

# Zijun Gao

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RESEARCH INTEREST

- **Causal Inference:** Heterogeneous Treatment Effect, Randomization Test, Adaptive Clinical Trial, Partial Identification.

- **Statistical Inference:** Selective Inference, Multiple Testing.

EDUCATION

- **Stanford University**, Stanford, CA, USA  
Ph.D. in Statistics.  
Advisor: Prof. Trevor Hastie Sep. 2017 - Aug. 2022
- **École Normale Supérieure**, Paris, France  
Exchange Student.  
Advisor: Prof. Jean-Philippe Vert Jan. 2017 - Jun. 2017
- **Tsinghua University**, Beijing, China  
B.S. in Mathematics Aug. 2013 - Jul. 2017

EMPLOYMENT

- **University of Southern California (USC)**, Los Angeles, CA, USA  
Assistant Professor (tenure-track), Department of Data Sciences and Operations, Marshall Business School Jul. 2023 - present
- **University of Cambridge**, Cambridge, Cambridgeshire, UK  
Research Associate, Statistical Lab.  
Host: Prof. Qingyuan Zhao Sep. 2022 - Jun. 2023

PUBLICATIONS AND PREPRINTS

- **Zijun Gao** and Etienne Roquain. “On min-Storey estimators for multiple testing and conformal novelty detection”, *arXiv:2603.17984*, Mar. 2026.
- Xinwen Huang, Yunpeng Wang, Qingyuan Zhao, and **Zijun Gao**. “Background covariance adjustment distills shared genetic architecture across neurodevelopmental and neurodegenerative disorders”, <https://doi.org/10.64898/2026.03.08.26347891>, Mar. 2026.
- **Zijun Gao**, Etienne Roquain, and Daniel Xiang. “Conformal Novelty Detection with False Discovery Rate Control at the Boundary”, *submitted to Biometrika*, *arXiv:2601.02610*, Jan. 2026.

- Sirui Lin, **Zijun Gao**, Jose Blanchet, and Peter Glynn. “Inference of Causal Partial Identification Set from Conditional Optimal Transport”, *submitted to International Conference on Machine Learning (ICML)*, *arXiv:2602.20681*, Feb. 2026.
- Sirui Lin, **Zijun Gao**, Jose Blanchet, and Peter Glynn. “Optimal Transport for Causal Partial Identification with Covariates”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, *arXiv:2502.01164*, May 2026.
- Weihan Zhang and **Zijun Gao**. “Estimation and Inference for Causal Explainability”, *Conference on Causal Learning and Reasoning (CLearR)*, *arXiv:2512.20219*, Dec. 2025.
- **Zijun Gao** and Trevor Hastie, “Estimating Heterogeneous Treatment Effects for General Responses”, *Biometrics*, 81.4, 2025.
- Jiayi Guo and **Zijun Gao**. “Reliable Selection of Heterogeneous Treatment Effect Estimators”, *submitted to International Conference on Machine Learning (ICML)*, *arXiv:2511.18464*, Nov. 2025.
- Jiachen Xu, Qian Jian, and **Zijun Gao**. “MUSE: Multi-Treatment Experiment Design for Winner Selection and Effect Estimation”, *submitted to International Conference on Machine Learning (ICML)*, *arXiv:2510.04489*, Oct. 2025.
- **Zijun Gao** and Qingyuan Zhao “Counterfactual Explainability and Analysis of Variance”, *under revision of Journal of American Statistician Association (JASA)*, *arXiv:2411.01625*, Oct. 2025.
- Tobias Fiedling, Qingyuan Zhao, **Zijun Gao**, “Selective Randomization Inference for Adaptive Experiments”, *under revision of Journal of the Royal Statistical Society: Series B (Major revision)*, *arXiv:2405.07026*, Sep. 2025.
- Yao Zhang and **Zijun Gao**. “Adaptive Sample Splitting for Randomization Tests”, *under revision of Biometrika*, *arXiv:2504.21572*, Jul. 2025.
- Sirui Lin, **Zijun Gao**, Jose Blanchet, and Peter Glynn. “Tightening Causal Bounds via Covariate-Aware Optimal Transport”, *International Conference on Machine Learning (ICML)*, Jul. 2025.
- **Zijun Gao** and Qingyuan Zhao. “Causal ANOVA: Estimation, Inference, Applications”, *International Conference on Causal Learning and Reasoning (CLearR)*, May 2025.
- **Zijun Gao**. “Trustworthy Assessment of Heterogeneous Treatment Effect Estimator via Analysis of Relative Error”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, May 2025.
- **Zijun Gao**, Shu Ge, and Jian Qian, “Bridging Multiple Worlds: Multi-marginal Optimal Transport for Causal Partial-identification Problem”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, May 2025.
- **Zijun Gao**. “Selective Randomization Inference for Subgroup Effects with Continuous Biomarkers”, *under review of Statistics in Medicine*, *arXiv:2504.19380*, Apr. 2025.
- **Zijun Gao**, “Adaptive Storey’s Null Proportion Estimator”, *Biometrika* 112.1 (2025): *asae051*.

