

OMKAR MAHAJAN

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Technical Skills

Languages: Python, JavaScript, TypeScript, SQL, Java

AI & LLM Tools: RAG, Gemini API, Claude, GitHub Copilot Agents/Skills, MCP, Prompt Engineering

Cloud & Databases: AWS (Aurora, Athena, DynamoDB, Glue, S3), PostgreSQL, MySQL, Meilisearch, Redis

Frameworks & Tools: React Native, Next.js, FastAPI, Django, GraphQL, Redux, Linux, Git

Work Experience

Institutional Shareholder Services (ISS-Stoxx)

Jul 2024 – Present

Software Developer (Analyst)

Mumbai

- Pioneered the development of an **MCP (Model Context Protocol)** gateway deployed to **500+ enterprise clients**, enabling external teams to autonomously execute **10,000+** natural language queries against backend **GraphQL servers** within their **internal LLM workflows**.
- Engineered a **RAG-based schema discovery layer** using **pgvector and local embeddings**, combined with deterministic query validation, reducing invalid query generation by **50%** across a **1,000+ type GraphQL schema**.
- Spearheaded the development of the MarketPro client app using **React Native and Redis** within an 8-member agile team, successfully onboarding **20,000+ institutional users** in under 6 months.
- Accelerated search query response time by **90% (from 2.5s to 0.25s)** by integrating **Meilisearch**, enabling real-time filtering across **10M+ financial data records**.
- Architected a Dockerized data migration microservice to securely transfer **5M+ historical records** from **MySQL Aurora to AWS Athena**, reducing weekly database views generation time by **40%**.
- Built ETL pipelines utilizing **AWS Glue and Athena** to process **100GB+ of weekly data** into an **S3 Data Lake**, supporting a highly available **API-as-a-service** architecture.
- Developed high-throughput **GraphQL and Python** backend APIs serving **25,000+ daily active users**, achieving **99.9% uptime** and reliable system-to-client data synchronization.
- Boosted engineering team velocity by integrating custom **GitHub Copilot Agents** and **MCP servers**, automating UI debugging and reducing average ticket resolution time by **40% (~16 hours saved weekly)**.

Projects

LeetClone (AI Powered Coding Platform)

Python | Next.js | Judge0 | Gemini API

- Architected a full-stack coding platform using **Next.js and the Judge0 API**, supporting **5+ programming languages** with scalable code execution and **sub-second latency**.
- Engineered an Adaptive Hint Generation System utilizing **RAG and the Gemini API** to provide incremental logic scaffolding, improving user problem resolution rates by an estimated **30%**.
- Developed a **FastAPI Python** backend featuring automated background dataset synchronization, processing **1,000+ daily telemetry events** for robust system monitoring.
- Integrated **Retrieval-Augmented Generation (RAG)** by indexing **500+ problem contexts** and solution patterns, significantly increasing the precision of AI-driven debugging assistance.

Bone Fracture Detection | *Published Research Paper*

Python | TensorFlow | Django

- Authored and published a peer-reviewed medical imaging research paper detailing a novel deep learning approach for cervical spine fracture detection.
- Trained a Convolutional Neural Network (CNN) on a dataset of **3,000+ complex radiological scans**, achieving a **95% fracture detection accuracy** and a **92% F1-score**.
- Deployed a scalable **Django web application** allowing medical practitioners to run the diagnostic model on custom X-rays, reducing manual preliminary screening time by **60%**.

Education

Vivekanand Education Society's Institute of Technology

Jan 2021 – May 2024

Bachelor of Engineering in Computer Engineering with Honors in AI&ML (9.11/10 GPA)

Mumbai