Yuxin Chen

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Appointments

07/2025–present	University of Pennsylvania
	Professor, Statistics and Data Science
	Professor, Electrical and Systems Engineering (secondary appointment)
01/2022–06/2025	University of Pennsylvania
	Associate Professor, Statistics and Data Science
	Associate Professor, Electrical and Systems Engineering (secondary appointment)
02/2017–12/2021	Princeton University
	Assistant Professor, Electrical and Computer Engineering
	Associated Faculty, Computer Science & Applied and Computational Mathematics

Education

Stanford University, Postdoc in Statistics, 01/2015 – 01/2017, Advisor: Emmanuel J. Candès.

Stanford University, Ph. D. in Electrical Engineering, 06/2010 – 01/2015, Advisor: Andrea J. Goldsmith.

Stanford University, M.S. in Statistics, 04/2011 – 12/2013.

Stanford University, Ph. D. minor in Management Science and Engineering, 06/2010 – 01/2015.

University of Texas at Austin, M.S. in Electrical and Computer Engineering, 08/2008 – 05/2010, Advisor: Jeffrey G. Andrews.

Tsinghua University, B.E. in Electronic Engineering / Microelectronics, 08/2004 – 07/2008 (graduated with high distinction).

Honors and awards

IEEE Information Theory Society Distinguished Lecturer	2025
Amazon Research Award	2025
SIAM Activity Group on Imaging Science Best Paper Prize	2024
IEEE Transactions on Power Electronics (TPEL) Prize Paper Award (first place)	2024
Wharton Undergraduate Program Teaching Excellence Award	2024
Alfred P. Sloan Research Fellowship	2022
Google Research Scholar Award	2022
Undergraduate Program Teaching Excellence Award	2022
Princeton SEAS Junior Faculty Award (E. Lawrence Keyes, Jr./Emerson Electric Co. Faculty Advancement Award)	2021
Paper [J20.] is selected as Finalist, INFORMS George Nicholson Award	2021
Princeton Graduate Mentoring Award	2020
ICCM Best Paper Award (Gold Medal)	2020
ARO Young Investigator Program (YIP) Award	2020
Princeton SEAS Innovation Award	2020
Princeton Engineering Commendation List for Outstanding Teaching	2020

Finalist for the Best Paper Prize for Young Researchers in Continuous Optimization	2019
Princeton Engineering Commendation List for Outstanding Teaching	2019
AFOSR Young Investigator Program (YIP) Award	2019
Princeton Engineering Commendation List for Outstanding Teaching	2018
Princeton SEAS Innovation Award	2018
Princeton Engineering Commendation List for Outstanding Teaching	2017
Finalist for the Bell Labs Prize	2015
Graduated with High Distinction, Tsinghua University	2008

Ph. D. supervision

1. Yu Huang (Wharton Statistics, co-advised with Yuting Wei)
2. Zhihan Huang (Wharton Statistics, co-advised with Yuting Wei)
3. Chris Zhanran Lin (Wharton Statistics, co-advised with Zhimei Ren and Yuting Wei)
4. Eshaan Nichani (Princeton ECE, co-advised with Jason Lee)
5. Wenhao Zhan (Princeton ECE, co-advised with Jason Lee)
6. Jack Ji, *Reinforcement Learning Agents in Large-Scale AI: Efficient Training and Tighter Analysis*, 2025 (first job: Google DeepMind)
7. Yuling Yan, *Statistical Learning and Optimal Decision Making under Uncertainty*, 2023 (now faculty, Department of Statistics, University of Wisconsin–Madison)
8. Yanxi Chen, *Machine Learning and Optimization with Latent Variables*, 2023 (first job: Alibaba DAMO Academy)
9. Changxiao Cai, *Efficient Estimation and Inference in Nonconvex Low-Complexity Models*, 2021 (now faculty, Department of Industrial and Operations Engineering, University of Michigan-Ann Arbor)
10. Cong Ma, *Statistics Meets Nonconvex Optimization: Computational Efficiency and Uncertainty Quantification*, 2020 (now faculty, Department of Statistics, University of Chicago)

Postdoc supervision

1. Jianhao Ma, Postdoc, 2025–present (incoming faculty, Department of Industrial Engineering, Tsinghua University)
2. Yuepeng Yang, Postdoc, 2025–present (co-advised with Yuejie Chi)
3. Jiadong Liang, Postdoc, 2024–present
4. Zihan Zhang, Postdoc, 2023–2025 (now faculty, Department of Computer Science and Engineering, Hong Kong University of Science and Technology (HKUST))
5. Yuchen Wu, Department postdoc, 2023–2025 (now faculty, School of Operations Research and Information Engineering, Cornell University)
6. Yuchen Zhou, Postdoc, 2021–2024 (now faculty, Department of Statistics, University of Illinois Urbana-Champaign)
7. Hong Hu, Postdoc, 2022–2024 (now faculty, Department of Electrical and Systems Engineering and Department of Statistics, Washington University in St. Louis (WUSTL))
8. Joshua Agterberg, Postdoc, 2023–2024 (now faculty, Department of Statistics, University of Illinois Urbana-Champaign (UIUC))
9. Gen Li, Postdoc, 2021–2023 (now faculty, Department of Statistics, Chinese University of Hong Kong (CUHK))
10. Qian Yu, Postdoc, 2021–2022 (now faculty, Department of Electrical and Computer Engineering, University of California, Santa Barbara (UCSB))
11. Pengkun Yang, Postdoc, 2018–2020 (now faculty, Center for Statistical Science, Tsinghua University)

Monographs and overview articles

O1. Yuejie Chi, <u>Yuxin Chen</u>, Yuting Wei, "Statistical and Algorithmic Foundations of Reinforcement Learning," *INFORMS TutORials in Operations Research*, pp. 104-144, 2025.

