Ci Chen

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Education

Zhejiang University, Hangzhou, China 3/2021-Present
Ph.D. Control Science and Engineering Supervisor: Prof. Yue Wang, Prof. Haojian Lu, Prof. Rong Xiong.

Zhejiang University, Hangzhou, China 9/2018-3/2021
M.S. Agricultural Mechanization and Automation Supervisor: Prof. Huanyu Jiang

Northeast Agricultural University, Harbin, China 9/2014-6/2018
B.S. Agricultural Mechanization and Automation Supervisor: Prof. Longzhe Quan

- Rank 1/90; GPA 4.1/4.5

Interests

- Reinforcement Learning, Legged Robots, Computer Vision

Publications & Patents

Publications:

[1] **Ci Chen**, Pingyu Xiang, Jingyu Zhang, Rong Xiong, Yue Wang*, Haojian Lu*. Deep Reinforcement Learning based Co-optimization of Morphology and Gait for Small-scale Legged Robot. *IEEE/ASME Transactions on Mechatronics* **(Accepted, Q1, Top, IF:6.2)**

[2] **Ci Chen**, Chao Li, Haojian Lu, Yue Wang*, Rong Xiong. Meta Reinforcement Learning of Locomotion Policy for Quadruped Robots with Motor Stuck. *IEEE Transactions on Automation Science and Engineering* **(Accepted, Q2, Top, IF:6)**

[3] **Ci Chen**, Pingyu Xiang, Haojian Lu, Yue Wang*, Rong Xiong. C^2: Co-design of Robots via Concurrent-Network Coupling Online and Offline Reinforcement Learning. *In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 7487-7494, 2023. ***Best Robot Mechanisms and Design Finalists***

[4] **Ci Chen**, Yuanfang Wan, Baowei Li, Chen Wang*, Guangming Xie, Huanyu Jiang. Motion Planning for Heterogeneous Unmanned Systems under Partial Observation from UAV. *In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 1474-1479, 2020.

[5] **Ci Chen**, Chao Li, Rong Xiong, Hongbo Gao*, Yue Wang*. A Residual Meta-Reinforcement Learning Method for Training Fault-Tolerant Policies for Quadruped Robots. *In IEEE International Conference on Unmanned Systems (ICUS)*, pp. 919-924, 2023. ***Best Paper Award***

[6] **Ci Chen**, Dongqi Wang, Jiyu Yu, Pingyu Xiang, Haojian Lu*, Yue Wang*, Rong Xiong. Fast Adaptation Dynamics Model for Robot's Damage Recovery. *In IEEE International Conference on Real-time Computing and Robotics (RCAR)*, pp. 45-50, 2022. ***Best Paper in Robotics Finalist***

[7] **Ci Chen**, Jiyu Yu, Chao Li, Haojian Lu, Hongbo Gao, Rong Xiong, Yue Wang*. Pretraining-finetuning Framework for Efficient Co-design: A Case Study on Robot Parkour. (in preparation)

[8] Longzhe Quan, **Ci Chen**, Yajun Li, Yajing Qiao, Dejun Xi, Tianyu Zhang, Wenfeng Sun*. Design and Test of Stem Diameter Inspection Spherical Robot. *International Journal of Agricultural and Biological Engineering,* vol.12, no.2, pp. 141-151, 2019. **(Q2, IF:2.4)**

[9] Kechun Xu, Runjian Chen, Shuqi Zhao, Zizhang Li, Hongxiang Yu, **Ci Chen**, Yue Wang*, Rong Xiong. Failure-aware Policy Learning for Self-assessable Robotics Tasks. *In IEEE International Conference on Robotics and Automation (ICRA)*, pp. 9544-9550, 2022.

[10] Jiyu Yu, Dongqi Wang, Zhenghan Chen, **Ci Chen**, Shuangpeng Wu, Yue Wang*, Rong Xiong. A Real-time Motion and Foothold Planning Framework for Legged Robot on Discrete Terrain. *In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024. (Accepted)

Patents:

[1] Authorized invention patent CN202210441986.0, “A self-adaptive control method for object tracking of a quadruped robot under motor stuck conditions”, Yue Wang, **Ci Chen**, Pingyu Xiang, et al.

[2] Authorized invention patent CN201610383579.3, “A crop stem inspection spherical robot with jumping and obstacle avoidance functions”, Longzhe Quan, **Ci Chen**, Tianyu Zhang, Yajing Qiao.

[3] Authorized invention patent CN202111004512.1, “A detachable quadruped robot and control method based on central pattern generator”, Yue Wang, Pingyu Xiang, **Ci Chen**, Haojian Lu, Rong Xiong.

[4] Authorized invention patent CN202111004511.7, “An assembly-type multi-legged robot with adaptable foot trajectory and its control method”, Pingyu Xiang, Yue Wang, **Ci Chen**, Haojian Lu, Rong Xiong.

Experiences

Intelligent Biomimetic Design Lab, Peking University Supervisor: Prof. Guangming Xie

Graduate Student Researcher 02/2019-02/2020

- Path planning of heterogeneous robotic system, Generative adversarial network

Zongmu Technology

Research Intern 06/2020-10/2020

- Attention in object detection.

Professional Services

Reviewer of IROS (2021-2024), IEEE Transactions on Automation Science and Engineering (2023-2024),
Reviewer of Cyborg and Bionic Systems (2022)

Honors

Scholarships:

- National Scholarship 11/2016
- The “Sanhao” Student Award in Heilongjiang Province 05/2016
- The Annual Outstanding Student of NEAU (<0.01%) 12/2016
- The May Fourth Youth Medal of NEAU (<0.01%) 05/2017

Awards:

- Best Robot Mechanisms and Design sponsored by ROBOTIS Finalist at *2023 IEEE/RSJ International Conference On Intelligent Robots and Systems (IROS 2023)* 10/2023
- *2023 IEEE International Conference on Unmanned Systems* Best Paper Award 10/2023
- *2022 IEEE International Conference on Real-time Computing and Robotics* Best Paper in Robotics Finalist 07/2022
- Second Prize in the Entrepreneurship Competition of the 15th National College Student Robot Competition (Ranked First) 07/2016
- First Prize in the Heilongjiang Competition Area of the National College Student Mathematical Modeling Competition 12/2016
- First Prize in the 8th National College Student Mathematics Competition (Non-Mathematical Discipline) in Heilongjiang Province 12/2015
- Third Prize in the "Internet Plus" College Students Innovation and Entrepreneurship Competition in Heilongjiang Province (Ranked First) 09/2016

Skills

- Python, C++, Bash
- PyTorch, TensorFlow, TensorRT, LibTorch, Git, ROS, IsaacGym Mujoco, PyBullet