Sara Shashaani, Ph.D.

Curriculum Vitae
Last Updated: July 8, 2026

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Professional Experience

North Carolina State University (NCSU), Raleigh, NC
2025– *Associate Professor*, Fitts Department of Industrial and Systems Engineering (ISE)
2024–2027 *Goodnight Early Career Innovator*
2024–2026 *Bowman Faculty Scholar*, Fitts Department of Industrial and Systems Engineering
2019–2025 *Assistant Professor*, Fitts Department of Industrial and Systems Engineering
2019– *Associated Faculty*, Graduate Program in Operations Research (OR)
2019– *Affiliated Faculty*, Center for Additive Manufacturing and Logistics (CAMAL)

University of Oxford, United Kingdom
2026 *Visiting Professor*, Numerical Analysis research group in the Mathematical Institute
2026 *Oliver Smithies Lecturer*, Balliol College

University of Michigan, Ann Arbor, MI
2016–2018 *Postdoctoral Research Fellow*, Industrial and Operations Engineering

Varanegar Co., Tehran, Iran
2007–2009 *Systems Engineer*

Education

2016 **Ph.D.** in Industrial Engineering
Purdue University, West Lafayette, IN
Dissertation: *Adaptive Sampling Trust-region Methods for Derivative-based and Derivative-free Simulation Optimization Problems*
Committee: Raghu Pasupathy (Chair), Susan Hunter, Mohit Tawarmalani, Hong Wan

2014 **M.S.** in Industrial and Systems Engineering & Operations Research
Virginia Tech, Blacksburg, VA

2011 **M.S.** in Industrial Engineering
Purdue University, West Lafayette, IN
Thesis: *Chemotherapy Patient Scheduling and Uncertainty*
Committee: Mark Lawley (Chair), Vincent Duffy, Hong Wan

2009 **B.S.** in Applied Computing
Southern Cross University, Brisbane, Australia (Off-shore)

2008 **B.S.** in Industrial Engineering
Iran University of Science and Technology (IUST), Tehran, Iran

Certificates

2015 **Certificate of Computational Engineering**, Purdue University
2008 **Certified Computer Professional**, Aptech Worldwide IT Education
2007 **Proficiency in Information Systems Management**, Aptech Worldwide IT Education

Research Interests

Methodological:

Simulation Optimization: Derivative-free Optimization, Stochastic Smooth/Non-smooth Non-convex Optimization, Constrained Stochastic Optimization

Robust Learning and Decision-making: Distributionally Robust Optimization, Model Calibration, Bias Correction

Sequential Learning and Decision-making with Streaming Data

Applied:

Digital Twins in Renewable Energy, Coastal Infrastructure, Agriculture, Additive Manufacturing, Health Risk Prediction

Publications

(* indicates the co-author is a student under my direct supervision when writing the article.)

Published and Accepted Journal Papers

2025 19. *Ha, Y., **Shashaani, S.**, and Pasupathy, R., Complexity of Zeroth- and First-order Stochastic Trust-Region Algorithms, *SIAM Journal on Optimization*. https://doi.org/10.1137/24M1664484.

2024 18. *Ha, Y., **Shashaani, S.**, and Menickelly, M., Two-stage Estimation and Variance Modeling for Latency-constrained Variational Quantum Algorithms, *INFORMS Journal on Computing*. https://doi.org/10.1287/ijoc.2024.0575.

2024 17. *Jain, P., **Shashaani, S.**, and Byon, E., Simulation Model Calibration with Dynamic Stratification and Adaptive Sampling, *Journal of Simulation*. https://doi.org/10.1080/17477778.2024.2420807.

2024 16. *Jeon, Y., Chu, Y., Pasupathy, R., and **Shashaani, S.**, Uncertainty Quantification using Simulation Output: Batching as an Inferential Device, *Journal of Simulation*. https://doi.org/10.1080/17477778.2024.2425311.

2024 15. Park J., Byon E., Ko Y.M., and **Shashaani, S.**, Strata Design for Variance Reduction in Stochastic Simulation, *Technometrics*. https://doi.org/10.1080/00401706.2024.2416411.

2024 14. **Shashaani, S.**, Eckman, D.J., Sanchez, S., Data Farming the Parameters of Simulation-Optimization Solvers, *ACM Transactions on Modeling and Computer Simulation (TOMACS)*. https://doi.org/10.1145/3680282.

2024 13. Alizadeh, N., *Vahdat, K., **Shashaani, S.**, Özaltin, O., Swann, J., Risk Score Models for Urinary Tract Infection Hospitalization, *PLOS ONE*. https://doi.org/10.1371/journal.pone.0290215.

2024 12. *Ha, Y., **Shashaani, S.**, Iteration Complexity and Finite-Time Efficiency of Adaptive Sampling Trust-Region Methods for Stochastic Derivative-Free Optimization, *IISE Transactions*. https://doi.org/10.1080/24725854.2024.2335513.

2024 11. **Shashaani, S.**, Sürer, Ö., Plumlee, M. and Guikema, S. D., Building Trees for Probabilistic Prediction via Scoring Rules, *Technometrics*. https://doi.org/10.1080/00401706.2024.2343062.
(Journal Editor's Choice for Fall Technical Conference Technometrics Session)

2023 10. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Parameter Calibration with Large-Scale Field Operational Data using Stochastic Optimization, *Applied Energy*. https://doi.org/10.1016/j.apenergy.2023.121426.

2023 9. *Houser, E., **Shashaani, S.**, Harrysson, O., and *Jeon, Y., Predicting Additive Manufacturing Defects with Feature Selection for Imbalanced Data, *IISE Transactions*. https://doi.org/10.1080/24725854.2023.2207633.
(Feature Article, Industrial and Systems Engineer Magazine, August 2024 Issue)

2023 8. Eckman, D.J., Henderson, S.G., **Shashaani, S.**, SimOpt: A Testbed for Simulation-Optimization Experiments, *INFORMS Journal on Computing*. https://doi.org/10.1287/ijoc.2023.1273

2023 7. Eckman, D.J., Henderson, S.G., **Shashaani, S.**, Diagnostic Tools for Evaluating and Comparing Simulation-Optimization Algorithms, *INFORMS Journal on Computing*. https://doi.org/10.1287/ijoc.2022.1261

2023 6. **Shashaani, S.**, *Vahdat, K., Simulation Optimization based Feature Selection, *Optimization and Engineering*. https://doi.org/10.1007/s11081-022-09726-3.

2019 5. *Chen, T.Y.J., Beekman, J.A., Guikema, S.D., and **Shashaani, S.**, Statistical Modeling in Absence of System Specific Data: Exploratory Empirical Analysis for Prediction of Water Main Breaks. *Journal of Infrastructure Systems*. https://doi.org/10.1061/(ASCE)IS.1943-555X.0000482.

2018 4. **Shashaani, S.**, Guikema, S.D., Pino, J.V. and Quiring, S.M., Multi-Stage Prediction for Zero-Inflated Hurricane Induced Power Outages. *IEEE Access*. https://doi.org/10.1109/ACCESS.2018.2877078

2018 3. **Shashaani, S.**, Hashemi, F.S. and Pasupathy, R., ASTRO-DF: A Class of Adaptive Sampling Trust-region Algorithms for Derivative-free Stochastic Optimization, *SIAM Journal on Optimization*. https://doi.org/10.1137/15M1042425

2013 2. Nsoesie, E.O., Beckman, R.J., **Shashaani, S.**, Nagaraj, K.S., Marathe, M.V., A Simulation Optimization Approach to Epidemic Forecasting, *PLOS ONE*. https://doi.org/10.1371/journal.pone.0067164

2011 1. Mazdeh, M.M., **Shashaani, S.**, Ashouri, A., Hindi, K.S., Single-machine Batch Scheduling Minimizing Weighted Flow Times and Delivery Costs, *Applied Mathematical Modelling*. https://doi.org/10.1016/j.apm.2010.07.023

Under Review Papers

5. Palmieri, A., Rinaldi, F., and **Shashaani, S.**, Extrapolation-based Direct Search for Nonsmooth Stochastic Zeroth-Order Optimization, under review at *Mathematical Programming*.

4. *Ha, Y., **Shashaani, S.**, and Tran-Dinh, Q., Adaptive Regularization within Trust Region Methods for Stochastic Nonconvex Optimization, under review at *Mathematical Programming*.

3. *Amici, G., **Shashaani, S.**, and Jain, P., Stratified Adaptive Sampling for Derivative-free Trust Region Optimization: Complexity and Applications, under review at *Computers and Operations Research*.

2. *Jeon, Y. and **Shashaani, S.**, Root Finding and Metamodeling for Rapid and Robust Computer Model Calibration, under review at *ACM Transactions on Modeling and Computer Simulation (TOMACS)*.

1. Sürer, Ö., Chen, X., and **Shashaani, S.**, Adaptive Digital Twin Calibration via Weighted Conformal Prediction and Evidence Processes, under major revision at *INFORMS Journal on Data Science*.

Working Papers (expected submission date within 1-6 months)

10. **Shashaani, S.**, Dzahini, J., Cartis, C., Randomized Subspaces for Derivative-free Adaptive Sampling Trust-region Optimization, expected submission Jul 2026.

