

NIU XIAOJIE

+86 15240146190 | mr12@mail.ustc.edu.cn | https://njay12.github.io

EDUCATION

University of Science and Technology of China Institute of Humanoid Robotics Master's Degree Research Focus: Motion Control, Legged Robots	2022.09 - 2025.06
Dalian University of Technology School of Marine Science and Technology Bachelor's Degree	2018.09 - 2022.06

WORK AND INTERNSHIP EXPERIENCE

Galbot Embodied AI Algorithm Engineer advised by Prof. Li Yi Research Focus: VLA Pretraining for Loco-Manipulation, Real2Sim2Real Pipeline	2026.06 - Present
Shanghai Artificial Intelligence Laboratory Embodied AI Algorithm Engineer advised by Dr. Jingbo Wang Research Focus: BFM, Teleoperation and Data Infra for Humanoid	2025.05 - 2026.06
Beijing Academy of Artificial Intelligence Embodied AI Research Intern advised by Prof. Zongqing Lu Research Focus: Humanoid Locomotion; General Motion Retargeting	2024.06 - 2024.11
Hikrobot Robot Algorithm Intern advised by Dr. Yinjie Lin Research Focus: End-effector Vibration Suppression and Kinematic Calibration for Industrial Robots	2024.01 - 2024.04

SELECTED WORK

Scaling Behavior Foundation Model for Humanoid Robots

Weishuai Zeng*, Kangning Yin*, **Xiaojie Niu***, Shunlin Lu, Weixiang Zhong, Jiahe Chen, Feiyu Jia, Xiao Chen, Zirui Wang, Furui Xu, Ming Zhou, Kailin Li, Weinan Zhang, He Wang, Li Yi, Dahua Lin, Jiangmiao Pang, Jingbo Wang (In submission)
Coordinating global motion tracking, on-policy rollout diversity, and Humanoid Transformers enables effective BFM scaling, improving humanoid control fidelity and generalization.

ReactiveBFM: Reactive Closed-Loop Motion Planning Towards Universal Humanoid Whole-Body Control

Xiao Chen, Weishuai Zeng*, **Xiaojie Niu***, Zirui Wang*, Jianan Li*, Huayi Wang, Furui Xu, Jiahe Chen, Weixiang Zhong, Lihe Ding, Kailin Li, Jiangmiao Pang, Tai Wang, Tianfan Xue†, Jingbo Wang† (CoRL 2026)
ReactiveBFM is a closed-loop planning-control framework that enables reactive, text-conditioned whole-body control and zero-shot moving-target reaching.

GoAnywhere: Towards a Whole-Body Teleoperation System Beyond Spatial Constraints

Xiaojie Niu*, Weixiang Zhong*, Xiao Chen*, Weishuai Zeng*, Jiahe Chen, Furui Xu, Feiyu Jia, Ke Fan, Han Xue, Tianfan Xue, Xudong Xu, Weinan Zhang, Kailin Li†, Jiangmiao Pang†, Jingbo Wang† (In submission)
By introducing an omnidirectional treadmill into whole-body humanoid teleoperation, the system overcomes spatial constraints and enables ultra-long-range whole-body teleoperation tasks.

Feel Robot Feels: Tactile Feedback Array Glove for Dexterous Manipulation

Feiyu Jia*, **Xiaojie Niu***, Sizhe Yang*, Qingwei Ben, Tao Huang, Feng Zhao†, Jingbo Wang†, Jiangmiao Pang† (In submission)
The TAG system leverages high-precision motion capture and a tactile feedback array to significantly improve the accuracy and perceptual capability of dexterous-hand teleoperation.

OTHER WORK

VISTA: Visually Grounded Whole-Body Tracking for Humanoid Object Interaction

Han Xue, Ke Fan, Xiao Chen, **Xiaojie Niu**, Zhikai Zhang, Yunrui Lian, Zekun Qi, Weishuai Zeng, Chenghuai Lin, Tianfan XUE, Jingbo Wang, Li Yi (In submission)
VISTA combines motion tracking with synchronized visual references for robust, interaction-aware humanoid whole-body control and zero-shot sim-to-real transfer.

