

# Jeffrey Zhang

Postdoctoral Scholar

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## Education

**University of Pennsylvania** (Philadelphia, PA), Ph.D. in Statistics and Data Science, 2025.  
Thesis Advisor: Dylan Small.

**Johns Hopkins University** (Baltimore, MD), B.A. in Mathematics; B.S. and M.S.E. in Applied Mathematics and Statistics, 2020.

## Publications

(\* denotes equal contribution)

### *Working manuscripts*

- [16] **J. Zhang**. A sensitivity analysis for the average derivative effect.

### *Manuscripts under review/revision*

- [15] **J. Zhang**, Z. Chen, K. Courtright, S. Halpern, D. Small, M. Harhay, F. Li. Randomization inference for stepped-wedge designs with noncompliance with application to a palliative care pragmatic trial. Available at [arXiv](#).
- [14] J. Zhu, **J. Zhang**, Z. Guo, S. Heng. Randomization-Based Inference for Average Treatment Effects in Inexactly Matched Observational Studies. Available at [arXiv](#).
- [13] K. Chen, **J. Zhang**, B. Wang, D. Small. A Differential Effect Approach to Partial Identification of Treatment Effects. Available at [arXiv](#).
- [12] **J. Zhang**, E. Tchetgen Tchetgen. On Identification of Optimal Dynamic Treatment Regimes with Proxies of Hidden Confounders. Available at [arXiv](#).
- [11] A. Chakraborty\*, **J. Zhang**\*, E. Katsevich. Doubly robust and computationally efficient high-dimensional variable selection. Available at [arXiv](#).

### *Published/Accepted*

- [10] **J. Zhang**, J. Connett, D. Small. The effects of a smoking cessation intervention on mortality after a 32.5-year follow-up period: a randomized clinical trial. *American Journal of Epidemiology*, in press. Available at [Oxford University Press](#).

- [9] **J. Zhang**, S. Heng. Bridging the Gap Between Design and Analysis: Randomization Inference and Sensitivity Analysis for Matched Observational Studies with Treatment Doses. *Biometrics*, in press. Available at [Oxford University Press](#).
- [8] **J. Zhang**, J. Lee. A general condition for bias attenuation by a nondifferentially mismeasured confounder. *Biometrika*, 112(3):asafo26, 2025. Available at [Oxford University Press](#).
- [7] **J. Zhang**, D. Small, S. Heng. Sensitivity analysis for matched observational studies with continuous exposures and binary outcomes. *Biometrika*, 111(4):1349–1368, 2024. Available at [Oxford University Press](#).
- [6] M. S. Goyal, L. Vidal, K. Chetcuti, C. Chilingulo, K. Ibrahim, **J. Zhang**, D. Small, K. B Seydel, N. O'Brien, T. E. Taylor, D. G. Postels MRI-Based Brain Volume Scoring in Cerebral Malaria Is Externally Valid and Applicable to Lower-Resolution Images. *American Journal of Neuroradiology*, 45(2):205–210, 2024. Available at [AJNR](#).
- [5] F. Wan, S. Sutcliffe, **J. Zhang**, D. Small. Does matching introduce confounding or selection bias into the matched case-control design? *Observational Studies*, 10(1):1–9, 2024. Available at [Project MUSE](#).
- [4] **J. Zhang**, D. Small. Sensitivity Analysis for Observational Studies with Recurrent Events. *Lifetime Data Analysis*, 30:237–261, 2024. Available at [Springer](#).
- [3] **J. Zhang**, W. Li, W. Miao, E. Tchetgen Tchetgen. Proximal causal inference without uniqueness assumptions. *Statistics and Probability Letters*, 198, 2023. Available at [Science Direct](#).
- [2] **J. Zhang**, B. Zhang, D. Small. A method to aid statistical judgment on outliers: Comment on Hill's The Statistician in Medicine. *Statistics in Medicine*, 40(1):58–63, 2021. Available at [Wiley](#).
- [1] K. Bessey, M. Mavis, J. Rebaza, **J. Zhang**. Global Stability Analysis of a General Model of Zika Virus *Nonautonomous Dynamical Systems*, 6:18–34, 2019. Available at [DeGruyter](#).

## Software

- **doseSens**: R package for conducting sensitivity analyses in matched observational studies with continuous exposures. Available at [CRAN](#) and [Github](#). Implements the methods developed in [7] and [9].

## Awards

- Tom Ten Have Award - Honorable Mention (2025). *Awarded by the Society for Causal Inference at ACIC*.
- J. Parker Bursk Prize (2024). *Awarded by the Department of Statistics and Data Science at the Wharton School for excellence in research*.
- Norman Breslow Early Career Award (2024). *Awarded by the ASA Section on Statistics in Epidemiology for the top paper in statistics in epidemiology to be presented at JSM*.
- 3rd Place - Merck Datathon (2023). *Hosted by Correlation One*.
- Bloomberg Scholarship (2016-20). *A highly competitive need-based scholarship at Johns Hopkins funded by Michael Bloomberg*.

## Teaching

*Courses served as teaching assistant at Penn*

- STAT 4310: Statistical Inference, Spring '25 – Undergraduate.
- STAT 9220: Advanced Causal Inference, Fall '24 – Graduate.
- STAT 921: Observational Studies, Spring '24 – Graduate.
- STAT 101: Introduction to Business Statistics, Spring '23 – Undergraduate.
- STAT 102: Introduction to Business Statistics, Fall '21 – Undergraduate.
- STAT 111: Introductory Statistics, Fall '20, Spring '21 – Undergraduate (Grader).

## Presentations

*Contributed talks*

- *A general condition for bias attenuation by a nondifferentially mismeasured confounder.*  
ENAR 2025 Spring Meeting, Mar. 23–26, 2025, in New Orleans, Louisiana.
- *Sensitivity analysis for matched observational studies with continuous exposures and binary outcomes.*  
Joint Statistical Meetings, Aug. 3–8, 2024, in Portland, Oregon.

*Poster presentations*

- *A sensitivity analysis for the average derivative effect.*  
American Causal Inference Conference, May 13–16, 2025, in Detroit, Michigan.
- *Universal Randomization Inference and Sensitivity Analysis for Matched Observational Studies with Continuous Treatments.*  
American Causal Inference Conference, May 14–17, 2024, in Seattle, Washington.
- *Sensitivity analysis for continuous exposures and binary outcomes in matched observational studies.*  
American Causal Inference Conference, May 24–26, 2024, in Austin, Texas.

## Professional service

*Reviewer*

- BMC Medical Informatics and Decision Making, Journal of the American Statistical Association, Journal of Causal Inference