

# WENTSE CHEN

✉ chenwenze21@gmail.com · ☎ (+86) 188-0133-7393 · in Github

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

## EDUCATION

Department of Automation, Tsinghua University, Beijing, China

2019.08 – Present

GPA: 3.83/4.0, Rank: 27/154

## PUBLICATIONS & MANUSCRIPTS

- **Chen Wentse\***, Huang Shiyu\*, 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). arXiv
- **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)*. Under review. (2022) arXiv
- 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)*. Under review. (2022)

## 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

### 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 controller 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.
- Simplified and simulated the hybrid interaction between robots as well as cable-towed load in MuJoCo. Constructed a parallel RL framework to maximize the throughput of sampling environments.

### 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.
- Rejected by Neurips 2022(Got 6,6,5 points). Resubmitted to AAMAS 2023.

## **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.

## **SKILLS LIST**

---

- Programming Languages: Python, C/C++, MATLAB, Assembly, Verilog
- Tools and Frameworks: Git, LaTeX, PyTorch, Qt, Linux, Bash, STM32