

# Isaac Tay ([izack.dev](https://izack.dev))

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

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## 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 summarisation (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 summarise 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 optimisation 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).
- Optimised 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.

## 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

### Sign-A-Photo

CV project that uses Google's mediapipe library to recognise SgSL/ASL (Sign Language) alphabets (4.5k+ views, 300+ likes on TikTok)

### Codebot

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

### Portfolio Website ([izack.dev](https://izack.dev))

A personal website developed with React and Tailwind, to showcase my projects, software engineering skills, and experiences. Deployed on Vercel

### Backend Service for [izack.dev](https://izack.dev)

An extension service from my personal website, handling admin 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 (Honors)