9. *Eun, H. K., **Shashaani, S.**, and Barton, R., Distributionally Robust Decisions for Queues using Kingman Distances, expected submission Jul 2026.

8. *Jeon, Y., **Shashaani, S.**, and Byon, E., Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study, expected submission Aug 2026.

7. *Eun, H., **Shashaani, S.**, and Mendelson, G., Robust Learning and Simulation with Efficient Bias Correction, expected submission Sep 2026.

6. *Amici, G., **Shashaani, S.**, and Rinaldi, F., Derivative-free Stochastic Trust Region Method with Adaptive Subspaces for Structured Optimization Problems, expected submission Sep 2026.

5. *Wang, C., Eckman, D., and **Shashaani, S.**, Distributionally Optimistic Calibration, expected submission Oct 2026.

4. Sanchez, S., **Shashaani, S.**, Eckman, D.J., Changing the Paradigm: Learning Deeply About Sequential Optimization Algorithms via Data Farming, expected submission Oct 2026.

3. *Ha, Y., **Shashaani, S.**, Tran-Dinh, Q., Stochastic Derivative-free Optimization with Adaptive Regularization and Adaptive Sampling Trust Region Methods, expected submission Oct 2026.

2. Kushwaha, A., **Shashaani, S.**, and Kemper, A., Robust Variational Quantum Algorithms and Hamiltonian Uncertainty, expected submission Nov 2026.

1. Felice, N., **Shashaani, S.**, Roberts, L., Adaptive Sampling Trust Region Methods for Derivative-free Optimization with General Deterministic Constraints, expected submission Nov 2026.

Published Peer-reviewed Proceedings

2026 25. *Felice, N., **Shashaani, S.**, Roberts, L., Stochastic Trust Region Methods for Derivative-free Optimization with Deterministic Equality Constraints, In *Proceedings of the 2026 Winter Simulation Conference*, edited by V. Ramamohan, A. Djanatliev, A. Fakhimi, C. Krejci, C. Ruiz Martin, B. S. Onggo, and N. Mustafee. Piscataway, New Jersey: IEEE, Inc. To Appear.

2026 24. *Wang, C., Eckman, D., **Shashaani, S.**, and Henderson, S., LISA: Large Language Models Can Invent Solvers Autonomously, , In *Proceedings of the 2026 Winter Simulation Conference*, edited by V. Ramamohan, A. Djanatliev, A. Fakhimi, C. Krejci, C. Ruiz Martin, B. S. Onggo, and N. Mustafee. Piscataway, New Jersey: IEEE, Inc. To Appear.

2026 23. *Felice, N., Eckman, D., **Shashaani, S.**, and Henderson, S., Diagnostic Tools for Stochastically Constrained Optimization: A Case Study, In *Proceedings of the 2026 Winter Simulation Conference*, edited by V. Ramamohan, A. Djanatliev, A. Fakhimi, C. Krejci, C. Ruiz Martin, B. S. Onggo, and N. Mustafee. Piscataway, New Jersey: IEEE, Inc. To Appear.

2025 22. *Jeon, Y., **Shashaani, S.**, Jain, P., and Byon, E., Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study, In *Proceedings of the 2025 Winter Simulation Conference*, edited by E. Azar, A. Djanatliev, A. Harper, C. Kogler, V. Ramamohan, A. Anagnostou, and S. J. E. Taylor. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC68292.2025.11338923
(WSC 2025 Best Contributed Applied Paper)
(ACM SIGSIM Best PhD Student Paper Award)

2025 21. *Eun, H.K. **Shashaani, S.**, and R. Barton, Worst-case Approximations for Robust Analysis in Multiserver Queues and Queuing Networks, In *Proceedings of the 2025 Winter Simulation Conference*, edited by E. Azar, A. Djanatliev, A. Harper, C. Kogler, V. Ramamohan, A. Anagnostou, and S. J. E. Taylor. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC68292.2025.11339009

2025 20. Sürer, Ö., Chen, X., and **Shashaani, S.**, Dynamic Calibration Framework for Digital Twins using Active Learning and Conformal *Prediction, In Proceedings of the 2025 Winter Simulation Conference*, edited by E. Azar, A. Djanatliev, A. Harper, C. Kogler, V. Ramamohan, A. Anagnostou, and S. J. E. Taylor. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC68292.2025.11338975

2024 19. **Shashaani, S.**, Simulation Optimization: An Introductory Tutorial on Methodology. In *Proceedings of the 2024 Winter Simulation Conference*, edited by H. Lam, E. Azar, D. Batur, W. Xie, S.R. Hunter, and M. D. Rossetti. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC63780.2024.10838809

2024 18. *Felice, N., **Shashaani, S.**, Eckman, D.E., and Sanchez, S.S., Repeatedly Solving Similar Simulation-Optimization Problems: Insights from Data Farming. In *Proceedings of the 2024 Winter Simulation Conference*, edited by H. Lam, E. Azar, D. Batur, W. Xie, S.R. Hunter, and M. D. Rossetti. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC63780.2024.10838951

2024 17. *Jeon, Y., and **Shashaani, S.**, Calibration Digital Twin via Bayesian Optimization with a Root Finding Strategy. In *Proceedings of the 2024 Winter Simulation Conference*, edited by H. Lam, E. Azar, D. Batur, W. Xie, S.R. Hunter, and M. D. Rossetti. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC63780.2024.10838781

2024 16. *Eun, H.K., **Shashaani, S.**, and Barton, R.R., Comparative Analysis of Distance Metrics for Distributionally Robust Optimization in Queuing Systems: Wasserstein vs. Kingman. In *Proceedings of the 2024 Winter Simulation Conference*, edited by H. Lam, E. Azar, D. Batur, W. Xie, S.R. Hunter, and M. D. Rossetti. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC63780.2024.10838888

2024 15. *Houser, E. and **Shashaani, S.**, Robust Screening and Partitioning for Feature Selection: A Binary Simulation Optimization Problem. In *Proceedings of the 2024 Winter Simulation Conference*, edited by H. Lam, E. Azar, D. Batur, W. Xie, S.R. Hunter, and M. D. Rossetti. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC63780.2024.10838800

2023 14. *Jain, P., **Shashaani, S**. Dynamic Stratification and Post-Stratified Adaptive Sampling for Simulation Optimization. In *Proceedings of the 2023 Winter Simulation Conference*, edited by C.G. Corlu, S.R. Hunter, H. Lam, B.S. Onggo, J. Shortle, and B. Biller. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC60868.2023.10408173

2023 13. *Vahdat, K., **Shashaani, S.**, Adaptive Ranking and Selection Based Genetic Algorithms for Data-Driven Problems. In *Proceedings of the 2023 Winter Simulation Conference*, edited by C.G. Corlu, S.R. Hunter, H. Lam, B.S. Onggo, J. Shortle, and B. Biller. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC60868.2023.10408610

2023 12. *Ha, Y., **Shashaani, S.**, Towards Greener Stochastic Derivative-Free Optimization with Trust Regions and Adaptive Sampling. In *Proceedings of the 2023 Winter Simulation Conference*, edited by C.G. Corlu, S.R. Hunter, H. Lam, B.S. Onggo, J. Shortle, and B. Biller. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC60868.2023.10408143

2023 11. Eckman, D.J., Henderson, S.G., **Shashaani, S.**, Stochastic Constraints: How Feasible Is Feasible? In *Proceedings of the 2023 Winter Simulation Conference*, edited by C.G. Corlu, S.R. Hunter, H. Lam, B.S. Onggo, J. Shortle, and B. Biller. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC60868.2023.10408734

2022 10. **Shashaani, S.**, and *Vahdat, K., Monte Carlo based Machine Learning. In *Proceedings of the 2022 International Conference on Operations Research*, edited by O. Grothe, S. Nickel, S. Rebennack, and O. Stein. Heidelberg: Springer. https://doi.org/10.1007/978-3-031-24907-5_75

2022 9. *Jain, P., **Shashaani, S.**, and Byon, E., Robust Simulation Optimization with Stratification, In *Proceedings of the 2022 Winter Simulation Conference*, edited by B. Feng, G. Pedrielli, Y. Peng, S. Shashaani, E. Song, C.G. Corlu, L.H. Lee, E.P. Chew, T.M.K. Roeder, and P. Lendermann. Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC57314.2022.10015515

2021 8. *Ha, Y., **Shashaani, S.**, and Tran-Dinh, Q., Improved Complexity Of Trust-Region Optimization For Zeroth-Order Stochastic Oracles with Adaptive Sampling, In *Proceedings of the 2021 Winter Simulation Conference*, edited by S. Kim, B. Feng, K. Smith, S. Masoud, Z. Zheng, C. Szabo, and M. Loper, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC52266.2021.9715529

2021 7. *Vahdat, K., and **Shashaani, S.**, Non-parametric Uncertainty Bias and Variance Estimation via Nested Bootstrapping and Influence Functions. In *Proceedings of the 2021 Winter Simulation Conference*, edited by S. Kim, B. Feng, K. Smith, S. Masoud, Z. Zheng, C. Szabo, and M. Loper, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC52266.2021.9715420

