Jie Wang

Ph.D. Student, Georgia Institute of Technology
Email: jwang3163@gatech.edu | Homepage: https://walterbabyrudin.github.io/

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA 2020.08-2025.06 (Expected)

Ph.D. Student in Industrial Engineering at Statistic Track

Advisor: Dr. Yao Xie

The Chinese University of Hong Kong, Shenzhen, China 2016.08-2020.06

B.S in Pure Mathematics

Department: School of Science and Engineering (SSE)

RESEARCH INTERESTS

His research focuses on decision-making under uncertainty, through the lens of statistics and optimization. Especially, he develops robust and computationally efficient methodology with strong performance guarantees using offline/online, noisy, small-sample/ultra-large-sample, and high-dimensional datasets. He also explores the practical applications of his work in machine learning, healthcare, operations management, and wireless communication.

HONOR & AWARDS

Runner-up, INFORMS 2024 Computing Society Student Paper Award

Finalist, INFORMS 2024 Data Mining Best Paper Award Competition

Finalist, Next-Gen Scholar's Symposium 2024

Finalist, Data Challenge Competition on Offline Pricing, 2023 INFORMS Workshop on DMDA

Winner, Data Mining Best Theoretical Paper, 2023 INFORMS Workshop on DMDA

Travel Award, Mixed Integer Programming Workshop 2023

2022 ISyE Robert Goodell Brown Research Excellence award (Data Science and Statistics Track)

Honorable Mention, Best Student Poster Award, Georgia Statistics Day 2022

Winner, 2022 INFORMS Poster Competition

Best Performance Award for Ph.D. Comprehensive Exam in Statistics, 2021

Travel Award, IEEE International Symposium on Information Theory 2019 and 2024

PUBLICATIONS

Journal Articles Published

1. **J. Wang**, R. Gao and H. Zha. Reliable Off-policy Evaluation for Reinforcement Learning. *Operations Research*, 2022.
2. **J. Wang**, M. Chen, T. Zhao, W. Liao and Y. Xie. A Manifold Two-Sample Test Study: Integral Probability Metric with Neural Networks. *Information and Inference: A Journal of the IMA*, 2023.
3. **J. Wang**, S. Yang, Y. Dong and Y. Zhang. On Achievable Rates of Line Networks with Generalized Batched Network Coding. *IEEE Journal on Selected Areas in Communication*, 2024.

4. Y. Dong, S. Yang, **J. Wang** and F. Cheng. Throughput and Latency Analysis for Line Networks With Outage Links . *IEEE Journal on Selected Areas in Information Theory*, 2024.

Journal Articles Submitted

1. **J. Wang**, R. Gao and Y. Xie. Sinkhorn Distributionally Robust Optimization. *Major Revision at Operations Research*, 2023.
   - Winner of INFORMS 2022 Best Poster Award.
2. Y. Hu, **J. Wang**, X. Chen, and N. He. Multi-level Monte-Carlo Gradient Methods for Stochastic Optimization with Biased Oracles. *Under Review*, 2024.

Conference Papers Published

1. H. H. Yin and **J. Wang**. Sparse Degree Optimization for BATS Codes. Information Theory Workshop (ITW), 2024.
2. H. H. Yin, **J. Wang** and S. S. Chow. Distributionally Robust Degree Optimization for BATS Codes. IEEE International Symposium on Information Theory (ISIT), 2024.
3. **J. Wang**, R. Gao and Y. Xie. Non-Convex Robust Hypothesis Testing using Sinkhorn Uncertainty Sets. IEEE International Symposium on Information Theory (ISIT), 2024.
4. Y. Hu, **J. Wang**, Y. Xie, A. Krause and D. Kuhn. Conditional Stochastic Bilevel Optimization. *Neural Information Processing Systems (NeurIPS) 2023.* (Journal version to be submitted to Operations Research)
5. **J. Wang**, T. Bozkus, Y. Xie and U. Mitra. Reliable Adaptive Recoding for Batched Network Coding with Burst-Noise Channels. *Asilomar Conference on Signals, Systems, and Computers 2023.* (Journal version to be submitted to IEEE Transactions on Signal Processing)
6. **J. Wang**, R. Moore, R. Kamaleswaran and Y. Xie. Improving Sepsis Prediction Model Generalization With Optimal Transport. *Machine Learning for Health (ML4H) 2022.*
7. **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.*
8. **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%.
9. **J. Wang**, R. Gao and Y. Xie. Two-sample Test using Projected Wasserstein Distance. *IEEE International Symposium on Information Theory (ISIT), 2021.*
10. **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.*
11. 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.*
12. 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.*
13. **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.*
14. **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.*

