JIAMING XU

100 Fuqua Drive, Durham, NC 27708
The Fuqua School of Business ⋄ Duke University
(919)–660–8061 jx77@duke.edu

RESEARCH INTERESTS

Data analytics, operation research, artificial intelligence, high-dimensional statistics, network science, applied probability, information theory, queueing theory

EDUCATION

Ph.D. in Electrical and Computer Engineering — Dec. 2014
University of Illinois at Urbana-Champaign
Advisor: Prof. Bruce Hajek
Dissertation: "Statistical inference in networks: Fundamental limits and efficient algorithms"

M.S. in Electrical and Computer Engineering — May 2011
The University of Texas at Austin
Advisor: Prof. Jeffrey Andrews

B.E. in Electrical Engineering — July 2009
Tsinghua University

PROFESSIONAL EXPERIENCE

The Fuqua School of Business, Duke University
Associate Professor (Untenured) — July 2022 – Present

The Fuqua School of Business, Duke University
Assistant Professor — July 2018 – Present

Electrical and Computer Engineering (Secondary), Duke University
Assistant Professor — Jan. 2019 – Present

Simons Institute for the Theory of Computing, UC Berkeley
Visiting Scientist and Workshop Organizer,
Program "Computational Complexity of Statistical Inference" — Aug. 2021 – Dec. 2021

Krannert School of Management, Purdue University
Assistant Professor — Aug. 2016 – June 2018

Simons Institute for the Theory of Computing, UC Berkeley
Research Fellow, program "Counting Complexity & Phase Transitions" — Jan. 2016 – May 2016

Statistics Department, The Wharton School, University of Pennsylvania
Post-Doctoral Fellow, with Prof. Elchanan Mossel — Jan. 2015 – Dec. 2015

Technicolor Research Laboratory, Paris, France
Research Intern, with Dr. Laurent Massoulié and Dr. Marc Lelarge — June 2012 – Sept. 2012

AWARDS AND HONORS

Excellence in Teaching Award, Master of Quantitative Management 2024

Excellence in Teaching Award, Master of Quantitative Management 2021

Markov Lecture Discussant, Applied Probability Society 2019

Distinguished Instructor, Krannert School of Management, Purdue University 2017

Simons-Berkeley Research Fellowship 2016

The Wharton Dean's Post-Doctoral Fellowship 2015

Outstanding Graduate Student Award, College of Engineering, UIUC 2014

GRANTS

1. National Science Foundation Career Award (CCF-2144593) Aug. 2022- Aug. 2027
   "Federated Learning: Statistical Optimality and Provable Security,"
   PI, (Total funding and my share $632,842)
2. National Science Foundation Award (CCF-1856424) July 2019 - June 2023
   "Learning in Networks: Performance Limits and Algorithms,"
   co-PI, with Bruce Hajek and Yihong Wu, (Total funding $1.2M; my share $435,369)
3. National Science Foundation Award (IIS-1932630) Oct. 2018 - Sept. 2021
   "Mining for Patterns in Graphs and High-Dimensional Data: Achieving the Limits,"
   co-PI, with Cristopher Moore, (Total funding $1.06M; my share $345,168)
4. National Science Foundation Award (CCF-1850743) Aug. 2018 - Mar. 2021
   "Learning Hidden Structures in Networks: Fundamental Limits and Efficient Algorithms,"
   PI, (Total funding and my share $174,351)

TEACHING EXPERIENCE

MQM 546Q: Modern Analytics
(Master of Quantitative Management), Duke University Fall 2023

Decision 611: Decision Models
(Daytime MBA program), Duke University Spring 2023

Decision 611W: Decision Models
(Weekend Executive MBA program), Duke University Summer 2022

Decision 521Q: Decision Analytics & Modeling
(Master of Quantitative Management), Duke University Spring 2019, 2020, 2021

BA990 & ECE 590: Statistical Inference on Graphs (Ph.D.), Duke University Spring 2020, 2022

MGMT 472: Advanced Modeling & Simulation (Undergraduate), Purdue University Fall 2017

MGMT 306: Management Science (Undergraduate), Purdue University Spring, Fall 2017

