RUDRASHIS GORAI

rudrashis.gorai@gmail.com | +1 (206) 514-8921 | LinkedIn | GitHub | Irvine, CA, USA

EDUCATION

University of California, Irvine   **2024 - Present**
Masters of Embedded and Cyber-Physical Systems   4.00/4.00
Indian Institute of Engineering Science and Technology, Shibpur   **2018 - 2022**
Bachelor of Technology, Engineering

WORK EXPERIENCE

Anchanto | Software Developer | Pune, India   **February 2022 – February 2024**
(B2B SaaS startup providing e-commerce and logistics management solutions for businesses in India and Southeast Asia)

- Led the end-to-end backend development of an analytics module (similar to Power BI) for real-time business metrics visualization, supporting over 10K data combinations and enabling customers and analysts to explore insights from the past three months.
- Designed and developed a Global Search functionality at the landing page for searching products using **trigram-based indexes** in **Postgres**, returning results in **under 100ms** (even at 24K+ products). Implemented a custom re-ranking algorithm that adapts to user country, marketplace, and recent searches, ensuring relevant results.
- Implemented a multi-tiered caching strategy using Redis, database views, and server storage, optimizing system performance with **p99 latency** going under **200ms from ~4 seconds** for analytics pages.
- Played a crucial role in re-engineering the database architecture, optimizing analytics workloads, and improving the efficiency of Pricing and Sellout modules by cutting down complex query execution time from **~5s to under 200ms**.
- During the first three-month internship, I conceptualized and implemented a multi-tiered user access management system for the e-commerce platform, enabling B2B customers to assign granular permissions to their employees using Python, Django REST, PostgreSQL, AWS RDS, and Docker.

WizCommerce | Software Engineer Intern | Gurgaon, India   **November 2021 – February 2022**
(B2B SaaS startup empowering Indian and global manufacturers, exporters, and wholesalers with digital sales solutions)

- Developed a K-means–based color recognition module with background removal for an internal onboarding tool, automating color detection for 100K+ images. Implemented **RabbitMQ** for efficient processing of Amazon S3 assets and designed an **ETL workflow** to store results in PostgreSQL, reducing manual tagging efforts by **~90%.**
- Integrated OpenAI's CLIP model for image-based searches, leveraging final-layer embeddings to match visually similar products (e.g., carpets, rugs). Built an image search system with **Milvus** for vector storage and metadata retrieval, and utilized **Cloudinary** to serve images globally at desired resolutions, enabling fast product discovery for customers.

Senzcraft Technologies | ML Developer Intern | Bengaluru, India   **June 2021 – August 2021**
(B2B startup leveraging AI to streamline and automate workflows.)

- Developed a document classifier to augment the existing text extraction pipeline, using technologies and tools such as **Python, Flash Text, Heroku, ElasticSearch, MongoDB, Scikit-learn, and FastAPI.**
- Successfully developed a proof of concept (POC) for full-text search using **ElasticSearch** and **MongoDB Atlas**.

PROJECTS

Real-Time Data Streaming Pipeline (Github)

- Built a practical data pipeline that pulls random user data from an API, sends it to a **Kafka** topic, processes the JSON payload in real time using **Spark** Structured Streaming, and writes the transformed data into **Cassandra**.
- This project involved configuring Spark with the necessary Kafka and Cassandra connectors, implementing schema-based transformations, and ensuring error handling and logging throughout the streaming process.

Wireless Pulse Monitoring System (Github)
- Developed a wireless health monitoring system using **two Raspberry Pi 5s** to collect, transmit, and display pulse data.
- Integrated a **pulse sensor** with an **ADC (MCP3008)** and implemented **Bluetooth communication** for real-time data transfer. Designed a GUI to visualize pulse data and compute key health metrics, including **BPM** and **RMSSD**.

RELEVANT COURSES AND SKILLS

Coursework : Wireless Sensors, Actuators and Sensor Networks, IOT Systems and Software, Embedded System Modelling and Design, Fundamentals of Machine Learning and Artificial Intelligence, Cyber-Physical System Design, Embedded System Software**.**
Programming Languages: C++, Python, JavaScript, TypeScript
Embedded Systems Skills: Bare-metal programming, Multithreading, RTOS, Interrupt handling, Kernel development, Device driver development, Sensor integration