Wentao **Guo**

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"Talk is cheap. Show me the code."

Summary

My research focuses on Embodied AI. With hands-on experience in both software and hardware, I have contributed to hardware projects, including the design of two underactuated robotic hands (submitted to IROS 2025 and ROBIO2025) and the development of robot cars. On the software side, I have explored large model fine-tuning and its applications. This integrated expertise in both domains continuously fuels my drive to advance embodied intelligence research.

Education

Beijing Institute of Technology

Beijing, China

Computer Science(Xu Teli Honor Program) *Aug. 2022 - Jun. 2026*

- Score: **89.69/100**, GPA: **3.73/4**
- Professional Grade Rank: **8/118**, English: CET-6 **583**
- Overall Assessment Rank: **3/118**

Project Experience

Hockens-A Hand: Environment-Constrained Adaptive Gripping Robot Hand

Shenzhen, China

Lead Designer & Researcher *Oct. 2024 - Mar. 2025*

- Designed a passive robotic hand based on the Hoeckens mechanism, coupling dual parallelogram structures with a four-bar linkage system.
- Implemented adaptive scooping and enveloping functions using springs, limit blocks, and silicone bands.
- Validated performance through mechanical simulation and experiments, achieving purely environment-constrained adaptive gripping.
- **Accepted by IROS 2025 as first author**
- Advanced to the global finals of the **ASME Student Mechanism & Robot Design Competition (SMRDC)** as one of four undergraduate teams worldwide and **the sole team from China**.

Hocken-D Hand: Robotic Hand for Linear Parallel Pinching and Self-Adaptive Grasping

Beijing, China

Designer & Researcher *Mar. 2025 - July. 2025*

- Developed a novel straight-line parallel adaptive hand based on Hoeckens linkage and dual-parallelogram design.
- Enabled automatic transition from parallel pinching to adaptive enveloping through differential linkages and passive springs.
- Fabricated and tested a full-scale 3D-printed prototype, validating performance across diverse grasping tasks.
- **Paper submitted to ROBIO 2025 as first author**

JiuGe-End Model-Based Conference Assistant (CCF Open Source Innovation Competition)

Beijing, China

Project Lead & Finalist *Sep. 2024 - Nov. 2024*

- Developed "YiBao", an on-device meeting agent with summarization and retrieval-augmented Q&A functionalities.
- Integrated FunASR and SenseVoice for efficient real-time speech-to-text.
- Handled long meeting inputs with MapReduce-style summarization and incremental vector knowledge base updates.
- Optimized query planning via DPO/GRPO to align retrieval with answer quality in long-meeting RAG settings.
- Improved robustness with confidence-gating (GECE) and adversarial training against noisy contexts.
- Open-sourced the project and **won third prize nationally (10,000 RMB)**.

Personalized Adaptation and Bias Elimination Sleep Assistant

Shenzhen, China

AI Model Developer *Jul. 2024 - Aug. 2024*

- Developed a full AI sleep advisory system with staging, scoring, and large-model recommendation modules.
- Proposed and implemented an automatic scoring system for subjective and objective data collection.
- Used reinforcement learning to fine-tune models based on real-time data at the individual level.
- Introduced UAR-based clustering to evaluate group-level adaptability and applied reinforcement learning to build bias-reducing models.
- Awarded the **Disruptive Innovation Project AWARD**. Delivered a presentation at **Tsinghua Sigs**.

MoYiXing: Modular and RL-Based Commercial Community Robot Car

Beijing, China

Project Lead & Algorithm Engineer *Nov. 2023 - Nov. 2024*

- Led the development of a multifunctional service robot featuring LIDAR, a 6-DOF arm, and fisheye cameras.
- Built software modules including 360° vision stitching, YOLOv8-based detection, ASR+TTS-powered AI dialogue system, and LIDAR navigation.
- Modularized functionalities of video processing, conversational AI, and driving systems for plug-and-play integration.
- Integrated DQN reinforcement learning models to build habit learning and behavior setting functions.
- Led team to win **2 national first prizes** and **nearly 10 provincial awards**.

Honors & Awards

International

Feb. 2025 **Meritorious Winner**, Mathematical Contest in Modeling (MCM), COMAP
Feb. 2024 **Honorable Mention**, Mathematical Contest in Modeling (MCM), COMAP

Domestic

Aug. 2024 **National First Prize**, 7th China University Intelligent Robot Creative Competition *Zhejiang, China*
Oct. 2024 **National First Prize**, RoboCup China Open — "Robot+" Competition *Xi'an, China*
Nov. 2024 **National Second Prize**, 2024 China Intelligent Robot Combat and Competition — Vision-based Antagonism *Beijing, China*
Nov. 2024 **National Third Prize**, 7th Open Source Innovation Competition *Beijing, China*
Nov. 2024 **National Grand Prize**, 19th "Challenge Cup" National Final — open bidding for selecting the best candidates *Beijing, China*
Dec. 2024 **National Second Prize**, 6th International Youth Artificial Intelligence Competition *Hebei, China*

Extracurricular Activity

Laboratory of Robotics, X-Institute *Shenzhen, China*

Student Researcher *Dec. 2023 - Feb. 2024*

- Studied under the supervision of Prof. Wenzeng Zhang, focusing on robotic hands and underactuated mechanisms.
- Independently designed and built the Hockens-A Hand from scratch, applying knowledge of robotic mechanics and fabrication.

Network Pioneers Association, Beijing Institute of Technology *Beijing, China*

Vice Director, Technology Department *Jun. 2024 - Jun. 2025*

- Organized and livestreamed dozens of technical sharing sessions, with over 500 total attendees.
- Collaborated with BIT Library to conduct data crawling and related technical tasks.

Teli Academy, Beijing Institute of Technology *Beijing, China*

Peer Mentor *Sep. 2023 - Aug. 2024*

- Guided and supported students in both academic and daily life matters, helping freshmen adapt to campus life.
- Organized and participated in peer-led Q&A and review sessions for college computer fundamentals and C programming courses.

School of Mechanical Engineering, Beijing Institute of Technology *Beijing, China*

Teaching Assistant *Jul. 2023 - Aug. 2023*

- Served as a TA for the 2023 "Intelligent Unmanned Systems +" Cross-Strait, Hong Kong and Macao College Student Innovation Training Camp.
- Assisted in designing and advancing project topics; supported students by answering technical and project-related questions.