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

Data Science Project | *Python, Pandas, Data Cleaning, Exploratory data analysis, Statistical Modelling*

- Analyzed UNDP People's Climate Vote 2024 data (73 countries, **100,000+** responses) to identify climate-opinion patterns
- Performed statistical comparisons across **350+** multidimensional demographic aggregates in a team of 4 using Git
- Built analytical visualizations (violin plots, geospatial choropleth maps, facet-grid) to surface demographic patterns

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