Isaac Tay

AI Software Engineer from Singapore, with a strong interest in building Software/AI & Machine Learning models for public good.

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izack.dev (click me to learn more!)

EXPERIENCE

Synechron, Singapore — AI Software Engineer

Sep 2024 - Present

- Built an invoice processing ML pipeline using Azure AI Services to automate key information extraction, reducing processing time and accelerating mandatory audit uploads, cutting 1 hour of manual checks.
- Developed a React + Tailwind dashboard to manage ML pipeline outputs, improving usability and speeding up invoice verification workflows.
- Designed and developed a RAG-powered chatbot using Streamlit, to query internal knowledge bases and provide relevant answers to users.
- Redesigned logic of a Data Obfuscation project by using parallel processing frameworks (numpy), saving 4 minutes per data obfuscation execution.
- Led the development of an HR compliance dashboard to track Singapore business unit headcount compliance.
- Implemented GitLab CI/CD pipelines to automate build/test/deployment workflows across multiple internal applications.
- Containerised and deployed applications using Docker/Podman on AWS EC2, including provisioning a MySQL server with persistent volumes.
- Mentored and onboarded new hires on Git workflows, Docker, and client–server fundamentals to accelerate team productivity.

Groundup.AI, Singapore — Data Science Intern

Jan 2024 - Jul 2024

- Led the development, validation, and deployment of predictive maintenance Machine Learning models using audio files as training data.
- Managed the deployment of edge-computing devices (Google's Coral Board) and AI models for real-time analytics in client environments.
- Generated and presented comprehensive reports to stakeholders, showcasing the integration of AI with IoT/edge-computing devices to enhance client confidence and project outcomes.

Hummingbird Bioscience, Singapore — AI Engineer/Web-Dev Intern

Sep 2023 - Dec 2023

- Fine-tuned and evaluated three LLMs for academic paper summarization (cancer research), benchmarking against GPT-3.5/GPT-4 using BERTscore to select the best-performing model.
- Built a Streamlit-based chatbot UI integrated with OpenAI API, enabling researchers to query and summarize papers with improved accessibility and usability.
- Enhanced and maintained an internal daily paper summarisation web-app, redesigning UI components in HTML + Tailwind to better match research scientists' review workflow.

Bosch GmbH, Singapore — Data Science Intern

Jun 2022 - Jun 2023

- Collaborated with a research scientist to develop predictive maintenance and energy optimization for a smart HVAC system, translating academic research into production-ready implementations.
- Built an end-to-end forecasting and anomaly detection pipeline by designing a Python ETL process and training time series models on 6 months of sensor data (7 HVAC units, millions of data points).
- Optimized for high recall in anomaly detection to reliably flag energy consumption above threshold, enabling automated control decisions (e.g. temporarily stopping the engine to reduce overconsumption).
- Developed and deployed PowerBI dashboards with model-backed visualizations to help stakeholders identify anomalous consumption patterns at a glance.

SKILLS

Programming Languages
Python, Java, Swift, JavaScript, SQL, CLI, HTML, CSS

Libraries & Frameworks
torch/tensorflow, pandas, LangChain, VectorDB, Streamlit, FastAPI, Springboot, ReactJS, Tailwind CSS

Tools & Platforms
Git, Docker/Podman, Azure Cloud, Vercel, Railway

Certifications
Azure AI Engineer Associate, Azure AI Fundamentals, Azure Fundamentals

PROJECTS

Codebot
NTU's capstone project: to study the performance of LLMs between using RAG and fine-tuning. (TL;DR: RAG performs better (for most contexts))

Portfolio Website (izack.dev)
A personal website developed by me, to showcase my projects, software engineering skills, and experiences, deployed on Vercel

Backend Service for izack.dev
An extension service from my personal website, handling authentication, and CRUD operations, deployed on Railway

EDUCATION

Nanyang Technological University (NTU)
Aug 2020 - Aug 2024

Bachelor's in Electrical and Electronics Engineering w/ a specialisation in AI