

Ritwik Mukherjee

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Summary

I am a software developer who loves solving problems, improving things that break, and occasionally breaking things just to understand them better. I am motivated by challenges that push me out of my comfort zone and excited by opportunities to build meaningful, reliable solutions. I learn fast, adapt quickly, and enjoy being part of teams that set high standards and value curiosity, ownership, and continuous growth. I want to contribute where my energy, problem-solving mindset, and willingness to take initiative can genuinely make an impact.

Education

B.Tech CSE (Health Informatics) — VIT Bhopal University

CGPA: 8.65 (Expected Aug'26)

XII (ISC) — St. Augustine's Day School, Barrackpore

92%

X (ICSE) — St. Augustine's Day School, Barrackpore

91.8%

Technical Skills

- **Languages:** Python, C++, Java, JavaScript, TypeScript, SQL
- **Backend & Distributed Systems:** Flask, Redis, WebSocket, REST APIs, Docker, AWS (ECS, RDS, ElastiCache, EC2, S3), Firebase Functions
- **Data & ML:** Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch, Hugging Face, DeepFace, OpenCV
- **Frontend:** Next.js, Tailwind CSS, Streamlit, Plotly
- **Concepts:** Distributed Systems, Concurrency, Cloud-native design, Observability, CI/CD, Large-scale Data Processing, Generative AI, Embeddings, Pipelines

Professional Experience

Data Science Intern — Zidio Development Pvt Ltd

Mar'25–Jun'25

Multimodal AI Emotion Intelligence System

Project Repo: github.com/Ritaldojr7/AI-Powered-Task-Optimizer-Desktop-App

- Built a multimodal generative-AI-powered platform using **BERT, DeepFace, MFCC, and Flask microservices** to infer user sentiment and generate task recommendations.
- Designed and deployed backend services with **modular APIs, data pipelines, and real-time processing**, improving inference responsiveness by **35%**.
- Refactored services into scalable, maintainable modules to support future extension and improve developer velocity.

Key Projects

FIX-Pilot — Large-Scale Real-Time FIX Trading Monitoring System

Apr'25–Aug'25

GitHub Repo: github.com/Ritaldojr7/FIX-Pilot

Hosted: [AWS Live Deployment](#)

- Engineered a distributed backend pipeline to parse, index, and visualize **thousands of FIX messages per second**.
- Reduced system latency from **5–10 s to under 1 s** using **Redis caching**, asynchronous workers, and WebSocket streaming.
- Deployed a cloud-native stack using **AWS ECS, ALB, ElastiCache, and RDS**, implementing logging and observability for operational reliability.

CodePilot — Voice-Driven Coding Assistant with GenAI

Dec'24–Feb'25

GitHub Repo: github.com/Ritaldojr7/CodePilot

Hosted: [codepilot-backend hosted app](#)

- Built an AI agent that supports voice-driven coding tasks and generates contextual code suggestions using **generative AI pipelines**.
- Designed serverless backend APIs using Firebase Functions and optimized data access with Firestore.
- Improved response quality while reducing redundant calls by **40%** using caching and request deduplication.

AI Chatbot with Context-Aware Response Optimization

Jul'24–Oct'24

GitHub Repo: github.com/Ritaldojr7/Dynamic-AI-Chatbot

- Implemented a full-stack chatbot system achieving **80–85% intent accuracy** using custom embeddings and ML classifiers.
- Built a scalable analytics dashboard and integrated real-time security alerting workflows.

Travel Seeker — Hotel Aggregation & Price Analytics Platform

Aug'23–Oct'23

GitHub Repo: github.com/Ritaldojr7/travel-seeker

- Designed data ingestion pipelines blending APIs + scraping; improved retrieval consistency to **45%**.
- Reduced user search latency by **20%** via incremental caching and optimized SQL queries.

Certifications

- [HackerRank Software Engineer \(Verified\)](#) — Solved 3 problems in 90 minutes (DSA, SQL, REST API).
- [Applied Machine Learning \(Coursera\)](#) - Built ML pipelines with data preparation, training, and tuning.
- [Data Science \(IMNEO\)](#) - Supervised models and production drift handling.
- [Cyber Security Analyst \(IBMCE\)](#) - Learned threat detection, mitigation, and network defense.
- [AI Odyssey 1.0 – Prefinalist \(Healthcare ML\)](#) - Built ML healthcare solution, selected for national-level finals.
- [Graphs Camp – AlgoUniversity](#) - Selected from 80,000+ students and mastered 17+ advanced graph algorithms.

Honours & Achievements

- [LeetCode](#) — Solved **250+ problems** including 122 Medium and 42 Hard.
- [Codeforces](#) — Achieved **Rank 298 globally** in Round 1043 (Div.3).
- Received an honorary award for securing **90%+ in both Class X and XII**.