Isaac Tay (izack.dev)

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

EXPERIENCE

Synechron — AI Software Engineer
Sep 2024 - Present, Singapore

- Built an ML pipeline using **Azure AI Services**, to improve invoice processing workflows, automating the extraction of key information using **OCR**, reducing 60 mins of manual data entry and checks.
- Developed a **React + Tailwind** dashboard to manage ML pipeline outputs, further enhancing the UX of invoice processing workflows.
- Designed and developed a **LLM-powered** (**RAG**) Chatbot using **Streamlit**, to retrieve knowledge bases and provide relevant answers to new/existing employees, significantly reducing time spent on-boarding.
- Used parallelisation frameworks (**pandas**) to redesign data obfuscation logic, saving 4 minutes per document.
- Led the development of a full-stack HR compliance dashboard using **Streamlit** and **Microsoft Graph API**, to track company's business unit headcount compliance.
- Implemented **GitLab CI/CD** pipelines to automate build/test/deployment workflows across multiple applications, improving quality-of-life for engineering peers.
- Containerised and deployed applications using **Docker/Podman** on **AWS EC2**, including a **MySQL** server paired with persistent volume.
- Mentored and onboarded new hires on **Git workflows**, **Docker**, and client–server fundamentals to accelerate team productivity.
- Completed company-sponsored **Java** training, which includes developing applications with **J2EE** and **Springboot**.

Groundup.AI — Data Science Intern
Jan 2024 - Jul 2024, Singapore

- 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 — AI Engineer Intern
Sep 2023 - Dec 2023, Singapore

- **Fine-tuned** and evaluated three **LLMs** for academic paper summarisation (cancer research), benchmarking against GPT-3.5/GPT-4 using **BERTscore**, to select the best-performing model.
- Developed a **LLM-powered** (**RAG**) Chatbot using **Streamlit**, enabling researchers to query and summarise academic papers with improved accessibility and usability.
- Enhanced and maintained a paper summarisation web-app, redesigning UI components in **HTML + Tailwind**, to better serve the research scientists' workflows.

Bosch GmbH — Data Science Intern
Jun 2022 - Jun 2023, Singapore

- Collaborated with research scientists to develop **predictive maintenance** and energy optimisation **Machine Learning models**, for a smart HVAC system.
- Conducted extensive literature review, successfully translated academic research and algorithms in the HVAC domain, to production-ready implementations.
- Used **python scripts** to build an end-to-end pipeline, from **ETL** to **forecasting and anomaly detection pipeline**, processing and training time series models on 6 months of sensor data (7 HVAC units, over millions of data points).
- Optimised models 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 visualisations to help stakeholders identify anomalous consumption patterns at a glance.

EDUCATION

Nanyang Technological University (NTU)
Aug 2020 - Aug 2024

Bachelor's of Engineering in Electrical and Electronics Engineering w/ a specialisation in AI (Honours)

PROJECTS

Sign-A-Photo
CV project that uses Google's **mediapipe** library to recognise SgSL/ASL (Sign Language) alphabets, to teach users the basic sign alphabets (*Garnered 710k+ views, 150k+ likes on TikTok, 500+ page views*)

Portfolio Website (izack.dev)
A personal website developed with **React + Tailwind**, to showcase personal projects, software engineering skills, and experiences. Deployed on Vercel

Backend Service for izack.dev
An extension service from my personal website, handling **admin authentication**, and **CRUD operations** through **REST APIs**. Deployed on Railway

Handwritten Digits
An interactive web-app that allows users to draw digits on a canvas and receive real-time predictions, making machine learning inference more tangible and easier to understand

Codebot
NTU's capstone project: studying the performance of LLMs between using **RAG** and **fine-tuning**

SKILLS

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

Libraries & Frameworks
torch/tensorflow/scikit-learn, pandas, LangChain, VectorDB, Streamlit, FastAPI, Springboot, J2EE, React, Node.js, Tailwind CSS, Flutter

Tools & Platforms
Git, Docker/Podman, Azure, Vercel, Railway, MySQL, MongoDB

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