

# 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.

## 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*

- *The permuted score test for robust differential expression analysis*. [TBD]  
Department seminar at School of Statistics and Data Science in Shanghai University of Finance and Economics, Dec. 31, 2025, in Shanghai, China.
- *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 at OSU, Oct. 8, 2025, in Columbus, USA.

### *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*

† stands for senior author; \* stands for equal contribution.

- [1] Z. Niu\*, J. Meier\*, and F-X. Briol. Discrepancy-based Inference for Intractable Generative Models using Quasi-Monte Carlo. **Electronic Journal of Statistics**, 2022. Available on [arXiv](#).
- [2] Z. Niu, Y. Gu, W. Li. Estimation and inference for high-dimensional nonparametric additive instrumental-variables regression. To appear 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. R&R at **JRSS-B**. Available on [arXiv](#). [*Finalist for IISA Student Paper Competition, 2025*]
- [10] Z. Huang, Z. Niu<sup>†</sup> Semiparametric KSD test: unifying score and distance-based approaches for goodness-of-fit testing. In submission, 2025. Available on [arXiv](#).