

CURRICULUM VITAE

Jianqiang Cheng, PhD
Associate Professor
Department of Systems and Industrial Engineering
The University of Arizona

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Chronology of Education:

- Ph.D., Computer Science, University of Paris-Sud, France, Nov, 2013.
 - Dissertation: *Stochastic Combinatorial Optimization*
 - Advisor: Professor Abdel Lisser
- M.S., Operations Research and Cybernetics, Shanghai University, China, June 2010.
- B.S., Applied Mathematics, Shanghai University, China, June 2007.

Chronology of Employment:

- Associate Professor*, Department of Systems and Industrial Engineering (SIE), University of Arizona, Tucson, Arizona, August 2022–present.
- Undergraduate Program Director*, Department of Systems and Industrial Engineering (SIE), University of Arizona, Tucson, Arizona, August 2023–present.
- Assistant Professor*, Department of Systems and Industrial Engineering (SIE), University of Arizona, Tucson, Arizona, August 2016–July 2022.
- Postdoctoral Appointee, Quantitative Modeling and Analysis Department, Sandia National Laboratories, Livermore, California, February 2015–August 2016.
- Postdoctoral Appointee, Hadamard Mathematical Foundation & LRI, Université Paris-Sud, Paris, France, December 2013–December 2014.

Selected Honors and Awards:

Note: "*" denotes student paper award won by collaborator for coauthored work.

- Meritorious Reviewer Award**, INFORMS Journal on Computing, 2025.
- First place, Student Paper Award**, INFORMS Computing Society, 2023 (Jiang*).
- Best Short Paper Award** of INFORMS Workshop on Data Science, 2022.

- 2022 **National Science Foundation CAREER Award.**
- 2022 **SIE Student Interface Award.**
- 2017 Science Foundation Arizona (SFAz) **Bisgrove Scholars Early Career Award.**
- 2017 New Faculty Colloquium, INFORMS Annual Meeting, Houston, Texas, October 21, 2017.
- 15th New Faculty Colloquium, IIE Annual Conference, Pittsburgh, Pennsylvania, May 20, 2017.
- Best Student Paper Award** of International Conference on Operations Research and Enterprise Systems 2012.
- Second Prize of China Undergraduate Mathematical Contest in Modeling (2006).

Publications/Creative Activity:

“*” on the left of publication title indicates that paper substantially based on my work done as a graduate student; The underlined names in the coauthor list indicate student advisees.

- Selected submitted journal papers:
 - J1. Y. He, J. Cheng and Y. Ge. Learning to Hash Information Network Through MaxCut Formulation. *Journal of Machine Learning Research*, **Second-round review.**
 - J2. Z. Jin, J. Cheng, K. Pan, Z.J.M. Shen and Y. Wang. Robust Grid-Vehicle Integration: A Machine Learning-Driven Optimization Approach. *Operations Research*, **second-round review.**
 - J3. Z. Jin, J. Cheng, D.Z. Long and K. Pan. Harmonizing SAA and DRO. *INFORMS Journal on Computing*, **Under review.**
 - J4. C. Yao, J. Cheng and K. Pan. Data-Driven Planning for Hydrogen Refueling Stations *IEEE Transaction on Smart Grid*, **Under review.**
- Selected refereed journal articles, published or accepted in final form
 - J5. S. Jiang, J. Cheng, K. Pan and Z.J.M., Shen. Optimized dimensionality reduction for moment-based distributionally robust optimization. *Operations Research*, 2025. DOI:10.1287/opre.2023.0645
Won the 2023 INFORMS Computing Society Student Paper Award.
 - J6. S. Jiang, J. Cheng, K. Pan and B. Yang. Asymptotically Tight MILP Approximations for a Non-convex QCP. *INFORMS Journal On Computing*, 2025. DOI:10.1287/ijoc.2024.0719
 - J7. H. Jiang, A.M. Fathabad, J. Cheng, R. Arnolda, V. Karanikola. Optimization of small-scale solar nanofiltration systems for water purification and energy production. *Journal of Water Process Engineering* (2025) 71, 107197.
 - J8. Y. He, J. Cheng and Y. Ge. Learning to Hash Knowledge Graph: Element-wise Rotation. *ACM Transactions on Knowledge Discovery from Data*, 16(6) (2025) 127, 1 - 25.

