

S Hamsaraj

Mobile: +65 90487580 | Email: hamsarajs@outlook.com | LinkedIn: <https://www.linkedin.com/in/hamsarajs/> |
Website: <https://www.hamsaraj.dev/>

EDUCATION

Singapore University of Technology and Design (SUTD)

Bachelor of Engineering (Computer Science and Design)

Singapore

Sep 21 to May 25

- Minor in Artificial Intelligence (AI)
- Notable Modules: MLOps, Database Systems, Natural Language Processing, Computer Vision, Algorithms

Czech Technical University (CTU)

Global Exchange Programme (GEXP)

Prague, Czechia

Sep 23 to Jan 24

- Modules: Artificial Intelligence, Machine Learning, DevOps

WORK EXPERIENCES

Handshakes by DC Frontiers

Singapore

Machine Learning Intern

Jul 24 to Sep 24

- Conducted comprehensive research to optimize inference speeds and identify the most efficient ways to deploy Large Language Models (LLMs) by evaluating various inference libraries and quantized model formats
- Established a scalable experimentation framework that allows for rapid experimentation with emerging LLM models and inference libraries, enhancing performance on tasks such as summarization and classification

Software Engineer Intern

Feb 24 to Jun 24

- Spearheaded a project to develop a web crawler, automating data collection from 12 websites, encompassing requirements gathering, system architecture design, implementation, rigorous testing, and deployment
- Built the Developer Portal for Handshakes using Docusaurus and Keycloak for identity and access management, ensuring secure routes on the website

ACADEMIC PROJECTS

Capstone Project – Susthreads

Sep 24 to May 25

- Building an online secondhand marketplace that partners with thrift stores to streamline the clothing listing process using computer vision, promoting sustainable fashion
- Built a Snap-Check-List feature with auto-sizing and automated tagging of clothing items, leveraging a YOLO-based keypoint detection model (fine-tuned with custom CVAT-labeled data) and a tagging model deployed on AWS EC2 using vLLM.

Natural Language Processing (NLP) Project

Sep 24 to Dec 24

- Finetuned a pre-trained model, applied k-fold cross-validation, and used XGBoost ensemble learning to achieve the highest F1 score for sentiment analysis in the cohort, achieving the best project award

Client Project – DBS x Google

May 23 to Aug 23

- Developed a mobile app for DBS in collaboration with Google, with Ruby on Rails backend and React Native frontend, that utilizes various Google and external APIs, to provide AI features such as facial recognition and Passport NFC scanning, to customers using our client's app

Android App – SUTD x Singtel - Lett-uce Help

Jan 23 to Apr 23

- Developed an android app with my team, targeted for the staff and volunteers of Food Bank, to assist with the food donation and collection processes, achieving an honorable mention with a cash prize from Singtel

HOBBY PROJECTS

Retrieval-Augmented Generation (RAG) Workflow

Sep 24 to Dec 24

- Developed a RAG workflow using LangGraph, Gemini Text Embeddings, and Qdrant for vector storage. It incorporates a Jina re-ranking model to improve retrieval quality.

Mistral Finetuning

Sep 24 to Dec 24

- Finetuned a Mistral-7B-Instruct model using PEFT (LoRA) and Unsloth for chain-of-thought (CoT) and reasoning tasks via SFT, leveraging Hugging Face Transformers

CO-CURRICULAR ACTIVITIES & LEADERSHIP ROLES

SUTD Football Club - Vice President

Jan 22 to Jan 23

- Worked with the coaches to modify training according to the varying nationwide regulations due to the Covid pandemic
- Handled administrative duties and leadership roles both in and out of training
- Represented SUTD in the Singapore University Games (SUNIG)

SKILLS

- Proficient in Python, JavaScript, TypeScript, C#, SQL, Spark, Hadoop, PyTorch, Tensorflow, NumPy, Pandas, LangChain, LangGraph, Agno, ReactJS, NextJS, HTML, CSS, Git, Linux, Amazon Web Services (AWS), Google Cloud Platform (GCP)
- Fluent in English and Tamil (written & spoken)