

# Sayantana Mandal

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## Summary

Final-year Computer Science undergraduate with strong backend and cloud expertise. Developed scalable full-stack applications using FastAPI, React, PostgreSQL, and Supabase. Delivered optimized solutions in fast-paced internship settings, achieving up to 40% performance improvements and cutting manual QA by 60%. Solved 500+ coding problems on LeetCode, with a deep foundation in algorithms, OOP, API design, and system architecture.

## Education

### Vellore Institute of Technology (VIT)

B.Tech in Computer Science and Engineering, CGPA: 8.95/10

Andhra Pradesh, India

Aug 2022 – Present

### Delhi Public School Ruby Park

CBSE Class XII, Science Stream, Percentage: 75%

Kolkata, India

May 2022

## Technical Skills

**Languages:** Python, JavaScript, C++, Java, Bash, SQL, TypeScript, L<sup>A</sup>T<sub>E</sub>X

**Frameworks:** FastAPI, Flask, Django, React.js, Node.js, Express.js

**Tools & Cloud:** Git, Docker, Jenkins, AWS, Azure, GCP, Firebase, Supabase, Linux

**Databases:** PostgreSQL, MySQL, MongoDB

**Libraries:** NumPy, Pandas, OpenCV, FAISS, Scikit-learn, LangChain

**CS Concepts:** Data Structures, Algorithms, System Design, OOP, API Development

## Experience

### Software Development Intern

May 2025 – June 2025

Elogix Software Pvt Ltd

Kolkata

- Developed REST APIs using FastAPI and PostgreSQL, handling user and product data for a retail analytics system used by over 10,000 users.
- Refactored legacy schema and optimized database queries, reducing latency by 25% and enhancing scalability.
- Implemented PyTest-driven unit testing framework, reducing regression bugs by 40% and speeding up QA cycles.

## Projects

### AI Document Chatbot with Semantic Search

May 2025

FastAPI, React.js, LangChain, FAISS, OpenAI, Supabase

- Built a document-aware chatbot using LangChain + FAISS for semantic search and GPT-powered responses from uploaded files.
- Developed a FastAPI backend with session-based vector persistence on Supabase; reduced response latency by 40%.
- Created a WhatsApp-style React.js frontend with live typing indicators and timestamped conversation history.

### Real-Time Sign Language Interpreter

Aug 2024

TensorFlow, Flask, OpenCV, Python

- Trained a CNN to recognize ASL gestures in real time with over 85% accuracy using OpenCV video feed.
- Built a Flask web app with speech synthesis, gesture overlays, and real-time translation of sequences into text.
- Optimized inference pipeline to sustain 30 FPS across browsers, improving accessibility and user engagement.

### Financial Time Resonance Engine

Dec 2023

Python, Streamlit, t-SNE, UMAP, DTW

- Created a Streamlit dashboard to cluster time-series data using UMAP and DTW for pattern-based market analysis.
- Enabled custom dataset uploads and similarity visualization across multi-asset price trends.
- Enhanced responsiveness with caching and async processing for datasets up to 10GB.