MGMT 690: Topics in High-dimensional Data Analysis (Ph.D.), Purdue University Fall 2016

ECE 313: Probability with Engineering Applications (Undergraduate), UIUC Summer 2014

PH.D. STUDENTS AND POST-DOCS

Simiao Jiao, Ph.D. student 2023 – present
The Fuqua School of Business, Duke University

Xiaochun Niu, post-doc fellow 2024 – present
The Fuqua School of Business, Duke University

Sophie H. Yu 2018 – 2023
(Co-advise with Prof. Yehua Wei), The Fuqua School of Business, Duke University
Initial Placement: Assistant Professor at Wharton School, University of Pennsylvania

Hanjing Zhu 2018 – 2023
The Fuqua School of Business, Duke University
Initial Placement: industry (Amazon)

Liren Yu 2018 – 2023
(Co-advise with Prof. Xiaojun Lin), Electrical and Computer Engineering, Purdue University
Initial Placement: industry (Huawei)

Zhiyi Tian 2016 – 2021
Dissertation: "Clustering High-dimensional Noisy Categorical and Mixed Data"
(co-advise with Prof. Jen Tang), Krannert School of Management, Purdue University
Initial placement: industry (IQVIA)

Dana Yang, post-doc fellow 2019 – 2021
Initial Placement: Assistant Professor at Department of Statistics and Data Science, Cornell University

PREPRINTS

1. I. Keskin, and J. Xu,
"Learner-Private Convex Optimization with Bandit Feedback,"
SSRN Preprint, to be submitted to *Operations Research*, July 2024

2. X. Niu, L. Su, J. Xu, and P. Yang,
"Personalized Federated Learning with Shared Linear Representation: Statistically Optimal Rates,"
Preprint, to be submitted to *Operations Research*, July 2024

3. S. Jiao, Y. Wu, and J. Xu,
"Detection Thresholds for the Broken Sample Problem,"
Preprint, to be submitted to *Annals of Statistics*, July 2024

4. J. Gaudio, C. Sandon, J. Xu, and D. Yang,
"All-Something-Nothing Phase Transitions in Planted Subgraph Recovery,"
Preprint, to be submitted to *Annals of Applied Probability*, July 2024

5. L. Yu, J. Xu, and X. Lin,
"Leveraging Local and Global Matching in GNN-based Seedless Graph Matching,"
under submission, 2024 Conference on Neural Information Processing Systems (NeurIPS)

6. Leon Lufkin, Yihong Wu, and Jiaming Xu
"Sharp Information-Theoretic Thresholds for Shuffled Linear Regression,"
arXiv:2402.09693, January 2024
Short version appeared in *2024 International Symposium on Information Theory*, July 2024

7. L. Su, M. Xiang, J. Xu, and P. Yang,
"Federated Learning in the Presence of Adversarial Client Unavailability,"
arXiv:2305.19971, Feb. 2024

8. **[Candidate rank: 2]** C. Mao, Y. Wu, J. Xu, and S. H. Yu,
"Random graph matching at Otter's threshold via counting chandeliers,"
arXiv:2209.12313, submitted to *Operations Research*, Sept. 2023
Short version appeared in *2023 ACM Symposium on Theory of Computing (STOC)*, June 2023.

9. **[Candidate rank: 3]** Y. Wei, J. Xu, and S. H. Yu,
"Constant regret primal-dual policy for multi-way dynamic matching,"
SSRN Preprint, under revision and to be resubmitted to *Management Science*, Dec. 2023
Short version appeared in *2023 ACM SIGMETRICS Conference*

PEER-REVIEWED JOURNAL PUBLICATIONS

10. L. Su, J. Xu, and P. Yang,
"Global Convergence of Federated Learning for Mixed Regression,"
arXiv:2206.07279, accepted, *IEEE Trans. Inf. Theory*, July 2024
Short version appeared in *2022 Conference on Neural Information Processing Systems (NeurIPS)*

