Yixiao Tao

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Education

University College London — London, UK
MSc Robotics and Artificial Intelligence — *Sept. 2025 – Sept. 2026*

Xiamen University Malaysia — Sepang, Malaysia
BEng Computer Science and Technology — *Sept. 2021 – June 2025*

Experience

Computer Vision Algorithm Intern — Aug. 2024 – Nov. 2024
Ningbo Port Information & Communication Co., Ltd. — *Ningbo, China*

- Developed and tested computer vision modules for industrial port video analytics, focusing on vehicle detection, multi-object tracking, human-vehicle interaction recognition, and vehicle speed estimation.
- Deployed and evaluated YOLOv8-based vehicle detection models on real-world industrial video streams; tuned detection and tracking parameters to improve robustness in complex port scenarios.
- Integrated object detection outputs with multiple tracking pipelines, supporting algorithm evaluation, debugging, performance analysis, and engineering validation.

AI Agent / Python Backend Intern — Dec. 2024 – Jan. 2025
fastfind.ai — *Ningbo, China*

- Built an AI-agent-assisted full-stack web crawling system, using React for the frontend and FastAPI for backend REST APIs.
- Implemented asynchronous task scheduling and crawler job management with Redis, Celery, and message queues, enabling task dispatching, status tracking, and scalable execution.
- Containerized the system with Docker and gained hands-on exposure to Kubernetes-based deployment and service management.

Projects

Semantic Audio-Visual SLAM | *ROS2, SLAM, PyTorch, SAM Audio, OpenCV, Multimodal Perception* — Ongoing

- Developing a semantic audio-visual SLAM framework for robotic spatial understanding by combining visual SLAM with audio semantic segmentation models such as Meta SAM Audio.
- Investigating how robots can localize and map semantic sound sources, such as human speech, vehicles, and alarms, in addition to constructing geometric maps.
- Designing a pipeline around visual pose estimation, audio semantic segmentation, direction-of-arrival estimation, and semantic map construction.
- Positioning the project towards multimodal perception, spatial AI, semantic mapping, and embodied robotic intelligence.

Deep Learning for Cyclone Prediction | *CNN, ConvLSTM, Attention, Python* — June 2025 – Sept. 2025

- Designed a deep learning framework for tropical cyclone intensity prediction using multi-frame satellite imagery and historical storm-track data.
- Implemented CNN and ConvLSTM-CNN models for spatial-temporal feature extraction and wind-speed regression, with modular attention mechanisms for comparative experiments.
- Conducted 5-fold cross-validation and error analysis, achieving average MAE below 6.5 and RMSE below 8.5, outperforming the baseline CNN model.

Technical Skills

Languages: Python, C/C++, Java, JavaScript, SQL
AI / Computer Vision: PyTorch, OpenCV, NumPy, Pandas, Scikit-learn, YOLOv8, CNNs, RNN/LSTM, ConvLSTM
Robotics / Spatial AI: ROS2, SLAM, visual odometry, semantic mapping, multimodal perception, Kalman filtering, PID/MPC, motion planning basics
Engineering Tools: Git, Docker, Linux, FastAPI, Redis, Celery, React, LaTeX, MATLAB