Zhenghao Zeng

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Research interests

Causal inference, nonparametric statistics, high-dimensional statistics

Education

Carnegie Mellon University Pittsburgh, PA
Ph.D. in Statistics 08/2020 – Present
Advisor: Prof. Edward H. Kennedy

Carnegie Mellon University Pittsburgh, PA
M.S. in Statistics 08/2020 – 05/2021

University of Science and Technology of China Hefei, Anhui
B.S. in Statistics 08/2016 – 06/2020

Honors and awards

Student Paper Award, Statistical Learning and Data Science (SLDS) Section, ASA 2024
ENAR Distinguished Student Paper Award (International Biometric Society ENAR Spring Meeting) 2023
Guo Moruo Scholarship (summa cum laude at USTC) 2019
National Scholarship of China (USTC) 2018

Publications

Zeng, Z., Arbour, D., Feller, A., Addanki, R., Rossi, R., Sinha, R., and Kennedy, E.H. (2024). Continuous Treatment Effects with Surrogate Outcomes. *International Conference on Machine Learning*, 2024.

Zeng, Z., Gu, Y., and Xu, G. (2023). A Tensor-EM Method for Large-Scale Latent Class Analysis with Binary Responses. *Psychometrika*, 88(2), 580-612.

He, Y., Meng, B., **Zeng, Z.** and Xu, G. (2021). On the phase transition of Wilks' phenomenon. *Biometrika*, 108(3), 741-748.

Preprints

Zeng, Z., Balakrishnan, S., Han, Y. and Kennedy, E. H. (2024). Causal Inference with High-dimensional Discrete Covariates. arXiv preprint arXiv:2405.00118.

Du, J. H., **Zeng, Z.**, Kennedy, E. H., Wasserman, L. and Roeder, K. (2024). Causal Inference for Genomic Data with Multiple Heterogeneous Outcomes. arXiv preprint arXiv:2404.09119.

Bonvini, M., **Zeng, Z.**, Yu, M., Kennedy, E. H., and Keele, L. (2023). Flexibly Estimating and Interpreting Heterogeneous Treatment Effects of Laparoscopic Surgery for Cholecystitis Patients. arXiv preprint arXiv:2311.04359.

Zeng, Z., Kennedy, E. H., Bodnar, L. M., and Naimi, A. I. (2023). Efficient generalization and transportation. arXiv preprint arXiv:2302.00092.

Levis, A. W., Bonvini, M., **Zeng, Z.**, Keele, L., and Kennedy, E. H. (2023). Covariate-assisted bounds on causal effects with instrumental variables. arXiv preprint arXiv:2301.12106.

Experience

Adobe Research San Jose, CA
Research Intern 05/2024 – 08/2024
Mentors: David Arbour, Ishita Dasgupta, Atanu Sinha and Avi Feller (Berkeley)

Adobe Research San Jose, CA
Research Intern 05/2023 – 08/2023
Mentors: David Arbour and Prof. Avi Feller (Berkeley)
Continuous treatment effects with surrogate outcomes.

University of Michigan, Ann Arbor Ann Arbor, MI
Research Assistant 06/2019 – 09/2019
Mentor: Prof. Gongjun Xu
Large-scale latent class analysis and high-dimensional testing.

Teaching experience

Teaching assistant, Carnegie Mellon University 08/2020–05/2022
36-225 Introduction to Probability
36-401 Modern Regression
36-402 Advanced Methods for Data Analysis (×2)

Teaching assistant, USTC 09/2019 – 05/2020
Single-variable Calculus
Regression Analysis

Presentations

International Conference on Computational & Methodological Statistics (CMStatistics) Virtual
Continuous treatment effects with surrogate outcomes 12/2024

Joint Statistical Meetings (JSM) Portland, OR
Causal inference with high-dimensional discrete covariates 08/2024

American Causal Inference Conference (ACIC) Seattle, WA
Causal inference with high-dimensional discrete covariates 05/2024

Causal Inference and Missing Data Group at Inria Virtual
Efficient generalization and transportation 02/2024

American Causal Inference Conference (ACIC) Austin, TX
Causal inference with high-dimensional discrete covariates 05/2023

International Biometric Society ENAR Spring Meeting Nashville, TN
Efficient generalization and transportation 03/2023

Academic Service

Reviewer
American Journal of Epidemiology (1)
Biometrika (3)
Electronic Journal of Statistics (5)
Journal of American Statistical Association (2)

Miscellaneous

Coursework
Mathematics and Probability: Mathematical Analysis(A+), Linear Algebra(A+), Real Analysis(A+), Functional Analysis(A+), Advanced Probability Theory(A+), Stochastic Process(A+), Probability Limiting Theory(A+)
Statistics: Mathematical Statistics(A+), Regression Analysis(A+), Multivariate Analysis(A+), Bayesian Analysis(A+), Nonparametric Statistics(A+), Advanced Statistical Theory(A)
Machine Learning: Advanced Machine Learning(A+), Convex Optimization(A+), Probabilistic Graphical Models(A+), Deep Learning(A+)
Programming: Statistical Computing(A+), Deep Learning System(A), Foundations of Algorithms(A+)