Sayan Banerjee

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Summary

Computer Science graduate with hands-on experience building scalable AI-driven web and data solutions. Optimized 80+ ETL pipelines, implemented LLM-based RAG systems, and deployed monitoring tools that boost engagement by 15%. Skilled in Python, SQL, and Web technologies to deliver globally reusable solutions that enhance client support and operational efficiency.

Skills

- **Programming Languages:** Python, C++, SQL, JavaScript, HTML, CSS
- **Web & Data Technologies:** REST APIs, Streamlit, Flask, Git, MySQL
- **Cloud & Platforms:** SageMaker, Azure Studio, GitHub Actions, VS Code, Snowflake, Redshift, MongoDB Atlas, SQLite
- **Frameworks & Libraries:** React, Bootstrap, FAISS, OpenVINO, PaddleOCR

Education

KIIT University, B.Tech in Computer Science 2021 – 2025
- **CGPA**: 8.88/10.0
- **Coursework:** Data Structures, DBMS, Algorithm Design, Machine Learning, Cloud Computing, Distributed Systems

Sri Chaitanya Techno School, CBSE 2020 – 2021
- **Percentage**: 92.8%

St. Patrick's High School, ICSE 2018 – 2019
- **Percentage**: 92.3%

Experience

Research Analyst Intern, Hevo Data – Bangalore Jun 2024 – Dec 2024
- Administered **80+ ETL/ELT pipelines** with real-time workflows and connector development via REST APIs and SSH/SSL.
- Led the design and implementation of a Snowflake Pricing Calculator, increasing MQLs by **25%**.
- Developed a context-sensitive support chatbot which is **deployed on 50+ blogs**, boosting user retention by 15%.

Research and Development Intern, Samsung – Remote Nov 2023 – May 2024
- Achieved **86.3% accuracy** in anomaly detection by analyzing patterns in app policy violations using RoBERTa-Large.
- Built monitoring systems for **10K+** user interactions, **reducing false positives by 40%**.
- Implemented a **RAG**-based architecture using LLMs such as **Llama 3.2 1B** to develop scalable systems.

Projects

Perplexa, KIIT Jan 2025 – April 2024
- Integrated Google OAuth with MongoDB-backed authentication and Captcha verification, ensuring **99.9% uptime**.
- Built a FAISS-based RAG with real-time web context, **reducing hallucination by 7%** and maintaining **<150ms latency**.
- Deployed via SSL-secured GitHub webhooks to Streamlit Cloud, scaling to **500 concurrent queries/min**.

Vehicle Movement Analysis and Insight Generation, Intel Unnati May 2024 – Jul 2024
- Leveraged YOLOv8 for real-time vehicle detection and tracking, achieving **<100ms inference latency** and **95% accuracy**.
- Used PaddleOCR for license plate recognition, processing 60+ frames/min with **92% accuracy** under variable conditions.
- Optimized edge inference using OpenVINO, realizing a **3x speed boost** for efficient traffic monitoring.

Text-to-SQL, KIIT Dec 2023 – Feb 2024
- Fine-tuned Star-Coder2-3b on SQL data using PEFT LoRA, achieving a **28% improvement** in query-to-code accuracy.
- Leveraged vectorization and token embedding to cut **input processing time by 35%**, in a resource-constrained environment.
- Applied 4-bit quantization using bitsandbytes, **lowering memory usage by over 20%**.

Certifications

Intel Unnati Industrial Training, Intel
Machine Learning Specialization, Deeplearning.ai
IBM Data Science, Coursera
Certified Data Science Professional, Oracle

Publications

Precision Agriculture: Digital Twins with Advanced Crop Recommendation, IEEE ICOCT 2025
Sayan Banerjee, Aniruddha Mukherjee, Suket Kamboj, DOI: 10.48550/arXiv.2502.04054
Efficient Waste Collection and Filtration using IOT, IJSREM 2023
Sayan Banerjee, Rahul Naugariya, Shubham Patel, Shubham Kumar, DOI: 10.55041/IJSREM17403