Jie Wang

Ph.D. Student, Georgia Institute of Technology
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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA 2020.08-Present
Ph.D. Student in Industrial Engineering at Statistic Track GPA: 3.91/4.00
Department: H. Milton Stewart School of Industrial and Systems Engineering (ISyE)
Research Focus: Statistical Hypothesis Testing and Distributionally Robust Optimization
Advisor: Dr. Yao Xie

The Chinese University of Hong Kong, Shenzhen, China 2016.08-2020.06
B.S in Pure Mathematics GPA: 3.605/4.000
Department: School of Science and Engineering (SSE)

RESEARCH INTERESTS

Mathematical foundations of data science, with a particular interest in reliable hypothesis testing, data-driven decision-making under uncertainty, and network information theory. He develops robust and computationally efficient methodology with strong performance guarantees for statistical learning problems with offline/noisy/small-sample/high-dimensional data.

PUBLICATIONS

Journal Article Published

1. **J. Wang**, R. Gao and H. Zha, "Reliable Off-policy Evaluation for Reinforcement Learning," *Operations Research*, 2022, https://doi.org/10.1287/opre.2022.2382.

Journal Articles Submitted

1. **J. Wang**, R. Gao and Y. Xie, "Sinkhorn Distributionally Robust Optimization," *Submitted to Operations Research (decision: reject and resubmit)*, 2021. *(Winner of INFORMS 2022 Best Poster Award).*
2. S. Yang, **J. Wang**, Y. Dong and Y. Zhang, "Capacity Scalability of Line Networks with Batched Codes," *Submitted to IEEE Transactions on Information Theory*, 2021.
3. **J. Wang**, M. Chen, T. Zhao, W. Liao and Y. Xie, "A Manifold Two-Sample Test Study: Integral Probability Metric with Neural Networks," *Submitted to Information and Inference: A Journal of the IMA*, 2022.

Conference Papers Published

1. **J. Wang**, R. Moore, R. Kamaleswaran and Y. Xie, "Improving Sepsis Prediction Model Generalization With Optimal Transport", *Machine Learning for Health (ML4H) 2022.*
2. **J. Wang** and Y. Xie, "A Data-Driven Approach to Robust Hypothesis Testing Using Sinkhorn Uncertainty Sets," *IEEE International Symposium on Information Theory (ISIT), 2022.*
3. **J. Wang**, R. Gao and Y. Xie, "Two-sample Test with Kernel Projected Wasserstein Distance," *Artificial Intelligence and Statistics, 2022 (Oral Presentation, acceptance rate 44/1685 = 2.6%).*
4. **J. Wang**, R. Gao and Y. Xie, "Two-sample Test using Projected Wasserstein Distance," *IEEE International Symposium on Information Theory (ISIT), 2021.*

5. **J. Wang**, Z. Jia, H. H. Yin and S. Yang, "Small-Sample Inferred Adaptive Recoding for Batched Network Coding", *IEEE International Symposium on Information Theory (ISIT), 2021.*
6. S. Yang and **J. Wang**, "Upper Bound Scalability on Achievable Rates of Batched Codes for Line Networks", *IEEE International Symposium on Information Theory (ISIT), 2020.*
7. S. Yang, **J. Wang**, Y. Dong and Y. Zhang, "On the Capacity Scalability of Line Networks with Buffer Size Constraints," *IEEE International Symposium on Information Theory (ISIT), 2019.*
8. **J. Wang**, S. Yang and C. Li, "On the Tightness of a Cut-Set Bound on Network Function Computation," *IEEE International Symposium on Information Theory (ISIT), 2018.*
9. **J. Wang**, J. Ma, J. Yang and S. Yang, "Efficient Underwater Sensor Network Data Collection Employing Unmanned Ships," *The 14th ACM International Conference on Underwater Networks & Systems (wuwnet), 2019.*

Chapter

1. S. Yang, Y. Dong and **J. Wang**, "Finite-length Code and Application in Network Coding," *IEEE Information Theory Society Guangzhou Chapter Newsletter, No.1, July 2020.*

Conference Paper Submitted

1. **J. Wang**, X. Cheng and Y. Xie, "A Mean Field Analysis of Neural Network Two-Sample Tests," *Submitted to NeurIPS 2022.*
2. Y. Dong, **J. Wang**, S. Yang, and Raymond Yeung, "Understanding and Breaking the Multihop Curse of Wireless Networks," *Submitted to IEEE INFOCOM 2023.*

Working Papers

1. **J. Wang**, R. Gao and Y. Xie, "Regularization Effect of Sinkhorn Distributionally Robust Optimization ," *To be submitted to ICML 2023.*
2. **J. Wang**, S. Dey and Y. Xie, "Non-Parametric Variable Selection through the Lens of Mixed-Integer Program," *To be submitted to ICML 2023.*
3. **J. Wang**, H. H. Yin and S. Yang, "Chance-constrained Enabled Adapative Recoding for Batched Network Coding," *To be submitted to ISIT 2023.*
4. **J. Wang** and Y. Xie, "A Unified View Point of Feature Selection via Maximum Entropy Principle," *To be submitted to ISIT 2023.*

TEACHING

Teaching Assistant at Georgia Tech (Online) Fall 2020 - Spring 2021

Engineering Optimization (ISYE 3133)

Teaching Assistant at Georgia Tech (In-person) Fall 2021

Design and Analysis of Experiments (ISYE 6413)

PROFESSIONAL SERVICE

Journal Referee for:

- IEEE Transactions on Signal Processing
- IEEE Journal on Selected Areas in Information Theory
- IEEE Transactions on Information Theory

- Systems & Control Letters

Conference Reviewer for:

- AISTATS 2020, 2021, 2022, 2023
- NeurIPS 2022

PRESENTATIONS

2022 INFORMS Annual Meeting, oral talk and poster presentation

2022 SIAM Conference on Mathematics of Data Science

2022 International Conference on Continuous Optimization

2022 North American School of Information Theory, poster presentation

2022 Artificial Intelligence and Statistics, virtual

2021 INFORMS Annual Meeting, virtual

2021 IEEE International Symposium on Information Theory (ISIT), virtual

2020 ISIT, virtual

2019 ISIT, Paris, France

2019 International Conference on Underwater Networks & Systems, Atlanta, Georgia, USA

2018 ISIT, Vail, Colorado, USA