O2. <u>Yuxin Chen</u>, Yuejie Chi, Jianqing Fan, and Cong Ma, "Spectral Methods for Data Science: A Statistical Perspective," *Foundations and Trends for Machine Learning*, vol. 14: No. 5, pp. 566-806, 2021.

O3. Yuejie Chi, Yue Lu, and <u>Yuxin Chen</u>, "Nonconvex Optimization Meets Low-Rank Matrix Factorization: An Overview," *IEEE Transactions on Signal Processing*, vol. 67, no. 20, pp. 5239-5269, October 2019 **(invited overview article)**.

Journal articles (published or accepted)

J1. Yuchen Zhou, <u>Yuxin Chen</u>, "Deflated HeteroPCA: Overcoming the Curse of Ill-Conditioning in Heteroskedastic PCA," *Annals of Statistics*, vol. 53, no. 1, pp. 91-116, 2025.

J2. Zihan Zhang, <u>Yuxin Chen</u>, Jason D. Lee, Simon S. Du, "Settling the Sample Complexity of Online Reinforcement Learning," *Journal of the ACM*, vol. 72, no. 3, pp. 1-63, 2025.

J3. Zihan Zhang, Wenhao Zhan, <u>Yuxin Chen</u>, Simon S. Du, Jason D. Lee, "Optimal Multi-Distribution Learning," *Journal of the ACM*, vol. 72, no. 5, pp. 1-71, 2025.

J4. Gen Li, Yanxi Chen, Yu Huang, Yuejie Chi, H. Vincent Poor, <u>Yuxin Chen</u>, "Fast Computation of Optimal Transport via Entropy-Regularized Extragradient Methods," *SIAM Journal on Optimization*, vol. 35, no. 2, pp. 1330-1363, 2025.

J5. Gen Li, Changxiao Cai, H. Vincent Poor, and <u>Yuxin Chen</u>, "Minimax Estimation of Linear Functions of Eigenvectors in the Face of Small Eigen-Gaps," *IEEE Transactions on Information Theory*, vol. 71, no. 2, pp. 1200-1247, 2025.

J6. Yuling Yan, <u>Yuxin Chen</u>, and Jianqing Fan, "Inference for Heteroskedastic PCA with Missing Data," *Annals of Statistics*, vol. 52, no. 2, pp. 729-756, 2024. **(ASA SLDS Student Paper Award, 2021)**

J7. Gen Li, Laixi Shi, <u>Yuxin Chen</u>, Yuejie Chi, Yuting Wei, "Settling the Sample Complexity of Model-Based Offline Reinforcement Learning," *Annals of Statistics*, vol. 52, no. 1, pp. 233-260, 2024.

J8. Yuling Yan, Gen Li, <u>Yuxin Chen</u>, Jianqing Fan, "Model-Based Reinforcement Learning Is Minimax-Optimal for Offline Zero-Sum Markov Games," *Operations Research*, vol. 72, no. 6, pp. 2430–2445, November–December 2024.

J9. Gen Li, Yuting Wei, Yuejie Chi, and <u>Yuxin Chen</u>, "Breaking the Sample Size Barrier in Model-Based Reinforcement Learning with a Generative Model," *Operations Research*, vol. 72, no. 1, pp. 203-221, 2024.

J10. Gen Li, Changxiao Cai, <u>Yuxin Chen</u>, Yuting Wei, and Yuejie Chi, "Is Q-Learning Minimax Optimal? A Tight Sample Complexity Analysis," *Operations Research*, vol. 72, no. 1, pp. 222-236, 2024.

J11. Gen Li, Yuting Wei, Yuejie Chi, and <u>Yuxin Chen</u>, "Softmax Policy Gradient Methods Can Take Exponential Time to Converge," *Mathematical Programming*, vol. 201, pp. 707-802, 2023.

J12. Yuling Yan, Gen Li, <u>Yuxin Chen</u>, Jianqing Fan, "The Efficacy of Pessimism in Asynchronous Q-learning," *IEEE Transactions on Information Theory*, vol. 69, no. 11, pp. 7185-7219, Nov. 2023.

J13. Wenhao Zhan*, Shicong Cen*, Baihe Huang, <u>Yuxin Chen</u>, Jason D. Lee, Yuejie Chi, "Policy Mirror Descent for Regularized Reinforcement Learning: A Generalized Framework with Linear Convergence," *SIAM Journal on Optimization*, vol. 33, no. 2, pp. 1061-1091, June 2023 (*=equal contributions).

J14. <u>Yuxin Chen</u>, Jianqing Fan, Bingyan Wang, and Yuling Yan, "Convex and Nonconvex Optimization Are Both Minimax-Optimal for Noisy Blind Deconvolution under Random Designs," *Journal of the American Statistical Association*, vol. 118, no. 542, pp. 858-868, 2023.

J15. Gen Li, Laixi Shi, <u>Yuxin Chen</u>, Yuejie Chi, "Breaking the Sample Complexity Barrier to Regret-Optimal Model-Free Reinforcement Learning," *Information and Inference: A Journal of the IMA*, vol. 12, no. 2, pp. 969-1043, June 2023.

