Minglu Zhao

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ACADEMIC BACKGROUND

University of California, Los Angeles (UCLA)

Ph.D. Candidate in Statistics	Sep 2021 - 2026 (Expected)
M.S. in Statistics	Sep 2021 - Jun 2023

GPA: 4.0 / 4.0; Co-advised by Prof. Ying Nian Wu and Prof. Tao Gao

B.S. Statistics, B.S. Cognitive Science, minor in Mathematics Sep 2017 - Dec 2020
GPA: 3.9 / 4.0; *Magna Cum Laude*

RESEARCH INTERESTS

Decision making, Generative models, Representation learning, Multi-agent systems

SELECTED PUBLICATIONS

(* denotes equal contributions)

Deqian Kong*, **Minglu Zhao***, Dehong Xu*, Jianwen Xie, Sirui Xie, Ying Nian Wu. "Variational Bayes Language Modeling with Latent Abstract Tokens and Fast-Slow Learning." *Under Review.*

Minglu Zhao, Dehong Xu, Wenhao Zhang, Ying Nian Wu, "A minimalistic representation model for head direction system." *NeurIPS 2024 Workshop on Symmetry and Geometry in Neural Representations*

Deqian Kong*, Dehong Xu*, **Minglu Zhao***, Bo Pang, Jianwen Xie, Andrew Lizarraga, Yuhao Huang, Sirui Xie, Ying Nian Wu. "Latent Plan Transformer: Planning as Latent Variable Inference." *Conference on Neural Information Processing Systems (NeurIPS)*, 2024.

Long Qian*, Li Ruoyan*, **Minglu Zhao***, Tao Gao, Demetri Terzopoulos. "Inverse Attention Agent in Multi-Agent System." *NeurIPS 2024 Workshop on Open-World Agents*

Shaozhe Cheng, **Minglu Zhao**, Ning Tang, Yang Zhao, Jifan Zhou, Mowei Shen, and Tao Gao. "Intention beyond desire: Spontaneous intentional commitment regulates conflicting desires." *Cognition 238 (2023): 105513.*

Minglu Zhao, Ning Tang, Annya L. Dahmani, Yixin Zhu, Federico Rossano, and Tao Gao. "Sharing rewards undermines coordinated hunting." *Journal of Computational Biology 29, no. 9 (2022): 1022-1030.*

Ning Tang, Siyi Gong, **Minglu Zhao**, Chenya Gu, Jifan Zhou, Mowei Shen, and Tao Gao. "Exploring an imagined "we" in human collective hunting: Joint commitment within shared intentionality." *Annual Conference of the Cognitive Science Society (CogSci)*, 2022.

Stephanie Stacy, Chenfei Li, **Minglu Zhao**, Yiling Yun, Qingyi Zhao, Max Kleiman-Weiner, and Tao Gao. "Modeling communication to coordinate perspectives in cooperation." *Annual Conference of the Cognitive Science Society (CogSci)*, 2021.

RESEARCH EXPERIENCE	**GE Research**	Jun 2023 - Sep 2023

Research fellow intern, Advisor: Dr. Peter Tu

- Propose a novel framework for understanding street surveillance videos using unsupervised feature extraction methods and vision-language models.

- Propose an ad-hoc cooperation modeling method using symbolic regression and multi-agent reinforcement learning.

UCLA, Department of Statistics — Sep 2021 - present

Research assistant, Advisors: Prof. Ying Nian Wu and Prof. Tao Gao

Imagined We: A Bayesian cooperation modeling framework

- We propose a Bayesian Theory-of-mind bootstrapping method for modeling cooperation, which bridges centralized and decentralized frameworks in multi-agent systems through the perspective of a "We" mind, demonstrating superior performance over current approaches and better simulates human behavior.

Benchmarking Multi-agent RL algorithms on challenging cooperation scenarios

- We modified the multi-agent particles environment to a set of challenging cooperation scenarios identified in cognitive science studies. We demonstrated that MARL coordination suffers from free-rider effects as well as a lack of commitment when multiple incentives are available.

SKILLS

Programming Skills: Python, R, PyTorch, TensorFlow, HuggingFace, Latex

PROFESSIONAL SERVICES

Peer-reviewed Journals and Conferences

Transactions on Machine Learning Research (TMLR)
International Conference on Learning Representations (ICLR)
Conference on Neural Information Processing Systems (NeurIPS)
International Conference on Artificial Intelligence and Statistics (AISTATS)
Annual Conference of the Cognitive Science Society (CogSci)