

Tao Huang

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Education

Shanghai AI Laboratory & Shanghai Jiao Tong University

PH.D. IN COMPUTER SCIENCE AND TECHNOLOGY

Shanghai, China

Sep. 2024 - Present

The Chinese University of Hong Kong

M.PHIL. IN COMPUTER SCIENCE AND ENGINEERING

Hong Kong SAR, China

Aug. 2022 - Jul. 2024

ShanghaiTech University

B.ENG. IN COMPUTER SCIENCE AND TECHNOLOGY

Shanghai, China

Sep. 2018 - July. 2022

• GPA: 3.82/4.0; Rank: 5/253

Research Interests

My current research is centered on **learning humanoid robot control**, with a specific focus on building adaptable, perceptive, and skillful humanoid systems in the real world.

Publications

CONFERENCE PROCEEDINGS

[C10] Learning Humanoid Standing-up Control across Diverse Postures

Tao Huang, Junli Ren, Huayi Wang, ZiRui Wang, Qingwei Ben, Muning Wen, Xiao Chen, Jianan Li, Jiangmiao Pang.

Robotics: Science and Systems (RSS), 2025. (Outstanding Systems Paper Award Finalist - Top 4) [Paper] [Website] [Video]

[C9] BeamDojo: Learning Agile Humanoid Locomotion on Sparse Footholds

Huayi Wang, ZiRui Wang, Junli Ren, Qingwei Ben, Tao Huang, Weinan Zhang, Jiangmiao Pang.

Robotics: Science and Systems (RSS), 2025. (Oral Presentation) [Paper] [Website] [Video]

[C8] Learning Humanoid Locomotion with Perceptive Internal Model

Junfeng Long*, Junli Ren*, Moji Shi*, Zirui Wang, Tao Huang, Ping Luo, and Pang Jiangmiao

International Conference on Robotics and Automation(ICRA), 2025. [Paper] [Website] [Video]

[C7] Robots Pre-train Robots: Manipulation-Centric Robotic Representation from Large-Scale Robot Dataset

Guangqi Jiang*, Yifei Sun*, Tao Huang*, Huanyu Li, Yongyuan Liang, and Huazhe Xu

International Conference on Learning Representations (ICLR), 2025. [Paper] [Website]

[C6] GLEAM: Learning Generalizable Exploration Policy for Active Mapping in Complex 3D Indoor Scenes

Xiao Chen, Tai Wang, Quanyi Li, TaoHuang, Jiangmiao Pang, and Tianfan Xue

International Conference on Computer Vision (ICCV), 2025. [Paper] [Website] [Video]

[C5] Diffusion Reward: Learning Rewards via Conditional Video Diffusion

Tao Huang*, Guangqi Jiang*, Yanjie Ze, and Huazhe Xu

European Conference on Computer Vision (ECCV), 2024. [Paper] [Website]

[C4] Physics-based Scene Layout Generation from Human Motion

Jianan Li, Tao Huang, Qingxu Zhu, and Tien-Tsin Wong

SIGGRAPH (SIGGRAPH), 2024. [Paper] [Website]

[C3] Value-Informed Skill Chaining for Policy Learning of Long-Horizon Tasks with Surgical Robot

Tao Huang, Kai Chen, Bin Li, Yun-Hui Liu, Qi Dou

International Conference on Intelligent Robots and Systems (IROS), 2023. (Oral Presentation) [Paper] [Website] [Video]

[C2] Demonstration-Guided Reinforcement Learning with Efficient Exploration for Task Automation of Surgical Robot

Tao Huang, Kai Chen, Bin Li, Yun-Hui Liu, Qi Dou

International Conference on Robotics and Automation(ICRA), 2023. [Paper] [Website] [Video]

[C1] Learning-Aided Stable Matching for Switch Controller Association in SDN Systems

Yinxu Tang, Tao Huang, Xi Huang, Ziyu Shao, and Yang Yang

International Conference on Communications (ICC), 2023. [Paper]

JOURNALS

[J1] Human-in-the-loop Embodied Intelligence with Interactive Simulation Environment for Surgical Robot Learning

Yonghao Long, Wang Wei, Tao Huang, Yuehao Wang, and Qi Dou

Robotics and Automation Letters, 2023. [\[Paper\]](#) [\[Website\]](#)

PREPRINTS

[P5] Towards Adaptable Humanoid Control via Adaptive Motion Tracking

Tao Huang, Huayi Wang, Junli Ren, Kangning Yin, Zirui Wang, Xiao Chen, Feiyu Jia, Wentao Zhang, Jungfeng Long, Jingbo Wang[†], Jiangmiao Pang[†]

Under Review, 2025.

[P4] Humanoid Goalkeeper: Learning from Position Conditioned Task-Motion Constraints

Junli Ren^{*}, Junfeng Long^{*}, Tao Huang, Huayi Wang, Zirui Wang, Feiyu Jia, Wentao Zhang, Jingbo Wang, Ping Luo, Jiangmiao Pang

Under Review, 2025.

[P3] 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[†]

Under Review, 2025.

[P2] VB-Com: Learning Vision-Blind Composite Humanoid Locomotion Against Deficient Perception

Junli Ren, Tao Huang, Huayi Wang, ZiRui Wang, Qingwei Ben, Jiangmiao Pang, Ping Luo.

Under Review, 2025. [\[Paper\]](#) [\[Website\]](#)

[P1] GRUtopia: Dream General Robots in a City at Scale

Hanqing Wang^{*}, Jiahe Chen^{*}, Wensi Huang^{*}, Qingwei Ben^{*}, Tai Wang^{*}, Boyu Mi^{*}, Tao Huang, Siheng Zhao, Yilun Chen, Sizhe Yang, Peizhou Cao, Wenye Yu, Zichao Ye, Jialun Li, Junfeng Long, ZiRui Wang, Huiling Wang, Ying Zhao, Zhongying Tu, Yu Qiao, Dahua Lin, and Jiangmiao Pang

Under Review, 2025. [\[Paper\]](#) [\[Website\]](#)

* denotes equal contribution.

Honors & Awards

RSS Best Systems Paper Finalist *Top-4* [\[Link\]](#)

2025

Outstanding Graduates Award, Shanghai

2022

Graduate Scholarship at CUHK

2022

First Class Scholarship at ShanghaiTech *Top 2%*

2019-2021

Second Prize in Chinese Undergraduate Mathematical Contest in Modeling

2020

Skills

Programming Python, LaTeX, PyTorch

Language TOFEL 109: R 30, L 28, S 23, W 28; CET-6 609