J16. Changxiao Cai, H. Vincent Poor, and <u>Yuxin Chen</u>, "Uncertainty Quantification for Nonconvex Tensor Completion: Confidence Intervals, Heteroscedasticity and Optimality," *IEEE Transactions on Infor-*

mation Theory, vol. 69, no. 1, pp. 407-452, Jan. 2023.

J17. Haoran Li, Diego Serrano, Thomas Guillod, Shukai Wang, Evan Dogariu, Andrew Nadler, Min Luo, Vineet Bansal, Niraj Jha, <u>Yuxin Chen</u>, Charles R. Sullivan, and Minjie Chen, "How MagNet: Machine Learning Framework for Modeling Power Magnetic Material Characteristics," *IEEE Transactions on Power Electronics,* vol. 38, no. 12, pp. 15829-15853, 2023.

J18. Diego Serrano, Haoran Li, Shukai Wang, Thomas Guillod, Min Luo, Vineet Bansal, Niraj Jha, <u>Yuxin Chen</u>, Charles R. Sullivan, and Minjie Chen, "Why MagNet: Quantifying the Complexity of Modeling Power Magnetic Material Characteristics," *IEEE Transactions on Power Electronics,* vol. 38, no. 11, pp. 14292-14316, 2023.

J19. Changxiao Cai, Gen Li, H. Vincent Poor, and <u>Yuxin Chen</u>, "Nonconvex Low-Rank Tensor Completion from Noisy Data," *Operations Research*, vol. 70, no. 2, pp. 1219–1237, 2022.

J20. Shicong Cen, Chen Cheng, <u>Yuxin Chen</u>, Yuting Wei, and Yuejie Chi, "Fast Global Convergence of Natural Policy Gradient Methods with Entropy Regularization," *Operations Research*, vol. 70, no. 4, pp. 2563–2578, 2022. **(INFORMS George Nicholson Award Finalist, 2021)**

J21. Gen Li, Yuting Wei, Yuejie Chi, Yuantao Gu, and <u>Yuxin Chen</u>, "Sample Complexity of Asynchronous Q-Learning: Sharper Analysis and Variance Reduction," *IEEE Transactions on Information Theory*, vol. 68, no. 1, pp. 448-473, Jan. 2022.

J22. Chen Cheng, Yuting Wei, and <u>Yuxin Chen</u>, "Tackling Small Eigen-gaps: Fine-Grained Eigenvector Estimation and Inference under Heteroscedastic Noise," *IEEE Transactions on Information Theory*, vol. 67, no. 11, pp. 7380-7419, Nov. 2021.

J23. <u>Yuxin Chen</u>, Jianqing Fan, Cong Ma, and Yuling Yan, "Bridging Convex and Nonconvex Optimization in Robust PCA: Noise, Outliers, and Missing Data," *Annals of Statistics*, vol. 49, no. 5, pp. 2948-2971, Oct. 2021.

J24. Yanxi Chen, Cong Ma, H. Vincent Poor, and <u>Yuxin Chen</u>, "Learning Mixtures of Low-Rank Models," *IEEE Transactions on Information Theory*, vol. 67, no. 7, pp. 4613-4636, July 2021.

J25. Changxiao Cai, Gen Li, Yuejie Chi, H. Vincent Poor, and <u>Yuxin Chen</u>, "Subspace Estimation from Unbalanced and Incomplete Data Matrices: $\ell_{2,\infty}$ Statistical Guarantees," *Annals of Statistics*, vol. 49, no. 2, pp. 944-967, 2021.

J26. Yuanxin Li, Cong Ma, <u>Yuxin Chen</u>, and Yuejie Chi, "Nonconvex Matrix Factorization from Rank-One Measurements," *IEEE Transactions on Information Theory*, vol. 67, no. 3, pp. 1928-1950, March 2021.

J27. <u>Yuxin Chen</u>, Chen Cheng, and Jianqing Fan, "Asymmetry Helps: Eigenvalue and Eigenvector Analyses Under Asymmetric Random Matrix Perturbation," *Annals of Statistics*, vol. 49, no. 1, pp. 435-458, 2021.

J28. <u>Yuxin Chen</u>, Yuejie Chi, Jianqing Fan, Cong Ma, and Yuling Yan, "Noisy Matrix Completion: Understanding the Stability of Convex Relaxation via Nonconvex Optimization," *SIAM Journal on Optimization*, vol. 30, no. 4, pp. 3098-3121, Oct. 2020.

J29. Boyue Li, Shicong Cen, <u>Yuxin Chen</u>, Yuejie Chi, "Communication-Efficient Distributed Optimization in Networks with Gradient Tracking and Variance Reduction," *Journal of Machine Learning Research*, vol. 21, no. 180, pp. 1-51, 2020.

J30. Cong Ma and Kaizheng Wang, Yuejie Chi, and <u>Yuxin Chen</u>, "Implicit Regularization in Nonconvex Statistical Estimation: Gradient Descent Converges Linearly in Phase Retrieval, Matrix Completion, and Blind Deconvolution," *Foundations of Computational Mathematics*, vol. 20, no. 3, pp. 451-632, June 2020. **(SIAM Activity Group on Imaging Science Best Paper Prize)**

J31. <u>Yuxin Chen</u>, Jianqing Fan, Cong Ma, and Yuling Yan, "Inference and Uncertainty Quantification for Noisy Matrix Completion," *Proceedings of the National Academy of Sciences (PNAS)*, vol. 116, no. 46, pp. 22931-22937, Nov. 2019.

