Huiyuan Wang

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Education

Postdoc in Biostatistics	University of Pennsylvania, 2023–now	Advisor:	Yong Chen
Ph.D. in Statistics	Peking University, 2018–2023	Advisor:	Wei Lin
B.S. in Statistics	Nankai University, 2014–2018		

Publications

* represents the co-first authorship.

1. Li, Xiang, Feng Ruan, **Huiyuan Wang**, Qi Long, and Weijie J. Su. "A Statistical Framework of Watermarks for Large Language Models: Pivot, Detection Efficiency and Optimal Rules." *The Annals of Statistics, accepted for publication* (2024+). *Invited for presentation at the Annals of Statistics discussion session, Joint Statistical Meetings, 2025.*

2. Zhang, Shucong, **Huiyuan Wang**, and Wei Lin. "CARE: Large Precision Matrix Estimation for Compositional Data." *Journal of the American Statistical Association* (2024): 1–13.

3. Zhao, Xuyang, **Huiyuan Wang**, Weiran Huang, and Wei Lin. "A Statistical Theory of Regularization-Based Continual Learning." *In The Forty-first International Conference on Machine Learning*, PMLR, 2024.

4. Wu, Hao, **Huiyuan Wang**, Kun Wang, Weiyan Wang, Yangyu Tao, Chong Chen, Xian-Sheng Hua, and Xiao Luo. "Prometheus: Out-of-distribution Fluid Dynamics Modeling with Disentangled Graph ODE." *In The Forty-first International Conference on Machine Learning*, PMLR, 2024.

5. Zhao, Xuyang, **Huiyuan Wang**, and Wei Lin. "The Aggregation–Heterogeneity Trade-off in Federated Learning." *In The Thirty-sixth Annual Conference on Learning Theory*, pp. 5478–5502. PMLR, 2023.

6. Tang, Caizhi, **Huiyuan Wang***, Xinyu Li, Qing Cui, Longfei Li, and Jun Zhou. "Difference-in-differences Meets Tree-based Methods: Heterogeneous Treatment Effects Estimation with Unmeasured Confounding." *In The Fortieth International Conference on Machine Learning*, pp. 33792–33803. PMLR, 2023.

7. Tang, Caizhi, **Huiyuan Wang***, Xinyu Li, Qing Cui, Ya-Lin Zhang, Feng Zhu, Longfei Li, Jun Zhou, and Linbo Jiang. "Debiased Causal Tree: Heterogeneous Treatment Effects Estimation with Unmeasured Confounding." *Advances in Neural Information Processing Systems* 35 (2022): 5628–5640.

Manuscripts

* represents the co-first authorship.

1. **Wang, Huiyuan**, and Wei Lin. "Nonasymptotic theory for two-layer neural networks: Beyond the bias-variance trade-off." *arXiv preprint arXiv:2106.04795* (2021). *Submitted to the Journal of Machine Learning Research.*

2. **Wang, Huiyuan**, Xuyang Zhao, and Wei Lin. "Heterogeneous Federated Learning on Arbitrary Graphs." *arXiv preprint arXiv:2209.08737* (2022).

3. **Wang, Huiyuan**, Yalong Lyu*, and Wei Lin. "Temporal Point Process Graphical Models." *arXiv preprint arXiv:2110.11562* (2021).

Awards

1. The Excellent Poster Award of the The Sixth Peking University–Tsinghua University Statistical Forum 2022

2. The Second Prize of the Fourth National Academic Forum for Doctoral Students in Statistics (Chinese Association for Applied Statistics) 2020

3. Outstanding Graduate (Nankai University) 2018

Teaching Experience

1. Teaching assistant for *Advanced Theory of Statistics II*, School of Mathematical Sciences, Peking University, Spring 2021

2. Teaching assistant for *Advanced Mathematics D*, School of Mathematical Sciences, Peking University, Fall 2020

3. Teaching assistant for *Modern Statistical Modeling*, School of Mathematical Sciences, Peking University, Spring 2020

4. Teaching assistant for *Statistical Learning*, School of Mathematical Sciences, Peking University, Fall 2019

Talks

1. *Efficient and robust high-dimensional hypothesis testing with surrogate outcomes* on ICSA Applied Statistics Symposium, Nashville, 2024

2. *CARE: large precision matrix estimation for compositional data* on The Fourth National Academic Forum for Doctoral Students in Statistics (held by Chinese Association for Applied Statistics), Guangzhou, 2020