

# Yu Ran

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## EDUCATION

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### Tsinghua University

Beijing, China

M.S. in Data Science and Information Technology

Jun 2023 - Sep 2026 (expected)

- **GPA:** 3.96/4.00
- **Advisor:** Prof. Wenbo Ding
- **Research Area:** Embodied Intelligence, Robot Perception

### University of Electronic Science and Technology of China

Chengdu, China

B.E. in Electrical and Electronic Engineering

Jun 2019 - Sep 2023

- **GPA:** 3.94/4.00, **Rank:** 4/240 (2%)
- Joint Degree Program with the University of Glasgow (with the First Class Honors)

## PROJECTS

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### Robot Perception for Human-Robot Interaction (3D Vision, Multi-Modal Perception, Robot Grasping):

- Construct a synthetic dataset to support research on robot perception. Propose a novel Hand-Aware Depth Restoration algorithm based on neural implicit representation for hand-held transparent objects depth estimation problem. Develop a real-world robot system of human-to-robot handover for method validation.
- One paper is accepted by ICRA 2025.

### Large Language Model (LLM) for Robotics (Robot Learning, LLM-based Agent):

- Propose a self-exploring framework for robotics based on foundation models. Develop LLM-based embodied agents in multiple simulation environments. Validate the proposed framework by deploying it into a real-world system.
- One paper is accepted by CAAI Artificial Intelligence Research.

### Multi-Modal Tactile Sensing for Robotics (Image Processing, Sensor Fabrication, Imitation Learning):

- Design a vision-based tactile sensor with multi-modal perception ability (force and temperature). Introduce the image processing algorithm to decouple multi-modal information from a single image.
- Attend the ManiSkill-ViTac competition at ICRA. Develop a tactile manipulation strategy based on imitation learning.
- One paper is accepted by ICRA 2024.

### Radar Signal Classification for Human Activity Classification (Signal Processing, Deep Learning):

- Analyze the cyclostationarity of FMCW radar signal. Introduce denoising techniques to enhance the quality of radar signals. Propose a deep learning model for the human activity radar signal classification problem.
- One paper is accepted by IET Radar, Sonar & Navigation.

## EXPERIENCE

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### AstriBot Intelligence

Shenzhen, China

Research Internship

Sep 2024 - Jan 2025

- Develop Vision-Language-Action (VLA) models for humanoid robot manipulation.
- Research contents include robot learning and robot manipulation.

## PUBLICATIONS

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\* means equal contributions.

1. **Ran Yu\***, Haixin Yu\*, Shoujie Li\*, Yan Huang, Ziwu Song, Wenbo Ding. "Depth Restoration of Hand-Held Transparent Objects for Human-to-Robot Handover", *International Conference on Robotics and Automation (ICRA)*, 2025.
2. Yinghao Shuai, **Ran Yu**, Yuantao Chen, Zijian Jiang, Xiaowei Song, Nan Wang, Jv Zheng, Jianzhu Ma, MENG YANG, Zhicheng Wang, Wenbo Ding, Hao Zhao. "Zero-shot Physical Understanding with Gaussian Splatting", *International Conference on Robotics and Automation (ICRA)*, 2025.
3. Shoujie Li\*, **Ran Yu\***, Tong Wu\*, JunWen Zhong, Xiao-Ping Zhang, Wenbo Ding. "Growing from Exploration: A self-exploring framework for robots based on foundation models", *CAAI Artificial Intelligence Research*, 2024.
4. Ziwu Song\*, **Ran Yu\***, Xuan Zhang, Kit Wa Sou, Shilong Mu, Dengfeng Peng, Xiao-Ping Zhang, Wenbo Ding. "SATac: A Thermoluminescence Enabled Tactile Sensor for Concurrent Perception of Temperature, Pressure, and Shear", *International Conference on Robotics and Automation (ICRA)*, 2024.
5. **Ran Yu**, Yaxin Du, Jipeng Li, Antonio Napolitano, Julien Le Kernec. "Radar-based human activity recognition using denoising techniques to enhance classification accuracy", *IET Radar, Sonar & Navigation*, 2024.
6. **Ran Yu**, Yong Deng. "A generalization of Rényi entropy for basic probability assignment", *Communications in Statistics - Theory and Methods*, 2023.

## HONORS AND AWARDS

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- Second-class Scholarship, Tsinghua University - Oct 2024
- Honours Degrees of UESTC - Jun 2023
- Outstanding Graduate of UESTC - Jun 2023
- First Class Honors, University of Glasgow - Jun 2023
- Excellent Student Scholarship - Sep 2020, Sep 2021, Sep 2022
- Academic Scholarship (Top 5% Student) - Sep 2020, Sep 2021, Sep 2022