J32. Pragya Sur, <u>Yuxin Chen</u>, and Emmanuel J. Candès, "The Likelihood Ratio Test in High-Dimensional Logistic Regression Is Asymptotically a Rescaled Chi-Square," *Probability Theory and Related Fields*, vol. 175, no. 1-2, pp. 487-558, October 2019.

J33. <u>Yuxin Chen</u>, Jianqing Fan, Cong Ma, and Kaizheng Wang, "Spectral Method and Regularized MLE

Are Both Optimal for Top-K Ranking," *Annals of Statistics*, vol. 47, no. 4, pp. 2204-2235, August 2019.

J34. <u>Yuxin Chen</u>, Yuejie Chi, Jianqing Fan, and Cong Ma, "Gradient Descent with Random Initialization: Fast Global Convergence for Nonconvex Phase Retrieval," *Mathematical Programming*, vol. 176, no.1-2, pp. 5-37, July 2019.

J35. <u>Yuxin Chen</u>, and Emmanuel J. Candès, "The Projected Power Method: An Efficient Algorithm for Joint Alignment from Pairwise Differences," *Communications on Pure and Applied Mathematics*, vol. 71, no. 8, pp. 1648-1714, August 2018.

J36. <u>Yuxin Chen</u> and Emmanuel J. Candès, "Solving Random Quadratic Systems of Equations Is Nearly as Easy as Solving Linear Systems," *Communications on Pure and Applied Mathematics*, vol. 70, no. 5, pp. 822-883, May 2017. **(ICCM Best Paper Award (gold medal); Finalist, Best Paper Prize for Young Researchers in Continuous Optimization)**

J37. Tao Zhang, <u>Yuxin Chen</u>, Shanshan Bao, Marcus Alley, John M. Pauly, Brian Hargreaves, Shreyas S. Vasanawala, "Resolving phase ambiguity in dual-echo Dixon imaging using a projected power method," *Magnetic Resonance in Medicine*, vol. 77, no. 5, pp. 2066-2076, May 2017.

J38. <u>Yuxin Chen</u>, Andrea J. Goldsmith and Yonina C. Eldar, "Minimax Capacity Loss under Sub-Nyquist Universal Sampling," *IEEE Transactions on Information Theory*, vol. 63, no. 6, pp. 3348-3367, June 2017.

J39. <u>Yuxin Chen</u>, Changho Suh and Andrea J. Goldsmith, "Information Recovery from Pairwise Measurements," *IEEE Transactions on Information Theory*, vol. 62, no. 10, pp. 5881-5905, Oct. 2016.

J40. Tao Zhang, Joseph Y. Cheng, <u>Yuxin Chen</u>, Dwight G. Nishimura, John M. Pauly, and Shreyas S. Vasanawala, "Robust Self-Navigated Body MRI Using Dense Coil Arrays," *Magnetic Resonance in Medicine*, vol. 76, no. 1, pp. 197-205, July 2016.

J41. <u>Yuxin Chen</u>, Yuejie Chi and Andrea J. Goldsmith, "Exact and Stable Covariance Estimation from Quadratic Sampling via Convex Programming," *IEEE Transactions on Information Theory*, vol. 61, no. 7, pp. 4034-4059, July 2015.

J42. Yuejie Chi, and <u>Yuxin Chen</u>, "Compressive Two-Dimensional Harmonic Retrieval via Atomic Norm Minimization," *IEEE Transactions on Signal Processing*, vol. 63, no. 4, pp. 1030-1042, Feb. 2015.

J43. <u>Yuxin Chen</u>, Andrea J. Goldsmith, and Yonina C. Eldar, "Backing off from Infinity: Performance Bounds via Concentration of Spectral Measure for Random MIMO Channels," *IEEE Transactions on Information Theory*, vol. 61, no. 1, pp. 366-387, January 2015.

J44. <u>Yuxin Chen</u>, and Yuejie Chi, "Robust Spectral Compressed Sensing via Structured Matrix Completion," *IEEE Transactions on Information Theory*, vol. 60, no. 10, pp. 6576-6601, Oct. 2014.

J45. <u>Yuxin Chen</u>, Andrea J. Goldsmith, and Yonina C. Eldar, "Channel Capacity under Sub-Nyquist Nonuniform Sampling," *IEEE Transactions on Information Theory*, vol. 60, no. 8, pp. 4739-4756, Aug. 2014.

J46. <u>Yuxin Chen</u>, Yonina C. Eldar, and Andrea J. Goldsmith, "Shannon Meets Nyquist: Capacity of Sampled Gaussian Channels," *IEEE Transactions on Information Theory*, vol. 59, no. 8, pp. 4889-4914, Aug. 2013.

J47. <u>Yuxin Chen</u>, Sanjay Shakkottai, and Jeffrey G. Andrews, "On the Role of Mobility for Multimessage Gossip," *IEEE Transactions on Information Theory*, vol. 59, no. 6, pp. 3953-3970, June 2013.

J48. <u>Yuxin Chen</u>, and Jeffrey G. Andrews, "An Upper Bound on Multi-hop Transmission Capacity with Dynamic Routing Selection," *IEEE Transactions on Information Theory*, vol. 58, no. 6, pp. 3751-3765, June 2012.

Journal articles (preprints)

P1. Gen Li*, Yuchen Zhou*, Yuting Wei, <u>Yuxin Chen</u>, "Faster Diffusion Models via Higher-Order Approximation," arXiv preprint arXiv:2506.24042, 2025 (*=equal contributions).