11. J. Xu and H. Zhu,
"Overparametrized multi-layer neural networks: uniform concentration of neural tangent kernel and convergence of stochastic gradient descent,"
accepted to *The Journal of Machine Learning Research*, April 2024
Short version appeared in *2021 International Conference on Artificial Intelligence and Statistics (AISTATS)*

12. Z. Tian, J. Xu, and J. Tang,
"Clustering High-dimensional Noisy Categorical Data,"
accepted to *Journal of the American Statistical Association*, December 2023

13. J. Ding, Y. Wu, J. Xu, and D. Yang,
"The planted matching problem: Sharp threshold and infinite-order phase transition,"
arXiv:2103.09383, *Probability Theory and Related Fields*, June 2023

14. **[Candidate rank: 4]** C. Mao, Y. Wu, J. Xu, and S. H. Yu,
"Testing network correlation efficiently via counting trees,"
arXiv:2110.11816, To appear in *Annals of Statistics*, July 2024
Selected as the George Nicholson Student Paper Competition Finalist

15. L. Su, J. Xu, and P. Yang,
"A non-parametric view of FedAvg and FedProx: beyond stationary points,"
arXiv:2106.15216, *The Journal of Machine Learning Research*, May 2023

16. J. Xu, K. Xu, and D. Yang,
"Learner-private online convex optimization,"
arXiv:2102.11976, Jan. 2023, *IEEE Trans. Inf. Theory*
Short version appeared in *2021 International Conference on Machine Learning (ICML)*

17. Z. Fan, C. Mao, Y. Wu, and J. Xu,
"Spectral graph matching and regularized quadratic Relaxations I: The Gaussian model,"
arXiv:1907:08880, *Foundations of Computational Mathematics*, June 2022
Short version appeared in *2020 International Conference on Machine Learning (ICML)*

18. Z. Fan, C. Mao, Y. Wu, and J. Xu,
"Spectral graph matching and regularized quadratic relaxations II: Erdős-Rényi graphs and universality,"
arXiv:1907:08883, *Foundations of Computational Mathematics*, June 2022

19. Y. Wu, J. Xu, and S. H. Yu,
"Settling the Sharp Reconstruction Thresholds of Random Graph Matching,"
arXiv:2102.00082, *IEEE Trans. Inf. Theory*, vol. 68, no. 8, pp. 5391 - 5417, August 2022
Short version appeared in *2021 International Symposium on Information Theory (ISIT)*

20. Y. Wu, J. Xu, and S. H. Yu,
"Testing correlation of unlabelled random graphs,"

arXiv:2008.10097, *The Annals of Applied Probability*, vol. 33, no. 4, pp. 2519–2558, 2023.

21. **[Candidate rank: 5]** W. Hsu, J. Xu, X. Lin, and M. Bell,
"Integrate learning and control in queueing systems with uncertain payoffs,"
Operations Research, vol. 70, no. 2, pp. 1166–1181, 2022

22. G. Reeves, J. Xu, and I. Zadik,
"The all-or-nothing phenomenon in sparse linear regression,"
Mathematical Statistics and Learning, vol. 3, no. 3, pp. 259–313, Dec. 2021
Short version appeared in *2019 Conference on Learning Theory (COLT)*

23. **[Candidate rank: 6]** M. Moharrami, C. Moore, and J. Xu,
"The planted matching problem: Phase transitions and exact results,"
The Annals of Applied Probability, vol. 31, no. 6, pp. 2663–2720, Dec. 2021

24. L. Yu, J. Xu, and X. Lin,
"Graph Matching with Partially-Correct Seeds,"
The Journal of Machine Learning Research, Vol. 22, no. 280, pp. 1–54, 2021

25. J. Ding, Y. Wu, J. Xu, and D. Yang,
"Consistent recovery threshold of hidden nearest neighbor graphs,"
IEEE Trans. Inf. Theory, vol. 67, no. 8, pp. 5211–5229, Aug. 2021.
Short version appeared in *2020 Conference on Learning Theory (COLT)*

26. J. Ding, Z. Ma, Y. Wu, and J. Xu,
"Efficient random graph matching via degree profiles,"
Probability Theory and Related Fields, vol. 179, no. 1, pp. 29–115, Feb. 2021