2021 6. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Calibration in Wind Power Systems with Adaptive Sampling based Optimization. In *2021 IISE Annual Conference & Expo Proceedings*, edited by A. Ghate, K. Krishnaiyer, and K. Paynabar. https://www.proquest.com/scholarly-journals/wake-effect-calibration-wind-power-systems-with/docview/2560890092/se-2

2020 5. *Mao, L., *Vahdat, K., **Shashaani, S.**, Swann, J., Personalized Predictions for Unplanned Urinary Tract Infection Hospitalizations with Hierarchical Clustering. In *2020 INFORMS Conference on Service Science Proceedings*, edited by H. Yang,R. Qiu, and W. Chen. Springer Proceedings in Business and Economics. Springer, Cham. https://doi.org/10.1007/978-3-030-75166-1_34
(Finalist – Student Paper Competition)

2020 4. *Vahdat, K., **Shashaani, S.**, Simulation Optimization Based Feature Selection, a Study on Data-driven Optimization with Input Uncertainty. In *Proceedings of the 2020 Winter Simulation Conference*, edited by K.G. Bae, B. Feng, B., S. Kim, S. Lazarova-Molnar, Z. Zheng, T.M.K. Roeder, and R. Thiesing, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC48552.2020.9383862

2020 3. Manda, A., Gopalswamy, K., **Shashaani, S.**, Uzsoy, R., A Simulation Optimization Approach for Managing Product Transitions in Multistage Production Lines. In *Proceedings of the 2020 Winter Simulation Conference*, edited by by K.-H.G. Bae, B. Feng, B., S. Kim, S. Lazarova-Molnar, Z. Zheng, T.M.K. Roeder, and R. Thiesing, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC48552.2020.9384036

2019 2. *Vasquez, D., **Shashaani, S.**, and Pasupathy, R. ASTRO for Derivative-Based Stochastic Optimization: Algorithm Description & Numerical Experiments. In *Proceedings of the 2019 Winter Simulation Conference*, edited by N. Mustafee, K.-H.G. Bae, S. Lazarova-Molnar, M. Rabe, C. Szabo, P. Haas, and Y.-J. Son, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC40007.2019.9004904

2016 1. **Shashaani, S.**, Hunter, S. R. and Pasupathy, R.. ASTRO-DF: Adaptive Sampling Trust-Region Optimization Algorithms, Heuristics, and Numerical Experience. In *Proceedings of 2016 Winter Simulation Conference*, edited by T.M.K. Roeder, P.I. Frazier, R. Szechtman, E. Zhou, T. Huschka, and S.E. Chick, Piscataway, New Jersey: IEEE, Inc. https://doi.org/10.1109/WSC.2016.7822121
(Winner – Best Student Paper award)

Presentations

Invited (30-min or less presentations)

Dec 2026 47. *Felice, N., **Shashaani, S.**, Roberts, L., Stochastic Derivative-free Optimization with Equality Constraints using Adaptive Sampling Trust Region Methods, invited by David Eckman, Winter Simulation Conference, Glasgow, UK.

Oct 2026 46. *Eun, H.K., **Shashaani, S.**, Barton, R., Distributionally Robust Optimization of Discrete-Event Simulation Models of Queuing Systems, invited by Susan Hunter, INFORMS Annual Meeting, San Francisco, CA.

Oct 2026 45. *Felice, N., **Shashaani, S.**, Roberts, L., Stochastic Derivative-free Optimization with Equality Constraints using Adaptive Sampling Trust Region Methods, invited by Qi Wang, INFORMS Annual Meeting, San Francisco, CA.

Aug 2026 44. **Shashaani, S.**, Digital Twin Calibration and Stochastic Simulation, INFORMS Simulation Society Research Workshop, Raleigh, NC.

Jun 2026 43. **Shashaani, S.**, Dzahini, J., Cartis, C., Randomized Subspaces for Derivative-free Stochastic Trust-region Optimization, invited by Margheritta Porcelli, Youssef Diouane, Matt Menickelly, and Zaikun Zhang, SIAM Conference on Optimization, Edinburgh, UK.

Jun 2026 42. Rinaldi, F., Palmieri, A., **Shashaani, S.**, Extrapolation-based Direct Search for Nonsmooth Stochastic Zeroth-order Optimization, invited by Margheritta Porcelli, Youssef Diouane, Matt Menickelly, and Zaikun Zhang, SIAM Conference on Optimization, Edinburgh, UK.

Jun 2026 41. *Amici, G., Jain, P., **Shashaani, S.**, Stratified Adaptive Sampling for Derivative-free Trust Region Optimization: Complexity and Application, invited by Margheritta Porcelli, Youssef Diouane, Matt Menickelly, and Zaikun Zhang, SIAM Conference on Optimization, Edinburgh, UK.

Mar 2026 40. *Amici, G., Jain, P., **Shashaani, S.**, Stratified Adaptive Sampling for Derivative-free Trust Region Optimization: Complexity and Applications, invited by Joseph Dzahini, INFORMS Optimization Conference, Atlanta, GA.

Mar 2026 39. **Shashaani, S.**, Ha, Y., and Tran-Dinh, Q., Regularized Trust-region Algorithms for First-order Stochastic Optimization, invited by Katya Scheinberg, INFORMS Optimization Conference, Atlanta, GA.

Mar 2026 38. *Jeon, Y. and **Shashaani, S.**, Accelerated Calibration with Root Finding, invited by Özge Sürer, SIAM Conference on Uncertainty Quantification, Minneapolis.

Dec 2025 37. *Eun, H.K. **Shashaani, S.**, and R. Barton, Worst-case Approximations for Robust Analysis in Multiserver Queues and Queuing Networks, invited by Ben Feng, Analysis Methodology Track, Winter Simulation Conference, Seattle, WA.

Dec 2025 36. Sürer, Ö., **Shashaani, S.**, and Chen, X., Dynamic Calibration Framework for Digital Twins using Active Learning and Conformal Prediction, invited by Wei Xie and Ilya Ryzhov, Robust Simulation Track, Winter Simulation Conference, Seattle, WA.

Oct 2025 35. *Jeon, Y., **Shashaani, S.**, and Byon, E., Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study, invited by Minhee Kim, Quality, Statistics, and Reliability Cluster, INFORMS Annual Meeting, Atlanta, GA.

Jul 2025 34. **Shashaani, S.**, Derivative-free Stochastic Trust Region Optimization using Randomized Subspaces, invited by Ana Luisa Custodio, Derivative-free Optimization Cluster, International Conference on Continuous Optimization, Los Angeles, CA.

Jun 2025 33. **Shashaani, S.**, Unifying Trust-region Algorithms with Adaptive Sampling for Nonconvex Stochastic Optimization, invited by Francesco Rinaldi, Zeroth and First-Order Optimization Stream, the 22nd EUROPT Workshop on Advances in Continuous Optimization, Southampton, UK.

Jun 2025 32. **Shashaani, S.**, Regularization and Variance Reduction for Stochastic Trust Regions using Adaptive Sampling, invited by Luis Nunes Vicente, Portuguese American Optimization Workshop, Azores, Portugal.

Dec 2024 31. *Felice, N., **Shashaani, S.**, Eckman, D.E., and Sanchez, S.S., Data Farming for Repeated Simulation Optimization Experiments, invited by Ben Feng, Analysis Methodology Track, Winter Simulation Conference, Orlando, FL.

Dec 2024 30. *Jeon, Y., **Shashaani, S.**, Calibrating Digital Twins via Bayesian Optimization with a Root Finding Strategy, invited by Ben Feng, Analysis Methodology Track, Winter Simulation Conference, Orlando, FL.

Dec 2024 29. *Hyung, H.K., **Shashaani, S.** and Barton, R., Identifying Input Uncertainty Induced Bias using Wasserstein and Kingman Metrics, invited by Siyang Gao, Simulation Optimization Track, Winter Simulation Conference, Orlando, FL.

Oct 2024 28. *Jain, P., **Shashaani, S.**, Efficiency Analysis of Simulation Optimization with Dynamic Stratification of Large Input Spaces, invited by Enlu Zhou, Simulation Track, INFORMS Annual Meeting, Seattle, WA.

Oct 2024 27. *Hyung, H.K., **Shashaani, S.**, and Barton, R., Comparative Analysis of Distance Metrics in Distributionally Robust Optimization for Queuing Systems: Wasserstein vs. Kingman, invited by Enlu Zhou, Simulation Track, INFORMS Annual Meeting, Seattle, WA.

Oct 2024 26. Park, J., Ko, Y.M., **Shashaani, S.**, E. Byon, Strata Design for Variance Reduction in Stochastic Simulation, invited by Ye Kwon Huh and Kaibo Liu, Data Mining Track, INFORMS Annual Meeting, Seattle, WA.

Oct 2024 25. *Jeon, Y., **Shashaani, S.**, Calibrating Digital Twins via Bayesian Optimization with a Root Finding Strategy, invited by Enlu Zhou, Simulation Track, INFORMS Annual Meeting, Seattle, WA.

