

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)

PREPRINTS

[P3] Learning Human-to-Humanoid Real-Time Whole-Body Teleoperation.

Tairan He*, Zhengyi Luo*, Wenli Xiao, Chong Zhang, Kris Kitani, Changliu Liu, Guanya Shi.

Under review, 2024 [Paper]

[P2] Agile But Safe: Learning Collision-Free High-Speed Legged Locomotion.

Tairan He*, Chong Zhang*, Wenli Xiao, Guanqi He, Changliu Liu, Guanya Shi.

Under review, 2024 [Paper]

[P1] Progressive Adaptive Chance-Constrained Safeguards for Reinforcement Learning.

Zhaorun Chen, Binhao Chen, Tairan He, Liang Gong, Chengliang Liu.

Under review, 2024 [Paper]

CONFERENCE PROCEEDINGS

[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 (Oral), 2021. [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 **International Joint Conferences on Artificial Intelligence (IJCAI)**, 2024
Reviewer **AAAI Conference on Artificial Intelligence (AAAI)**, 2022, 2023
Reviewer **Conference on Robot Learning (CoRL)**, 2022, 2023

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

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)

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.