S Hamsaraj

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EDUCATION

Singapore University of Technology and Design (SUTD) — **Singapore**
Bachelor of Engineering (Computer Science and Design) — **Sep 2021 - May 2025**
- Minor in Artificial Intelligence (AI)
- Notable Modules: MLOps, Database Systems, Natural Language Processing, Computer Vision, Algorithms

Czech Technical University (CTU) — **Prague, Czechia**
Global Exchange Programme (GEXP) — **Sep 2023 - Jan 2024**
- Modules: Artificial Intelligence, Machine Learning, DevOps

WORK EXPERIENCE

Handshakes by DC Frontiers — **Singapore**
Machine Learning Intern — **Jul 2024 - Sep 2024**
- Conducted research to optimize inference speeds and deployment of Large Language Models (LLMs) by evaluating 5 different libraries such as vLLM, SGLang, and quantized model formats.
- Established a scalable experimentation framework for rapid testing of LLMs and inference libraries, improving performance for summarization and classification tasks.

Software Engineer Intern — **Feb 2024 - Jun 2024**
- Spearheaded development of a web crawler to automate data collection from 12 websites, covering requirements, architecture, implementation, and deployment.
- Built the Developer Portal using Docusaurus and Keycloak for secure identity and access management, ensuring route protection.

ACADEMIC PROJECTS

Capstone Project – SusThreads — **Sep 2024 - May 2025**
- Built an online secondhand marketplace that partners with thrift stores to streamline clothing listings using computer vision.
- Developed a Snap-Check-List feature with auto-sizing and auto-tagging, using a YOLO-based keypoint detection model finetuned with custom CVAT-labeled data, and deployed the tagging model on AWS EC2 with vLLM and Docker.
- Won the $3,000 Climate Tech Innovation Award from SUTD VIE for its impact on sustainable fashion and technology.

MLOps Project – Chatbot for SUTD Website — **Jan 2025 - May 2025**
- Scraped SUTD website content and stored it in a Chroma Vector Database using BGE Embeddings, to power a RAG-based chatbot built with LangChain and FastAPI.
- Integrated a LLaMA 3.2 3B model for natural language responses, leveraging contextual retrieval for accurate query handling.
- Fine-tuned the model with custom curated Q&A pairs and evaluated performance against the RAG setup across relevance, accuracy and latency.

Natural Language Processing (NLP) Project — **Sep 2024 - Dec 2024**
- Finetuned a pre-trained model, applied k-fold cross-validation and XGBoost ensemble learning, achieving the top F1 score for sentiment analysis in the cohort.

Client Project – DBS x Google — **May 2023 - Aug 2023**
- Built a mobile app for DBS in collaboration with Google, with a Ruby on Rails backend and React Native frontend, to streamline customer onboarding.
- Integrated Google Cloud Vision APIs to enable AI-powered features such as Facial Recognition and OCR, also implemented Passport NFC Scanning for secure identity verification.

Android App – SUTD x Singtel — **Jan 2023 - Apr 2023**
- Created an Android app to support Food Bank volunteers in managing food donation and collection processes.
- Integrated Arduino-based sensors to track donation volumes in collection boxes, enabling optimized pickup scheduling.
- Earned honorable mention and a cash prize from Singtel.

CO-CURRICULAR ACTIVITIES & LEADERSHIP ROLES

SUTD Football Club - Vice President — **Jan 2022 - Jan 2023**
- Modified training according to the varying nationwide regulations due to the Covid pandemic.
- Handled administrative duties and leadership roles both in and out of training.

SKILLS & CERTIFICATIONS

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