Ritwik Mukherjee

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Summary

Software Engineer with experience building backend systems and data-driven services, with a focus on clean APIs, reliable data pipelines, and production-ready deployments. Comfortable working across databases, cloud infrastructure, and service-oriented architectures, and experienced in taking features from design to deployment with an emphasis on clarity, maintainability, and correctness.

Education

B.Tech Computer Science and Engineering — VIT Bhopal University   CGPA: 8.65 (Expected May 2026)
XII (ISC) — St. Augustine's Day School, Barrackpore   92%
X (ICSE) — St. Augustine's Day School, Barrackpore   91.8%

Skills

- **Languages:** Python, Java, C++, JavaScript, HTML, CSS, SQL
- **Libraries / Frameworks:** FastAPI, Flask, Node.js, Next.js, Tailwind CSS, Streamlit, PyQt5, BERT, MFCC, TensorFlow, PyTorch, Scikit-learn
- **Tools & Software:** Docker, Git, JIRA
- **Databases & Caching:** PostgreSQL, MySQL, Redis
- **Platforms:** Supabase, Pinecone, Label Studio
- **Subjects:** Object-Oriented Programming (OOPS), Distributed Systems, Data Structures and Algorithms, System Design, Software Development Life Cycle (SDLC), CI/CD

Professional Experience

AI Automation Engineer — Frido   Oct '25 – Present
Automated Feedback Report Generation System

- Automated feedback report generation using a FastAPI backend and Supabase (PostgreSQL), producing **8-10** structured reports weekly.
- Enhanced report accuracy by **15%** using **Label Studio** to prepare labeled feedback datasets and **Pinecone** for semantic retrieval.
- Accelerated report generation by integrating the **OpenAI GPT-5 Mini API**, processing more than **100** feedback entries per run.
- Streamlined user access to reports with an HTML, CSS, and JavaScript frontend, supporting **5–8** users in reviewing report outputs.
- Reduced report generation time by **40%** through end-to-end automation compared to the previous manual process.

Data Science Intern — Zidio Development Private Limited   Mar '25–Jun '25
Employee Emotion Detection and Task Assignment System

- Developed a desktop application using **PyQt5** that captures facial, voice, and text inputs to detect employee emotions.
- Implemented emotion classification using **DeepFace** for facial input, **MFCC-based models** for audio input, and **BERT** for text input, covering **6–7 emotion categories**.
- Analysed and reviewed emotion predictions and task assignments for more than **100 recorded interactions** to analyze system outputs.

Key Project

FIX-Pilot — Large-Scale Real-Time FIX Trading Monitoring System   Apr '25–Aug '25
GitHub: Repository

- Created a real-time monitoring system using Redis caching and WebSocket streaming, accelerating FIX message processing and reducing end-to-end latency from 7 seconds to under 1 second.
- Engineered a distributed backend to parse, index, and visualize **thousands of FIX messages per second**.
- Deployed a cloud-native stack using **AWS ALB, ElastiCache, and RDS**, implementing logging and observability.

Certifications

- **AI Odyssey 1.0 — Prefinalist (Healthcare ML)** - Built and evaluated a machine learning solution for healthcare use cases, selected among top teams at the national level.
- **Applied Machine Learning in Python — Coursera** - Hands-on experience building end-to-end ML pipe-lines including data pre-processing, model training, evaluation, and tuning.
- **Cyber Security Analyst — IBM** - Covered core cybersecurity concepts including threat detection, vulnerability assessment, and incident response.
- **HackerRank Certified Software Engineer** - Demonstrated proficiency in DSA, SQL, and REST APIs through a timed, hands-on certification assessment.

Honours & Achievements

- Solved over **250 LeetCode problems** (134 Medium, 45 Hard and 103 Easy)
- Achieved a **global ranking of 227** in Codeforces Round 1043, Div.3
- Excelled in Class X and XII Board Examinations, achieving placement in the **top 10%-15%** of students nationally, demonstrating strong foundational knowledge and proven commitment to academic success.