27. L. Yu, J. Xu, and X. Lin,
"The Power of D-hops in Matching Power-Law Graphs,"
Proc. of the ACM on Measurement and Analysis of Computing Systems, Vol. 5, no. 2, pp. 1–43, June 2021

28. J. Xu and Y. Zhong,
"Improved queue-size scaling for input-queued switches via graph factorization,"
Journal of Applied Probability, vol. 52, no. 3, pp. 798-824, Sept. 2020
Short version appeared in *2019 ACM SIGMETRICS*

29. E. Mossel and J. Xu,
"Seeded graph matching via large neighborhood statistics,"
Random Structures & Algorithms, vol. 57, no. 3, pp. 570-611, June 2020
Short version appeared in *2019 ACM-SIAM Symposium on Discrete Algorithms (SODA)*

30. **[Candidate rank: 7]** X. Li, Y. Chen, and J. Xu,
"Convex relaxation methods for community detection,"
Statistical Science, vol. 36, no. 1, pp. 2-15, 2021

31. **[Candidate rank: 1]** V. Bagaria, J. Ding, D. Tse, Y. Wu, and J. Xu,
"Hidden Hamiltonian cycle recovery via linear programming,"
Operations Research, vol. 68, no. 1, Jan. 2020

32. L. Su and J. Xu,
"Securing distributed machine learning in high Dimensions,"
Proc. of the ACM on Measurement and Analysis of Computing Systems, vol. 3, no. 1, Mar. 2019

33. J. Banks, C. Moore, N. Verzelen, R. Vershynin, and J. Xu,
"Information-theoretic bounds and phase transitions in clustering, sparse PCA, and submatrix localization,"

IEEE Trans. Inf. Theory, vol. 67, no. 7, pp. 4872–4894, July 2018
Short version appeared in *2017 IEEE International Symposium on Information Theory (ISIT)*

34. B. Hajek, Y. Wu, and J. Xu,
"Recovering a hidden community beyond the Kesten-Stigum threshold in $O(|E| \log^* |V|)$ time,"
Journal of Applied Probability, vol. 55, no. 2, pp. 325–352, June 2018

35. S. Negahban, S. Oh, K. Thekumparampil, and J. Xu,
"Learning from comparisons and choices,"
The Journal of Machine Learning Research, 2018

36. Y. Chen, X. Li, and J. Xu,
"Convexified modularity maximization for degree-corrected stochastic block models,"
The Annals of Statistics, vol. 46, no. 4, pp. 1573–1602, June 2018

37. B. Hajek, Y. Wu, and J. Xu,
"Submatrix localization via message passing,"
The Journal of Machine Learning Research, vol. 18, no. 186, pp. 1-52, Apr. 2018

38. **[Candidate rank: 10]** Y. Chen, L. Su, and J. Xu,
"Distributed statistical machine learning in adversarial settings: Byzantine gradient descent,"
Proc. of the ACM on Measurement and Analysis of Computing Systems, vol. 1, no. 2, Dec. 2017

39. B. Hajek, Y. Wu, and J. Xu,
"Information limits for recovering a hidden community,"
IEEE Trans. Inf. Theory, vol. 63, pp. 4729–4745, Aug. 2017
Short version appeared in *2016 IEEE International Symposium on Information Theory (ISIT)*

40. B. Hajek, Y. Wu, and J. Xu,
"Achieving exact cluster recovery threshold via semidefinite programming: Extensions,"
IEEE Trans. Inf. Theory, vol. 62, pp. 5918–5937, Oct. 2016

41. **[Candidate rank: 9]** B. Hajek, Y. Wu, and J. Xu,
"Achieving exact cluster recovery threshold via semidefinite programming,"
IEEE Trans. Inf. Theory, vol. 62, pp. 2788–2797, May 2016
Short version appeared in *2015 IEEE International Symposium on Information Theory (ISIT)*

42. M. Lelarge, L. Massoulié, and J. Xu,
"Reconstruction in the labeled stochastic block model,"
IEEE Transactions on Network Science and Engineering, vol. 2, pp. 152–163, Oct. 2015
Short version appeared in *2013 IEEE Information Theory Workshop (ITW)*