P2. Gen Li*, Yuchen Jiao*, Yu Huang, Yuting Wei, <u>Yuxin Chen</u>, "Transformers Meet In-Context Learning: A Universal Approximation Theory," arXiv preprint arXiv:2506.05200, 2025 (*=equal contributions).

P3. Yuchen Jiao, <u>Yuxin Chen</u>, Gen Li, "Connections Between Reinforcement Learning with Feedback, Test-time Scaling, and Diffusion Guidance: An Anthology," arXiv preprint arXiv:2509.04372 , 2025.

P4. Jiadong Liang, Zhihan Huang, <u>Yuxin Chen</u>, "Low-Dimensional Adaptation of Diffusion Models: Convergence in Total Variation," arXiv preprint arXiv:2501.12982, 2025.

P5. Zhihan Huang, Yuting Wei, <u>Yuxin Chen</u>, "Denoising Diffusion Probabilistic Models Are Optimally Adaptive to Unknown Low Dimensionality," arXiv preprint arXiv:2408.02320, 2024.

P6. Yuchen Wu, <u>Yuxin Chen</u>, Yuting Wei, "Stochastic Runge-Kutta Methods: Provable Acceleration of Diffusion Models," arXiv preprint arXiv:2410.04760, 2024.

P7. Gen Li, Yuting Wei, Yuejie Chi, <u>Yuxin Chen</u>, "A Sharp Convergence Theory for The Probability Flow ODEs of Diffusion Models," arXiv preprint arXiv:2408.02320, 2024.

P8. Yuchen Zhou, <u>Yuxin Chen</u>, "Heteroskedastic Tensor Clustering," arXiv preprint arXiv:2311.02306, 2023.

P9. Laixi Shi, Gen Li, Yuting Wei, <u>Yuxin Chen</u>, Matthieu Geist, Yuejie Chi, "The Curious Price of Distributional Robustness in Reinforcement Learning with a Generative Model," arXiv preprint arXiv:2305.16589, 2023.

P10. Gen Li, Yuling Yan, <u>Yuxin Chen</u>, Jianqing Fan, "Minimax-Optimal Reward-Agnostic Exploration in Reinforcement Learning," arXiv preprint arXiv:2304.0727, 2023.

Conference papers

C1. Yu Huang, Zixin Wen, Aarti Singh, Yuejie Chi, <u>Yuxin Chen</u>, "Transformers Provably Learn Chain-of-Thought Reasoning with Length Generalization," *Neural Information Processing Systems (NeurIPS)*, 2025.

C2. Zihan Zhang, <u>Yuxin Chen</u>, Jason D. Lee, Simon S. Du, Lin Yang, Ruosong Wang, "Deployment Efficient Reward-Free Exploration with Linear Function Approximation," *Neural Information Processing Systems (NeurIPS)*, 2025.

C3. Jiadong Liang, Zhihan Huang, <u>Yuxin Chen</u>, "Low-Dimensional Adaptation of Diffusion Models: Convergence in Total Variation," *Conference on Learning Theory (COLT)*, 2025.

C4. Zihan Zhang, Jason D. Lee, Simon S. Du, <u>Yuxin Chen</u>, "Anytime Acceleration of Gradient Descent," *Conference on Learning Theory (COLT)*, 2025.

C5. Zihan Zhang, <u>Yuxin Chen</u>, Jason D. Lee, Simon S. Du, Ruosong Wang, "Minimax Optimal Regret Bound for Reinforcement Learning with Trajectory Feedback," *International Conference on Machine Learning (ICML)*, 2025.

C6. Tong Yang, Shicong Cen, Yuting Wei, <u>Yuxin Chen</u>, Yuejie Chi, "Federated Natural Policy Gradient Methods for Multi-task Reinforcement Learning," *Neural Information Processing Systems (NeurIPS)*, 2024.

C7. Gen Li*, Yu Huang*, Timofey Efimov, Yuting Wei, Yuejie Chi, <u>Yuxin Chen</u>, "Accelerating Convergence of Score-Based Diffusion Models, Provably," *International Conference on Machine Learning (ICML)*, 2024 (*=equal contributions).

C8. Zihan Zhang, <u>Yuxin Chen</u>, Jason D. Lee, Simon S. Du, "Settling the Sample Complexity of Online Reinforcement Learning," *Conference on Learning Theory (COLT)*, 2024.

C9. Zihan Zhang, Wenhao Zhan, <u>Yuxin Chen</u>, Simon S. Du, Jason D. Lee, "Optimal Multi-Distribution Learning," *Conference on Learning Theory (COLT)*, 2024.

C10. Gen Li, Yuling Yan, <u>Yuxin Chen</u>, Jianqing Fan, "Minimax-Optimal Reward-Agnostic Exploration in Reinforcement Learning," *Conference on Learning Theory (COLT)*, 2024.

C11. Gen Li, Yuting Wei, <u>Yuxin Chen</u>, Yuejie Chi, "Towards Non-Asymptotic Convergence for Diffusion-Based Generative Models," *International Conference on Learning Representations (ICLR)*, 2024.

C12. Zihan Zhang, Jason D. Lee, <u>Yuxin Chen</u>, Simon S. Du, "Horizon-Free Regret for Linear Markov Decision Processes," *International Conference on Learning Representations (ICLR)*, 2024.

C13. Gen Li, Wenhao Zhan, Jason D. Lee, Yuejie Chi, <u>Yuxin Chen</u>, "Reward-Agnostic Fine-Tuning: Provable Statistical Benefits of Hybrid Reinforcement Learning," *Neural Information Processing Systems (NeurIPS)*, 2023.

