

# Ziang Niu

Third-year Statistics Ph.D. Student

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## Education

**University of Pennsylvania** (Philadelphia, PA), Ph.D. in Statistics, 2028 (expected).  
Research Advisor: Eugene Katsevich and Bhaswar B. Bhattacharya.

**University of Pennsylvania** (Philadelphia, PA), M.A. in Applied Mathematics, 2023.  
Research Advisor: Eugene Katsevich and Bhaswar B. Bhattacharya.

**Renmin University of China** (Beijing, China), B.A. in Economic Statistics, 2021.  
Thesis Advisor: Wei Li.

## Fellowship and Awards

- Lawrence David Brown Best Student Paper Award (2024).  
Department of Statistics and Data Science at Wharton, UPenn.
- SIAM Annual Meeting Student Travel Award (2021).  
Society for Industrial and Applied Mathematics.
- Undergraduate Study Scholarship (2017-2019).  
Renmin University of China.

## Professional Service Activities

- *Reviewer*, AoAP, Bernoulli, JASA, JRSS-A, NeurIPS, Statistical Science.
- *Organizer*, ICSA-Canada Chapter Symposium (2024).  
I organized and chaired the session "Topic in Combinatorial Inference", which included inviting speakers, coordinating the conference schedule with the speakers and hosting the session.

## Presentations

### *Invited Seminar Presentations*

- *Assumption-lean weak limits and tests for two-stage adaptive experiments*. [Slides]  
International Seminar on Selective Inference, Jun. 3, 2025.
- *Computationally efficient and statistically accurate conditional independence testing with spaCRT*. [Slides]  
International Seminar on Selective Inference, Nov. 4, 2024.  
Special Statistics and Biostatistics seminar, Oct. 8, 2025, at OSU.

### Invited Conference Oral Presentations

- *Assumption-lean weak limits and tests for two-stage adaptive experiments.*  
International Indian Statistical Association Conference, Jun. 12, 2025.
- *Discrepancy-based Inference for Intractable Generative Models using Quasi-Monte Carlo.*  
15th International Conference on Monte Carlo Methods and Applications (MCM), July. 28– Aug. 1, 2025, in Chicago, USA.

### Contributed Conference Oral Presentations

- *Detect model miscalibration via your nearest neighbor.* [Slides]  
Bernoulli-ims 11th World Congress in Probability and Statistics, Aug. 12-16, 2024, in Bochum, Germany.
- *A reconciliation between finite-sample and asymptopia-based methods in conditional independence testing.* [Slides]  
Lawrence David Brown student workshop, Mar. 22, 2024, in Philadelphia, USA.  
Joint Statistical Meeting, Aug. 5-10, 2023, in Toronto, Canada.
- *Inference for ATE using heterogeneity: generalized 2SLS and double machine learning perspectives.*  
Statistical Society of Canada Annual Meeting, May 28-31, 2023, in Ottawa, Canada.
- *Discrepancy-based Inference for Intractable Generative Models using Quasi-Monte Carlo.* [Slides]  
Lifting Inference with Kernel Embeddings, Jan. 10–14, 2022, online. [Video]
- *Estimation and inference for high-dimensional nonparametric additive instrumental-variables regression.* [Slides]  
Chinese R Conference, Nov. 20–21, 2021, in Beijing, China.  
ICSA-Canada Chapter Symposium, Jul. 8–10, 2022, in Banff, Canada.

### Conference Poster Presentations

- *Discrepancy-based Inference for Intractable Generative Models using Quasi-Monte Carlo.*  
SIAM Annual Meeting, Jul. 19–23, 2021, online. [Poster]  
Paris AI Summer School, Jul. 5–9, 2021, online.

### Mentorship

- Vikram Balasubramanian  
Directed Reading Program, UPenn, Sep.–Dec., 2022.
- Alexandru Lopotenco  
Undergraduate Research in Probability and Statistics, UPenn, Jan.–May., 2022.
- Ryan Jeong  
Undergraduate Research in Probability and Statistics, UPenn, Jan.–May., 2022.

### Publications and Preprints

- [1] **Z. Niu\***, J. Meier<sup>\*1</sup>, and F-X. Briol. Discrepancy-based Inference for Intractable Generative Models using Quasi-Monte Carlo. **Electronic Journal of Statistics**, 2022. Available on [arXiv](https://arxiv.org/abs/2205.12345).

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<sup>1\*</sup> stands for equal contribution

- [2] **Z. Niu**, Y. Gu, W. Li. Estimation and inference for high-dimensional nonparametric additive instrumental-variables regression. Major revision at **Electronic Journal of Statistics**, 2022+. Available on [arXiv](#).
- [3] S. Mukherjee, **Z. Niu**, S. Halder, B. B. Bhattacharya, G. Michailidis. High Dimensional Logistic Regression Under Network Dependence. To appear at **Journal of Machine Learning Research**, 2022+. Available on [arXiv](#).
- [4] **Z. Niu\***, A. Chakraborty\*, O. Dukes, and E. Katsevich. Reconciling model-X and doubly robust approaches to conditional independence testing. To appear at **Annals of Statistics**. Available on [arXiv](#). [*Lawrence David Brown Best Student Paper Award at Wharton, 2024*]
- [5] **Z. Niu**, B. B. Bhattacharya. Distribution-free joint independence testing and robust independent component analysis using optimal transport. Major revision at **Journal of the American Statistical Association**, 2022+. Available on [arXiv](#).
- [6] **Z. Niu**, J. Ray Choudhury, E. Katsevich. The conditional saddlepoint approximation for fast and accurate large-scale hypothesis testing. In submission, 2025+. Available on [arXiv](#).
- [7] A. Chatterjee\*, **Z. Niu\***, B. B. Bhattacharya. A kernel-based conditional two-sample test using nearest neighbors (With applications to calibration, regression curves and simulation-based inference). In submission, 2024. Available on [arXiv](#).
- [8] T. Barry, **Z. Niu**, E. Katsevich, X. Lin. The permuted score test for robust differential expression analysis. In submission, 2025. Available on [arXiv](#).
- [9] **Z. Niu**, Z. Ren. Assumption-lean weak limits and tests for two-stage adaptive experiments. In submission, 2025. Available on [arXiv](#). [*Finalist for IISA Student Paper Competition, 2025*]