Oct 2024 24. **Shashaani, S.**, High Efficiency in Stochastic Trust Regions, invited by Albert S. Berahas, Bollapragada Raghu, Shagun Gupta, and Jiahao Shi, Large-scale Nonlinear and Stochastic Optimization, INFORMS Annual Meeting, Seattle, WA.

Oct 2024 23. **Shashaani, S.**, Sürer, Ö., and Plumlee, M., Decision Trees with Scoring Rules, invited by Robert Gramacy, Technometrics Session, 66th Annual Fall Technical Conference of ASA, Nashville, TN.

Mar 2024 22. *Ha, Y., and **Shashaani, S.**, First-order Trust-region Methods with Adaptive Sampling, invited by Julie Mueller, Computational Optimization Track, INFORMS Optimization Society Conference, Houston, TX.

Jul 2024 21. **Shashaani, S.**, Ha, Y., and Pasupathy, R., Is building first-order simulation oracles really worth it?, invited by Stefan Wild, Ana Custodio, and Francesco Rinaldi, Derivative-free and Simulation-based Optimization Stream, 25th International Symposium on Mathematical Programming, Montréal, Canada.

Dec 2023 20. *Jain, P., **Shashaani, S.**, Dynamic Stratification and Adaptive Sampling for Simulation Optimization, invited by David Eckman and Siyang Gao, Simulation Optimization Track, Winter Simulation Conference, San Antonio, TX.

Dec 2023 19. Eckman, D., **Shashaani, S.**, and Henderson, S., Stochastic Constraints: How Feasible is Feasible?, invited by David Eckman and Siyang Gao, Simulation Optimization Track, Winter Simulation Conference, San Antonio, TX.

Oct 2023 18. *Jain, P., **Shashaani, S.**, Concomitant Variables for Dynamic Stratification for Simulation Optimization, invited by Enlu Zhou, Simulation Track, INFORMS Annual Meeting, Phoenix, AZ.

Oct 2023 17. *Ha, Y., and **Shashaani, S.**, Greener Trust-Region Optimization for Zeroth-Order Stochastic Oracles, invited by invited by Juliane Mueller, Computational Optimization & Software Stream, INFORMS Annual Meeting, Phoenix, AZ.

Aug 2023 16. *Ha, Y., and **Shashaani, S.**, Complexity Analysis of Adaptive Sampling based Trust-region methods, invited by Tommaso Giovannelli, Modeling and Optimization: Theory and Applications Conference, Bethlehem, PA.

Jun 2023 15. *Jain, P., **Shashaani, S.**, Byon, E., Robust Calibration Of Wake Effect in Wind Farms with Stratified Adaptive Sampling, invited by Eunshin Byon, INFORMS Conference on Quality, Statistics, and Reliability, Raleigh, NC.

Dec 2022 14. **Shashaani, S.**, and Jain, P., Robust Simulation Optimization with Stratified Sampling, invited by invited by Enlu Zhou and Zhaolin Hu, Track Chairs of Model Uncertainty and Robust Simulation, 2022 Winter Simulation Conference, Singapore.

Oct 2022 13. *Ha, Y., and **Shashaani, S.**, Trust-Region Optimization for Zeroth-Order Stochastic Oracles, invited by Juliane Mueller, Track Chair of Computational Optimization & Software Stream of the INFORMS Optimization Society, 2022 INFORMS Annual Meeting, Indianapolis, IN.

Oct 2022 12. *Vahdat, K., and **Shashaani, S.**, Robust Monte Carlo-based Prediction Modeling, invited by Jie Xu, Cluster Chair of INFORMS Simulation Society, 2022 INFORMS Annual Meeting, Indianapolis, IN.

Sep 2022 11. **Shashaani, S.**, Monte Carlo Based Machine Learning, invited by invited by Steffen Rebennack, Cluster Chair of Simulation Track, International Conference of Operations Research, Karlsruhe, Germany.

Aug 2022 10. **Shashaani, S.**, and Ha, Y., Stochastic Trust-Region Optimization with Diagonal Hessians for Zeroth-Order Stochastic Oracles, invited by Jeff Larson and Stefan Wild, Cluster Chairs of Derivative-Free-Optimization, International Conference of Continuous Optimization, Bethlehem, PA.

Mar 2022 9. *Ha, Y., and **Shashaani, S.**, Complexity Analysis of Trust-Region Optimization with Adaptive Sampling for Zeroth-Order Stochastic Oracles, invited by Raghu Bollapragada, Track Chair of Nonlinear Optimization, 2022 INFORMS Optimization Society Conference, Greenville, SC.

Dec 2021 8. *Vahdat, K., and **Shashaani, S.**, Non-parametric Uncertainty Bias and Variance Estimation via Nested Bootstrapping and Influence Functions, invited by Canan Corlu and Enlu Zhou, Track Chairs of Model Uncertainty and Robust Simulation, 2021 Winter Simulation Conference, Phoenix, AZ.

Jun 2021 7. **Shashaani, S.**, Eckman, D., Henderson, S., Evaluating Simulation Optimization Algorithms, invited by Vahid Sarhangian, Session Chair of Stochastic Simulation, Canadian Operations Research Society Annual Meeting, Virtual.

Dec 2020 6. *Manda, A., Gopalswamy, K., **Shashaani, S.**, Uzsoy, R., A Simulation Optimization Approach for Managing Product Rampup in Production Lines, invited by Track Chairs of Semiconductors Simulation, 2020 Winter Simulation Conference, Virtual.

Nov 2020 5. **Shashaani, S.**, Data-driven Simulation Optimization and Adaptive Sampling, invited by David Eckman, Track Chair of Stochastic Simulation, 2020 INFORMS Annual Meeting, Virtual.

Dec 2019 4. *Vasquez, D., **Shashaani, S.**, and Pasupathy, R., ASTRO: Adaptive Sampling Trust-Region Optimization, A Class of Derivative-based Simulation Optimization Algorithms – Numerical Experiments, invited by Simulation Optimization Track Chairs, 2019 Winter Simulation Conference, National Harbor, MD.

Nov 2019 3. **Shashaani, S.**, Complexity of Adaptive Sampling Trust-region Methods for Derivative-free Simulation Optimization, invited by invited by David Eckman, Session Chair of Simulation Optimization, 2019 INFORMS Annual Meeting, Seattle, WA.

Nov 2017 2. **Shashaani, S.**, and Guikema, S.D., Hurricane Induced Power Outage Predictions: Current Practice, New Approaches, invited by Mark Daskin, Department Chair, University of Michigan IOE 60+ Anniversary, Ann Arbor, MI.

Oct 2012 1. **Shashaani, S.**, Türkcan, A., Lawley, M., Wan, H., Uncertainty in Chemotherapy Patient Scheduling, invited by Ayten Türkcan, Session Chair of Healthcare Optimization, INFORMS Annual Meeting, Phoenix, AZ.

Contributed

Dec 2026 42. *Felice, N., **Shashaani, S.**, Eckman, D., Henderson, S., Diagnostic Tools for Stochastically-Constrained Optimization, 2026 Winter Simulation Conference, Glasgow, UK.

Dec 2026 41. *Wang, C., **Shashaani, S.**, Eckman, D., Henderson, S., LISA: Large Language Models Can Invent Solvers Autonomously, 2026 Winter Simulation Conference, Glasgow, UK.

Aug 2026 40. **Shashaani, S.**, Stochastic Derivative-free Optimization with Equality Constraints using Adaptive Sampling Trust Region Methods, Modeling and Optimization: Theory and Applications (MOPTA), Lehigh University, Bethlehem, PA.

Dec 2025 39. *Jeon, Y., **Shashaani, S.**, and Byon, E., Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study, Winter Simulation Conference, Seattle, WA.

Jul 2025 38. **Shashaani, S.**, Regularization and Variance Reduction for Stochastic Trust Regions using Adaptive Sampling, 2025 SIAM Annual Meeting, Continuous Optimization Track, Montreal, Canada.

Mar 2025 37. Abdelaal, Y., Sharara, M., Youssef, M., Larson, S., and **Shashaani, S.**, Developing an Estimation Model for Nitrogen Concentration in Swine Lagoons, 2025 NC Water Resources Research Institute Annual Meeting, Raleigh, NC.

Dec 2024 36. *Houser, E., **Shashaani, S.**, Rapid Screening and Nested Partitioning for Feature Selection, 2024 Winter Simulation Conference, Orlando, FL.

Jul 2024 35. **Shashaani, S.**, First-order Trust-region Methods with Adaptive Sampling, 33rd European Conference on Operational Research, Copenhagen, Denmark.

Jul 2024 34. Byon, E., **Shashaani, S.**, and Jain, P., Dynamic Stratification for Efficient Calibration of Computer Models, INFORMS Conference on Quality, Statistics, and Reliability, Como Lake, Italy.

Dec 2023 33. *Ha, Y., and **Shashaani, S.**, Greener Trust-Region Optimization for Zeroth-Order Stochastic Oracles, 2023 Winter Simulation Conference, San Antonio, TX.