C14. Laixi Shi, Gen Li, Yuting Wei, <u>Yuxin Chen</u>, Matthieu Geist, Yuejie Chi, "The Curious Price of Distribu-

tional Robustness in Reinforcement Learning with a Generative Model," *Neural Information Processing Systems (NeurIPS)*, 2023.

C15. Gen Li, Yuejie Chi, Yuting Wei, <u>Yuxin Chen</u>, "Minimax-Optimal Multi-Agent RL in Markov Games With a Generative Model," *Neural Information Processing Systems (NeurIPS)*, December 2022 **(selected as oral)**.

C16. Laixi Shi, Gen Li, Yuting Wei, <u>Yuxin Chen</u>, Yuejie Chi, "Pessimistic Q-Learning for Offline Reinforcement Learning: Towards Optimal Sample Complexity," *International Conference on Machine Learning (ICML)*, July 2022.

C17. Haoran Li, Thomas Guillod, Evan Dogariu, Andrew Nadler, Shukai Wang, Min Luo, Yuxin Chen, Charlie Sullivan, and Minjie Chen, "MagNet: An Open-Source Database for Data-Driven Magnetic Core Loss Modeling," *IEEE Applied Power Electronics Conference (APEC)*, March 2022.

C18. Gen Li, Laixi Shi, <u>Yuxin Chen</u>, Yuantao Gu, Yuejie Chi, "Breaking the Sample Complexity Barrier to Regret-Optimal Model-Free Reinforcement Learning," *Neural Information Processing Systems (NeurIPS)*, December 2021 **(selected as spotlight)**.

C19. Gen Li, <u>Yuxin Chen</u>, Yuejie Chi, Yuantao Gu, and Yuting Wei, "Sample-Efficient Reinforcement Learning Is Feasible for Linearly Realizable MDPs with Limited Revisiting," *Neural Information Processing Systems (NeurIPS)*, December 2021.

C20. Gen Li, Yuting Wei, Yuejie Chi, Yuantao Gu, and <u>Yuxin Chen</u>, "Softmax Policy Gradient Methods Can Take Exponential Time to Converge," *Conference on Learning Theory (COLT)*, August 2021.

C21. Gen Li, Changxiao Cai, <u>Yuxin Chen</u>, Yuantao Gu, Yuting Wei, and Yuejie Chi, "Tightening the Dependence on Horizon in the Sample Complexity of Q-Learning," *International Conference on Machine Learning (ICML)*, July 2021.

C22. Gen Li, Yuting Wei, Yuejie Chi, Yuantao Gu, and <u>Yuxin Chen</u>, "Breaking the Sample Size Barrier in Model-Based Reinforcement Learning with a Generative Model," *Neural Information Processing Systems (NeurIPS)*, December 2020.

C23. Gen Li, Yuting Wei, Yuejie Chi, Yuantao Gu, and <u>Yuxin Chen</u>, "Sample Complexity of Asynchronous Q-Learning: Sharper Analysis and Variance Reduction," *Neural Information Processing Systems (NeurIPS)*, December 2020.

C24. Haoran Li, Seungjae Ryan Lee, Min Luo, Charles R. Sullivan, <u>Yuxin Chen</u>, and Minjie Chen, "MagNet: A Machine Learning Framework for Magnetic Core Loss Modeling," *IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, November 2020.

C25. Changxiao Cai, H. Vincent Poor, and <u>Yuxin Chen</u>, "Uncertainty Quantification for Nonconvex Tensor Completion: Confidence Intervals, Heteroscedasticity and Optimality," *International Conference on Machine Learning (ICML)*, July 2020.

C26. Boyue Li, Shicong Cen, <u>Yuxin Chen</u>, Yuejie Chi, "Communication-Efficient Distributed Optimization in Networks with Gradient Tracking and Variance Reduction," *International Conference on Artificial Intelligence and Statistics (AISTATS)*, Sicily, Italy, June 2020.

C27. Changxiao Cai, Gen Li, H. Vincent Poor, and <u>Yuxin Chen</u>, "Nonconvex Low-Rank Symmetric Tensor Completion from Noisy Data," *Neural Information Processing Systems (NeurIPS)*, Vancouver, Canada, December 2019.

C28. Yuanxin Li, Cong Ma, <u>Yuxin Chen</u>, and Yuejie Chi, "Nonconvex Matrix Factorization from Rank-One Measurements," *International Conference on Artificial Intelligence and Statistics (AISTATS)*, Naha, Okinawa, Japan, April 2019.

C29. Cong Ma, Kaizheng Wang, Yuejie Chi, and <u>Yuxin Chen</u>, "Implicit Regularization in Nonconvex Statistical Estimation: Gradient Descent Converges Linearly in Phase Retrieval and Matrix Completion," *International Conference on Machine Learning (ICML)*, Stockholm, July 2018.

C30. Tao Zhang, <u>Yuxin Chen</u>, Shreyas Vasanawala, Ersin Bayram, "Dual Echo Water-Fat Separation Using Deep Learning," *International Society of Magnetic Resonance in Medicine (ISMRM) Meetings*, Paris, June 2018.

C31. <u>Yuxin Chen</u>, Govinda Kamath, Changho Suh, and David Tse, "Community Recovery in Graphs with

Locality," *International Conference on Machine Learning (ICML)*, pp. 689-698, New York, June 2016.