43. Y. Chen and J. Xu,
"Statistical-computational tradeoffs in planted problems and submatrix localization with a growing number of clusters and submatrices,"
The Journal of Machine Learning Research, vol. 17, no. 1, pp. 882–938, 2016
Short version appeared in *2014 International Conference on Machine Learning (ICML)*

44. **[Candidate rank: 8]** J. Xu and B. Hajek,
"The supermarket game,"
Stochastic Systems, no. 3, pp. 405–441, 2013
Short version appeared in *2012 IEEE International Symposium on Information Theory (ISIT)*

45. J. Xu, J. Andrews, and S. Jafar,
"MISO broadcast channels with delayed finite-rate feedback: Predict or observe?,"
IEEE Trans. Wireless Commun., vol. 11, pp. 1456–1467, Apr. 2012
Short version appeared in *2011 Allerton Conference on Communication, Control, and Computing*

46. J. Xu, J. Zhang, and J. Andrews,
"On the accuracy of the Wyner model in cellular networks,"
IEEE Trans. Wireless Commun., vol. 10, pp. 3098–3109, Sept. 2011
Short versions appeared in *2011 IEEE International Conference on Communications (ICC)* and *2010 IEEE Global Telecommunications Conference (GLOBECOM)*

PEER-REVIEWED CONFERENCE PROCEEDINGS

47. L. Yu, J. Xu, and X. Lin,
"SeedGNN: Graph Neural Networks for Supervised Seeded Graph Matching,"
arXiv:2205.13679, *The International Conference on Machine Learning (ICML)*, July 2023

48. H. Wang, Y. Wu, J. Xu, and I. Yolou,
"Random graph matching in geometric models: the case of complete graphs"
arXiv:2202.10662, in *Proceedings of Conference on Learning Theory (COLT)*, July 2022

49. J. Xu, K. Xu, and D. Yang,
"Optimal query complexity for private sequential learning,"
2021 International Conference on Artificial Intelligence and Statistics (AISTATS),

50. J. Xu,
"Rates of convergence of spectral methods for graphon estimation,"
in *Proceedings of International Conference on Machine Learning (ICML)*, July 2018

51. F. Krzakala, J. Xu, and L. Zdeborová,
"Mutual information in rank-one matrix estimation,"
in *Proceedings of IEEE Information Theory Workshop (ITW)*, Sept. 2016

52. B. Hajek, Y. Wu, and J. Xu,
"Semidefinite programs for exact recovery of a hidden community,"
in *Proceedings of Conference on Learning Theory (COLT)*, June 2016

53. E. Mossel and J. Xu,
"Density evolution in the degree-correlated stochastic block model,"
in *Proceedings of Conference on Learning Theory (COLT)*, June 2016

54. E. Mossel and J. Xu,
"Local algorithms for block models with side information,"
in *Proceedings of Innovations in Theoretical Computer Science (ITCS)*, Jan. 2016

55. S. Oh, K. K. Thekumparampil, and J. Xu,
"Collaboratively learning preferences from ordinal data,"
in *Proceedings of Neural Information Processing Systems (NeurIPS)*, Dec. 2015

56. B. Hajek, Y. Wu, and J. Xu,
"Computational lower bounds for community detection on random graphs,"
in *Proceedings of Conference on Learning Theory (COLT)*, June 2015

57. R. Wu, J. Xu, R. Srikant, L. Massoulié, M. Lelarge, and B. Hajek,
"Clustering and inference from pairwise comparisons,"
in *Proceedings of ACM SIGMETRICS*, short paper, June 2015

58. B. Hajek, S. Oh, and J. Xu,
"Minimax-optimal inference from partial rankings,"
in *Proceedings of Neural Information Processing Systems (NeurIPS)*, Dec. 2014

