香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

# HE TIANLUN(ALLEN)

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## EDUCATION

**The Hong Kong University of Science and Technology** Year 3 Sep. 2023 –Present
- Integrative Systems and Design (Minor in Robotics)
- CGA: 3.42/4.3 MCGA: 3.50/4.3

## RESEARCH EXPERIENCE

**Memory-Augmented VLA** Undergraduate Research Program Feb. 2026 - Present
- Model design: proposed a subtask-aware framework with VAE-based compression to mitigate context explosion in long-horizon manipulation
- Designed an Implicit Memory Bank (cross-attention scoring) and a DiT-based memory-conditioned policy; evaluated on RMBench / VLABench / LIBERO-Long (targeting ICRA 2027)

**Embodied 4D World Model for Robotic Manipulation** ICML 2026 (Under Review) Jan. - Feb. 2026
- Real-robot deployment: built a physical platform (manipulator + multi-view RGBD + compute) for multi-view data acquisition and model validation
- Data processing: designed the multi-view RGBD pipeline (sensor calibration, time sync, cross-view alignment) and constructed a high-quality 4D manipulation dataset

## PROJECT EXPERIENCE

**Indoor Structural Semantic Segmentation** Learning Project Dec. 2025 - Jan. 2026
- Designed and implemented a Sonata + PTV3 based semantic segmentation model for fine-grained recognition of indoor structural elements (ceiling, walls, floor, bay windows, glass)

**Reinforcement Learning based Bipedal Robot** Research Project Dec. 2024 - Jun. 2025
- Used IsaacGym to load URDF for RL training, achieving stable walking in simulation; built a motor torque test platform and current-torque model to prepare for sim-to-real

**Omnidirectional Autonomous Wheelchair System** Year 2 Project Sep. 2024 - Aug. 2025
- Responsible for the wheelchair's embedded and mechanical system; collaborated with the navigation team to achieve autonomous obstacle avoidance and path planning

**6-DOF Underwater Navigation Robot** Class Project Aug. 2025 - Dec. 2025
- Mechanical design and cascade PID control for stable motion; integrated a YOLO-based visual module for real-time underwater target detection and tracking

**HKUST RoboMaster Team ENTERPRIZE** Head of Mechanical Dept. Sep. 2023 - Aug. 2025
- Independently completed core mechanical design of serial-leg infantry, quadcopter UAV, and rudder-wheel infantry gimbal (open-sourced); managed the mechanical department and cross-department coordination

## AWARDS

**Scholarship:** HKSAR Government Scholarship Fund (2024/25)

**Competition:** Champion of RoboMaster 2025 University League; Champion of RoboMaster 2024 International Region

## SKILLS

**Computer Vision:** Proficient in PyTorch for CNN/Transformer development; experienced in computer vision and robotic perception

**AI Applications:** Proficient with Claude Code, OpenCode, and OpenClaw; multi-model collaboration and deployment experience (multi-agent + scheduled task orchestration)

**Programming & Tools:** Python, C++, MATLAB, LaTeX; SolidWorks, Rhino for mechanical design; Blender for 3D visualization

## OTHERS

**Personal:** Strong communicator and quick learner; responsible team collaborator who stays consistent under high workloads