- J9. C. Yao, **J. Cheng** and K. Pan. Data-Driven Planning for Wireless Charging Lanes. *IEEE Transaction on Smart Grid*, 16(4) (2025), 3179-3194.
- J10. H. Wang, J. Zhang, X. Xia, F. Gao and **J. Cheng**. DC-Link Capacitance Design for Cascaded H-Bridge STATCOM With Sum of Squares Formulation. *IEEE Transactions on Power Electronics* 39(5) (2024), 5733-5749.
- J11. A.M. Fathabad, **J. Cheng**, K. Pan and B. Yang. Asymptotically Tight Conic Approximations for Chance-Constrained AC Optimal Power Flow. *European Journal of Operational Research* 305.2 (2023): 738-753.
- J12. S. Jiang, **J. Cheng**, K. Pan, F. Qiu and B. Yang. Data-Driven Chance-Constrained Planning for Distributed Generation: A Partial Sampling Approach. *IEEE Transactions on Power Systems*, 38(6) (2022), 5228-5244.
- J13. M. Cheramin, **J. Cheng**, R. Jiang and K. Pan. Computationally Efficient Approximations for Distributionally Robust Optimization under Moment and Wasserstein Ambiguity. *INFORMS Journal On Computing*, 34 (3): 1768-1794, 2022.
- J14. H. Dashti, **J. Cheng** and P. Krokhmal. Chance-constrained optimization-based solar microgrid design and dispatch for radial distribution networks. *Energy Systems* 13 (4) (2022), 959-981
- J15. M. Cheramin, A. Saha, **J. Cheng**, S. Paul and H. Jin. Resilient NdFeB magnet recycling under the impacts of COVID-19 pandemic: Stochastic programming and Benders decomposition. *Transportation Research Part E*, 155: 102505, 2021.
- J16. K. Roya, **J. Cheng** and M. Lejeune. A Framework for Solving Chance-Constrained Linear Matrix Inequality Programs. *INFORMS Journal On Computing* 33(3): 1015-1036, 2021.
- J17. A.M. Fathabad, **J. Cheng**, K. Pan and F. Qiu. Data-Driven Planning for Renewable Distributed Generation Integration. *IEEE Transactions on Power Systems*, 35 (6) (2020), pp. 4357-4368.
- J18. A.M., Fathabad, C.B., Yazzie, **J. Cheng**, and R.G. Arnold. Optimization of solar-driven systems for off-grid water nanofiltration and electrification. *Reviews on Environmental Health*, 35(2) (2020), pp. 211-217.
- J19. I. Bomze, **J. Cheng**, P. Dickinson, A. Lisser and J. Liu. Notoriously hard (mixed-)binary QPs: empirical evidence on new completely positive approaches. *Computational Management Science*, 16(4) (2019), pp. 593-619.
- J20. **J. Cheng**, C. Gicquel, A. Lisser. Partial Sample Average Approximation Method for Chance Constrained Problems. *Optimization letters*, 13(4) (2019), pp.657-672.
- J21. **J. Cheng**, R. Chen, H. Najm, A. Pinar, C. Safta and JP. Watson. Distributionally Robust Optimization with Principal Component Analysis. *SIAM Journal on Optimization*, 28 (2) (2018), pp. 1817-1841.
- J22. **J. Cheng**, R. Chen, H. Najm, A. Pinar, C. Safta and JP. Watson. Chance Constrained Economic Dispatch Problem with Renewable Energy and Energy Storage. *Computational Optimization and Applications*, 70 (2) (2018), pp. 479-502.
- J23. C. Gicquel and **J. Cheng**. A joint chance-constrained programming approach for the single-item capacitated lot-sizing problem with stochastic demand. *Annal of Operations Research*, 264(1) (2018), pp. 123-155.

