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 **Overall GPA:** 73.6 /100 (Distinct)

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: 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 an algorithm learning to represent opponent's policy in Multi-Agent System (MAS) via contrastive learning. Decentralized agents with such a module reached the equilibria with higher social welfare in social dilemmas, such as Iterated Prisoner's Dilemma (IPD). It was accepted by the 2023 International Conference on Neural Information Processing (ICONIP2023).
- Designed an algorithm for UAV controlling and algorithm for PSRO-based training pipeline. The lower policy of the controlling algorithm controlled the pose of UAVs, and the higher policy controlled the trajectory. Reward shaping and reward randomization were introduced to the training pipeline 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 generated multiple plausible candidates and selected the best via a trained reward model. It was submitted to ICME2025.

Research Interests

- **Human Pose Estimation:**
  - 3D Motion prediction
  - Unsupervised /Self-supervised learning
- **Reinforcement Learning:**
  - Human-AI collaboration
  - Preference learning (including RLHF)

Publications

"Multi-Hypothesis 3D Hand Mesh Recovering from a Single Blurry Image"
Submitted to the International Conference on Multimedia & Expo (ICME2025).

"Policy Representation Opponent Shaping via Contrastive Learning"
Accepted by the International Conference on Neural Information Processing (ICONIP2023).

"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)]