

Tairan He

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Education

Carnegie Mellon University

PH.D. IN ROBOTICS

Pittsburgh, USA

Aug. 2023 - Present

Shanghai Jiao Tong University

B.ENG. IN COMPUTER SCIENCE

Shanghai, China

Aug. 2018 - Jun. 2023

Publications (*equal contribution)

CONFERENCE PROCEEDINGS

[C14] OmniH2O: Universal and Dexterous Human-to-Humanoid Whole-Body Teleoperation and Learning.

Tairan He*, Zhengyi Luo*, Xialin He*, Wenli Xiao, Chong Zhang, Kris Kitani, Weinan Zhang, Changliu Liu, Guanya Shi.
CoRL, 2024 [Paper]

[C13] WoCoCo: Learning Whole-Body Humanoid Control with Sequential Contacts.

Chong Zhang*, Wenli Xiao*, Tairan He, Guanya Shi.
CoRL, 2024 [Paper]

[C12] Learning Human-to-Humanoid Real-Time Whole-Body Teleoperation.

Tairan He*, Zhengyi Luo*, Wenli Xiao, Chong Zhang, Kris Kitani, Changliu Liu, Guanya Shi.
IROS, 2024 (Oral Presentation) [Paper]

[C11] Progressive Adaptive Chance-Constrained Safeguards for Reinforcement Learning.

Zhaorun Chen, Binhao Chen, Tairan He, Liang Gong, Chengliang Liu.
IROS, 2024 (Oral Pitch) [Paper]

[C10] Agile But Safe: Learning Collision-Free High-Speed Legged Locomotion.

Tairan He*, Chong Zhang*, Wenli Xiao, Guanqi He, Changliu Liu, Guanya Shi.
RSS, 2024 (Outstanding Student Paper Award Finalist - Top 3) [Paper]

[C9] Safe Deep Policy Adaptation.

Wenli Xiao*, Tairan He*, John Dolan, Guanya Shi.
ICRA, 2024 [Paper]

[C8] State-wise Safe Reinforcement Learning: A Survey.

Weiye Zhao, Tairan He, Rui Chen, Tianhao Wei, Changliu Liu.
IJCAI (Survey Track), 2023. [Paper]

[C7] Probabilistic Safeguard for Reinforcement Learning Using Safety Index Guided Gaussian Process Models.

Weiye Zhao*, Tairan He*, Changliu Liu.
L4DC, 2023. [Paper]

[C6] Visual Imitation Learning with Patch Rewards.

Minghuan Liu, Tairan He, Weinan Zhang, Shuicheng Yan, Zhongwen Xu.
ICLR, 2023. [Paper]

[C5] Safety Index Synthesis via Sum-of-Squares Programming.

Weiye Zhao*, Tairan He*, Tianhao Wei, Simin Liu, Changliu Liu.
ACC, 2023. [Paper]

[C4] AutoCost: Evolving Intrinsic Cost for Zero-violation Reinforcement Learning.

Tairan He, Weiye Zhao, Changliu Liu.
AAAI, 2023. [Paper]

[C3] Reinforcement Learning with Automated Auxiliary Loss Search.

Tairan He, Yuge Zhang, Kan Ren, Minghuan Liu, Che Wang, Weinan Zhang, Yuqing Yang, Dongsheng Li.
NeurIPS, 2022. [Paper]

[C2] Model-free Safe Control for Zero-Violation Reinforcement Learning.

Weiye Zhao, Tairan He, Changliu Liu.
CoRL, 2021. [Paper]

[C1] Energy-Based Imitation Learning.

Minghuan Liu, Tairan He, Minkai Xu, Weinan Zhang.
AAMAS, 2021 (Oral) [Paper]

Professional Services

Reviewer **International Conference on Machine Learning (ICML)**, 2024
Reviewer **International Conference on Learning Representations (ICLR)**, 2024
Reviewer **IEEE Conference on Decision and Control (CDC)**, 2023
Reviewer **Conference on Neural Information Processing Systems (NeurIPS)**, 2023
Reviewer **Learning for Dynamics & Control Conference (L4DC)**, 2023, 2024
Reviewer **AAAI Conference on Artificial Intelligence (AAAI)**, 2022, 2023, 2024
Reviewer **Conference on Robot Learning (CoRL)**, 2022, 2023, 2024
Reviewer **IEEE-RAS International Conference on Humanoid Robots (Humanoids)**, 2024

Skills

Programming C/C++, Python, \LaTeX , JAVA, Node.js, Wolfram Language, SQL, Linux, MATLAB, PHP
Frameworks PyTorch, Tensorflow, NumPy, Flask, MySQL, Git, Anaconda, OpenCV.
Platforms Kinova, Rosbot, Unitree Go1

Research Experience

NVIDIA Research

Santa Clara, USA

RESEARCH INTERN AT **GEAR LAB**, ADVISED BY **JIM FAN** AND **YUKE ZHU**

Jun. 2024 - Present

- **Research Topics:** humanoid whole-body control, dexterous bimanual manipulation.

Carnegie Mellon University

Pittsburgh, USA

PHD STUDENT, ADVISED BY **PROF. GUANYA SHI** AND **PROF. CHANGLIU LIU**

Aug. 2023 - Present

- **Research Topics:** reinforcement learning, humanoid teleoperation, agile legged robots.

Carnegie Mellon University

Pittsburgh, USA

RESEARCH ASSISTANT AT **INTELLIGENT CONTROL LAB**, ADVISED BY **PROF. CHANGLIU LIU**

Jan. 2022 - Jan. 2023

- **Research Topics:** safe reinforcement learning, safe control, control theory.

Microsoft Research

Shanghai, China

RESEARCH INTERN, ADVISED BY **KAN REN** AND **YUGE ZHANG**

Mar. 2021 - Dec. 2021

- **Research Topics:** auto ML, reinforcement learning.

Shanghai Jiao Tong University

Shanghai, China

RESEARCH ASSISTANT AT **APEX LAB**, ADVISED BY **PROF. WEINAN ZHANG**

Jul. 2019 - Jan. 2023

- **Research Topics:** reinforcement learning, imitation learning.

Project Portfolio (Selected)

SJTU Anonymous Forum

Shanghai, China

FOUNDER & DEVELOPER. [\[ANDROID CODE\]](#) / [\[IOS CODE\]](#) / [\[FAREWELL VIDEO\]](#)

Feb. 2020 - Apr. 2021

- Developed a care-free forum platform for SJTU students to share and talk using anonymous identities.
- More than **10000+** users used this app in the SJTU campus.

Honors and Awards (Selected)

- 2024 **Outstanding Student Paper Award Finalist - Top 3**, Robotics: Science and Systems.
- 2021 **Microsoft Star of Tomorrow**, top-performing interns at Microsoft.
- 2020 **Shanghai Jiao Tong University Excellent Scholarship**, top 10% students in SJTU.
- 2019 **Zhiyuan Honorary Scholarship**, top 5% students in SJTU.