- **Zijun Gao**, Yan Sun, and Han Su. “Evaluation of Generative AI Models with Uncertainty Quantification”, *submitted to International Conference on Artificial Intelligence and Statistics (AISTATS)*, *arXiv:2501.18897*, Jan. 2025.
- Zhaotian Weng, **Zijun Gao**, Jerone Andrews, and Jieyu Zhao. “Images Speak Louder than Words: Understanding and Mitigating Bias in Vision-Language Model from a Causal Mediation Perspective”, *International Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Jul. 2024.
- **Zijun Gao**, Wenjie Hu, and Qingyuan Zhao, “A Constructive Approach to Selective Risk Control”, *under review of Statistical Science (Major revision)*, Apr. 2025.
- **Zijun Gao**, Trevor Hastie, and Qingyuan Zhao, “PathGPS: Discover Shared Genetic Architecture Using GWAS Summary Data”, *Biometrics* 80.3 (2024): *ujae060*.
- Ley Catherine, Frederik Heath, Trevor Hastie, **Zijun Gao**, Myroslava Protsiv, and Julie Parsonnet. “Defining Usual Oral Temperature Ranges in Outpatients Using an Unsupervised Learning Algorithm”, *JAMA Internal Medicine* 183.10 (2023): 1128-1135.
- **Zijun Gao** and Qingyuan Zhao, “Simultaneous Hypothesis Testing Using Internal Negative Controls with an Application to Proteomics”, *arXiv:2303.01552*, March 2023.
- **Zijun Gao** and Trevor Hastie, “LinCDE: Conditional Density Estimation via Lindsey’s Method”, *Journal of Machine Learning Research (JMLR)* 23.52 (2022): 1-55.
- **Zijun Gao**, Trevor Hastie, and Robert Tibshirani, “Assessment of Heterogeneous Treatment Effect Estimation Accuracy via Matching”, *Statistics in Medicine* 40.17 (2021): 3990-4013.
- **Zijun Gao** and Yanjun Han, “Minimax Optimal Nonparametric Estimation of Heterogeneous Treatment Effects”, *Conference on Neural Information Processing Systems (NeurIPS) (Spotlight, 3%)*, Dec. 2020.
- Richard K. Kim, **Zijun Gao**, Trevor Hastie, and Detlef Obal, “Effect of Clinical Opioid Shortage on Anesthesiologists’ Prescription Habits: a Retrospective Analysis”, *Journal of Clinical Anesthesia*, Nov. 2020.
- **Zijun Gao**, Yanjun Han, Zhimei Ren, and Zhengqing Zhou (equal contribution), “Batched Multi-armed Bandits Problem”, *Conference on Neural Information Processing Systems (NeurIPS) (Oral, 1%)*, Dec. 2019.

PH.D.  
STUDENT

- Zhizhen (Andy) Chen (Enrolled in Fall 2025)

ACADEMIC  
SERVICE

- Referees for Journal of the Royal Statistical Society (selected): Series B, Journal of American Statistician Association, Biometrika, Annals of Statistics, Management Science.
- Reviewers for Conference NeurIPS, ICML, AISTATS.