Working Papers/Preprints

1. **J. Wang**, S. Dey and Y. Xie. Variable Selection for Kernel Two-Sample Testing.
    - Runner-up of the INFORMS 2024 Computing Society (ICS) Student Paper Award
    - Selected for Poster Presentation at Mixed Integer Programming (MIP) Workshop 2023.
    - In preparation to submit to Operations Research.
2. **J. Wang**, R. Gao and Y. Xie. Regularization for Adversarial Robust Learning.
    - Winner of 18th INFORMS DMDA Workshop Best Paper Competition - Theoretical Track.
    - In preparation to submit to Operations Research.

TEACHING

Instructor at Georgia Tech (In-person) Summer 2024

Simulation Analysis and Design (ISYE 3044)

Overall Evaluation: 4.8 out of 5.0

Instructor at Georgia Tech (In-person) Spring 2024

Statistics and Applications (ISYE 3770)

Overall Evaluation: 4.3 out of 5.0

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

Design and Analysis of Experiments (ISYE 6413)

Overall Evaluation: 4.7 out of 5.0

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

Engineering Optimization (ISYE 3133)

PROFESSIONAL SERVICE

Journal Referee for:

- IEEE Transactions on Signal Processing
- IEEE Journal on Selected Areas in Information Theory
- IEEE Transactions on Information Theory
- Mathematical Programming
- Journal of Global Optimization
- Optimization Letters
- Systems & Control Letters
- Operations Research
- Journal of Machine Learning Research

Conference Reviewer for:

- AISTATS 2020, 2021, 2022, 2023, 2024.
- ICLR 2024, 2025
- NeurIPS 2022, 2023, 2024
- ICML 2023, 2024

Program Committee Chair for: AAAI 2025

PRESENTATIONS

2024 Next-Gen Scholar's Symposium

2024 Purdue Operations Conference

2024 IEEE International Symposium on Information Theory (ISIT), Athens, Greece

2024 Princeton Workshop on Optimization, Learning, and Control

2024 International Symposium on Mathematical Programming

2024 ISyE Junior Researcher Workshop

2024 INFORMS Optimization Society Conference

2023 INFORMS Annual Meeting, oral talk and poster presentation

2023 INFORMS Workshop on DMDA

2023 SIAM Conference on Optimization

2023 Mixed Integer Programming (MIP) Workshop

2023 ICERM Linear and Non-Linear Mixed Integer Optimization Workshop

2022 INFORMS Annual Meeting, oral talk and poster presentation

2022 SIAM Seminar at University of Washington

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 IEEE International Symposium on Information Theory (ISIT), virtual

2019 IEEE International Symposium on Information Theory (ISIT), Paris, France

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

2018 IEEE International Symposium on Information Theory (ISIT), Vail, Colorado, USA

REFERENCES

Yao Xie
Coca-Cola Foundation Chair and Professor
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology
yao.xie@isye.gatech.edu

Rui Gao
Assistant Professor of Decision Science
McCombs School of Business
University of Texas at Austin
rui.gao@mccombs.utexas.edu

Xin Chen
James C. Edenfield Chair Professor
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology
xin.chen@isye.gatech.edu

Santanu S. Dey
Anderson-Interface professor
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology
santanu.dey@isye.gatech.edu