Zhuoyang Hao

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Master of IT international student at the University of Melbourne. Self-motivated software engineer specialising in full-stack web development with **GCP Cloud certification** and expertise in AI/ML.

Education

- **The University of Melbourne** — Melbourne, Australia
  Master of Information Technology in Artificial Intelligence; WAM: 81/100 — *Mar. 2024 – Jun. 2025*
  - **Notable subjects taken**:
    - Natural Language Processing (**Pytorch**, model ranked **2nd** among 132 teams in final NLP competition; Grade 85% H1)
    - AI Planning for Autonomy (**Python, Reinforcement Learning**; Grade 86% H1)
    - Distributed System (**Java**; Grade 95% H1)
- **The University of Melbourne** — Melbourne, Australia
  Bachelor of Science in Data Science; WAM: 74/100 — *Mar. 2021 – Dec. 2023*

Experience

- **The Florey** — Melbourne, Australia
  NLP Engineer Intern — *Nov 2024 - Mar 2025*
  - **NLP for Biomedical Systematic Reviews**: Designed and optimized natural language processing (NLP) pipelines leveraging encoder-only (BERT-based) and decoder-only large language models (LLama, DeepSeek, Qwen) tailored for biomedical systematic reviews and literature recommendations. Successfully achieved high-precision performance in document classification tasks, matching state-of-the-art benchmarks. **Publications forthcoming.**
  - **Large Language Model Deployment with HPC**: Deployed sophisticated language models, including Llama3.3-70B and Mistral-7B, utilizing HuggingFace frameworks integrated with High-Performance Computing (HPC) resources. Processed over 15,000 medical publications, enabling rapid and efficient literature analysis at scale.
- **Melbourne Space Program** — Melbourne, Australia
  Software Engineer — *Mar 2023 - Jun 2024*
  - **Humanoid Robotics Sensing Team Lead**: Led a specialized team to design, develop, and optimize advanced camera systems for a humanoid robotic bartender. Innovated techniques for precise cup detection and developed state-of-the-art liquid segmentation algorithms, significantly enhancing robotic perception capabilities.
  - **Neural Network Development**: Collected an on-site liquid-pouring dataset and replicated a U-Net model for liquid segmentation, ensuring high accuracy in pouring tasks. Integrated YOLOv4 object detection with an OAK-D camera for robust bottle classification.
  - **ROS System Architecture and Development**: Managed and refined the Robot Operating System (ROS) codebase, architecting efficient messaging systems to coordinate diverse nodes, including chatbot interfaces, camera sensors, robotic arms, and end-effectors, ensuring seamless system integration and performance.

Projects

- **Personal Portfolio Website** — me.henrikhao.com
  GitHub Repository
  - **Technology Stack**: Built using **React** and **Tailwind CSS**; deployed to **Google Cloud Storage** with CI/CD pipelines via **GitHub Actions** and infrastructure managed using **Terraform**.
- **Bushfire Analysis Application**
  GitHub Repository
  - **Cloud-based Analysis**: Analyzed the relationship between bushfires and respiratory diseases using Melbourne Research Cloud; implemented with **Kubernetes** for container orchestration, **Elasticsearch** for data storage, **Fission** for serverless API and message queue management, and **Docker** for containerization.
- **Weather FEVER Project**
  GitHub Repository

- **Fact Extraction and Verification**: Led a team in developing a PyTorch-based NLP system to extract facts and verify meteorological claims about weather, successfully replicating state-of-the-art LSTM models and achieving 2nd place among 132 teams.

Technical Skills

- **Programming Languages**: **Python** | **Java** | C | **SQL** | Haskell | JavaScript | HTML | CSS
- **Frameworks and Tools**: React.js | Tailwind CSS | Google Cloud Platform | **Terraform** | **Pytorch** | **Hugging Face** | Kubernetes | **Git** | **Docker** | **ElasticSearch** | GitHub Actions
- **Google Certified Associate Cloud Engineer (2025)**