Mengyue Yang (She/Her)

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I am Lecturer in AI at University of Bristol, with a particular emphasis on causality, agent decision-making and reinforcement learning from the theory to applications in AI. I recently presented the tutorial "Causality for Decision Making", "Causality and Large Models" and talk "Causality and AI Agent" to help researchers and students understand causal learning and how it improves the trustworthiness in agent decision-making.

Professional Experience

University of Bristol ***Oct 2024 – Present***
School of Engineering Mathematics and Technology, Intelligent System Lab
Lecturer in AI
Research interests: Causality, agent decision-making. Specialise in reinforcement learning dynamic world model construction, and game theory.

Education

University College London ***Sep 2020 – Sep 2024***
PhD student
Major: Computer Science
Supervisor: Prof. Jun Wang
Research Interests: Causal Representation Learning, Reinforcement Learning

University of Chinese Academy of Sciences ***Sep 2017 – Jul 2020***
MSc in Computer Application Technology
Research Interests: Causal Inference, Reinforcement Learning

Beijing Jiaotong University ***Sep 2012 – Jul 2016***
B.Eng. in Software Engineering

Selected Publications (Full list please check Google Scholar)

Mengyue Yang, Zhen Fang, Yonggang Zhang, and Yali Du, Jean-Francois Ton, Jianhong Wang, Jun Wang. Invariant Learning via Probability of Sufficient and Necessary Causes. NeurIPS 2023 Spotlight (Selected Rate: 3.06%) .

Mengyue Yang*, Quanyu Dai*, Zhenhua Dong, Xu Chen, Xiuqiang He, Jun Wang Top-N Recommendation with Counterfactual User Preference Simulation. CIKM 2021.

Mengyue Yang, Furui Liu, Zhitang Chen, Jianye Hao, Jun Wang. CausalVAE: disentangled representation learning via neural structural causal models CVPR 2021.

Jiarui Jin, Yuwei Wu, Haoxuan Li, Xiaoting He, Weinan Zhang, Yiming Yang, Yong Yu, Jun Wang, **Mengyue Yang**. Large Language Models are Demonstration Pre-Selectors for Themselves. ICML 2025.

Anjie Liu, Jianhong Wang, Haoxuan Li, Xu Chen, Jun Wang, Samuel Kaski, **Mengyue Yang**. Attaining Humans Desirable Outcomes in Human-AI Interaction via Structural Causal Games. ICML 2024 Workshop on Humans-Algs-Society.

Xue Yan, Yan Song, Xidong Feng, **Mengyue Yang**, Haifeng Zhang, Haitham Bou Ammar, Jun Wang. Efficient Reinforcement Learning with Large Language Model Priors. ICLR 2025.

Xidong Feng, Ziyu Wan, Haotian Fu, Bo Liu, **Mengyue Yang**, Girish A Koushik, Zhiyuan Hu, Ying Wen, Jun Wang. Natural language reinforcement learning. Arxiv 2024.

Mengyue Yang, Xinyu Cai, Furui Liu, Xu Chen, Zhitang Chen, Jianye Hao, Jun Wang. Specify Robust Causal Representation from Mixed Observations. SIGKDD 2023.

Xidong Feng, Yicheng Luo, Ziyan Wang, Hongrui Tang, **Mengyue Yang**, Kun Shao, David Mguni, Yali Du, Jun Wang. ChessGPT: Bridging Policy Learning and Language Modeling. NeurIPS 2023.

Mengyue Yang, Jun Wang, Jean-Francois Ton. Rectifying Unfairness in Recommendation Feedback Loops. SIGIR 2023.

Mengyue Yang, Guohao Cai, Furui Liu, Zhenhua Dong, Xiuqiang He, Jianye Hao, Jun Wang, Xu Chen. Debiased Recommendation with User Feature Balancing. ACM TOIS 2022.

Junruo Gao, **Mengyue Yang**, Yuyang Liu, Jun Li. Deconfounding Representation Learning Based on User Interactions in Recommendation Systems PAKDD 2021.

Mengyue Yang, Qingyang Li, Zhiwei Qin, Jieping Ye. Hierarchical Adaptive Contextual Bandits for Resource Constraint based Recommendation. WWW 2020.

Minne Li*, **Mengyue Yang***, Furui Liu, Xu Chen, Zhitang Chen, Jun Wang. Causal World Models by Unsupervised Deconfounding of Physical Dynamics Arxiv 2020.

