

Haibo Zhao

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EDUCATION

Northeastern University <i>M.S. in Computer Science</i>	Boston, MA GPA: 3.9 <i>Sep. 2022 – May 2025</i>
Xi'an Jiaotong University <i>M.S. in AI and Robotics</i>	Xi'an, China GPA: 3.88 <i>Sep. 2020 – Jun. 2022</i>
Xi'an Jiaotong University <i>B.Eng. in Electronics Science and Technology (National Scholarship)</i>	Xi'an, China GPA: 3.8 <i>Sep. 2016 – Jun. 2020</i>

PUBLICATIONS

Haibo Zhao et al. *Hierarchical Equivariant Policy via Frame Transfer*, **ICML 2025**.

Dian Wang, Stephen Hart, David Surovik, Tarik Kelestemur, Haojie Huang, **Haibo Zhao et al.** *Equivariant Diffusion Policy*, **CoRL 2024. Best Paper Finalist**.

ONGOING PROJECT

Sampling-Efficient Skill Learning

Ongoing

- Developed a hierarchical policy framework with VLM as high level that decomposes demonstrations into atomic skills and composes them to perform unseen tasks.
- Designed a novel high-to-low-level interface enabling skill generalization across spatial positions, orientations, colors, and novel object instances, supporting zero-shot task composition.
- Achieved 10%+ performance gain on Gembench with only 3 training demos, outperforming baselines trained with 100 demos.

Benchmarking and Improving VLMs for Embodied AI

Ongoing

- Built a synthetic data generation pipeline producing 1,500+ VQA samples to evaluate VLMs on 7 key embodied AI competencies (e.g., object reasoning, task phase detection, memory-based inference).
- Currently developing an agentic VLM to enhance performance across those embodied intelligence benchmarks.

PROFESSIONAL EXPERIENCE

Research Assistant Jun. 2024 – Jul. 2025

Helping Hands Lab, Northeastern University (in collaboration with Boston Dynamics AI Institute) *Boston, MA*

- Lead author of *Hierarchical Equivariant Policy via Frame Transfer* at **ICML 2025**; designed a generative policy architecture leveraging hierarchical equivariance and frame transfer to boost sample efficiency by 10–23% across 30 RL Bench tasks in simulation and real-world experiments.
- Co-author of *Equivariant Diffusion Policy* at **CoRL 2024**; developed an SO(2)-equivariant diffusion-based generative model, improving sample efficiency by 21.9% on 12 MimicGen tasks and achieving 80–95% success on 6 real-robot tasks with just 20–60 demos; selected as **Best Paper Finalist**.
- Engineered a vision–language pipeline to decompose long-horizon tasks into modular atomic skills, enabling hierarchical learning via the frame transfer interface.

Applied Scientist Co-op

Jan. 2024 – Jun. 2024

Amazon Robotics

Boston, MA

- Built a vision model to assess camera focus status across 100K+ Amazon workstations, improving monitoring efficiency.
- Designed and deployed a scalable health-monitoring system using AWS EC2, SNS, and SQS to ensure operational robustness.

Software Engineer Intern

May 2023 – Sep. 2023

Coinbase

San Francisco, CA

- Architected a bulk transfer pipeline in Go, increasing remediation throughput from 5K to over 1M concurrent requests.

- Integrated MongoDB, GraphQL, gRPC, Kafka, and AWS services (EC2, S3) to support scalable, paginated fund transfers.
- Built a React-based frontend to streamline user workflows and improve system accessibility.

Software Development Intern

Jun. 2022 – Sep. 2022

AMD

Software Development Intern

Jun. 2022 – Sep. 2022

General Electric Co.

Back-end Development Intern

Apr. 2022 – Jun. 2022

Bytedance

Machine Learning Engineer Intern

Apr. 2021 – Jun. 2021

iFLYTEK AI Lab