory), Static Analysis
- **Tools:** Git, GitHub, Docker, Linux, VS Code, Postman

## PROJECTS

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### ChainCompass AI — Cross-Chain DeFi Route Optimization Engine

- Engineered a high-concurrency AI backend to analyze and recommend optimal cross-chain DeFi swap routes.
- Architected a FastAPI system using async/await patterns to handle parallel third-party API requests efficiently.
- Integrated LLMs to synthesize raw blockchain data into concise, human-readable trade explanations.
- Implemented robust error handling and response caching to ensure system reliability under load.

### Auralis — Smart Contract Security Analyzer

- Developed a modular static analysis engine capable of detecting common Solidity vulnerabilities (Reentrancy, Overflow).
- Implemented pattern-based regex detection algorithms with automated severity classification.
- Exposed analysis logic via a RESTful API to enable programmatic scanning of GitHub repositories.

### Personal RAG Concierge — Document Question Answering Agent

- Built a privacy-first RAG pipeline enabling secure, local conversational Q&A over PDF documents.
- Optimized retrieval accuracy using document chunking strategies and FAISS vector similarity search.
- Integrated cloud-based LLM inference while maintaining local data processing for user privacy.

## ACHIEVEMENTS

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- **100-Day LeetCode Streak:** Demonstrated algorithmic discipline and consistency in problem-solving.
- **DSA Proficiency:** Solved multiple complex Data Structures & Algorithms problems in C++ and Python.

## CERTIFICATIONS

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- **Mathematics for Machine Learning: Linear Algebra** – Imperial College London (Coursera)
- **Rust Fundamentals** – Duke University (Coursera)
- **Foundations of AI and Machine Learning** – Microsoft (Coursera)
- **Python for Data Science, AI & Development** – IBM (Coursera)
- **Software Foundation (C++) & Java Fundamentals** – IBM