

# SHIXUAN ZHANG

## CONTACT

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## PROFESSIONAL EXPERIENCE

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- Assistant Professor, Department of Industrial & Systems Engineering, Texas A&M University 2023–Present
- Postdoctoral Fellow, Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University 2022–2023
- Visiting Scholar, Sloan School of Management, Massachusetts Institute of Technology Fall 2022

## EDUCATION

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- Ph.D. in Operations Research, Georgia Institute of Technology, Atlanta, Georgia 2017–2022
- B.S. in Mathematics and Physics, Tsinghua University, Beijing, China 2013–2017

## PUBLICATIONS AND PREPRINTS

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1. Aravena, Ignacio, Daniel K. Molzahn, Shixuan Zhang, Cosmin G. Petra, Frank E. Curtis, Shenyinying Tu, Andreas Wächter et al. “Recent Developments in Security-Constrained AC Optimal Power Flow: Overview of Challenge 1 in the ARPA-E Grid Optimization Competition.” arXiv preprint arXiv:2206.07843 (2022).
2. Gholami, Amin, Kaizhao Sun, Shixuan Zhang, and Xu Andy Sun, “An ADMM-based Distributed Optimization Method for Solving Security-Constrained AC Optimal Power Flow.” arXiv preprint arXiv:2202.06787 (2022).
3. Zhang, Shixuan, and Xu Andy Sun. “On Distributionally Robust Multistage Convex Optimization: Data-driven Models and Performance.” arXiv preprint arXiv:2210.08433 (2022).
4. Zhang, Shixuan and Xu Andy Sun. “On Distributionally Robust Multistage Convex Optimization: New Algorithms and Complexity Analysis.” arXiv preprint arXiv:2010.06759 (2020).
5. Christian Fullner, Shixuan Zhang, Steffen Rebennack, Andy Sun, “Stochastic Dual Dynamic Integer Programming (SDDiP).” Encyclopedia of Optimization, Third Edition, edited by Panos Pardalos and Oleg Prokopyev, (2022).
6. Zhang, Shixuan and Xu Andy Sun. “Stochastic Dual Dynamic Programming for Multistage Stochastic Mixed-Integer Nonlinear Optimization.” Mathematical Programming (2022): 1-51.
7. Zhang, Shixuan, Sheng Liu, Tianhu Deng, and Zuo-Jun Max Shen. “Transient-State Natural Gas Transmission in Gunbarrel Pipeline Networks.” INFORMS Journal on Computing (2020): 679-713.
8. Deng, Tianhu, Yong Liang, Shixuan Zhang, Jingze Ren, and Shuyi Zheng. “A Dynamic Programming Approach to Power Consumption Minimization in Gunbarrel Natural Gas Networks with Nonidentical Compressor Units.” INFORMS Journal on Computing 31, no. 3 (2019): 593-611.

## HONORS AND AWARDS

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- Outstanding Contribution in Reviewing for *Operations Research Letters* 2022
- ICERM Institute Postdoctoral Fellowship 2022
- Honorable Mention for INFORMS Optimization Society Best Student Paper Prize 2021
- Prize winning team (GMI-GO) in the ARPA-E Grid Optimization Competition 2019 & 2021

## TEACHING

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- Operations Research I (ISEN 320) Fall 2023
- Teaching Assistant for Deterministic Optimization Online (ISYE 6669OAN) Spring & Fall 2018
- Teaching Assistant for Deterministic Optimization (ISYE 6669) Fall 2017

## INVITED TALKS

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1. Burer-Monteiro Method for Low-rank Sum-of-square Certification, AMS Southeast Sectional Meeting 2023
2. Dual Dynamic Programming for Data-driven Distributionally Robust Multistage Convex Optimization, INFORMS Annual Meeting 2022
3. Dual Dynamic Programming for Data-driven Distributionally Robust Multistage Convex Optimization, International Conference on Continuous Optimization 2022
4. Dual Dynamic Programming for Data-driven Distributionally Robust Multistage Convex Optimization, INFORMS Optimization Society Meeting 2022
5. New Algorithms and Complexity Analysis for Distributionally Robust Multistage Convex Optimization, INFORMS Annual Meeting 2021
6. Iteration Complexity for Stochastic Dual Dynamic Programming Algorithms, SIAM Southeastern Atlantic Section Conference 2021
7. Complexity for Multistage Distributionally Robust Dual Dynamic Programming, SIAM Conference on Optimization 2021 (OP21)
8. Generalized Conjugacy Method for Nonconvex Stochastic Optimization in Power Systems, INFORMS Annual Meeting 2020
9. Stochastic Dual Dynamic Programming Algorithm for Multistage Stochastic Mixed-integer Nonlinear Optimization, MIP Workshop 2020
10. Stochastic Dual Dynamic Programming Algorithm for Nonconvex Multistage Optimization Problems, INFORMS Annual Meeting 2019
11. New Algorithms for Solving the Natural Gas Transient Scheduling Problem, IISE Annual Meeting 2019
12. A Minor Perspective on Rank Constrained Optimization, INFORMS Annual Meeting 2018

## ACADEMIC SERVICES

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- Reviewer for *Mathematical Programming* and *SIAM Journal on Optimization*
- Reviewer for *Operations Research*, *INFORMS Journal on Computing*, and *Operations Research Letters*
- Reviewer for *IEEE Transactions on Power Systems* and *Transactions on Control of Network Systems*