Dec 2023 32. *Vahdat, K., and **Shashaani, S.**, Adaptive Ranking and Selection Based Genetic Algorithms for Data-driven Problems. 2023 Winter Simulation Conference, San Antonio, TX.

Jun 2023 31. Park, J., **Shashaani, S.**, and Byon, E., Stratified Sampling for Reliability Analysis Using Stochastic Simulation with Multi-dimensional Input, INFORMS Conference on Quality, Statistics, and Reliability, Raleigh, NC.

Oct 2023 30. *Jain, P., **Shashaani, S.**, Byon, E., Efficient Calibration of Wake Effect with Data-driven Optimization, 2023 INFORMS Annual Meeting, Phoenix, AZ.

May 2023 29. **Shashaani, S.**, Robust and Efficient Learning in High-dimensions, 2023 ASA/IMS Spring Research Conference on Statistics in Industry and Technology, Banff, Canada.

Oct 2022 28. *Jain, P., **Shashaani, S.**, Byon, E., Efficient Dynamic Stratification for Simulation Optimization, 2022 INFORMS Annual Meeting, Indianapolis, IN.

Mar 2022 27. *Ha, Y., **Shashaani, S.**, and Tran-Dinh, Q., Adaptive Sampling Trust-region Optimization with Diagonal Hessian for Derivative-free Stochastic Oracles, 2022 INFORMS Optimization Society Conference, Greenville, SC.

Dec 2021 26. *Ha, Y., **Shashaani, S.**, and Tran-Dinh, Q., Improved Complexity of Trust-region Optimization for Zeroth-order Stochastic Oracles with Adaptive, 2021 Winter Simulation Conference, Phoenix, AZ.

Oct 2021 25. *Ha, Y., **Shashaani, S.**, and Tran-Dinh, Q., Improved Complexity of Trust-region Optimization for Zeroth-order Stochastic Oracles with Adaptive, 2021 INFORMS Annual Meeting, Anaheim, CA.

Oct 2021 24. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Calibration in Wind Power Systems with Stratified and Adaptive Sampling based Optimization, 2021 INFORMS Annual Meeting, Anaheim, CA.

Oct 2021 23. *Vahdat, K., **Shashaani, S.**, Non-parametric Bias and Variance Estimation via Nested Bootstrapping and Influence Functions, INFORMS Annual Meeting, Anaheim, CA.

Oct 2021 22. *Vahdat, K., **Shashaani, S.**, An Analysis of Estimators in Simulation Optimization-Based Feature Selection, 2021 Women in Statistics and Data Science Conference, Virtual.

Jan 2021 21. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Calibration in Wind Power Systems with Adaptive Sampling based Optimization, 2021 IISE Annual Conference and Expo, New Orleans, LA.

Dec 2020 20. **Shashaani, S.**, Vahdat, K., Simulation Optimization-based Feature Selection: A Study on Data-driven Optimization with Input Uncertainty, 2020 Winter Simulation Conference, Virtual.

Nov 2020 19. *Vahdat, K., **Shashaani, S.**, A Study on Optimization Algorithms for Feature Selection with Simulation Optimization, 2020 INFORMS Annual Meeting, Virtual.

Nov 2019 18. *Vahdat, K., **Shashaani, S.**, Improved Feature Selection with Simulation Optimization, 2019 INFORMS Annual Meeting, Seattle, WA.

May 2019 17. **Shashaani, S.**, Feature Selection with Simulation Optimization, 2019 IISE Annual Conference and Expo, Orlando, FL.

Nov 2018 16. **Shashaani, S.**, and Guikema, S.D., Hurricane Power Outage Prediction with Zero-Inflated Data, 2018 INFORMS Annual Meeting, Phoenix, AZ.

Dec 2017 15. **Shashaani, S.**, and Guikema, S.D., Hurricane Power Outage Prediction with Out of Bag Feature Selection Approaches, Society of Risk Analysis Annual Meeting, Arlington, VA.

Dec 2017 14. *Pino, J. V., Quiring, S. M., Guikema, G., **Shashaani, S.**, Linger, S. and S. Backhaus. A High-Resolution Tropical Cyclone Power Outage Forecasting Model for the Continental US, Annual Meeting – American Geophysical Union, New Orleans, LA.

Dec 2017 13. **Shashaani, S.**, and Guikema, S.D., Improved 3-Stage Prediction Models for Power Outage under Hurricanes and Severe Events, Data Science Research Forum, Michigan Institute for Data Science, Ann Arbor, MI.

Oct 2017 12. **Shashaani, S.**, and Guikema, S.D., Hurricane Power Outage Prediction with Out of Bag Feature Selection Approaches, 2017 INFORMS Annual Meeting, Houston, TX.

Sep 2017 11. **Shashaani, S.**, and Guikema, S.D., Improved 3-Stage Prediction Models for Power Outage under Hurricanes and Severe Events, Michigan Regional Postdoctoral Symposium, Detroit, MI.

Jul 2017 10. **Shashaani, S.**, Plumlee, M., and Guikema, S.D., Probabilistic Classification and Regression Trees with Proper Scoring Rules, Applied Probability Society Conference, Evanston, IL.

Dec 2016 9. **Shashaani, S.**, Hunter, S. R., and Pasupathy, R., ASTRO-DF Algorithms, Heuristics, and Numerical Experience, 2016 Winter Simulation Conference, Arlington, VA. **(First Place - PhD Colloquium)**

Nov 2016 8. **Shashaani, S.**, Pasupathy, R., Adaptive Sampling Trust-region Methods for Derivative-based and Derivative-free Simulation Optimization Problems, 2016 INFORMS Annual Meeting, Nashville, TN.

Sep 2016 7. **Shashaani, S.**, Pasupathy, R., Adaptive Sampling Trust-region Methods for Derivative-based and Derivative-free Simulation Optimization Problems, Computational Interdisciplinary Graduate Programs CSE/CLS Seminar, West Lafayette, IN.

Nov 2015 6. **Shashaani, S.**, Pasupathy, R., ASTRO-DF: Adaptive Stochastic Trust Region Optimization, Derivative-Free. 2015 INFORMS Annual Meeting, Philadelphia, PA.

Jul 2015 5. **Shashaani, S.**, Pasupathy, R., ASTRO-DF: Adaptive Stochastic Trust Region Optimization, Derivative-Free, International Symposium of Applied Mathematics, Pittsburgh, PA.

Jul 2015 4. Pasupathy, R., **Shashaani, S.**, ASTRO-DF: Adaptive Stochastic Trust Region Optimization: Derivative-Free, INFORMS Applied Probability Society Conference, Istanbul, Turkey.

Jan 2015 3. **Shashaani, S.**, Pasupathy, R., ASTRO-DF: Adaptive Stochastic Trust Region Optimization: Derivative-Free, INFORMS Computing Society Conference, Richmond, VA.

Jun 2013 2. **Shashaani, S.**, Chen, J., Nsoesie, E., Marathe, M., Comparison Study of Simulation Optimization for Real-Time Epidemic Forecasting, INFORMS Conference on Healthcare, Chicago, IL.

Nov 2012 1. **Shashaani, S.**, and Marathe, M., Infectious Disease Prediction using Simulation Optimization, Models of Infectious Disease Agent Study Meeting, Arlington, VA.

Posters

Mar 2026 22. *Eun, H.K., **Shashaani, S.**, and Barton, R., Fast Robust Optimization for Queueing Systems Under Input Uncertainty, CCEE/ISE Alumni Celebration Event, Raleigh, NC.

Dec 2025 21. *Jeon, Y., **Shashaani, S.**, and Byon, E., Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study, PhD Colloquium, Winter Simulation Conference, Seattle, WA.

Apr 2025 20. *Felice, N., **Shashaani, S.**, Eckman, D., Henderson, S., Evaluating Simulation Optimization Algorithms in the Presence of Stochastic Constraints, 18th Annual NC State University Graduate Student Research Symposium, Raleigh, NC.

Sep 2024 19. *Jeon, Y., **Shashaani, S.**, Calibrating Digital Twins using Bayesian Optimization with a Root-Finding Strategy, Applied AI in Engineering & Computer Science Symposium at NC State University, Raleigh, NC.

Apr 2024 18. *Houser, E., and **Shashaani, S.**, Binary Simulation Optimization for Feature Selection, 17th Annual Graduate Student Research Symposium at NC State University, Raleigh, NC.

Dec 2023 17. *Ha, Y., and **Shashaani, S.**, Accelerating Derivative-Free Simulation Optimization, 2023 Winter Simulation Conference PhD Colloquium, San Antonio, TX.

Dec 2023 16. *Vahdat, K., and **Shashaani, S.**, Adaptive Ranking and Selection Based Genetic Algorithm for Data-driven Problems, 2023 Winter Simulation Conference PhD Colloquium, San Antonio, TX.

Mar 2023 15. *Jeon, Y., **Shashaani, S.**, Introduction to Simulation Optimization and Data Analytics, 2023 ISE Engineering Open House, Raleigh, NC.

Oct 2022 14. *Amarnath, A., White, T., and **Shashaani, S.**, Data Analysis Tool to Predict Defects in Additive Manufacturing, 2022 INFORMS Annual Meeting, Indianapolis, IN.

