

SOPHIE H. YU

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RESEARCH INTERESTS

High-dimensional statistics, applied probability, operations research, machine learning, network science, information theory

EDUCATION

Ph.D. in Decision Sciences The Fuqua School of Business, Duke University Advisor: Prof. Jiaming Xu	Aug 2018 - May 2023
M.S. in Statistical and Economic Modeling Department of Statistical Science and Department of Economics, Duke University Advisor: Prof. Jerome P. Reiter	Aug 2015 - Dec 2017
B.S. in Economics, Public Finance The School of Finance, Renmin University of China	Aug 2011 - May 2015

WORK EXPERIENCE

Simons Institute for the Theory of Computing, UC Berkeley <i>Visiting Ph.D. student</i> Under program “ Computational Complexity of Statistical Inference ”	Aug 2021 – Dec 2021
Rhodes Information Initiative, Duke University <i>Research Project Manager & Students Mentor (3 undergraduate students)</i> Research project “ Detecting and Matching Similar Networks ”	June 2021 – Aug 2021

PREPRINTS AND PUBLICATIONS

1. Yehua Wei, Jiaming Xu, and Sophie H. Yu
“[Constant regret primal-dual policy for multi-way dynamic matching](#),”
Under major revision at *Management Science*, 2023
— A short version accepted to *ACM SIGMETRICS*, 2023
2. Cheng Mao, Yihong Wu, Jiaming Xu, and Sophie H. Yu
“[Random graph matching at Otter’s threshold via counting chandeliers](#),”
arXiv:2209.12313, Submitted to *Operations Research*
— A short version accepted to *The 55th ACM Symposium on Theory of Computing (STOC)*, 2023
3. Cheng Mao, Yihong Wu, Jiaming Xu, and Sophie H. Yu
“[Testing network correlation efficiently via counting trees](#),”
arxiv:2110.11816, Accepted at *Annals of Statistics*, 2023
— INFORMS 2022 George Nicholson Student Paper Competition Finalist, 2022
4. Yihong Wu, Jiaming Xu, and Sophie H. Yu
“[Testing correlation of unlabelled random graphs](#),”
arXiv:2008.10097, To appear in *Annals of Applied Probability*, 2022

5. Yihong Wu, Jiaming Xu, and Sophie H. Yu
“[Settling the Sharp Reconstruction Thresholds of Random Graph Matching](#),”
IEEE Transactions on Information Theory, vol. 68, no. 8, pp. 5391-5417, Aug 2022
— A short version appears at *IEEE International Symposium on Information Theory (ISIT)*, 2021
6. Haoyang Yu, and Jerome P. Reiter
“[Differentially Private Verification of Regression Predictions from Synthetic Data](#),”
Transactions on Data Privacy, 11 (2018) 279–297

TALKS

1. “Constant regret primal-dual policy for multi-way dynamic matching”
 - INFORMS Annual Meeting, Oct, 2023
 - ACM SIGMETRICS, June, 2023
 - Marketplace Innovations Workshop, May, 2023
2. “Random graph matching at Otter’s threshold via counting chandeliers”
 - INFORMS Applied Probability Society Conference, June, 2023.
 - The 55th ACM Symposium on Theory of Computing (STOC), June, 2023.
 - MIT FODSI Computational Complexity of Statistical Problems Workshop, June, 2023.
 - University of California, Davis, Probability Seminar, May, 2023.
 - Stanford University, GSB, OIT Seminar, Feb, 2023.
 - Columbia University, IEOR Seminar, Feb, 2023.
 - Duke University, Computer Science Algorithm Seminar, Jan, 2023.
 - University of Southern California, Marshall, Operations Seminar, Jan, 2023.
 - University of Southern California, Marshall, Statistics Seminar, Jan, 2023.
 - Northwestern University, Statistics Seminar, Jan, 2023.
 - University of Chicago, Booth, Operations Management Seminar, Jan, 2023.
 - Northwestern University, Kellogg, Operations Seminar, Dec, 2023.
 - Cornell University, Ithaca, ORIE Seminar, Dec, 2022.
 - Cornell Tech, ORIE Seminar, Dec, 2022.
 - Emory University, Goizueta, ISOM Seminar, Dec, 2022.
 - Georgia Institute of Technology, ISyE Seminar, Dec, 2022.
 - University of Pennsylvania, Wharton, OID Seminar, Dec, 2022.
 - University of Southern California, Viterbi School of Engineering, ISE Seminar, Nov, 2023.
 - University of California, Davis, GSM, Business Analytics Seminar, Nov, 2022.
 - INFORMS Annual Meeting, session TB41, Indianapolis, IN, Oct, 2022.
 - Cornell University, Cornell ORIE Young Researchers Workshop, Oct, 2022.
3. “Testing network correlation efficiently via counting trees”