59. J. Xu, R. Wu, K. Zhu, B. Hajek, R. Srikant, and L. Ying,
"Jointly clustering rows and columns of binary matrices: Algorithms and trade-offs,"

in *Proceedings of ACM SIGMETRICS*, June 2014

60. J. Xu, L. Massoulié, and M. Lelarge,
"Edge label inference in generalized stochastic block models: from spectral theory to impossibility results,"
in *Proceedings of Conference on Learning Theory (COLT)*, June 2014

INVITED PAPERS

61. B. Hajek, Y. Wu, and J. Xu,
"Achieving exact cluster recovery threshold via semidefinite programming under the stochastic block model,"
in *Proceedings of Asilomar Conference on Signals, Systems, and Computers*, Nov. 2015

62. B. Hajek, Y. Wu, and J. Xu,
"Exact recovery threshold in the binary censored block model,"
in *Proceedings of IEEE Information Theory Workshop (ITW)*, Oct. 2015

LECTURE NOTES AND BOOK CHAPTERS

1. Y. Wu and J. Xu,
"Statistical inference on graphs: Selected topics"
`https://people.duke.edu/~jx77/stats-graphs.pdf`

2. Y. Wu and J. Xu,
"Statistical problems with planted structures: Information-theoretical and computational limits,"
Information-theoretic Methods in Data Science, Cambridge University Press, March 2021

INVITED SEMINARS

- Peking University, School of Mathematics, May 2024
- MIT, Department of Mathematics, Mar. 2024
- Georgia Tech, Artificial Intelligence Institute for Advances in Optimization, April 2024
- North Carolina State University, Statistics Department, Oct. 2022
- Stanford Virtual Group Meeting, Sept. 2022
- LU-NU-UMN Joint Probability Seminar, Jan. 2022
- Duke University, Department of Computer Science, Nov. 2021
- Northwestern University, Industrial Engineering and Management Sciences, Oct. 2021
- UC Berkeley, Simons Institute of Theory of Computing, Oct. 2021
- Harvard University, Statistics and School of Engineering and Applied Sciences, June 2021
- UC Berkeley, Electrical Engineering and Computer Science, May 2021
- Stochastic Networks, Applied Probability, and Performance (SNAPP) Seminar, Mar. 2021
- Boston University, Electrical and Computer Engineering, Mar. 2020
- The University of Chicago, Booth Business School, Feb. 2020
- Yale University, Electrical Engineering, Feb. 2020
- Stanford University, Electrical Engineering, Nov. 2019
- UC Berkeley, Electrical Engineering and Computer Science, Oct. 2019

– Duke University, Department of Mathematics, Oct. 2019
– MIT, Workshop on Graphical models, Exchangeable models and Graphons, Aug. 2019
– University of Pennsylvania, Wharton Statistics Department, Apr. 2019
– Duke University, Department of Computer Science, Oct. 2018
– Chinese Academy of Sciences, Oct. 2018
– Peking University, School of Mathematics, Oct. 2018
– University of Illinois at Chicago, Business School, Mar. 2019
– Georgia Tech, H. Milton Stewart School of Industrial and Systems Engineering, Mar. 2019
– The University of Chicago, Booth School of Business, Feb. 2018
– Duke University, The Fuqua School of Business, Feb. 2018
– Duke University, The Fuqua School of Business, Dec. 2017
– Cornell University, School of Operations Research and Information Engineering, Nov. 2017
– Purdue University, Krannert School of Management, Feb. 2017
– Yale University, Department of Statistics and Data Science, Oct. 2016
– Purdue University, Industrial Engineering Department, Sept. 2016
– Stanford University, Graduate School of Business, Apr. 2016
– UC Berkeley, Simons Institute of Theory of Computing, Apr. 2016
– Santa Fe Institute, June 2016
– Purdue University, Statistics Department, Sept. 2016
– Purdue University, Krannert School of Management, Jan. 2016
– University of Michigan, Electrical and Computer Engineering, Feb. 2016
– Princeton University, Electrical Engineering, Feb. 2016
– Imperial College London, Business School, Dec. 2015
– Korea Advanced Institute of Science and Technology, School of Electrical Engineering, Oct. 2015
– Princeton University, Program in Applied and Computational Mathematics, Apr. 2015
– Harvard University, Electrical Engineering, Jan. 2015
– UC Berkeley, Department of Statistics, Oct. 2014
– Stanford University, Department of Electrical Engineering, Sept. 2014
– University of Pennsylvania, Wharton Statistics Department, Aug. 2014
– UIUC, Department of Computer Science, Mar. 2014
– UIUC, Department of Electrical and Computer Engineering, Nov. 2013
– Technicolor Paris Research Lab, June 2012

