XIAOJIE MAO

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Lihua Building B418, Tsinghua University

EDUCATION AND ACADEMIC POSITIONS

Tsinghua University — Beijing, China
Assistant Professor in Management Scince and Engineering. — 2021.07 –

Cornell University — New York, NY
Ph.D. Student in Statistics, with minor in Operatiors Research. — 2016.09 – 2021.05
- Advisors: Nathan Kallus and Madeleine Udell.
- Research Interests: data-driven decision making, causal inference, statistical machine learning.

M.S. in Statistics. — 2019.12

Wuhan University — Wuhan, China
B.A. in Mathematical Economics. — 2012.09 – 2016.06
Top 1% of 2016 graduates (among 7000+) awarded with 100% tuition waiver, major GPA 3.96 (rank 1/117), National Scholarship for 4 years.

PUBLICATIONS AND PREPRINTS (AUTHORSHIP IN ALPHABETICAL ORDER)

Publications

1. Andrew Bennett, Nathan Kallus, Xiaojie Mao, Whitney Newey, Vasilis Syrgkanis, Masatoshi Uehara. **Inference on Strongly Identified Functionals of Weakly Identified Functions.** *Conference on Learning Theory, 2023.*

2. Andrew Bennett, Nathan Kallus, Xiaojie Mao, Whitney Newey, Vasilis Syrgkanis, Masatoshi Uehara. **Minimax Instrumental Variable Regression and L2 Convergence Guarantees without Identification or Closedness.** *Conference on Learning Theory, 2023.*

3. Nathan Kallus, Xiaojie Mao, Kaiwen Wang, Zhengyuan Zhou. **Doubly Robust Distributionally Robust Off-Policy Evaluation and Learning.** *International Conference on Machine Learning, 2022.*

4. Nathan Kallus, Xiaojie Mao. **Stochastic Optimization Forests.** *Management Science, 2022.*

5. Yichun Hu, Nathan Kallus, Xiaojie Mao. **Fast Rates for Contextual Linear Optimization.** *Management Science (Fast Track), 2022.*

6. Yichun Hu, Nathan Kallus, Xiaojie Mao. **Smooth Contextual Bandits: Bridging the Parametric and Non-differentiable Regret Regimes**. *Operations Research, 2022.*
   - **Finalist for Applied Probability Society 2020 Best Student Paper Competition**.
   - Preliminary version accepted by the 33rd Annual Conference on Learning Theory (COLT 2020).

7. Nathan Kallus, Xiaojie Mao, Angela Zhou. **Assessing Algorithmic Fairness with Unobserved Protected Class Using Data Combination.** *Management Science (Special Section on Data-Driven Prescriptive Analytics), 2021.*
   - Preliminary version accepted by NeurIPS 2019 workshop on Fair Machine Learning for Health and ACM FAT* 2020.
   - NeurIPS 2019 travel award.

8. Nathan Kallus, Xiaojie Mao, and Angela Zhou. **Interval Estimation of Individual-level Causal Effects under Unobserved Confounding.** *International Conference on Artificial Intelligence and Statistics, 2019.*

9. Jiahao Chen, Nathan Kallus, Xiaojie Mao, Geoffry Svacha, Madeleine Udell. **Fairness Under Unawareness: Assessing Disparity When Protected Class is Unobserved**. *ACM Conference on Fairness, Accountability, and Transparency in Machine Learning, 2019.*

10. Nathan Kallus, Xiaojie Mao, and Madeleine Udell. **Causal Inference with Noisy and Missing Covariates via Matrix Factorization**. *Annual Conference on Neural Information Processing Systems, 2018.*

Working Papers

1. Yong Liang, Xiaojie Mao, Shiyuan Wang. **Online Joint Assortment-Inventory Optimization under MNL Choices.** *arxiv preprint 2304.02022.*

2. Guido Imbens, Nathan Kallus, Xiaojie Mao. **Long-term causal inference under persistent confounding via data combination**. *arxiv preprint 2202.07234.*

3. Guido Imbens, Nathan Kallus, Xiaojie Mao. **Controlling for Unmeasured Confounding in Panel Data Using Minimal Bridge Functions: From Two-Way Fixed Effects to Factor Models.** *arXiv preprint arXiv: 2108.03849.*

4. Nathan Kallus, Xiaojie Mao, Masatoshi Uehara. **Causal Inference Under Unmeasured Confounding With Negative Controls: A Minimax Learning Approach.** *arXiv preprint arXiv: 2103.14029.*

5. Nathan Kallus, Xiaojie Mao. **On the Role of Surrogates in the Efficient Estimation of Treatment Effects with Limited Outcome Data.** *arXiv preprint arXiv: 2003.12408.*

6. Nathan Kallus, Xiaojie Mao, Masatoshi Uehara. **Localized Debiased Machine Learning: Efficient Estimation of Quantile Treatment Effects, Conditional Value at Risk, and Beyond.** *arxiv preprint 1912.12945..*

TEACHING

Tsinghua University
Instructor
- Probability Theory and Mathematical Statistics, 2022 Fall.
- Data Analytics: Inference and Decision-Making, 2022 - 2023 Spring.
- Empirical Methods in Management Science, 2022 - 2023 Spring.

