

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 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

Levis, A. W., Bonvini, M., **Zeng, Z.**, Keele, L., and Kennedy, E. H. (2023). Covariate-assisted bounds on causal effects with instrumental variables. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, qkaf028.

Du, J. H., **Zeng, Z.**, Kennedy, E. H., Wasserman, L., and Roeder, K. (2025). Causal inference for genomic data with multiple heterogeneous outcomes. *Journal of the American Statistical Association*, (just-accepted), 1-24.

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

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., Levis, A.W., Lee, J.H., Kennedy, E.H., and Keele, L. (2025). Nonparametric Estimation of Local Treatment Effects with Continuous Instruments. arXiv preprint arXiv:2504.03063.

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

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.

Working Papers

Zeng, Z., Arbour, D., Feller, A., Dasgupta, I., Sinha, A., and Kennedy, E. H. Handling Missing Responses under Cluster Dependence with Applications to Language Model Evaluation.

Experience

Adobe Research San Jose, CA
Research Intern 05/2024 – 08/2024
Mentors: David Arbour, Ishita Dasgupta, Atanu Sinha and Avi Feller (Berkeley)
Handling missing responses under cluster dependence with applications to language model evaluation.

Adobe Research San Jose, CA
Research Intern 05/2023 – 08/2023
Mentors: David Arbour and 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

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

Talks

Econometrics Lunch	Stanford, CA
Causal inference with high-dimensional discrete covariates	01/2025
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

Annals of Statistics (1)
American Journal of Epidemiology (1)
Biometrika (4)
Biostatistics (1)
Electronic Journal of Statistics (5)
Journal of American Statistical Association (3)
Journal of Causal Inference (2)
Statistics in Medicine (1)
Statistica Sinica (1)

Organizer

CMU Causal Inference Reading Group (2024-2025)