Yibin (Leon) Liu

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Education

Northeastern University, Shenyang, China *Sept 2022 – June 2026*
Bachelor of Artificial Intelligence, College of Information Science and Engineering

- **Achievements:** 88/100 (Overall), 92/100 (Major)
- **Programs:** 985, 211, Double First Class University

Global Innovation Exchange - UW Seattle & Tsinghua *Jul 2024 – Oct 2024*
Access Computing Summer Program, AI & HCI
A collaboration between the University of Washington, Tsinghua University, and Microsoft, focused on AI and HCI innovation. Full scholarship awarded.

Selected Courses & GPA:
Machine Learning (99), Reinforcement Learning (96), Digital Signal Processing (96), Computing Theory (95), Discrete Mathematics (91), Computer Vision (93), Control Engineering (93), Speech Recognition (99), Autonomous Unmanned Systems (93), Neuromorphic Computing (93), Knowledge Representation&Reasoning (94)

Research Interests

My research lies at the intersection of **Language Grounding**, **Multimodal Reasoning and Planning**, and **Human-Robot Interaction**. I am particularly interested in developing foundation models that ground language and perception in real-world physical understanding, enabling robots to reason, plan, and act effectively in complex environments. Ultimately, my goal is to build embodied agents that learn from real-world interactions, developing causal reasoning and compositional skills for generalizable mobile manipulation.

Publications

RoboTwin 2.0: A Scalable Data Generator and Benchmark with Strong Domain Randomization for Robust Bimanual Robotic Manipulation
*ICLR 2025 (under review **1.5k+ GitHub Stars**)* **Co-first author**
Tianxing Chen*, Zanxin Chen*, Baijun Chen*, Zijian Cai*, **Yibin Liu***, ... Ping Luo†, Yao Mu†
Widely adopted bimanual manipulation benchmark with 5 embodiments, 50 dual-arm tasks, and 700+ assets.

Vlaser: Vision-Language-Action Model with Synergistic Embodied Reasoning
ICLR 2025 (under review) **Co-author**
Ganlin Yang, Tianyi Zhang, Haoran Hao, Weiyun Wang, **Yibin Liu**, ... Jifeng Dai, Jiangmiao Pang, Gen Luo, Wenhai Wang, Yao Mu†, Zhi Hou†
Proposes a unified VLA model enabling synergistic embodied reasoning across perception, planning, and control.

EduHome: Leveraging LLMs for Human Behavioural Insights and Strategy Development through Parent–Child Homework Conversations
CHI 2026 (under review) **Co-first author**
Xin Tang*, **Yibin Liu***, Ruiwen Zhang, Ran Xu, Yanyan Liu, Yuntao Wang, Yuanchun Shi, Haining Zhang, Chun Yu, Nan Gao†
Introduces an LLM-driven framework to analyze and guide parent–child homework interactions for educational insight and strategy design.

The Homework Wars: Exploring Emotions, Behaviours, and Conflicts in Parent-Child Homework Interactions
*ACM IMWUT/UbiComp 2025, **Advisor First-Author***
Nan Gao*, **Yibin Liu**, Xin Tang, Yanyan Liu, Chun Yu, Yun Huang, Xuhai Xu, Jun Wei, Yuanchun Shi
First work to leverage LLM-human collaboration for qualitative analysis to infer human behavioural states.

HyCodePolicy: Hybrid Language Controllers for Multimodal Monitoring and Decision in Embodied Agents
ICCV 2025 Workshop on Multi-Modal Reasoning for Agentic Intelligence
Yibin Liu*, Zhixuan Liang*, Zanxing Chen*, Tianxing Chen, ... , Yuseng Qing, Yao Mu

Self-Guide: A LLM Reasoning Enhancement Method Based on Self-Guided Planning.
Journal of Chinese Information Processing (2024)
Yibin Liu, Zhenghao Liu, Yukun Yan, Shi Yu, Shuo Wang, Liner Yang, Yu Gu, Ge Yu, Huimin Chen
Revealed that enhancing LLM agent reasoning relies on injecting useful information rather than debate/reflection.

Research Experience

University of North Carolina at Chapel Hill – Research Intern *Jun 2025 – Present, Remote*
Advisor: Prof. Mingyu Ding

- Enhancing MLLMs with spatial understanding and action-level reasoning for robotic manipulation via human language instructions and AR-guided interactions.

Shanghai Jiao Tong University – Research Assistant *Mar 2025 – Present, Shanghai, China*
Advisor: Prof. Yao Mu

- Core contributor to RoboTwin 2.0, leading robot policy code generation for scalable bimanual manipulation.

Pervasive HCI Lab, Tsinghua University – Research Assistant *Jun 2024 – Jan 2025*
Advisor: Prof. Nan Gao, Prof. Chun Yu

- Conducted research in using LLM and HCI to infer human behaviors and mental states. Our research represents a application of LLMs to encode and analyze human behavior through dialogue data directly.

Industry Experiences

Horizon Robotics – Cloud Platform Intern *Jun 2025 – Present, Beijing, China · Hybrid*
Mentor: Yusen Qin (VP of Technology, D-Robotics)

- Developing the RDK-agent, building an LLM-powered Copilot for robotics development.

Academic Activities

- **Community:** Co-Founder of VapourX, an open community for embodied AI beginners, and researchers.
- **Workshop Service:** Student Committee of TriFusion Workshop @ SIGGRAPH Asia 2025
- **Academic Service:** Reviewer for CHI 2026, Chinese CHI 2024.

Awards

- 2025.07 Outstanding Poster at ChinaSI 2025 (**Ranking 1st among 61 posters**, RoboTwin 2.0).
- 2024.11 Outstanding Individual in Technological Innovation of Northeastern University.
- 2024.05 **Finalist** in Mathematical Contest in Modeling (MCM/ICM 2024, **Top 1.69% of 10,387 teams**).
- 2023.10 National Level Third Prize in **RoboCup** China Competition, Simulation 3D League.
- 2023.10 National Level Second Prize in **FIRA SimuroSot** China Competition.
- 2023.11 Future Technology Taihu Scholarship & Excellent Student Scholarship at Northeastern University.

Projects

RDK Copilot: LLM-powered Copilot for Horizon Robotics *Mar – May 2025*

- Developed and deployed a VSCode plugin that assists robotic system development using LLMs. Supported features include automatic coding, environment setup, code completion, and manipulation data acquisition.

MinRL: Minimal, Clean Code for Reinforcement Learning (114 Stars) *GitHub Repository*

- **Recognized and pinned by MathFoundationRL, the most popular RL course on Chinese platforms** Developed a RL framework featuring clean implementations of fundamental algorithms.

Bencao RAG Medical Intelligent Assistant *GitHub Repository*

- Developed a medical knowledge question-answering system that integrates context awareness, internet access, knowledge graphs, and RAG method to provide accurate and personalized medical information.

Technologies

Languages: Python, C++, C, HTML/CSS, JavaScript, SQL, MATLAB/Simulink, LaTeX

Technologies: PyTorch, Hugging Face, scikit-learn, ROS, OpenCV, MCP, Git, RAG, Linux, SLAM