

Hsin Jee Sum

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EDUCATION

University of Leeds

Sep 2022 – Jul 2026

MEng, BSc Computer Science with Artificial Intelligence (Integrated Masters)

- **Academics:** BSc (First Class Honors), MEng (Predicted: First Class Honors)
- **Honors & Awards:** Microsoft Azure Certification
- **Relevant Experience:** Custom CNN model for Breast Cancer Classification (Dissertation), AI dev team (Formula Student)
- **Relevant Modules:** Web Services and Web Data – 90%, Robotics – 84%, Artificial Intelligence – 70%

WORK EXPERIENCE

Leeds Gryphon Racing, Formula Student | C++, Python, ROS2, OpenCV, Gazebo, Computer Vision **Leeds, United Kingdom** Engineering Team; AI R&D Division **Team Leader**

Sep 2025 – Present

- Led a team of 10+ developers to build **ROS2** nodes for sensor fusion (**LiDAR**, camera (computer vision), IMU)
- Introduced race simulation environments in **Gazebo** to test autonomous strategies before on-track deployment
- Built **OpenCV+ YOLOv8** vision system for racetrack object detection, achieving **92% mAP** and **10%** faster inference
- Collaborated with mechanical team to develop **Finite Element Analysis (FEA)** and **transient heat simulation** models

SRKK Group | Microsoft Azure, Python, Copilot Studio, Git, Document Analysis, NLP, RAG **Kuala Lumpur, Malaysia** Summer Intern; Software Development (AI R&D)

Aug 2025 – Sep 2025

- Researched an NLP-based solution to **automate analysis** of RFP documents containing **1000+** technical requirements
- Developed **RAG** pipeline using **Azure Blob + AI Search**, strengthening retrieval relevance by **35%** in testing
- Managed semantic ambiguity using NLP-based semantic search to improve retrieval across varied terminology
- **Preprocessed** messy datasets into structured formats, enabling feature extraction for the AI and automated content ranking

EH Integrated Systems | HTML, CSS, JavaScript, MySQL, Docker, C#, Agile methodologies **Kuala Lumpur, Malaysia** Summer Intern; Full-Stack Development

Jul 2024 – Sep 2024

- Collaborated with an **Agile** team of 4 developers to deliver **full-stack** components for a production-ready payment platform
- Designed and deployed containerized APIs with **Docker**, enforcing **dependency inversion** and **clear service boundaries**
- Resolved a database bottleneck by optimizing **SQL** queries and adding indexes, improving data retrieval speed by **30%**

PROJECTS

Custom CNN model for Breast Cancer Histopathology Images | Python, TensorFlow, PyTorch, Git, NumPy, Computer Vision

- Developed custom Convolutional Neural Network from scratch in pure NumPy, authored a **40**-page research paper
- Applied model validation techniques (**cross-validation**, **confusion matrix**, **F1-score**), benchmarking model performance
- Structured modular CNN code with reusable layers and **Git** version control to track model hyperparameter configurations
- Achieved over **85%** accuracy while reducing model size by **90%** and increasing inference speed by **80%** on best model

AI Chat CLI | Python, Cohere, GROBID, Docker, RAG, Semantic Search

- Built an AI assistant alongside an RAG pipeline that extracts and analyzes information from research/academic papers
- Parsed PDFs with Dockerized GROBID, performed text chunking, and generated semantic embeddings for retrieval
- Generated accurate, context-aware responses via Cohere LLM with persistent chat history and a clean CLI interface

Autonomous Vehicle Simulation Software Architecture | Java, SOLID Principles, Refactoring, UML, Unit Testing

- Refactored a legacy simulation system modelling autonomous vehicles on a grid, improving design quality and extensibility
- Resolved violations of **SOLID** principles, and implemented **Strategy pattern** to abstract path-finding algorithms
- Created a detailed **UML** class diagram to communicate system structure, dependencies, and refactored relationships

TECHNICAL SKILLS

Languages: C, C++, C#, Python, Java, JavaScript

Developer Tools: VS Code

Technologies/Frameworks: HTML, CSS, Django, React, Docker, Git, Azure, ROS2

Libraries: TensorFlow, PyTorch, scikit-learn, NumPy, Pandas, MLflow (familiar), YOLOv8, CNNs, deep learning

Databases: MySQL, SQLite

EXTRACURRICULAR ACTIVITIES

Durham University Hackathon, DurHack 2025 – G Research Prediction Challenge, Honorable Mention

Leeds University Computing Society, Leeds Hack 2025/26

SKILLS & INTERESTS

Languages: Proficient in English, Cantonese, Mandarin and Malay

Interests: Grade 7 Piano, Grade 6 Violin, 2nd Chair Violinist (KYUEM Strings), Casual Poker