Cornell University
Teaching assistant
- ORIE 5750/CS 5785 Applied Machine Learning, 2019 Fall.
- STSCI 5110/ILRST 5110 Statistical Methods for Social Science, 2018 Spring.
- BTRY 6010/ILRST 6100 Statistical Methods I, 2016 Fall, 2017 Fall.

Wuhan University
Teaching assistant
- Introduction to Probability Theory, 2015 Fall.
- Introduction to Mathematical Statistics, 2015 Spring.

AWARDS AND GRANTS

Long-term Causal Inference and Decision-Making via Data Combination, Young Scientists Fund of NSFC, Principal Investigator (2023.01 - 2025.12)
Decision Theory and Methods for Supply Chain Resiliance and Security, Major Program of NSFC, Participant (2023.01 - 2027.12)
AISTATS 2023 Top 10% Reviewer (2023.02)
Applied Probability Society Best Student Paper Competition, Finalist (2020)
Undergraduate National Scholarship, Ministry of Education (2012 - 2016)

INVITED PRESENTATIONS

HKUST, Industrial Engineering and Decision Analytics	2023.05
New York University Shanghai	2023.04
Shanghai Jiaotong University, Antai College of Economics and Management	2023.03
Tsinghua University, Lab of Computational Social Science and State Governace	2022.12
INFORMS Annual Meeting 2021 invited session "Learning and Decision Making with Contextual Information"	2021.11
Tsinghua Symposium on Statistics and Data Science for Young Scholars	2021.10
Online Causal Inference Seminar	2021.08
University College London, Arthur Gretton's Group in Center for CSML	2021.06
Peking University, Xiaohua Zhou's Group in Department of Biostatistics	2021.06
Wuhan University, Department of Mathematical Economics and Mathematical Finance	2021.06
Tsinghua University, Department of Management Science and Engineering	2020.12
City University of Hong Kong, Department of Management Science	2020.12
Chinese University of Hong Kong, Department of Decision Science and Managerial Economics	2020.12
University of Hong Kong, Faculty of Business and Economics	2020.11
Shanghai University of Finance and Economics, Institute for Interdisciplinary Sciences	2020.11
Chinese University of Hong Kong, Department of Statistics	2020.11
Chinese University of Hong Kong (Shenzhen), School of Data Science	2020.11
Online Causal Inference Seminar	2020.09
INFORMS Annual Meeting 2021 Award Session for Applied Probability Society	2021.11
Kellogg-Wharton OM Workshop	2020.07
Conference of Learning Theory 2020	2020.07
Atlantic Causal Inference Conference (cancelled due to COVID19)	2020.05
Tsinghua University, Department of Management Science and Engineering	2020.01
Shanghai University of Finance and Economics, Institute for Interdisciplinary Sciences	2020.01
Shanghai Jiaotong University, John Hopcroft Center for Computer Science	2020.01
Wuhan University, Department of Mathematical Economics and Mathematical Finance	2020.01
INFORMS Annual Meeting 2019 invited session "Learning & Optimization in Healthcare"	2019.10
INFORMS Annual Meeting 2019 invited session "Data-Driven Models and Algorithms"	2019.10
Annual Young Researchers Workshop, Cornell ORIE Department	2019.10
ACM FAT* 2019	2019.01
Capital One workshop on Fair and Responsible AI in Finance	2018.10

MISCELLANEOUS

Service	Referee for Biometrika, Data Mining and Knowledge Discovery, Journal of the American Statistical Association, Journal of Econometrics, Management Science, Mathematical Programming, Operations Research, Production and Operations Management, Statistica Sinica, Transportations Research, NeurIPS 2018 - 2022, ICML 2019 - 2022, AISTATS 2019 - 2023, ACM FAccT 2021 - 2022.
	Program committee for NeurIPS 2018 workshop *"Challenges and Opportunities for AI in Financial Services: the Impact of Fairness, Explainability, Accuracy, and Privacy"* and NeurIPS 2020 workshop *"Fair AI in Finance"*.
Programming Language	R, Python, Julia.
	Native in Chinese, Proficient in English.