- J24. I. Bomze, **J. Cheng**, P. Dickinson and A. Lisser. A fresh CP look at mixed-binary QPs: New formulations and relaxations. *Mathematical Programming*, 166 (1-2) (2017), pp. 159-184.
- J25. **J. Cheng**, J. Leung and A. Lisser. Reformulation on distributionally robust shortest path problem with uncertain delays. *Computers & Operations Research*, 74 (2016), pp. 196-204.
- J26. **J. Cheng**, J. Leung and A. Lisser. *Stochastic nonlinear resource allocation problem. *Electronic Notes in Discrete Mathematics*, 52 (2016), pp. 165-172.
- J27. **J. Cheng**, J. Leung and A. Lisser. Random-payoff two-person zero-sum game with joint chance constraints. *European Journal of Operational Research*, 252(1) (2016), pp. 213-219.
- J28. **J. Cheng**, A. Lisser. *Maximum probability shortest path problem. *Discrete Applied Mathematics*, 192 (2015), pp. 40-48.
- J29. **J. Cheng**, M. Houda and A. Lisser. *Chance constrained 0-1 quadratic programs using copulas. *Optimization Letter*, 9(7) (2015), pp. 1283-1295.
- J30. **J. Cheng**, E. Delage, A. Lisser. *Distributionally robust stochastic knapsack problem. *SIAM Journal on Optimization*, 24(3) (2014), pp. 1485-1506.
- J31. **J. Cheng** and A. Lisser. *A completely positive representation of 0-1 Linear Programs with Joint Probabilistic Constraints. *Operations Research Letters* 41(6) (2013), pp. 587-601.
- J32. **J. Cheng**, M. Letournel and A. Lisser. *Distributionally robust stochastic shortest path problem. *Electronic Notes in Discrete Mathematics*, 41 (2013), pp. 511-518.
- J33. **J. Cheng** and A. Lisser. *A second-order cone programming approach for linear programs with joint probabilistic constraints. *Operations Research Letters*, 40(5) (2012), pp. 325-328.
- Recognized as the top-10 most cited articles of the journal Operation Research Letters in the period of 2011-2016**

□ Referred conference proceedings (P1-P7) and book chapters (B1) (peer-reviewed)

- P1. Wang, H., Wang, F., Gao, F., and Cheng, J. (2022, May). Submodule Capacitor Sizing for Cascaded H-Bridge STATCOM with Sum of Squares Formulation. In 2022 International Power Electronics Conference (IPEC-Himeji 2022-ECCE Asia) (pp. 2412-2417). IEEE
- P2. R. Karimi, A. Dabiri, **J. Cheng**, and E. Butcher. Probabilistic-Robust Optimal Control for Uncertain Linear Time-delay Systems by State Feedback Controllers with Memory. 2018 Annual American Control Conference (ACC), 4183-4188.
- P3. X. Chuan, **J. Cheng** and A. Lisser. Stochastic Semidefinite Optimization Using Sampling Methods, Proceedings of International Conference on Operations Research and Enterprise Systems, pp. (2015).
- P4. C. Gicquel and **J. Cheng**. Solving a stochastic lot-sizing problem with a modified sample approximation approach. 44th International Conference on Computers and Industrial Engineering. October 2014, Istanbul, Turkey.
- P5. B. Nunez, P. Adasme, I. Soto, **J. Cheng** and A. Lisser. A chance constrained approach for uplink wireless OFDMA networks. Communication Systems Networks and Digital Signal Processing (CSNDSP), pp. 754-757 (2014).

- P6. **J. Cheng**, S. Kosuch and A. Lisser. Stochastic Shortest Path Problem with Uncertain Delays. International Conference on Operations Research and Enterprise Systems, pp. 256-264 (2012).
- P7. **J. Cheng**, C. Gicquel and A. Lisser. A Second-Order Programming Approximation to Joint-Chance-Constrained Linear Programs. International Symposium on Combinatorial Optimization, pp. 71-80. Springer, Berlin, Heidelberg, 2012.
- B1. A.M. Fathabad, J. Cheng, and K. Pan. Integrated Power Transmission and Distribution Systems, Chapter 5: Renewable-Energy-Driven Future: Technologies, Applications, Sustainability, and Policies, 2020.