Talks and Tutorials

Conference/Workshop/Symposium… Invited Talks, Panels and Tutorials:

- ICML 2025 Workshop on Multi-Agent Systems: Panel discussion.
- ICML 2025 Workshop on Scaling Up Intervention Models: Invited keynote talk
- IJTCS-FAW 2025: From Games to Graphs: Causal Mechanisms for Steering Multi-Agent Outcomes
- NILAB Workshop on AI for Bioscience: Learning Meta-Causal Worlds with Curious Agents
- DAI 2024 Tutorial: Causality and Large Models.
- ACML 2024 Tutorial: Causality and Large Models. Website
- ICDM 2024 Tutorial: Causality and Large Models.
- Rising Star in AI symposium from KAUST: Causal Representation Learning
- PCIC 2024: Essential Causal Representation Learning

2025 Talks:

- Scaling-up Causal Learning: Shanghai Jiao Tong University,
- Large Language Models and Reinforcement Learning: Fudan University

2024 Talks:

- Causal Agent & Foundation Models. Slides. Jizhi Causality Reading Party 5th season.
- Essential Causal Representation Learning via Probability of Sufficient and Necessary Causes. Slides.
- PCIC 2024, University of Manchester, University of Bristol, Imperial College London, University College London, AI Time, DataFun Summit.
- Causal Representation Learning. “Rising Star in AI” symposium, Microsoft Research (New York), Institute of Automation, Chinese Academy of Sciences, University of Bristol, Shanghai Jiaotong University, Hong Kong University of Science and Technology (Guangzhou).
- Causality for Decision Making. Slides. RL China 2023 (Tutorial), DAI 2023.

2022-2023 Talks:

Causal Disentanglement representation and models. Paper Weekly, University College London, Beijing Institute of Technology, Jizhi Causality Reading Party, Northeastern University.

Services

Co-organize Causal AI workshop with IHES, France
Co-organize and serve as visiting editor at Journal of Machine Learning special issue: Build Trust in LLMs: Interpretability, Safety, and Robustness.
Organize and PC Chair of ICLR 2025 Workshop**:** World Models: Understanding, Modelling and Scaling**.** Website
Co-organize AAAI 2025 Workshop: Artificial Intelligence with Causal Techniques.
Co-organize ICDM 2024 Workshop: Causal Representation Learning.
Co-organize NeurIPS 2024 Workshop: Causality and Large Model.
Co-organize NeurIPS 2023 Competition: Causal Structure Learning from Event Sequences and Prior Knowledge.
Reviewers: TNNLS, TPAMI, KDD, NeurIPS, ICML, ICLR, AAAI, AISTATS, SDM, CVPR.

Teaching

University of Bristol: 2024-2025 SEMTM0016 Artificial Intelligence for Robotics.
2025-2026 SEMTM0016 Artificial Intelligence for Robotics.
2025-2026 SEMT10005 Principles of Artificial Intelligence.
2025-2026 SEMT30008 Advanced Methods in Artificial Intelligence.

University College London: Teaching Assistant - 2020-2024 COMP0124 Multi-agent Artificial Intelligence.

Internships

Aug 2024 – Sep 2024 KAUST, Visiting Student, Supervised by Prof. Juergen Schmidhuber. Causal World Models and Causal reinforcement learning.

Mar 2024 – Jul 2024 MBZUAI, Visiting Student, Supervised by Prof. Kun Zhang. Causal representation learning.

Feb 2022 – Jul 2022 TikTok, London, Research Intern in ByteDance Research, Supervised by Dr. Jean-Francois Ton and Dr. Hang Li. Causal representation learning, causal fairness.

Jul 2019 – Oct 2019 Microsoft, Beijing, Software Engineer Summer Intern of STCA, Ads Data & AI Platform Team, Supervised by Dr. Hao Wu and Dr. Keli Gui. Large-scale cluster, Microsoft Azure, distributional machine learning.

Sep 2018 – Jul 2019 Didi, Beijing, Research Intern in AI Labs, Reinforcement Learning team. Supervised by Dr. Zhiwei Qin and Dr. Qingyang Li, Reinforcement learning and online learning

Honors

Rising Star in AI 2024 by KAUST.
Third Prize of the 2015 National University Students Computer Design Competition.
First Prize of the 2014 Youth Science Popularization Innovation Competition.
Second Prize of 2011 Chinese Physics Olympiad in province.