

Dihong Huang

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Education

Shanghai Jiao Tong University

B.S. in Computer Science, expected May 2027

◦ GPA: 3.90/4.30

Shanghai, China

Sep 2023–May 2027

Carnegie Mellon University, Robotics Institute

Visiting Student

Pittsburgh, PA

Jun 2026–Present

Research Focus

Contact-rich Manipulation, Dexterous Manipulation, Foundation Model, Data Scaling

Preprints and Publications

* Equal contribution. † Corresponding author.

1. DexCompose: Reusing Dexterous Policies for Multi-Task Manipulation with a Single Hand

Dihong Huang, Zhenyu Wei, Zhuxiu Xu, Yunchao Yao, Sikai Li, Mingyu Ding[†].

Submitted to ICRA 2027. link: [project] [paper]

2. What Matters in Quality-Aware VLA Pretraining: A Benchmark and Empirical Study

Mingxuan Yan, Litian Gong, Dihong Huang, Zhixu Li, Tianyu Zhang, Wenqian Zhang, Hefeifei Jiang, Peihao Li, Jian Zhang, Mengfei Zhao, Yikai Tang, Hai Zhai, Zehao Wang, Ruijian Liang, Yanjia Huang, Lin Shao, Changliu Liu, Kaiyu Hang, Zhiwen Fan, Masayoshi Tomizuka, Jianfei Yang, Jiachen Li[†].

Submitted to ICRA 2027. link: [project] [paper]

3. GeoAdapt: Few-shot Peg Insertion Adaptation through Aligned Geometric Observations

Yinong He, Dihong Huang, Yufei Wang, Guixiu Qiao, Pavel Piliptchak, Zackory Erickson, David Held[†].

Submitted to ICRA 2027. link: [project]

4. AdaptDiffuser++: Self-evolving Diffusion Models for Adaptive Planning and Dexterous Manipulation

Zhixuan Liang, Yao Mu, Dihong Huang, Fei Ni, Mingyu Ding, Masayoshi Tomizuka, Ping Luo[†].

Under Review at IEEE Transactions on Pattern Analysis and Machine Intelligence, 2026.

5. AXIS: A Growable Community-Driven Data Engine for Scalable Robot Manipulation

Mengfei Zhao^{*,†}, Dihong Huang^{*}, Yikai Tang^{*}, Peihao Li^{*}, Mingxuan Yan^{*}, Ruiqi Zhuang^{*}, Yanjia Huang^{*}, Jie Wang, Hai Zhai, Tony Zhou, Rui Zhang, Zhexi Luo, Yuchen Huang, Jianfei Yang[†], Jiachen Li[†].

IROS 2026 @ PWMS. link: [project] [paper]

6. DexVerse: A Modular Benchmark for Multi-Task, Multi-Embodiment Dexterous Manipulation

Yunchao Yao^{*}, Zhuxiu Xu^{*}, Tianqi Zhang, Zixian Liu, Sikai Li, Zhenyu Wei, Feng Chen, Dihong Huang, Kechang Wan, Chenyang Ma, Shuqi Zhao, Shenghua Gao, Masayoshi Tomizuka, Yi Ma, Mingyu Ding[†].

Submitted to ICRA 2027. link: [project] [paper]

7. SarcBench: A Bilingual Benchmark for Context-Aware Sarcasm Understanding, Response, and Generation

Dihong Huang, Zhuoyue Chang, Yuhao Liu, Zhouting Mo, Jianxing Yu, Wenqing Chen, Jingping Liu[†].

NeurIPS 2026. link: [paper]

Experience

Carnegie Mellon University, Robotics Institute

Visiting Student

Pittsburgh, PA

Jun 2026–Present

Advisors: David Held and Zackory Erickson

- Developed force-aware manipulation policies for contact-rich insertion across varying geometries and contact conditions.
- Implemented simulation and evaluation infrastructure for assessing policy robustness and generalization.

Axis Robotics

Core Contributor

Jan 2026–Jun 2026

Advisor: Jiachen Li

- Developed the TaskGen pipeline for automated robot manipulation task generation and scalable demonstration collection.
- Implemented data cleaning and standardization pipelines for a platform with 4.7M simulation trajectories totaling over 20K hours.
- Trained robot foundation models on AXIS data, improving LIBERO-Plus success from 83.9% to 88.8% (+4.9 percentage points).

Dataset impact: AXIS surpassed 100K downloads.

University of North Carolina at Chapel Hill

Research Assistant

Feb 2025–Jun 2026

Advisor: Mingyu Ding, Assistant Professor

- Developed DexCompose to reuse learned dexterous skills, achieving 77.4% average success across 16 composite manipulation tasks, 15.8 percentage points above the strongest baseline.
- Optimized diffusion guidance to reduce physically inconsistent hand-object interactions in contact-rich manipulation.

Shanghai Innovation Institute

Shanghai, China

Visiting Student

Feb 2025–Jan 2026

Advisor: Yue Gao, Associate Professor

- Developed multimodal emotion-recognition models that integrated speech, facial expressions, and body gestures for human-robot interaction.
- Designed benchmarks for grounded multimodal understanding and implemented vision-language-action models for responsive robot behaviors.

Academic Service

Reviewer: IROS 2026, CoRL 2026, ICRA 2027

Honors and Awards

Shanghai Jiao Tong University Alumni Scholarship 2009 in SEIEE

Dec 2024

First Prize, National Mathematical Modeling Competition, 2024

Nov 2024

Honorable Mention, Mathematical Contest in Modeling, 2024

Jun 2024

Technical Skills

Programming & Development Tools: Python, C++, Linux, Git/GitHub, LaTeX

Machine Learning & Deep Learning: PyTorch, Reinforcement Learning, Imitation Learning, Diffusion Models

Robot Learning & Simulation: Diffusion Policies, Residual Policy Learning, Policy Composition, Dexterous Manipulation, Contact-rich Insertion, Force-aware Control, Isaac Gym, Isaac Lab, MuJoCo, Teleoperation, Task Generation, Data Augmentation

Multimodal & Foundation Models: Vision-Language-Action Models, Multimodal Understanding, Emotion Recognition, Model Evaluation, Robot Data Scaling

Language

TOEFL: 111 (Reading 30, Listening 30, Speaking 26, Writing 25)