Yuyang Gao

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RESEARCH INTEREST

Robotic Manipulation / Humanoid Robot / Multimodal Robot Learning

My research interests center on the co-development of software and hardware to empower robots with more efficient learning and task execution capabilities, ultimately reducing the demand for human labor. Currently, my primary focus is on approaches that enable robots to effectively harness force and tactile information, adapt their behavior accordingly, and thereby accomplish contact-rich tasks with heightened efficiency.

EDUCATION

The Hong Kong Polytechnic University Sep 2022 - Jun 2026 (Expected)

BEng in Electrical Engineering with a Secondary Major In AI   GPA: 3.65   Major GPA: 3.96

Main Courses: Applied Electromagnetics (A+) Circuit Analysis (A+)
Analogue and Digital Circuits (A+) Analysis Method for Engineers (A+)
Artificial Intelligence (A) Computer Programming (A)

RESEARCH EXPERIENCE

Student Research Assistant @ RAIDS Research Group, PolyU   **Mar 2025 -**

Advised by Prof. Pai Zheng

Glovity: Dexterous Contact-Rich Manipulation via Spatial Wrench Feedback Teleoperation System [Website]

Yuyang Gao, Haofei Ma, Pai Zheng

Presented Glovity, a low-cost open-source teleoperation system with wrench feedback and haptic glove with fingertip calibration for dexterous contact-rich manipulation; improved task success and efficiency while outperforming commercial gloves in thin-object grasping; Enabled efficient data collection for force-aware imitation learning.
(Under review)

A Haptic-Enhanced Interaction Approach for MixedReality-Assisted Human-Robot Collaboration

Yue Yin, Chengxi Li, Yuyang Gao, Xinyu Ning, Pai Zheng

Presented a haptic-enhanced interaction approach for MR-assisted HRC, integrating interchangeable touch boards with editable virtual panels and force-torque-based tactile analysis for intuitive robot control; enabled dynamic task guidance via behavior trees while outperforming gesture recognition in efficiency and accuracy.
(Under review)

WORK EXPERIENCE

Founder, Charon Technology Limited   **Oct 2024 -**
AI-Powered Group Delivery Platform

- Operating around campus and dormitories with 1000+ users, improving delivery efficiency by more than 10 times.

Summer Intern @ Shenzhen Yujun Technology   **May 2023 - Aug 2023**

- Utilized SolidWorks for system simulations to optimize logistics stability; contributed to requirements analysis, functional design, and technical bid documents.
- Led the design of an innovative steering system, leveraging structural design to enable automatic steering for the overhead transportation system at track intersections.

Summer Intern @ North China Electrical Power Research Institute   **Jun 2024 - Aug 2024**

- Verified wind turbine data under fault conditions; used MATLAB for error analysis across scenarios.
- Analyzed high-error operating conditions and prepared reports for manufacturers.
- Conducted electromagnetic transient simulations of wind farms using specialized software.