C32. <u>Yuxin Chen</u>, and Emmanuel J. Candès, "Solving Random Quadratic Systems of Equations Is Nearly as Easy as Solving Linear Systems," *Advances in Neural Information Processing Systems (NIPS)*, Montreal, Dec. 2015 **(selected as oral, acceptance rate 0.8)**.

C33. <u>Yuxin Chen</u>, and Changho Suh, "Spectral MLE: Top-K Rank Aggregation from Pairwise Comparisons," *International Conference on Machine Learning (ICML)*, pp. 371-380, Lille, July 2015.

C34. <u>Yuxin Chen</u>, Changho Suh, and Andrea J. Goldsmith, "Information Recovery from Pairwise Measurements: A Shannon-Theoretic Approach," *International Symposium on Information Theory (ISIT)*, pp. 2336-2340, Hongkong, June 2015.

C35. <u>Yuxin Chen</u>, Leonidas Guibas, and Qixing Huang, "Near-Optimal Joint Object Matching via Convex Relaxation," *International Conference on Machine Learning (ICML)*, pp. 100-108, Beijing, June 2014.

C36. Qixing Huang, <u>Yuxin Chen</u>, and Leonidas Guibas, "Scalable Semidefinite Relaxation for Maximum *A Posterior* Estimation," *International Conference on Machine Learning (ICML)*, pp. 64-72, Beijing, June 2014.

C37. <u>Yuxin Chen</u>, and Andrea J. Goldsmith, "Information Recovery from Pairwise Measurements," *International Symposium on Information Theory (ISIT)*, pp. 2012-2016, Honolulu, Hawaii, July 2014.

C38. <u>Yuxin Chen</u>, Yuejie Chi, and Andrea J. Goldsmith, "Robust and Universal Covariance Estimation from Quadratic Measurements via Convex Programming," *International Symposium on Information Theory (ISIT)*, pp. 2017-2021, Honolulu, Hawaii, July 2014.

C39. <u>Yuxin Chen</u>, Yuejie Chi, and Andrea J. Goldsmith, "Estimation of Simultaneously Structured Covariance Matrices from Quadratic Measurements," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 7719-7723, Florence, Italy, May 2014.

C40. <u>Yuxin Chen</u>, Yonina C. Eldar, and Andrea J. Goldsmith, "An Algorithm for Exact Super-resolution and Phase Retrieval," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 754-758, Florence, Italy, May 2014.

C41. <u>Yuxin Chen</u>, Andrea J. Goldsmith, and Yonina C. Eldar, "Minimax Universal Sampling for Compound Multiband Channels," *IEEE International Symposium on Information Theory (ISIT)*, pp. 1032-1036, Istanbul, Turkey, July 2013.

C42. <u>Yuxin Chen</u>, and Yuejie Chi, "Spectral Compressed Sensing via Structured Matrix Completion," *International Conference on Machine Learning (ICML)*, pp. 414 - 422, Atlanta, Georgia, June 2013.

C43. <u>Yuxin Chen</u>, Yonina C. Eldar, and A. J. Goldsmith, "Channel Capacity under General Nonuniform Sampling," *IEEE International Symposium on Information Theory (ISIT)*, pp. 860-864, Cambridge, MA, July 2012.

C44. <u>Yuxin Chen</u>, Yonina C. Eldar and Andrea J. Goldsmith, "Shannon Meets Nyquist: Capacity Limits of Sampled Analog Channels," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 3104-3107, Prague, Czech Republic, May 2011.

C45. <u>Yuxin Chen</u>, Sanjay Shakkottai, and Jeffrey G. Andrews, "Sharing Multiple Messages over Mobile Networks," *IEEE Infocom*, pp. 658-666, Shanghai, China, April 2011.

C46. <u>Yuxin Chen</u>, and Sujay Sanghavi, "A General Framework for High-dimensional Estimation in the Presence of Incoherence," *Allerton Conference on Communication, Control, and Computing*, pp. 1570-1576, Monticello, IL, Sep. 2010.

C47. <u>Yuxin Chen</u>, and Jeffrey G. Andrews, "An Upper Bound on Multi-hop Transmission Capacity with Dynamic Route Selection," *IEEE Symposium on Information Theory (ISIT)*, pp. 1718-1722, Austin, TX, June 2010.

Tutorials and short courses

Tu1. "Statistical and Algorithmic Foundations of Reinforcement Learning," Tutorial, *INFORMS Annual Meeting 2025*, cotaught with Yuting Wei and Yuejie Chi, October 2025.

Tu2. "Harnessing Low Dimensionality in Diffusion Models: From Theory to Practice," Tutorial, *Interna-*

tional Conference on Machine Learning (ICML) 2025, cotaught with Qing Qu and Liyue Shen, July 2025.

Tu3. "Harnessing Low Dimensionality in Diffusion Models: From Theory to Practice," Tutorial, *Conference on Parsimony and Learning (CPAL) 2025*, cotaught with Qing Qu and Liyue Shen, March 2025.

Tu4. "Information-Theoretic, Statistical and Algorithmic Foundations of Reinforcement Learning," Tutorial, *International Symposium on Information Theory (ISIT) 2024*, cotaught with Yuting Wei and Yuejie Chi, July 2024.

Tu5. "Spectral Methods for Data Science," Summer School on Theoretical Statistics, *Beijing International Center for Mathematical Research and School of Mathematical Sciences at Peking University*, July 2023.

Tu6. "Non-asymptotic Analysis for Reinforcement Learning," Tutorial, *ACM SIGMETRICS*, cotaught with Yuting Wei and Yuejie Chi, June 2023.