Awarded Grants and Contracts:

Total funded amount: \$2.2 M, while under Jianqiang Cheng's share: \$1.5 M.

- G1. [Federal] Collaborative Research: Distributionally Robust Quadratic Optimization and Its Applications to Power Systems, funded **NSF ECCS#2404412**, \$600,000, role: **PI** (50% responsibility, \$300,000), 8/1/2024-7/31/2027.
- G2. [Federal] **CAREER**: Risk-Averse Decision Making via Chance-Constrained Programming for Power Systems, funded **NSF ECCS#2143679**, \$500,000, role: **PI** (100% responsibility, \$500,000), 3/1/2022 - 2/28/2027.
- G3. [Federal] Learning to Hash Information Networks, funded **NSF IIS #2007175**, \$499,621, role: **Co-PI** (49.4% responsibility, \$246,607), 10/1/2020 - 9/30/2023.
- G4. [Federal] Conic Programming Reformulation/Approximation for Quadratically Constrained Quadratic Programs, funded by **Office of Naval Research (ONR)**, \$300,000, role: **Co-PI** (50% responsibility, \$150,000), 4/1/2020 - 3/31/2023.
- G5. [Federal] Data-Driven Optimization for E-Scooter System Design, funded by **National Institute for Transportation and Communities (NITC)**, \$67,619, role: **PI** (81% responsibility, \$54,771), 8/1/2020-1/31/2022.
- G6. [State] Computationally Efficient Approaches for Solving Stochastic Programming Problems, funded by **Science Foundation Arizona (SFAz) Bisgrove Early Career Scholar Program**, \$200,000, role: **PI** (100% responsibility, \$200,000), 5/1/2017-4/30/2019.
- G7. [Internal] Bisgrove Scholar - Interdisciplinary Link Student Award, funded by **University of Arizona**, \$36,044, role: **PI** (100% responsibility, \$36,044), 1/1/2018-12/31/2018.

Students Directed:

PhD and Master Students under My Supervision:

Supervise 7 PhD students (3 graduated).

(PhD1) *Roya Karimi*, PhD, SIE, 8/2016-1/2021 (graduated), Dissertation Topic: *Chance-Constrained Linear Matrix Inequality Optimization: Theory and Applications*

* Award of Travel Grant Fund, Integer Programming and Combinatorial Optimization (IPCO) summer school 2019

- * *Best Poster Award, Second Place in Systems and Industrial Engineering Student Poster Presentation Day, University of Arizona, October 2019*
- * *Firs position: Operations Research Scientist, Coupa Software Inc.*
- (PhD2) *Meysam Cheramin, PhD student of SIE, 8/2017-5/2021 (graduated), Dissertation Topic: Computationally Efficient Approaches for Optimization under Uncertainty and its Applications*
 - * *Firs position: Operations Research Specialist, Cresco International Inc.*
- (PhD3) *Abolhassan Mohammadi Fathabad, PhD student of SIE, 8/2017-5/2022 (graduated), Dissertation Topic: Data-driven Optimization under Uncertainty for Renewable Energy Integration and Management*
 - * *Award: First Place, INFORMS Freestyle O.R. Supreme Competition, INFORMS Annual Meeting, 2020*
 - * *Tech Launch Arizona Award, Project: Build a prototype/ Patent/ Proof of concept the Off-grid Water Purification Design, 2020*
 - * *NSF Student Travel Grant, the Smart Grid Edge Analytics Workshop, Atlanta, GA, 2019*
 - * *NSF Student Travel Grant, the Smart Grid Workshop, College Station, TX, 2018*
 - * *Firs position: Post-doc at the University of Tehran.*
- (PhD4) *Yeshuai He, PhD student, 8/2021-12/2025 (expected).*
 - * *Best Short Paper Award of INFORMS Workshop on Data Science, 2022.*
 - * *SIE Outstanding Grad Student, 2025*
- (PhD5) *Azade Farsi, PhD student, 8/2021-5/2026 (expected).*
- (PhD6) *Hongxi Bai, PhD student, 8/2024-5/2028 (expected).*

