YANDONG JI

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EDUCATION

University of California at San Diego, USA	Sep 2023 - present
· PhD in Electrical and Computer Engineering	
University of California at Berkeley, USA	Aug 2021 - May 2022
· MEng in Mechanical Engineering	
Nankai University, China	Aug 2017 - June 2021
\cdot BEng in Intelligent Science and Technology	
University of California at Berkeley, USA	Jan 2020 - Aug 2020
· Exchange Student	
WORK EXPERIENCE	
UC San Diego, USA	Jul 2024 - present
\cdot Graduate Student Researcher	
Massachusetts Institute of Technology, USA	Jun 2022 - Jun 2023
· Technical Associate	
RESEARCH EXPERIENCE	

Expressive Whole-Body Control for Humanoid Robots

Wang Lab, University of California, San Diego

 \cdot Trained a whole-body control policy on a human-sized robot to mimic human motions as realistic as possible.

• Proposed and implemented a method for encouraging the upper humanoid body to imitate a reference motion, while relaxing the imitation constraint on its two legs and only requiring them to follow a given velocity robustly.

Reinforcement Learning for Soccer Dribbling Skills using Quadrupedal Robots Jun 2022 - Jun 2023 Improbable AI Laboratory, Massachusetts Institute of Technology

- Trained a policy in IsaacGym with domain randomization such as ball position detection delay, ball radius difference and terrain friction to control the robot to dribble a soccer ball on both flat ground and grass land following a parameterized velocity command.
- \cdot Deployed a color based segmentation method to detect a soccer ball leveraging onboard cameras.

- · Developed a bipedal robot control method in MuJoCo using imitation learning to balance with one foot and track an arbitrary foot trajectory in simulation.
- \cdot Developed a hierarchical quadrupedal robotic soccer shooting framework that consists of a low-level controller to track an arbitrary foot curves and a high-level planner to output the desired curve parameters.
- $\cdot\,$ Fine-tuned the high-level planner in the real world to improve the shooting performance.

Collaborative Quadrupedal Manipulation of a Payload

March 2020 - March 2021

Aug 2023 - Mar 2024

Hybrid Robotics Laboratory, University of California at Berkeley

- $\cdot\,$ Trained a policy to control 4 quadruped al robots to collaboratively manipulate a payload to travel straightly and in a desired curve using PPO in Raisim.
- Compared the performance of centralized and decentralized RL control architectures to manipulate a payload following random command velocities over challenging terrain.

Reinforcement Learning for Soccer Shooting Skills using Legged RobotsAug 2021 - May 2022Hybrid Robotics Laboratory, University of California at BerkeleyAug 2021 - May 2022

Research on metabolic costs & Human ankle detection

Human-Computer Interaction and Gait Simulation Lab, NKU

- \cdot Led and conducted an experiment to investigate the relationship between the metabolic cost and speed, ramp angle and payload weight on human subjects.
- \cdot Participated in measuring electromyography-based metrics of five lower leg muscles to systematically evaluate the exoskeleton assistance performance.
- Helped detect the position of the human ankle and knee before and after surgery by applying Huff transformation and median filtering on human lower limb images using MATLAB.

PUBLICATIONS

Xuxin Cheng^{*}, **Yandong Ji**^{*}, Junmin Chen, Ruihan Yang, Ge Yang, Xiaolong Wang. Expressive Whole-Body Control for Humanoid Robots. RSS 2024

Tiffany Portela, Gabriel Margolis, **Yandong Ji**, Pulkit Agrawal. Learning Force Control for Legged Manipulation. ICRA 2024

Gabriel Margolis, Xiang Fu, **Yandong Ji**, Pulkit Agrawal. Learning to See Physical Properties with Active Sensing Motor Policies. CoRL 2023

Yandong Ji^{*}, Gabriel Margolis^{*}, Pulkit Agrawal. Reinforcement Learning for Quadrupedal Dribbling in the Wild. ICRA 2023, CoRL workshop 2022

Yandong Ji^{*}, Zhongyu Li^{*}, Yinan Sun, Xue Bin Peng, Sergey Levine, Glen Berseth, Koushil Sreenath. Hierarchical Reinforcement Learning for Precise Soccer Shooting Skills using a Quadrupedal Robot. IROS 2022, Best RoboCup Paper Award Finalist.

Yandong Ji, Bike Zhang, Koushil Sreenath. Reinforcement learning for collaborative quadrupedal manipulation of a payload over challenging terrain. IEEE CASE 2021.

Wei Wang, Jianyu Chen, **Yandong Ji**, Wei Jin, Jingtai Liu, Juanjuan Zhang. Evaluation of lower leg muscle activities of human walking assisted by an ankle exoskeleton. *IEEE Transactions on Industrial Informatics* 2020

ACADEMIC SERVICE

Reviewer of EMNLP 2024, CoRL 2024, ICRA 2024, RA-L 2023, 2024, Soft Robotics 2023, IROS 2022, 2023

SOCIAL SERVICE

Minister of Art Department

June 2018 - June 2019

College of Artificial Intelligence

 \cdot Organized 2018-2019 college New Year Gala and a riddle guessing game on Lantern Festival.