- INFORMS Annual Meeting, George Nicholson Student Paper Competition, Indianapolis, IN, Oct, 2022.
- 4. “Random Graph Matching: the Fundamental Limit and Efficient Algorithms”
 - Duke University, the Fuqua School of Business, Interdisciplinary Seminar, Jan, 2022.
 - UC Berkeley, Simons Computational Complexity of Statistical Inference Student Seminar, Nov, 2021.
- 5. “Detection And Recovery Thresholds For Graph Matching,”
 - INFORMS Annual Meeting, session WC08, Anaheim, CA, Oct, 2021.
- 6. “Settling the Sharp Reconstruction Thresholds of Random Graph Matching,”
 - IEEE International Symposium on Information Theory conference, July, 2021.
- 7. “Random Graph Matching: the Fundamental Limit and Efficient Algorithms” (Poster)
 - IEEE North American School of Information Theory, Aug, 2022.
 - INFORMS Applied Probability Society, Stochastic Networks, June, 2022
 - NYC Operations Day, April, 2022.
 - Simons Computational Complexity of Statistical Inference and NSF AI Institute for Foundations of Machine Learning, UC Berkeley, Nov, 2021.

TEACHING EXPERIENCE

Instructor, EGRMGMT-580 Decision Models, Duke University	Spring 2022
(Overall Instructor Evaluation: 4.82/5.00, Response rate: 18/21, Department mean: 4.38/5.00)	
TA, PhD BA 915/STA 715/MATH 742: Stochastic Models, Duke University	Fall 2022
TA, PhD BA 990/ECE 590: Statistical Inference on Graphs, Duke University	Spring 2022
TA, PhD BA 910/Statistics 502: Bayesian Inference, Duke University	Spring 2021
TA, Weekend MBA Decision 611: Decision Models, Duke University	Fall 2022
TA, MBA Decision 516: Quantitative Business Analysis, Duke University	Fall 2020
TA, MBA Decision 521Q: Quantitative Business Analysis, Duke University	Fall 2020
TA, MQM Decision 518Q: Applied Probability and Statistics, Duke University	Fall 2019
TA, MQM Decision 521Q: Decision Analytics and Modeling, Duke University	Spring 2019
TA, ECON 618: Advanced Econometrics, Duke University	Fall 2016

PROFESSIONAL SERVICE

- Conferences and workshops:
 - Chair, “Online & Dynamic Matching: Innovative Approaches,” INFORMS Annual Meeting, Oct 15, 2023
 - Co-Chair, “Matchings in Random Graphs,” INFORMS Annual Meeting, Oct 17, 2022
- Reviewer:
 - Journals: Operations Research, Management Science, Annals of Statistics, Annals of Applied Probability, IEEE Transactions on Information Theory, Bernoulli

- Conferences: ACM-SIAM Symposium on Discrete Algorithms (SODA), Conference on Learning Theory (COLT), IEEE International Symposium on Information Theory (ISIT), Conference on Neural Information Processing Systems (NeurIPS)

AWARDS AND HONORS

Duke University Ph.D. Fellowship	2018-2023
Duke Graduate Merit Scholar Award	2015-2017
Duke Economics Master's Scholar Award	2015-2017
Renmin University Academic Scholarships	2011-2015
Renmin University Outstanding Student Awards	2011-2015