Nov 2021 13. *Ha, Y., **Shashaani, S.**, Traffic Signal Control Simulation and Optimization, ISE Dedication Week, Raleigh, NC.

Nov 2021 12. *Vahdat, K., **Shashaani, S.**, Simulation Optimization based Feature Selection, ISE Dedication Week, Raleigh, NC.

Nov 2021 11. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Calibration in Wind Power Systems with Adaptive Sampling based Optimization, ISE Dedication Week, Raleigh, NC.

Oct 2021 10. *Vahdat, K., **Shashaani, S.**, An Analysis of Estimators in Simulation Optimization-Based Feature Selection, Women in Statistics and Data Science Conference, Virtual.

Jan 2021 9. *Jain, P., **Shashaani, S.**, and Byon, E., Wake Effect Calibration in Wind Power Systems with Adaptive Sampling based Optimization, 2021 IISE Annual Conference and Expo, Virtual.

Dec 2020 8. *Ha. Y., **Shashaani, S.**, Traffic Signal Control Simulation and Optimization, Contributed Poster, 2020 Winter Simulation Conference, Virtual.

Oct 2020 7. *Vahdat, K., **Shashaani, S.**, Simulation Optimization based Feature Selection, 2020 INFORMS Annual Meeting, Virtual.
(Runner-up - Poster Competition)

Dec 2019 6. *Vahdat, K., **Shashaani, S.**, Simulation Optimization based Feature Selection, 2019 Winter Simulation Conference, National Harbor, MA.

Oct 2019 5. *Vahdat, K., **Shashaani, S.**, Feature Selection With Simulation Optimization, 2019 INFORMS Annual Meeting, Seattle, WA.

Aug 2019 4. *Vahdat, K. **Shashaani, S.**, Improved Feature Selection with Simulation Optimization, FOPAM Conference on Foundations of Process Analytics and Machine learning, Raleigh, NC.

Apr 2015 3. **Shashaani, S.** ASTRO-DF: Adaptive Stochastic Trust Region Optimization, Derivative-Free, School of Industrial Engineering Annual Symposium, West Lafayette, IN.
(Third Place - Poster and Presentation Competition)

Oct 2012 2. **Shashaani, S.**, and Marathe, M., Infectious Disease Prediction using Simulation Optimization, 2012 INFORMS Annual Meeting, Phoenix, AZ.
(First Place - Interactive Session Competition)

Dec 2012 1. Arnolds, I., Nickel, S., **Shashaani, S.**, and Wernz, C., Using Simulation in Hospital Layout Planning, 2012 Winter Simulation Conference, Berlin, Germany.

Seminars (45-min or more presentations)

Jul 2026 18. Variance Reduction for Stochastic Derivative-free Optimization with Trust Regions, invited by Lindon Roberts, MoCaO— Mathematics of Computation and Optimisation Special Interest Group of the *Australian Mathematics Society*, Virtual.

Jun 2026 17. **(Plenary Talk)** Stochastic and Derivative-free Optimization with Trust Regions, invited by Tibor Illés, Botond Bertók, Marianna E.-Nagy, and Giancarlo Bigi, 11th VOCAL Optimization Conference: Advanced Algorithms, *Széchenyi István University*, Mosonmagyaróvár, Hungary.

Jun 2026 16. Derivative-free Stochastic Trust-region Methods with Quadratic Regularization, invited by Immanuel Bomze, Department of Statistics and Operations Research, *University of Vienna*, Austria.

Apr 2026 15. Randomized Subspaces for Derivative-free Stochastic Trust-region Methods, invited by Katya Scheinberg, Department of Industrial and Systems Engineering, *Georgia Institute of Technology*, Atlanta, GA.

Feb 2026 14. Derivative-free Stochastic Trust-region Methods with Quadratic Regularization, invited by David Eckman, Department of Industrial and Systems Engineering, *Texas A&M University*, College Station, TX.

Oct 2025 13. Derivative-free Stochastic Trust-region Methods with Quadratic Regularization, invited by Jeff Larson, LANS Seminar, *Argonne National Laboratory*, Chicago, IL.

Dec 2024 12. **(Tutorial)** Simulation Optimization: An Introductory Tutorial to Methodology, invited by Chung-han Rhee and Canan Corlu, *2024 Winter Simulation Conference*, Orlando, FL.

Jul 2024 11. Zeroth and First-order Stochastic Optimization for Nonconvex Problems with Adaptive Sampling, invited by Christine Currie, Department of Mathematics, *University of Southampton*, Southampton, UK.

Jul 2024 10. Simulation Optimization in Continuous and Discrete Decision Spaces, invited by Stefan Nickel, Kolloquium des Instituts für Operations Research, *Karlsruhe Institute of Technology*, Karlsruhe, Germany.

Jun 2024 9. Interpolation-based Trust-regions for Stochastic Derivative-free Optimization, invited by Ana Luísa Custódio, Sébastien Le Digabel Giampaolo Liuzzi, Margherita Porcelli, and Francesco Rinaldi, 2nd Derivative-free Optimization Symposium (DFOS), Department of Mathematics, *University of Padova*, Padova, Italy.

Apr 2024 8. Zeroth and First-order Stochastic Optimization for Nonconvex Problems with Adaptive Sampling, invited by Quoc Tran-Dinh, Department of Statistics & Operations Research, *University of North Carolina Chapel Hill*, Chapel Hill, NC.

Sep 2023 7. Greener Stochastic Derivative-Free Optimization, invited by Frank Curtis, Department of Industrial and Systems Engineering, *Lehigh University*, Bethlehem, PA.

Aug 2023 6. Adaptive Sampling for Robust Stochastic Trust-region Optimization of Derivative-free Models, invited by Eunhye Song, Department of Industrial and Systems Engineering, *Georgia Institute of Technology*, Atlanta, GA.

Sep 2022 5. Monte Carlo based Machine Learning, invited by Ruiwei Jiang, *INFORMS Junior Faculty Interest Group Seminar*, Virtual.

Sep 2021 4. Long-term Resilience and Stochastic Optimization, invited by Brad Murray, Disciplines 101 of C-CoAST Research Coordination Network, *Duke University*, Virtual.

Apr 2020 3. A Study on Data-driven Optimization with Input Uncertainty, invited by Stefan Wild, Jeff Larson, and Matt Menickelly, Numerical Software, and Statistics Seminar at Laboratory for Applied Mathematics, *Argonne National Laboratory*, Virtual.

Aug 2019 2. Complexity of ASTRO-DF: Adaptive Sampling Trust-region Methods for Derivative-free Simulation Optimization, invited by Bahar Biller, *SAS Advanced Analysis and Operations Research*, Cary, NC.

Sep 2016 1. Adaptive Sampling Trust-Region Methods for Derivative-based and Derivative-free Simulation Optimization, Computational Interdisciplinary Graduate Program's Seminar, *Purdue University*, West Lafayette, IN.

Research and Training Grants

07/26-06/29 1. *University of North Carolina System Research Opportunities Initiative* "Personalized Federated Learning Framework for Advanced Manufacturing Environments", $1,500,000 (NCSU $524,896), NCSU co-PI (with I. Guvenc and N, Sichitiu and PI A. Abdallah, Western Carolina University)

05/26-11/26 2. *National Science Foundation* CMMI 2624250:"2026 I-Sim Workshop - Simulation in the Age of Digital Twins and AI", $35,638, co-PI (with H. Wan, NCSU)

08/24–09/27 3. *National Science Foundation* OAC 2410949: "Elements: A Computational and Data-Capable Environment for Stochastic Simulation Optimization", $599,997 (NCSU $88,864), co-PI (with D. Eckman, Texas A&M and S. Henderson, Cornell)

05/24–12/25 4. *Department of Energy* Digitizing Utilities Round 2 Phase 1: "Storm-based Outage Prediction to Aid Crew Dispatching Decisions", $75,000, co-PI (with B. Rachunok and J. Kern, NCSU, North Carolina's Electric Cooperatives)

05/24–05/27 5. *Office of Naval Research* Mathematical Optimization Program N000142412398: "Fast and Scalable Stochastic Derivative-free Optimization", $495,772, Sole-PI

01/24–12/26 6. *North Carolina Department of Justice*: "A Modeling Tool to Advance Sustainability and Resiliency of Lagoon-sprayfield Systems in Eastern NC", $188,740, co-PI (with M. Sharara, M. Youssef, and S. Larson, NCSU)

01/23–12/26 7. *National Science Foundation* CMMI 2226347: "Collaborative Research: Calibrating Digital Twins in the Era of Big Data with Stochastic Optimization", $566,000 (NCSU $282,315), Lead-PI (with E. Byon, U of Michigan)

09/22–08/23 8. *American Educational Research Association* Research Publication Grant in Engineering, Medicine and Science: "Adaptive Sampling Trust-region Methods for Nonconvex Stochastic Optimization", $34,977, Sole-PI

01/22–01/23 9. *North Carolina State University* Research and Innovation Seed Funding Program: "Impact of Future Climate Events on NC Animal Agriculture Systems", $33,750, PI (with M. Sharara and S. Larson, NCSU)

07/21–07/22 10. *North Carolina State University* Faculty Research & Professional Development: "Quantum Computing and Monte Carlo Methodology", $10,000, Sole-PI

09/19–06/20 11. *Center for Medicare & Medicaid Services* AI Health Challenge: "Multi-Layered Feature Selection and Dynamic Personalized Scoring for Prediction of Preventable Admissions & Adverse Events", In-kind $52,000, Lead-PI (with J. Swann, NCSU)

Proposals Under Review

1. DOE — Lead PI with J. Dzahini, Argonne National Lab, "Scalable, Distributionally Robust, Stochastic Multiobjective Optimization for DOE Inverse Problems," 8/2026–7/2029, $3M.
2. USDA NIFA — Co-PI with M. Sharara, S. Larson, M. Yousef, S. Kulesza, "Enhancing Productivity, Environmental Sustainability and Climate Resiliency of Liquid Manure Land Application Systems: Decision-support Tool Development, Testing, and Application," 5/2026–4/2030, $650,000.