SELECTED CONFERENCE PRESENTATIONS

1. *Sharp statistical limits for shuffled linear regression*

- Tsinghua University, MostlyOM Workshop, May 2024
- Canada Banff Research Station, Feb. 2024

2. *Random graph matching at Otter's threshold via counting chandeliers*
   - Stochastic Networks Conference, Stockholm, Sweden, July 2024
   - Workshop on Statistical Network Analysis and Beyond, Nassau, Bahamas, June 2024
   - Workshop on Learning in Networks: Discovering Hidden Structure, Northwestern University, April 2024
   - International Chinese Statistical Association Conference, Hong Kong, July 2023
3. *All-Something-Nothing phase transition in planted subgraph recovery problems*
   - INFORMS Annual Meeting, Phoenix, Oct. 2023
   - Allerton Conference on Communication, Control, and Computing, Monticello, Sept. 2023
4. *Towards a mathematical foundation of federated learning: a statistical perspective*
   - International Indian Statistical Association Conference, Golden City, June 2023
5. *Global convergence of federated learning for mixed regression*
   - Allerton Conference on Communication, Control, and Computing, Monticello, Sept. 2022
6. *Random graph matching in geometric models: the case of complete graphs*
   - Applied Probability Society Conference 2023
   - Canadian Workshop on Information Theory (CWIT) 2022
7. *Testing network correlation efficiently via counting trees*
   - Joint Statistical Meeting, Aug. 2022
   - Annual Conference on Information Sciences and Systems, Mar. 2022
8. *Testing correlations of unlabelled random graphs*
   - The ICSA Applied Statistics Symposium, Sept. 2021
   - Joint Statistical Meeting, Aug. 2021
   - Computational and Methodological Statistics Conference, Dec. 2020
   - Simons Institute Workshop: Computational Phase Transitions, Sept. 2020
9. *Spectral graph matching and regularized quadratic relaxations*
   - Information Systems Laboratory Colloquium, Stanford, Nov. 2019
   - Applied Probability Society Markov Lecture Discussant, Seattle, Oct. 2019
   - Berkeley Laboratory for Information and System Sciences Seminar, UC Berkeley, Oct. 2019
   - Probability Seminar, Department of Mathematics, Duke University, Oct. 2019
   - Workshop on Graphical models, Exchangeable models and Graphons, MIT, Aug. 2019
10. *Efficient random graph matching via degree profiles*
    - Applied Probability Society Meeting, Brisbane, Austria, July 2019
11. *Improved queue-size scaling for input-queued switches via graph factorization*

