Junli Ren 任峻立

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Education

The University of Hong Kong, Ph.D. student in Data Science, HKU MMLab — *2024.09 – 2027 (expected)*
Advisor: Prof. Ping Luo · Co-advisor: Prof. Yanchao Yang

Tsinghua University, M.Eng., Department of Electronic Engineering — *2021.09 – 2024.06*
Advisor: Prof. Guijin Wang

Tsinghua University, B.Eng., Department of Automation — *2017.09 – 2021.06*

Experience

UC Berkeley, Mechanical Systems Control Lab, Visiting Scholar — *2026.07 – 2027.02 (expected)*
Host: Prof. Masayoshi Tomizuka

Shanghai AI Laboratory, Research Intern, Humanoid Research Team — *2024.02 – 2025*
With Dr. Jiangmiao Pang and Dr. Jingbo Wang

Tsinghua University, Institute for AI Industry Research (AIR), Research Intern — *2023.05 – 2023.10*

ByteDance, AI Lab Robotics Research, Research Intern — *2022.10 – 2023.05*

Publications

* equal contribution · † project lead

- **Ren J**†,*, Li Y†,*, Zhang K*, Fu P*, et al. SMASH: Mastering Scalable Whole-Body Skills for Humanoid Ping-Pong with Egocentric Vision. **IEEE Transactions on Robotics (T-RO)**, 2026.
- **Ren J**, Huang T, Wang H, et al. VB-Com: Learning Vision-Blind Composite Humanoid Locomotion Against Deficient Perception. **ICRA**, 2026.
- **Ren J***, Long J*, Huang T, et al. Humanoid Goalkeeper: Learning from Position Conditioned Task-Motion Constraints. **arXiv**, 2025 (under review).
- **Ren J***, Liu Y*, Dai Y, et al. TOP-Nav: Legged Navigation Integrating Terrain, Obstacle and Proprioception Estimation. **CoRL**, 2024.
- **Ren J**, Dai Y, Liu B, et al. Hierarchical Vision Navigation System for Quadruped Robots with Foothold Adaptation Learning. **Sensors**, 2023, 23(11): 5194.
- Long J*, **Ren J***, Shi M*, et al. Learning Humanoid Locomotion with Perceptive Internal Model. **ICRA**, 2025.
- Huang T, **Ren J**, Wang H, et al. Learning Humanoid Standing-up Control across Diverse Postures. **RSS**, 2025.
- Wang H, Wang Z, **Ren J**, et al. BeamDojo: Learning Agile Humanoid Locomotion on Sparse Footholds. **RSS**, 2025.
- Huang T, Liu R, Tang X, Zhang X, **Ren J**, et al. Towards Professional Tennis Styles for Humanoid Robots with Adaptive Motion Planning and Tracking. **CoRL**, 2026.
- Chen Y, Srikanth H, Jew N, Wu M, Wang P, **Ren J**, et al. CLIFT: Turning Gemini Robotics On-Device into Humanoid Specialists via Non-Invasive Closed-Loop Iterative Fine-Tuning. **CoRL**, 2026.
- Li A*, Chen Y*, Li Z*, Cao Z*, **Ren J**, et al. TANGO: Humanoid Navigation in Cluttered Environments with a Whole-Body Vision-Language-Action Model. **CoRL**, 2026.
- Huang T, Wang H, **Ren J**, et al. AdaMimic: Towards Adaptable Humanoid Control via Adaptive Motion Tracking. **ICRA**, 2026 (oral).
- Wang H*, Zhang W*, Yu R*, Huang T, **Ren J**, et al. PhysHSI: Towards a Real-World Generalizable and Natural Humanoid-Scene Interaction System. **arXiv**, 2025 (under review).
- Li Y, Guan X, Han X, **Ren J**, et al. Design and Preliminary Validation of a Lower Limb Exoskeleton with Compact and Modular Actuation. **IEEE Access**, 2020, 8: 66338–66352.
- **Ren J**, et al. A Lower Limb Exoskeleton Device and Control Method Driven by a Hybrid of Functional Electrical Stimulation and Electric Motors. **China Patent**, 2020.

Research Interests

whole-body control · reinforcement learning · human-object interaction

- **Locomotion** — robust and agile mobility across challenging terrain (VB-Com, BeamDojo, HoST, PIM).
- **Humanoid for sports** — fast, expressive interaction that couples perception with whole-body control (SMASH, AdaPT, Humanoid Goalkeeper, AdaMimic).
- **Toward general whole-body intelligence** — adaptable skills for scene interaction, contact-rich manipulation and language-conditioned whole-body control (CLIFT, PhysHSI, TANGO).