



求實創新
勵志圖強



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Wang Chenwei

BASIC INFORMATION

- Gender: Male
- Ethnicity: Han nationality
- Domicile: Shantou, Guangdong
- Previous Research Focus: Embodied AI (Robotic Manipulation(VLA)), Medical Robot

EDUCATIONAL BACKGROUND

- The Chinese University of Hong Kong, Shenzhen Shenzhen, China
- M.Phil in Computer and Information Engineering (Supervisor: Prof. Zhenglong Sun) 2023.09-2025.11
- Average Score: 3.6/4.0

Thesis: Towards Fully Autonomous Robotic Ultrasound-guided Diagnosis for Superficial Organs

- Jilin University Changchun, China
- BEng in Electronic Information Engineering 2019.09-2023.06
- Average Score: 84.44/100

Thesis: Spectrum-aware Chip Design for Explosive Detection

RESEARCH EXPERIENCE

2024.11 – Present

Internship at Institute of AI, China Telecom (TeleAI, Shanghai)

Mentor: Dr. Chenjia Bai

2025.01-Present: Dual-Autoencoder Framework for Efficient Cross-Robot Fine-Tuning (Ongoing)

Propose a cross-embodiment imitation learning fine-tuning framework, where the action space is unified using two asymmetric Info-VAEs, enabling efficient fine-tuning across different robot embodiments. This approach significantly improves training efficiency and task success rates. The method has been validated in simulation using the Robotic Diffusion Transformer (RDT) within the RoboTwin/Maniskill3, and preliminary real-world validation has been conducted on a Unitree H1_2 humanoid robot equipped with the RoboTera dexterous hand. Fine-tuning experiments on $\pi 0$ platform are currently underway. (<https://align-then-steer.github.io>)

- Cross-embodiment Unified Action Space Modeling
- Robust Recursive Action Deployment Strategy (RAE: A recursive action averaging scheme is designed to ensure smooth and robust control during real-world deployment.)
- Diverse Real-world Manipulation Task Suite
- RDT/ $\pi 0$ Finetuning, Diffusion policy, Smolvla.

2025.01-Present(Parallel): Real-World Reinforcement Fine-Tuning Paradigm for VLA Models with Sparse Data (Ongoing)

Propose a framework for fine-tuning a VLA model using a small amount of real-world teleoperated robot data. The method consists of two stages: first, a single manually collected real-world trajectory is augmented through trajectory and video editing techniques to generate a large dataset for training a strong base model. Then, this model is fine-tuned via reinforcement learning on real robots (such as the Unitree H1_2 humanoid robot, the Realman robot with RoboTera dexterous hand, or the Inspire-Robots dexterous hand), aiming to achieve higher task success rates and improved generalization.

- Referring to Dex-MimicGen and ProPainter, we perform trajectory and video editing, and design customized editing strategies to enhance data quality and diversity, enabling effective data augmentation.
- Real-World RL Finetuning

RESEARCH EXPERIENCE

2023.09-2024.10

Research Experience at CUHKSZ Supervisor: Prof. Zhenglong Sun

2024.03-2024.10: Towards fully autonomous robotic ultrasound-guided biopsy for superficial organs

First-author paper accepted to IROS 2025. Developed a fully autonomous ultrasound-guided biopsy system using the UR5e robotic arm and ROS (Robot Operating System), integrating real-time image analysis (U-Net++), 3D reconstruction, slice-to-volume registration, force/pose control, and reinforcement learning to achieve accurate probe placement and automated needle insertion.

- Workflow automation
- Superficial organ biopsy

2023.11-2024.03: Robotic Assistance for Standardized Compression Ultrasound Elastography

As the first author, I proposed a robot-based quantitative compression elastography framework for accurate elasticity measurement. The paper was accepted to the 2024 IEEE RCAR and nominated for the Best Conference Paper Finalist Award.

- Quantitative compression elastography
- Robot-assisted ultrasound measurement

PROJECT EXPERIENCE

2024.11-2024.12

Action Chunking Transformer (ACT) Reimplementation and Demonstration at DTEC

- Contributed to teleoperation development and ACT (opentelevision) reproduction and adaptation.
- Showcased at the 2024 Digital Technology Ecosystem Conference (TeleAI Developer Conference).

2025.04-2025.05

Development of Data Collection System and Real-World Deployment Experiments on DP3

Participated in the development of the data collection system for the RoboTera dexterous hand and Unitree H1_2 humanoid robot, assisted colleagues with real-world experiments (e.g., DP3 deployment), and contributed to related paper writing.

2022.12-2023.5

Design of spectrum sensing chip for explosive detection Graduation Project

- Awarded as “Excellent Graduation Design, School of Electronic Science and Engineering, Jilin University”

2021.5-2022.5

Vehicle intelligent arm grabbing system based on motion matching model Team Leader

- Awarded as “Outstanding Provincial Project”

PUBLICATIONS & AWARDS

- "Towards fully autonomous robotic ultrasound-guided biopsy for superficial organs" was accepted to iROS 2025
- "Robotic Assistance for Standardized Compression Ultrasound Elastography" was accepted to IEEE RCAR 2024 and nominated for the Best Conference Paper Finalist Award
- National third prize and provincial first prize in the final contest of ICAN International Contest of innovation
- Provincial First Prize of China Undergraduate Mathematical Contest in Modeling (CUMCM)
- National Undergraduate Electronic Design Competition Success Award
- Jilin University Academic Science and Technology Scholarship
- Excellent Graduation Design, School of Electronic Science and Engineering, Jilin University

SKILLS

- Robots: Extensive experience with various robotic arms, humanoid robots, dexterous hands, and teleoperation devices, including Vision Pro, ALOHA, Unitree H1_2 & G1, Inspire-Robots dexterous hand, RoboTera dexterous hand, UR5e robotic arm, and Realman robotic arm.
- Software: Proficient in KEIL, Altium Designer, Matlab, Proteus, Simulink, Quartus II, Modelsim, etc.
- Programming: Adept at ROS, C++ language, Python, etc.
- Profession: Abundant 51 and ARM embedded design experience, circuit design and circuit simulation experience, FPGA development experience, and solid Verilog HDL basis