Teaching Experience

Instructor, North Carolina State University

Fa 20–25; Sp 20, 23, 26 1. ISE 441: Introduction to Simulation

Sp 22–26 2. ISE/OR 562: Simulation Modeling

Developed Python-based simulation and input-analysis modules for ISE 441/562 and redesigned the semester-long simulation project structure in 2025–2026

Fa 22; Sp 25 3. ISE/OR 762: Stochastic Simulation

Sp 19, 21, 24; Fa 25 4. ISE/OR 772: Simulation Optimization

Instructor, University of Michigan

Fa 2016 1. Predictive Modeling (Guest Lecturer - 3 sessions)

Sp–Fa 2017 2. Economic Decision-Making

Teaching Assistant, Purdue University

Sp 2016 1. Advanced Data Analytics Lab

Fa 2014–15 2. Probability and Statistics in Engineering

Teaching Assistant, Virginia Tech

Sp 2014 1. Probabilistic Operations Research

Fa 2013 2. Introduction to Probability and Statistical Quality Control
(Alpha Pi Mu Outstanding Teaching Assistant of 13 – 14)

Fa 2012 3. Discrete-event Simulation Lab

Mentoring and Advising

Postdoctoral Scholars: Advisor

2025– 1. **Giovanni Amici**

Project: Fast and Scalable Stochastic Derivative-free Optimization

2025– 2. **Cen Wang** (co-advised by David Eckman and Shane Henderson)

Project: A Computational and Data-Capable Environment for Stochastic Simulation Optimization

2024–2025 3. **Yousef Abdelaal** (co-advised by M. Sharara, M. Yousef)

Project: A Modeling Tool to Advance Sustainability and Resiliency of Lagoon-sprayfield Systems in Eastern NC

Doctoral Students: Advisor

Tentative: Sp 2028
1. **Nicole Felice** (NCSU–OR)
   Pre-candidate - Pre-Qualifying Exam

Tentative: Sp 2027
2. **Hyung Khee Eun** (NCSU–ISE)
   Pre-candidate - Post Qualifying Exam

Graduation: Sp 2026
3. **Yongseok Jeon** (NCSU–ISE)
   Dissertation: Calibrating Digital Twins in Rapidly Changing Systems
   Committee: Eunshin Byon, Jordan Kern, Benjamin Rachunok, Hong Wan, Dávid Papp
   Placement: LG CNS

Graduation: Sp 2024
4. **Pranav Jain** (NCSU–ISE)
   Dissertation: Model Calibration via Optimization with Stratified Adaptive Sampling
   Committee: Eunshin Byon, Hong Wan, Emily Griffith, Benjamin Rachunok, Dan Harris
   Placement: Postdoctoral Fellow at National Renewable Energy Laboratory (NREL); Data Scientist at Duke Energy

Graduation: Fa 2023
5. **Yunsoo Ha** (NCSU–ISE)
   Dissertation: Accelerating Stochastic Derivative-free Optimization
   Committee: Yunan Liu, Reha Uzsoy, Quoc Tran-Dinh, Naihuan Jing, Dávid Papp
   Placement: Postdoctoral Fellow at NREL; Postdoc at Cornell University

Graduation: Fa 2023
6. **Kimia Vahdat** (NCSU–ISE)
   Dissertation: Machine Learning with Simulation Optimization
   Committee: Barry Nelson, Ana-Maria Staicu, Maria Mayorga, Osman Ozaltin, Jonathan Stallrich
   Placement: Data Scientist at Liberty Mutual

Doctoral Students: Committee Member

Sp 2027
1. **Ashley Stanfield** (NCSU–OR; Advisor: Mayorga)
   Dissertation: Individual-Level Metamodeling of Complex Health Simulations: From Design to Implementation for Colorectal Cancer Screening

Sp 2027
2. **Jingwei Qian** (NCSU–ISE; Advisor: Kern)
   Dissertation: TBA

Sp 2027
3. **Edric Pham** (NCSU–ISE; Advisor: Kern)
   Dissertation: TBA

Sp 2027
4. **Diesta Maftuhah** (NCSU–ISE; Advisor: Kern)
   Dissertation: TBA

Fa 2026
5. **Julien Mayrand** (NCSU–MATH; Advisor: Combettes)
   Dissertation: Generalized Resolvents of Set-valued Operators

Fa 2026
6. **Trung Nghia Nguyen** (UNC-CH–Statistics and OR; Advisor: Tran-Dinh)

Dissertation: Advanced Fast First-Order Methods for Generalized Equations: Randomized, Inexact, and Preconditioning Techniques

Sp 2026 7. **Javier M. Roman** (NCSU–MATH; Advisor: Combettes)

Dissertation: Stochastic Iterations in Hilbertian Nonlinear Analysis

Sp 2026 8. **Diego Cornejo** (NCSU–MATH; Advisor: Combettes)

Dissertation: Resolvent and Proximal Compositions: Theory and Applications

Sp 2026 9. **Yamil Essus Pradel** (NCSU–ISE; Advisor: Rachonuk)

Dissertation: Computational Methods for Enhancing Community Resilience

Su 2025 10. **Sebastian R. Cartes** (NCSU–ISE; Advisor: Mayorga)

Dissertation: Modeling Human Behavior in Epidemic Simulations: A Comprehensive Approach to Understanding Behavioral Determinants and Improving Public Health Policies

Sp 2025 11. **Anant Mathur** (University of New South Wales Sydney Australia, School of Mathematics and Statistics; Advisor: Zdravko Botev)

Dissertation: Efficient Algorithms for Sparse Statistical Learning

Sp 2023 12. **Maria Davis** (NCSU–MATH; Advisor: Papp)

Dissertation: Dual Certificates and Efficient Rational Sums-of-Squares Decompositions for Polynomial Optimization

Sp 2022 13. **Sanghyun Choo** (NCSU–ISE; Advisor: Nam)

Dissertation: Improving Generalization Performance of Deep Learning for Brain- Computer Interface: Effects of Data Augmentation and Batch Size Strategy

Sp 2021 14. **Breanna P. Swann** (NCSU–ISE; Advisor: Mayorga & Ivy)

Dissertation: Improving Patient Outcomes through Data Driven Medical Decision Making

Su 2020 15. **Kyle E. Paret** (NCSU–ISE; Advisor: Mayorga)

Dissertation: Models for Improving the Integration of Spontaneous Volunteers in Disaster Response

Sp 2020 16. **Atchyuta B. Manda** (NCSU–ISE; Advisor: Üzsoy)

Dissertation: Managing the Impact of New Product Introductions on Factory Performance

Doctoral Students: Research/Independent Study Supervisor

Su 2025 1. BumJoon Cho (NCSU–ISE)

Sp 2025 2. Abeer Abdelhadi (NCSU–ISE)

Fa 2024 3. Amr Abu Orabi (NCSU–ISE)

Sp 2023 4. Amirhossein Sadeghi (NCSU–ISE)

Fa 2022 5. Daniel A.C. Vasquez (Purdue–Statistics)

Fa 2020 6. Mina Mohammadi (NCSU–ISE)

Sp 2019 7. Thomas Y.J. Chen (University of Michigan–IOE)

Master's Students: Research Supervisor/Mentor

Fa 2024 1. Tabitha Gardner (NCSU–OR)

Su 2024 2. Reetun Maiti (NCSU–ISE)

Fa 2022 3. Hyung Khee Eun (NCSU–ISE)

Admitted to NCSU ISE PhD program for Sp 2023

Fa 2022 4. Sarah Spall (NCSU–ISE)

Sp–Fa 2022 5. R. Shashank V. Raman (NCSU–ISE)

Sp 2022 6. Vasudev Sethuraman (NCSU–ISE)

Fa 2022–24 7. Ethan Houser (NCSU–ISE)

Admitted to NCSU ISE PhD program for Fa 2023

Sp 2020 8. Prasanth Yadla (NCSU-CSE)

Sp 2020 9. Akash Pramodkumar Pateria (NCSU-CSE)

Fa 2019 10. Hisham Abu Nimeh (NCSU–ISE)