ManipForge: Forging Dexterous Policies by Mining Extra Manipulation Conditions from Hand-Object Interactions

Xinyu Zhan, Yuxuan Qin, Yiqian Gao, Jiafei Cao, **Xiaojie Niu**, Zhenning Zhou, Yi Ren, Weinan Zhang, Cewu Lu, Kailin Li, Lixin Yang (In submission)

ManipForge improves real-world dexterous manipulation by learning object motion and fingertip contact conditions from simulation-corrected human demonstrations.

FORGE: Force-Aware Multi-Granularity Control for Efficient Humanoid Loco-Manipulation

Liangjun Xing, Ke Fan, Kailin Li, Bin Wang, **Xiaojie Niu**, Qingwei Ben, jiafei cao, Wei Yao, Yebin Liu, Jingbo Wang, Weinan Zhang (In submission)

FORGE combines multi-granularity control and proprioceptive force estimation for stable humanoid locomotion and manipulation without full-body motion references.

Imagine2Real: Towards Zero-shot Humanoid-Object Interaction via Video Generative Priors

Jiahe Chen*, Ziseoi Wong*, Feiyu Jia, Xiao Chen, **Xiaojie Niu**, Weishuai Zeng, Tianfan XUE, Xiaowei Zhou, Jiangmiao Pang, Jingbo Wang (In submission)

Imagine2Real achieves zero-shot, geometry-free whole-body humanoid-object interaction via unified 4D point trajectories, sparse keypoint tracking, and BFM latent space.

Behavior Foundation Model for Humanoid Robots

Weishuai Zeng, Shunlin Lu, Kangning Yin, **Xiaojie Niu**, Minyue Dai, Jingbo Wang, Jiangmiao Pang (ICRA 2026)

By pretraining a behavioral foundation model, the system achieves generalizable multi-task performance and rapid transfer for humanoid robots.

PhysHSI: Towards a Real-World Generalizable and Natural Humanoid-Scene Interaction System

Huayi Wang*, Wentao Zhang*, Runyi Yu*, Tao Huang, Junli Ren, Feiyu Jia, Zirui Wang, **Xiaojie Niu**, Xiao Chen, Jiahe Chen, Qifeng Chen†, Jingbo Wang†, Jiangmiao Pang† (In submission)

Through an integrated pipeline of simulation training and real-world deployment, the system endows humanoid robots with natural, human-like, and general-purpose interaction capabilities.

JAEGER: Dual-Level Humanoid Whole-Body Controller

Ziluo Ding*, Haobin Jiang*, Yuxuan Wang*, Zhenguo Sun, Yu Zhang, **Xiaojie Niu**, Ming Yang, Weishuai Zeng, Xinrun Xu, Zongqing Lu† (In submission)

JAEGER is a dual-level humanoid whole-body controller separating upper/lower body, trained on AMASS via supervised-then-RL curriculum.

Design and Control of Bio-Inspired Joints for Legged Robots Driven by Shape Memory Alloy Wires

Xiaojie Niu, Xiang Yao, Erbao Dong† (Biomimetics)

A dual-diameter pulley design is used to expand the motion range of SMA-actuated joints, enabling high-precision reproduction and control of humanoid gait.

Design and Position Control of a Bionic Joint Actuated by Shape Memory Alloy Wires

Yida Zhu, Zhikun Jia, **Xiaojie Niu**, Erbao Dong† (Biomimetics)

A differential pulley mechanism is used to amplify SMA stroke, significantly improving the rotational range and control performance of the bionic joint.

PROJECT

Whole-body control system based on multi-view vision pose estimation

Project Leader

By using multi-view RGB cameras to improve human pose estimation quality, the system achieves high-precision, real-time, and robust whole-body control for humanoid robots.

Data Infra for Humanoid Robots

Project Leader

A general-purpose data infrastructure for humanoid robots that supports diverse data interfaces and hardware, adapts to various robot platforms and dexterous hands, and enables real-time, robust, and parallel operation.

SKILL

Python, C/C++, Matlab/Simulink, PyTorch, SolidWorks, Isaac Gym, MuJoCo, PyBullet, NLOpt, Ansys, Arduino/Stm32

RESEARCH INTERESTS

BFM, Teleoperation and Data Infra for Humanoid; Humanoid Loco-Manipulation; Real2Sim2Real