Yuming Chen

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EDUCATION BACKGROUND

University of Birmingham, Birmingham, U.K. ***Sept. 2023 - Jun. 2024***

Project: MSc. AI & ML **School:** School of Engineering and Physical Sciences

Dissertation: Multi-Hypothesis 3D Hand Mesh Sequence Estimation from Blurry Image

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. Agents with such a module reached the equilibria with higher social welfare in social dilemmas, such as Iterated Prisoner's Dilemma (IPD). 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 Internship ***Feb. 2024 - Nov.2024***

Intelligent Robotics Lab, the University of Birmingham

- Developed a generative 3D hand pose estimation model from a blurry image. To address the multi-hypothesis issue, the model generates multiple plausible candidates and selects the best via a trained reward model. It has been submitted to WACV2025.

Research Interests

- **Reinforcement Learning:**
  - Human-AI collaboration
  - Imitation Learning
  - Preference Learning
- **Multi-Agent System & Game Theory:**
  - Opponent Modelling & Reasoning
  - Game Dynamics Analysis

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)]