# Shuchen Sun

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## EDUCATION

**University College London (Master)** **London, England, UK**

- MSc Robotics & Artificial Intelligence Sept, 2024-Sept, 2025
- Graduation Project: In-Context Learning with Multi-Task LoRA for Generalizable VLA Tutor: Jun Wang
- Degree: Overall: Merit; Thesis: Distinction

**Heriot-Watt University (Bachelor) (Joint Program)** **Edinburgh, Scotland, UK**

- Bachelor of Engineering in Robotics Sept, 2023-June, 2024
- Degree: First Class Honour Degree
- Graduation Project: Comparative Analysis of Image Defogging/Dehazing Methods Tutor: Alexander Belyaev

**Ocean University of China (OUC)(Bachelor)** **Qingdao, Shandong, China**

- Bachelor of Engineering in Computer Science and Technology Sept, 2020-June, 2024
- Grade: 4.2/5

## RESEARCH EXPERIENCE

**Institute for General Decision Intelligence** **Intern, Mar 2026 – Aug 2026**

- Responsible for research and engineering related to embodied intelligence, VLA deployment and general-purpose robot learning.
- Collaborated with USTC on the "Robotic Chemist" project, leading the design of a VLA-based system for long-horizon chemical experimentation with multi-scale memory and autonomous task planning.

**Huawei London Research Center** **Intern, Jul 2025 – Dec 2025**

- Conduct research on reinforcement learning for embodied robotic control, with a focus on multi-task policy optimization in the BEHAVIOR-1K benchmark.
- Design and maintain scalable PPO-based training pipelines, integrating custom reward shaping, multi-modal observations, and curriculum strategies to train and rigorously evaluate model-free policies across diverse long-horizon manipulation tasks.
- Collaborate with senior researchers to run large-scale experiments and ablation studies on policy architectures and observation modalities, analyzing policy generalization, robustness, and sample efficiency in complex household environments.

**MSc Thesis Project** **UCL, Feb 2025 – Sept 2025**

- Developed a deployable Vision–Language–Action framework combining In-Context Learning and parameter-efficient fine-tuning (LoRA/QLoRA) on Qwen3-8B backbone.
- Proposed a multi-task LoRA framework that integrates a shared low-rank subspace, orthogonal task-specific heads, and cross-task regularization mechanisms to reduce interference and enhance generalization across diverse VLA tasks.

**Undergraduate Research** **OUC, Dec 2021 – Dec 2022**

- Selected as an Outstanding Project under the National College Student Innovation and Entrepreneurship Program, focusing on applied research in catering service robotics.
- Contributed to the design and implementation of SLAM algorithms for robust robot navigation and natural human–robot interaction in indoor environments.

## PUBLICATION/COMPETITION

- Participated in an embodied AI for science project in collaboration with USTC, exploring long-horizon embodied manipulation by developing a VLA framework with multi-scale memory and hierarchical decision-making. Ongoing work toward publication in top-tier conferences.
- NeurIPS 2025 Competition — Team member at Huawei London Research Centre, focusing on multi-task reinforcement learning and policy optimization within the BEHAVIOR-1K framework.

## TECHNICAL SKILLS

- Programming & Frameworks: Python (PyTorch, Transformers, HuggingFace PEFT, Accelerate), ROS (Robot Operating System), MATLAB, Java, Git, Linux
- Robotics & Simulation: PyBullet, RLBench, PyRep, CoppeliaSim, Gazebo
- Machine Learning: Computer Vision & Object Detection, Parameter-Efficient Fine-Tuning, Mixture-of-Experts (MoE), In-Context Learning, Reinforcement Learning, VLA models, Visual SLAM.
- Languages: English (Fluent, IELTS 7.0), Chinese (Native)

## HONOURS AND SCHOLARSHIP

- College Scholarship (Top:20%), OUC, Sept 2023
- University-Level Scholarship for Academic Achievement, OUC, Sept 2022
- University Innovation and Entrepreneurship Training Program, National-Level Outstanding Project, 2022

## RESEARCH INTERESTS

Research interests focus on long-horizon embodied intelligence, particularly on developing memory-augmented Vision–Language–Action (VLA) systems to enable temporally-aware decision-making in complex robotic tasks. Current work explores multi-scale memory representations to bridge short-term perception and long-term task reasoning, with the goal of improving generalization and robustness in real-world environments.