Yuming Chen

Email: yxc487@bham.ac.uk **Tel:** +44 (0)7827167851

EDUCATION BACKGROUND

University of Birmingham, Birmingham, U.K. ***Sept. 2023 - Jun. 2024***
Project: MSc. Artificial Intelligence & Machine Learning **School:** School of Engineering and Physical Sciences

University of Chinese Academy of Social Sciences, Beijing, China ***Sept. 2017 - Jun. 2022***
Major: Economics **School:** School of Economics **Overall GPA:** 3.59 /4.0
Thesis: Research on Approximability of Equilibria in Pure Exchange Economy with Atomic Traders

RESEARCH EXPERIENCES

Research Internship ***Mar. 2022 - Jul.2023***
Deep Reinforcement Learning Research Group, the State Key Laboratory for Management and Control of Complex Systems, Institute of Automation, Chinese Academy of Sciences.

- Designed a module to represent opponent's policy in Multi-Agent System (MAS) via contrastive learning. Agent with such module reached equilibria with higher social welfare in social dilemmas, and outperformed M-FOS (Chris Lu et al., ICML'22) and LOLA (J. Foerster et al., AAMAS'18). It is accepted by 2023 International Conference on Neural Information Processing (ICONIP2023).
- Assisted to design an algorithm for decentralized rescue drones to collaborate with each other. Such drones were totally controlled via Reinforcement Learning. I used reward shaping to avoid shifting from the original high-level goal, and reward randomization to learn diversified policies.

Research Interests

- **Multi-Agent Reinforcement Learning:**
  - Ad-hoc collaboration in mixed tasks
  - Human-AI collaboration
  - Few-shot adaptation to diversified partners
- **Game Theory:**
  - Decomposing games into zero-sum games and potential games
  - Analyzing recursive reasoning from the perspective of Theory of Mind

Publications

Yuming C., Yuanheng, Z. *"Policy Representation Opponent Shaping via Contrastive Learning"*
Accepted by the International Conference on Neural Information Processing (ICONIP2023), to appear.

Dapei Z., Ying K., Yuming C. *"Research on Duopoly Non-cooperative Game Model under the Conditions of Supply Surplus"*
Published in Contemporary Economic Research (indexed by CSSCI) in Jul. 2021 [Link (in Chinese)]