WENTSE CHEN

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My research interests lie in deep reinforcement learning, multi-agent reinforcement learning,
and robotics, with the goal of robots being able to collaborate, explore and learn like human beings.

EDUCATION

Master of Robotics, Carnegie Mellon University	2023.08 – now
Department of Automation, Tsinghua University, Beijing, China	2019.08 – 2023.06

PUBLICATIONS & MANUSCRIPTS

- Huang Shiyu*, **Chen Wentse***, Zhang Longfei, Li Ziyang, Zhu Fengming, Ye Deheng, Chen Ting, and Zhu Jun. TiKick: Towards Playing Multi-agent Football Full Games from Single-agent Demonstrations. *Offline Reinforcement Learning Workshop at Neural Information Processing Systems*, (2021). Paper
- **Chen Wentse**, Huang Shiyu, Chiang Yuan, Chen Ting, and Zhu Jun. DGPO: Discovering Multiple Strategies with Diversity-Guided Policy Optimization. *The 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS) Extended Abstract*. (2022) Paper
- Lin Fanqi*, Huang Shiyu*, Pearce Tim, **Chen Wentse** and Tu Wei-Wei. TiZero: Mastering Multi-Agent Football with Curriculum Learning and Self-Play. *The 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*. (2022) Paper

SELECTED AWARDS & HONORS

- Tsinghua Overall Excellence student Scholarship (Dean's list Scholarship) (top 2%)	2020, 2021, 2022
- Tsinghua Excellent Taiwan Student Scholarship (top 2%)	2020, 2021, 2022
- Tsinghua Spark Program Membership (Top student program in academic research, top 1%)	2021

RESEARCH EXPERIENCE

OpenRL: an open-source reinforcement learning research framework

Intern, 4Paradigm   2023.03–2023.06

- Supports both single-agent and multi-agent algorithms.
- Supports reinforcement learning training for natural language tasks (RLHF).
- Supports various training accelerations, such as mixed precision training.

Collaborative navigation of Quadrupedal Robots via Multi-agent Reinforcement Learning

Visiting Student Researcher, Advisor: Prof. Koushil Sreenath(University of California, Berkeley) 2022.06–now

- Proposed a decentralized, hierarchical learning-based agent to manipulate multiple quadruped robots to navigate a cable-towed load through cluttered spaces.
- Developed a hierarchical, MARL-based framework. It can be scaled to collaborative tasks with more robots and has higher inference efficiency compared to previous work.

DGPO: Discovering Multiple Strategies with Diversity-Guided Policy Optimization

Research Assistant, Advisor: Prof. Jun Zhu(Tsinghua University)   2022.01–2022.05

- Proposed Diversity-Guided Policy Optimization, an on-policy framework for discovering multiple strategies for the same task in a single training process.
- Introduced intrinsic reward based on the diversity objective to guide the policy to explore and formalized two constrained optimization problems to efficiently discover a set of optimal strategies.
- Empirically showed that our method achieved competitive performance and had better diversity or sample complexity than other baselines on various benchmarks.
- Accepted by The 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS) as an extended abstract.

TiKick: Toward Playing Multi-agent Football Full Games from Single-agent Demonstrations

Research Assistant, Advisor: Prof. Jun Zhu(Tsinghua University) 2021.05–2021.12

- Developed a distributed learning system and new offline algorithms to learn a powerful multi-agent AI from the fixed single-agent dataset.
- Built the first learning-based AI system that can take over the multi-agent Google Research Football full game and achieved state-of-the-art performances on various academic scenarios.
- Accepted by Offline Reinforcement Learning Workshop at Neural Information Processing Systems, 2021. Submitted our result to TNNLS.