- MostlyOM Workshop, The Chinese University of Hong Kong, Shenzhen, June 2019

12. *Efficient graph matching via neighborhood statistics*
    - International workshop on Physics, Inference and Learning, Chinese Academy of Sciences, Oct. 2018
    - School of Mathematics, Peking University, Oct. 2018
    - Allerton Conference on Communication, Control, and Computing, Monticello, Oct. 2018
13. *Achieving exact recovery threshold of traveling salesman problems via linear programming: Applications to DNA sequencing*
    - Information and Decision Sciences Seminar, Business School, University of Illinois at Chicago, Mar. 2019
    - Statistics Seminar, ISyE, GeorgiaTech, Mar. 2019
    - IMS Annual Meeting on Probability and Statistics, July 2018
    - 2018 ShanghaiTech Workshop on Information, Learning and Decision, June 2018
    - Workshop on Limits to Inference in Networks and Noisy Data, Santa Fe Institute, Apr. 2018
    - Booth School of Business, The University of Chicago, Feb. 2018
    - Workshop in Operations Research and Data Science, Duke University, Dec. 2017
    - School of Operations Research and Information Engineering, Cornell University, Nov. 2017
    - Allerton Conference on Communication, Control, and Computing, Monticello, Oct. 2017
14. *DNA seriation under planted Hamiltonian path model*
    - Joint Statistical Meeting, Baltimore, Aug. 2017
    - Simons Institute at UC Berkeley, June 2017
    - Industrial Engineering Department, Purdue University, Mar. 2017
    - Workshop on Statistical Physics, Learning, Inference and Networks, Les Houches, France, Feb. 2017
    - Information Theory and Applications Workshop (ITA), Feb. 2017
15. *Semidefinite programming relaxations for recovering hidden communities*
    - Applied Probability Society Meeting, July 2017
    - Fudan International Conference on Data Science, Dec. 2016
    - INFORMS Annual Meeting, Nashville, Nov. 2016
    - Industrial Engineering Department, Purdue University, Sept. 2016
    - Statistics Department, Purdue University, Sept. 2016
    - Sante Fe Institute, June 2016
16. Community detection in networks: Algorithms, complexity, and information limits
    - HajekFest: A Workshop on Networks, Games, and Algorithms, UIUC, Oct. 2015
    - Graduation-Day Talks, Information Theory and Applications Workshop (ITA), Feb. 2015

ACADEMIC SERVICE

- Co-organizer, CMO Workshop on "Learning in Networks: Performance Limits and Algorithms," Banff International Research Station, Oaxaca, Mexico, Nov. 2022
- Co-organizer, Operations Research and Data Science Workshop, Duke University, 2019, 2022, 2023, 2024
- Co-organizer, Simons Institute Workshop on "Algorithmic Advances for Statistical Inference with Combinatorial Structure," UC Berkeley, Oct. 2021
- Organizing Committee Member, 2020 ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)
- Co-organizer, Conference on Data Science for Business and Economics, Purdue University, May 2018
- Judge, 2024, 2023 INFORMS JFIG (Junior Faculty Forum) Paper Competition
- Judge, 2023, 2022 George Nicholson Student Paper Competition Committee
- Judge, 2022, 2021 Applied Probability Society Student Paper Competition
- Program Committee Member
  - 2024, 2023, 2022 Conference on Learning Theory
  - 2021 International Symposium on Computer Performance, Modeling, Measurements and Evaluation (IFIP)
  - 2021 Reinforcement Learning in Networks and Queues Workshop
  - 2020, 2019, 2018 ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)
  - 2017 International Conference on Artificial Intelligence and Statistics
- Session Organizer and Chair
  - 2022, 2021, 2017, 2016 INFORMS Annual Meeting
  - 2024, 2023, 2022, 2019 Allerton Conference on Communication, Control, and Computing

EDITORIAL ACTIVITIES

- Co-guest editor, special issue on "Learning and Control in Stochastic Networks" for *Queueing Systems: Theory and Applications (QUESTA)*
- Reviewer:
  - Journals: *Operations Research*, *Management Science*, *Stochastic Systems*, *Mathematics of Operations Research*, *Mathematical Programming*, *Queueing Systems*, *The Annals of Statistics*, *Journal of the American Statistical Association*, *Probability Theory and Related Fields*, *The Annals of Probability*, *The Annals of Applied Probability*, *The Journal of Machine Learning Research*, *Bernoulli*, *Information and Inference*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Network Science and Engineering*, *IEEE Transactions on Wireless Communications*, *IEEE J. Sel. Areas Commun.*, *Journal of Selected Topics in Signal Processing*
  - Conferences: *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*, *International Symposium on Computer Performance, Modeling, Measurements and Evaluation (IFIP)*, *Conference on Learning Theory (COLT)*, *ACM Symposium on Theory of Computing (STOC)*, *IEEE Symposium on Foundations of Computer Science*

(FOCS), *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, *IEEE International Symposium on Information Theory (ISIT)*, *Neural Information Processing Systems annual meeting (NeurIPS)*, *International Conference on Artificial Intelligence and Statistics (AISTATS)*

PROFESSIONAL SERVICE

- Thesis Committee member:
  - Yan Chen, The Fuqua School of Business, Duke University
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