Tu7. "Reinforcement Learning: Fundamentals, Algorithms, and Theory," Tutorial, *International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2022*, cotaught with Yuting Wei and Yuejie Chi, May 2022.

Tu8. "Statistical and Algorithmic Foundations of Reinforcement Learning," Tutorial, *ICSA Applied Statistics Symposium 2021*, cotaught with Yuting Wei, Yuejie Chi, and Zhengyuan Zhou, Sep. 2021.

Tu9. "Nonconvex Optimization for High-Dimensional Signal Estimation: Spectral and Iterative Methods," Tutorial, *European Signal Processing Conference (EUSIPCO) 2020*, cotaught with Yuejie Chi and Cong Ma, Jan. 2021.

Tu10. "Taming Nonconvexity in Information Science," Tutorial, *Information Theory Workshop (ITW) 2018*, cotaught with Yuejie Chi, Nov. 2018.

Tu11. "Recent Advances in Nonconvex Methods for High-Dimensional Estimation," Tutorial, *International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2018*, cotaught with Yuejie Chi and Yue Lu, May 2018.

Patents

S1. Tao Zhang, <u>Yuxin Chen</u>, John M Pauly, and Shreyas Vasanawala, "Robust dual echo Dixon imaging with flexible echo times," US 10,338,174, July 2019 (licensed to Siemens Healthcare and GE Healthcare).

S2. Tao Zhang, John M Pauly, <u>Yuxin Chen</u>, Joseph Cheng, and Shreyas Vasanawala, "Robust self-navigating MRI using large coil arrays," US 9,857,446, January 2018 (licensed to GE, Siemens, and Philips).

Teaching

Convex Optimization for Statistics and Data Science (STAT/OIDD 4810/5810), UPenn	Spring 2025
Introduction to Python for Data Science (STAT/OIDD 4770), UPenn	Spring 2025
Large-Scale Optimization for Data Science (Stat 9910-303), UPenn	Fall 2023
Convex Optimization for Statistics and Data Science (STAT/OID 4810/5810), UPenn — *Undergraduate Program Teaching Excellence Award*	Fall 2023
Mathematics of High-Dimensional Data (Stat 991-302), UPenn	Spring 2022
Convex Optimization for Statistics and Data Science (STAT/OID 481/581), UPenn — *Undergraduate Program Teaching Excellence Award*	Spring 2022
Mathematics of Data Science (ELE 520), Princeton	Fall 2020
Information Signals (ELE 201), Princeton	Fall 2020
Information Signals (ELE 201), Princeton	Spring 2020
Large-Scale Optimization for Data Science (ELE 522), Princeton — *Princeton Engineering Commendation List for Outstanding Teaching*	Fall 2019
Mathematics of High-Dimensional Data (ELE 538B), Princeton — *Princeton Engineering Commendation List for Outstanding Teaching*	Fall 2018

Probabilistic Systems and Information Processing (ELE 382), Princeton	Fall 2018
Large-Scale Optimization for Data Science (ELE 538B), Princeton	Spring 2018

    — *Princeton Engineering Commendation List for Outstanding Teaching*

Special Topics in Statistical Optimization and Reinforcement Learning (ORF 570 / ELE 578, co-taught with Mengdi Wang), Princeton University	Spring 2018
Statistical Signal Processing (ELE 382), Princeton	Fall 2017
Sparsity, Structure, and Inference (ELE 538B), Princeton	Spring 2017

    — *Princeton Engineering Commendation List for Outstanding Teaching*

Organization of conferences and workshops (major roles)

Co-organizer of the IMSI Workshop "State of the Art in Offline Reinforcement Learning", April 2026.

Co-organizer of the IMSI Workshop "Statistics Meets Tensors: Methodology, Theory, and Applications", May 2025.

Co-organizer of the DataX workshop "Old and New Open Questions in Optimization" at Princeton, 2020.

Co-director of the 54th Conference on Information Sciences and Systems (CISS), March 2020.

Co-organizer of the workshop "Bridging Mathematical Optimization, Information Theory, and Data Science" at Princeton Center for Theoretical Science, May 2018.

Co-organizer of the Machine Learning for Signal Processing (MLSP) Data Competition (on Map Synchronization), 2018.

Co-director of the 52nd Conference on Information Sciences and Systems (CISS), March 2018.

Editorial activities and technical program committees

Associate Editor, Annals of Statistics, 2024 - present.

Associate Editor, Operations Research, 2024 - present.

Associate Editor, IEEE Transactions on Information Theory, 2023 - present.

Associate Editor, Journal of the American Statistical Association (JASA), 2023 - present.

Associate Editor, Information and Inference, 2022 - present.

Associate Editor, IEEE Transactions on Signal Processing, 2022 - 2024.

Cluster Chair, International Conference on Continuous Optimization (ICCOPT), 2025.

Area Chair, Conference on Parsimony and Learning (CPAL), 2024.

Area Chair, Neural Information Processing Systems (NeurIPS), 2023.

Area Chair, International Conference on Machine Learning (ICML), 2023.

Area Chair, Neural Information Processing Systems (NeurIPS), 2022.

Area Chair, International Conference on Machine Learning (ICML), 2022.

Area Chair, International Conference on Learning Representations (ICLR), 2022.

Area Chair, International Conference on Machine Learning (ICML), 2021.

Area Chair, International Conference on Learning Representations (ICLR), 2021.

Area Chair, International Conference on Machine Learning (ICML), 2020.

Technical Program Committee (TPC) Member, IEEE International Symposium on Information Theory (ISIT), 2020.