

LYU CHENCHEN

Computer Vision & Robotics | Software and System Integration

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Portfolio wl-forever.com/dreamy/



EDUCATION

City University of Hong Kong

MSc in Mechanical Engineering | Autonomous Systems Lab

Sichuan University

BEng in Machine Design, Manufacturing and Automation | **Average 88.5/100**

Sep 2025 – Oct 2026

Sep 2021 – Jun 2025

TECHNICAL SKILLS

Software development C/C++, Python and Qt for **device-control interfaces and visualization**; Linux, Git and CMake.

Vision and deep learning PyTorch / OpenCV for **detection, dehazing and segmentation**; vision–language model fusion.

Real-time integration RGB-D video, **6-DoF pose estimation**, TCP and **shared-memory communication**; ROS and basic ROS 2.

Robotics and validation MATLAB, Python quadratic programming and **CUDA build/debugging**; SolidWorks and AutoCAD.

Language and certification Mandarin; English **CET-6 533**; National Computer Rank Examination Level 2 in C.

INDUSTRY EXPERIENCE

CNPC Chuanqing Drilling Engineering Co., Ltd.

R&D Intern | Safety, Environmental Protection and Quality Inspection Research Institute

- Investigated derrick assembly workflows and developed **low-contrast industrial-pin detection and 3D position/orientation estimation from live RGB-D video**, supporting an experimental system for automated assembly.
- Built a **shared-memory bridge between Conda Python and system Python**, connected it to ROS and integrated Qt visualization. Tested the recognition and pose-estimation system with company engineers.

Oct 2024 – Jun 2025

SELECTED RESEARCH AND ENGINEERING PROJECTS

Vision–Language Verification for Open-Vocabulary Detection

MSc dissertation | City University of Hong Kong

- Combined a pretrained detector with a vision–language model to check text-specified object labels **without retraining**. Compared five confidence measures and designed score fusion that **preserves original detections**.
- Improved **rare-category AP by 4.70 points and overall AP by 0.56 points** in the best tested validation setting. Resolved inference failures by rebuilding MMCV CUDA operators and verifying GPU non-maximum suppression.

Multi-Task Mobile Manipulator

Core team member | Provincial innovation project rated Excellent

- Developed **C/C++ control interfaces over TCP** for a mobile base and robotic arm and integrated 6-DoF visual pose estimation. Simulated **simultaneous base–arm motion** in MATLAB and reproduced coordination algorithms using Python quadratic programming.

All-Weather Drivable-Area Detection

Core team member | Applied Sciences publication, second and corresponding author

- Integrated **fog assessment, conditional image dehazing and road segmentation** in Python to identify drivable areas on roads without lane markings. Compared dehazing methods and contributed to transfer training; published experiments achieved **94.50% mIoU in foggy scenes**.

PUBLICATIONS AND AWARDS

First author: Advanced Manufacturing of Microstructured Wicks for Capillary-Fed Phase-Change Cooling: A Review. Frontiers in Heat and Mass Transfer. **Accepted 13 Oct 2026**.

Second and corresponding author: A Method for All-Weather Unstructured Road Drivable Area Detection Based on Improved Lite-Mobilenetv2. Applied Sciences 14(17), 8019 (2024).

Jingdiao Cup National Merit Award and Western Division First Prize | SCU Undergraduate Thesis Third Prize | National Encouragement Scholarship (twice).

LEADERSHIP AND CAMPUS ENGAGEMENT

Research and Innovation Discussion Society **President**; Academic Affairs member, CityU Postgraduate Association. Organized AI/robotics discussions and coordinated academic-event registration and on-site support. **CUPA Best Member, 2026**.