

# 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 is accepted by 2023 International Conference on Neural Information Processing (ICONIP2023).
- ❖ Design an algorithm for UAV controlling. The UAV was totally controlled with hierarchical Reinforcement Learning Policy. I used reward shaping to address the reward hacking problem, 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 is aimed at ICCV2025.

## 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).

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 \(in Chinese\)](#)]