Xuanzhi Liu

Research Assistant@SUAT

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Education

University of New South Wales *Sydney, Australia*

Master of Information Technology in Artificial Intelligence *Sept 2023 - June 2025*

- Key Courses: Neural Networks & Deep Learning, Computer Vision, Game Theory, Graph Algorithm
- Graduation Project: AI Comment Moderation - RAG and Classification modelling (High-Distinction Project)
- GPA: 3.47/4.0 (Distinction Level)

Guangdong University of Finance & Economics *Guangzhou, China*

Bachelor of Engineering in Computer Science & Technology *Sept 2019 - June 2023*

- Key courses: Data Structures, Database Systems, Discrete Mathematics, Linear Algebra, Machine Learning
- Honors: Outstanding Undergraduate Thesis
- GPA: 3.13/5.0 (Good Level)

Experience

Shenzhen University of Advanced Technology *Shenzhen, China*

Research Assistant *Aug 2025 - Present*

- Research Focus: Cross-Domain Object Detection, Open-Ended Detection, and Vision-Language Models.
- Additional Work: Literature Survey and Reproduction of State-of-the-Art Methods.

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences *Shenzhen, China*

Visiting Student *Sep 2022 - Feb 2023, Dec 2024 - Feb 2025*

- Led the development of a robotic sorting system by combining instance segmentation with structured-light 3D reconstruction, and integrated it with a manipulator for deformable package handling.
- Built a visual inspection pipeline using Mask R-CNN to detect surface defects on industrial products, improving accuracy and consistency in quality control.

Projects

AI Comment Moderation System (RAG + LLM Classification + AI Agent) *Sydney, Australia*

Graduation Project *Feb. 2025 – Jun. 2025*

- Developed an automated moderation system integrating RAG, GPT-4 classification, and confidence-based filtering; constructed AI Agent using LangChain to orchestrate end-to-end workflow.
- Designed a modular pipeline with ChromaDB retrieval, Redis + JSON architecture for embedding caching, and multi-step prompt chaining; improved throughput and reduced latency.
- Applied LoRA fine-tuning and prompt engineering (F1-score 92%); deployed via Docker and HAProxy for scalable, fault-tolerant async inference; awarded High Distinction (Top 5%).

Food Package Recognition and Sorting System (Mask-RCNN + 3D Vision) *Shenzhen, China*

First Author *Sep 2022 – Feb 2023*

- Developed a vision-based recognition system for deformable, reflective food packages using Mask R-CNN and structured-light 3D reconstruction.
- Extracted object contours and depth maps by fusing RGB and structured-light point cloud data, enabling robotic sorting based on spatial location.
- Built a custom dataset and trained an instance segmentation model with surface-adaptive data augmentations.
- Work was presented at JCRAI 2023 (oral), received a Chinese invention patent (CN116213306A), and won the Outstanding Undergraduate Thesis Award.

Publications & Patents

Conferences

Liu, Xuanzhi (First Author), Jixin Liang, Yuping Ye, Zhan Song, and Juan Zhao. "A Food Package Recognition and Sorting System Based on Structured Light and Deep Learning," *Proceedings of the 2023 International Joint Conference on Robotics and Artificial Intelligence (JCRAI)*, pp. 19-25, 2023 (**Oral Presentation**, overall acceptance rate: 30%).
[Page]

Patents

Liu, Xuanzhi et al., "An automatic visual recognition method and sorting system," Chinese invention patent, Application for Publication No. *CN116213306A*, 2023.
[Pub]

Skills

Programming	Python (Pandas, PyTorch, Numpy, OpenCV, Scikit-learn), C/C++, Shell, SQL, Java
Development Tools	Git, Linux, Docker, Conda, LaTeX, Markdown, Colab
English	IELTS 6.5, CET6, Two-year full-time study experience in an English-speaking environment