Undergraduate Students Advised (3 students):

- *Mandy Han, Systems and Industrial Engineering, University of Arizona, Spring and Fall 2018*
- *Sanarya Salah, Systems and Industrial Engineering, University of Arizona, Spring and Fall 2018*
- *Shijie Mao, Statistics and Data science, University of Arizona, Spring 2019*

Service/Outreach:

National/International Outreach:

- **Research Proposal Review:** *National Science Foundation (NSF).*
- **Editorial/Referee Service:**
 - * *Associate Editor, Journal of Global Optimization, published by Springer, 2025-present*
 - * *Associate Editor, Optimization Letters, published by Springer, 2021-present*
 - * *Reviewer for Mathematical Programming, Management Science, Operations Research, SIAM Journal on Optimization, INFORMS Journal on Computing, European Journal of Operations Research, Omega (The International Journal of Management Science), IIE Transactions, Optimization, Journal of Optimization Theory and Applications, Journal of Global Optimization, Optimization Letters, Computers & Operations Research, Annal of*

Operations Research, IEEE Transactions on Sustainable Energy, International Transactions in Operational Research, 4OR - A Quarterly Journal of Operations Research, Mathematical Reviews, Open Journal of Mathematical Optimization, Expert Systems With Applications, International Journal of Electrical Power and Energy Systems, etc.

– Conference Organizer:

- * Member of Organizing Committee, *Workshop on Data and Decisions 2023, Tucson, AZ, Oct 12-13, 2023.*
- * Track Co-Chair, *Operations Research Track, IISE Annual Conference, May 21-24, 2022.*
- * Co-chair of Sponsored Sessions, *INFORMS Annual Meeting Organizing Committee, Phoenix, AZ, November 4-7, 2018.*
- * Member of Organizing Committee, *Workshop on Data and Decisions 2018, Tucson, AZ, November 1-2, 2018.*
- * Member of Program Committee, *The 13th International Conference on Mobile Web and Intelligent Information Systems (MobiWIS'16), Vienna, Austria, August 22-24, 2016.*
- * Member of Program Committee, *The 12th International Conference on Mobile Web and Intelligent Information Systems (MobiWIS'15), Rome, Italy, August 24-26, 2015.*
- * Member of Organizing Committee, *Euro Mini Conference on Stochastic Programming and Energy Applications, Paris, France, September 24-26, 2014.*

– Session Organizer/Chair of National/International Conferences:

- * *Mini-symposium on Computationally Efficient Approaches for Distributionally Robust Optimization, the 17th International Conference on Stochastic Programming (ICSP2025), Paris, France.*
- * *Mini-symposium on Computationally Efficient Approaches for Distributionally Robust Optimization, SIAM Conference on Optimization (OP23), Seattle, May 2023.*
- * *Nonlinear Chance-Constrained Programming and its Applications, in Cluster: Optimization under Uncertainty, INFORMS Annual Meeting, National Harbor, MD, November 2020.*
- * *Mini-symposium on Nonlinear Chance-Constrained Programming, SIAM conference on Optimization (OP20), Hong Kong, May 2020 — (Canceled due to Covid-19)*
- * *Chance constrained programming and Its Applications, in Cluster: Optimization under Uncertainty, INFORMS Annual Meeting, Seattle, WA, October 2019.*
- * *Chance Constrained Programming, the 15th International Conference on Stochastic Programming (ICSP2019), July 29-August 2, Trondheim, Norway.*
- * *Chance Constraint and Its Applications, in Cluster: Optimization under Uncertainty, the 23rd International Symposium on Mathematical Programming, Bordeaux, France, July 2018.*

– Member of Professional Societies:

- * *Mathematical Optimization Society (MOS) since 2012, Society for Industrial and Applied Mathematics (SIAM) since 2014, Institute for Operations Research and Management Science (INFORMS) since 2015, Institute of Industrial and Systems Engineers (IISE) since 2017.*