- TEACHING
- BUAD 310 - Applied Business Statistics      Spring 2024, Spring 2025, Spring 2026
- PRESENTATION  
(SELECTED)
- “Evaluation of Generative AI Models with Uncertainty Quantification”, International Conference on Statistics and Data Science (ICSIDS)      Dec. 2025
  - “Towards the Power of Randomization Tests”, International Joint Conference on Computational and Methodological Statistics (CMStatistics)      Dec. 2025
  - “Causal ANOVA”, Online Causal Inference Seminar (OCIS)      Nov. 2025
  - “Inference for Adaptive Trials”, INFORMS      Oct. 2025
  - “Adaptive Storey’s Null Proportion Estimator”, International Conference on Multiple Comparison Procedures (MCP)      Aug. 2025
  - “Adaptive Sample Splitting for Randomization Tests”, Statistics Department Seminar at Hong Kong University of Science and Technology (HKUST)/International Chinese Statistical Association Conference (ICSA)/Pacific Causal Inference Conference (PCIC) /Statistics Department Seminar at Tsinghua University/Joint Conference on Statistics and Data Science (JCSDS)      Jun.-Jul. 2025
  - “Trustworthy Assessment of Heterogeneous Treatment Effect Estimator via Analysis of Relative Error”, American Causal Inference Conference (ACIC)      May 2025
  - “Conditional Randomization Test for Subgroup based on Continuous Biomarkers”, European Causal Inference Meeting (EuroCIM)      Apr. 2025
  - “Randomization Test for Enrichment Trials”, Biostatistics Department Seminar at University of Southern California      Mar. 2025
  - “Bridging Multiple Worlds: Multi-marginal Optimal Transport for Causal Partial-identification Problem”, International Conference on Statistics and Data Science (ICSIDS)      Dec. 2024
  - “Selective Randomization Inference for Adaptive Experiments”, Statistics Department Seminar at University of California, Riverside      Nov. 2024
  - “Adaptive Storey’s Null Proportion Estimator”, Joint Conference on Statistics and Data Science (JCSDS)      Jul. 2024
  - “Selective Randomization Inference for Adaptive Experiments”, International Conference on Frontiers of Data Science      Jul. 2024
  - “A Constructive Approach to Selective Risk Control”, International Chinese Statistical Association Annual Meeting (ICSA)      Jun. 2024
  - “Estimating Heterogeneous Treatment Effects for General Responses”, American Causal Inference Conference (ACIC)      May 2024
  - “Enrichment Clinical Trials”, Epstein Institute Seminar at University of Southern California      April 2024
  - “Selective Randomization Inference for Adaptive Experiments”, Biostatistics Department Seminar at Columbia University      Feb. 2024

- “A Constructive Approach to Selective Risk Control”, International Seminar on Selective Inference Jan. 2024
- “Assessment of Heterogeneous Treatment Effect Estimation Accuracy via Matching”, American Causal Inference Conference (ACIC) May 2023
- “PathGPS: Genotype-Phenotype Analysis through Summary Statistics”, Mendelian Randomization Workshop at the University of Bristol May 2023
- “Estimating Heterogeneous Treatment Effects for General Responses”, European Causal Inference Meeting (EuroCIM) April 2023
- “LinCDE: Conditional Density Estimation via Lindsey’s Method”, Joint Statistical Meetings (JSM) Aug. 2022
- “LinCDE: Conditional Density Estimation via Lindsey’s Method”, Industrial Affiliates Annual Conference Nov. 2021
- “Minimax Optimal Nonparametric Estimation of Heterogeneous Treatment Effects”, Conference on Neural Information Processing Systems (NeurIPS) Dec. 2020
- “Batched Multi-armed Bandits Problem”, Conference on Neural Information Processing Systems (NeurIPS) Dec. 2019
- “Assessment of Heterogeneous Treatment Effect Estimation Accuracy via Matching”, Industrial Affiliates Annual Conference Nov. 2019

(Updated Mar. 2026)