Master's Students: Committee Member

Sp 2025 1. Troy Wibowo (NCSU–ISE)

Sp 2024 2. Ranbir Singh Multani (NCSU–IMSE)

Sp 2024 3. Aishwarya Singhai (NCSU–IMSE)

Sp 2023 4. Jay Khedekar (NCSU–IMSE)

Bachelor's Students: Senior Design Mentor

Sp 2026 1. Josh Goodwin, Dominic Hobart, Bailey Stroud, Sanya Aggarwall (Fleet Readiness Center - East Hanger Simulation)

Sp 2025 2. Audrey Westlund, Grace Newman, Maddie Billings, Sophia Lloyd (Hitachi Energy waste Receptacle Layout Plan)

(2nd Place, Best Senior Design Project)

Sp 2025 3. Joseph Sides, Hope Ketola, Will Geiger, Pamela Rodriguez, Logan Styers (Hitachi Energy Manufacturing Plant in South Boston, VA)

Fa 2024 4. Misk Hussain, Sharon Gilman, Hermann Ndeh (NIOSH)

Sp 2024 5. Peyton Shue, Katie Evans, Griffin Cook, Will Parker (HerbaLife)

Fa 2023 6. Zachary Warren (Javamasters)

Sp 2022 7. Hazal Yigit, Amrita Malur, Bharat Yadav, Lydia Underwood (UNC Rex Hospital)

(Winner of the Best Senior Design Poster)

Bachelor's Students: Research (REU)/Ind. Study Supervisor

Fa–Su 2025 1. Barbara de Araujo Alvarenga (NCSU–ISE)

Fa 2024 2. Jenna Cuniowski (NCSU–ISE)

Sp 2024 3. William Chrochocinski (NCSU–ISE)

Sp–Fa 2023 4. Arvin Kushwaha (NCSU–Physics/Math)

Su–Fa 2023 5. Nicole Felice (NCSU–ISE)

Admitted to NCSU OR PhD program for Fa 2024

Fa 2022 6. Kevin Xu (NCSU–Statistics)

Admitted to U. of Washington Statistics Master's program for Fa 2024

Su 2022 7. Maria del Mar Davila Colon (Univ. of Puerto Rico)

Su 2022 8. Sanskriti Deva (NCSU–Physics)

Sp 2022 9. Taylor White (NCSU–ISE)

Sp–Fa 2022 10. Amrutha Amaranth (NCSU–ISE)

Sp–Su 2022 11. Rina Davila Severiano (NCSU–ISE)

Admitted to Georgia Tech ISyE PhD program for Fa 2023

Sp 2022 12. Wes Hankinson (NCSU–ISE)

Fa 2021 13. Nicole Colberg (NCSU–ISE)

Su 2021 14. Zack Horton (NCSU–ISE)

Sp 2021 15. Ethan Houser (NCSU–ISE)

Admitted to NCSU ISE Master's program for Fa 2022

Fa 2020 16. Lingchao Mao (NCSU–ISE)

Admitted to Georgia Tech ISyE PhD program for Fa 2021

Su 2020 17. Santiago Volonte (NCSU–ISE)

Sp 2020 18. Dylan Hanser (NCSU–ISE)

Sp 2020 19. Carolyn Drahuse (NCSU–ISE)

Su 2020 20. Kurtis Konrad (NCSU–ISE)

Admitted to NCSU ISE PhD program for Fa 2021

Honors and Awards

Scholarly Honors and Awards

2026 **Meritorious Reviewer Award**, INFORMS Journal on Computing

2026 **Fulbright Pathfinder Grant**, NCSU

2026 **ISE Outstanding Research Award**, C.A. Anderson Awards, NCSU ISE

Recognizes current tenure track faculty members at all ranks for excellence in research during the past five calendar years and the potential for winning various College/University/professional society-level research awards

2025 **Best Contributed Applied Paper**, "Dynamic Calibration of Digital Twins via Stochastic Simulation: A Wind Energy Case Study", 2025 Winter Simulation Conference

2025 **Finalist**, Best Contributed Theoretical Paper, Winter Simulation Conference

2025 **Visiting Fellow**, IMSI's Long Program "Digital Twins Mathematical and Statistical Foundations and Complex Applications", University of Chicago

2025–2028 **MGB-SIAM Early Career Fellow**, Society for Industrial and Applied Mathematics

2024 **Goodnight Early Career Innovators Award**, NCSU

2024 **Winner**, "Uncertainty Quantification for Irrigation and Lagoon Management", NC Ag Analytics Platform Initiative, Sponsors: NCSU, NC A&T State U., and SAS

2024 **Phase 1 Winner**, Digitizing Utilities, Department of Energy Office of Electricity

2024 **Featured Article** "Predicting Additive Manufacturing Defects with Robust Feature Selection for Imbalanced Data", IISE Transactions Magazine

2024 **Bowman Faculty Scholar**, NCSU ISE

Recognizes current ISE (tenure track) assistant and associate professors for excellence in research, teaching, and service over the past three calendar years and the potential for becoming a University Faculty Scholar

2024 **Faculty Mobility Scholarship**, Baden-Württemberg/NC Exchange Program

2023 **International Alumnus of the Year**, Southern Cross University

2023 **Selected Fellow**, Convergence Research (CORE) Institute

2023 **Writing Retreat Award**, NCSU Coastal Resilience and Sustainability Initiative

2022 **Outstanding Contribution in Reviewing**, Journal of Simulation

2022 **Distinguished Service Award**, Proceedings Editor, Winter Simulation Conference

2021 **Faculty Research and Professional Development Program Award**, NCSU

2019 **Outstanding Reviewer Award**, Winter Simulation Conference

2019 **Stage 1 Winner**, AI Health Outcomes Challenge (top 25 in 300 teams), Center for Medicare and Medicaid Services (CMS)

2016 **First Place**, WSC Ph.D. Colloquium and Best Student Paper Competition, INFORMS Simulation Society

2015 **Third Place**, IE Symposium Poster Competition, Purdue University

2015 **Student Travel Award**, College of Engineering, Purdue University

2014 **Ross Fellowship**, School of Industrial Engineering, Purdue University

2012 **First Place**, Interactive Presentation Competition, INFORMS Annual Meeting

2012 **Visiting Researcher Scholarship**, Karlsruhe Institute of Technology KHYS

2012 **Summer Scholarship**, Virginia Tech OIRED

2007 **First Place**, Senior Design Project Competition, Industrial Engineering, IUST

2006 **Distinctive Student Award**, Software Engineering, Aptech Worldwide IT Education

Teaching Awards

2023 **Excellence in Teaching Simulation Award**, IISE Modeling & Simulation Division

2014 **Outstanding Teaching Assistant** (voted by students), Virginia Tech Alpha Pi Mu

Student Awards

2026 **Shook Mentor Award**, NCSU ISE
(Nicole Felice)

2025 **Best Student Paper Award**, ACM SIGSIM, Winter Simulation Conference
(Yongseok Jeon)

2025 **Second Place**, Pritsker Doctoral Dissertation Award, IISE
(Yunsoo Ha)

2025 **Shook Mentor Award**, NCSU ISE
(Yongseok Jeon)

2025 **Mentored Teaching Fellowship**, NCSU College of Engineering
(Nicole Felice)

2025 **Second Place**, Senior Design Competition, NCSU ISE
(Audrey Westlund, Grace Newman, Maddie Billings, Sophia Lloyd)

2024 **WSC Diversity Travel Award**, INFORMS Simulation Society
(Hyung-Khee Eun)

2024 **Outstanding Reviewer Award**, Winter Simulation Conference
(Yunsoo Ha)

2024 **Distinguished Dissertation Award**, NCSU ISE
(Yunsoo Ha)

2023 **Travel Award**, Annual Midwest Optimization Meeting, U. of Michigan
(Yunsoo Ha)

2023 **Shook Mentor Award**, NCSU ISE
(Ethan Houser)

2022 **First Place**, Simio Student Competition
(Claudia Donahue and Alexej Lozevski)

2022 **Honorable Mention**, Simio Student Competition
(Daniel Malerich and Kelby Mace)

2022 **Mentored Teaching Fellowship**, NCSU College of Engineering
(Yunsoo Ha)

2022 **Outstanding Doctoral Scholar of the Year**, NCSU ISE
(Kimia Vahdat)

2022 **First Place**, Senior Design Poster Competition, NCSU ISE
(Hazal Yigit, Amrita Malur, Bharat Yadav, Lydia Underwood)

2021 **WSC Diversity Travel Award**, INFORMS Simulation Society
(Kimia Vahdat)

2021 **Shook Mentor Award**, NCSU ISE
(Kimia Vahdat)

2020 **Finalist**, Student Paper Competition, INFORMS Conference on Service Sciences
(Lingchao Mao, Kimia Vahdat)

2020 **Finalist**, Student Poster Competition, 2020 INFORMS Annual Meeting
(Kimia Vahdat)

Professional Service

Professional Membership

2019– Society for Industrial and Applied Mathematics (SIAM)
- SIAM Activity Group on Optimization
- SIAM Career Opportunities Committee

2019– Mathematical Optimization Society (MOS)

2016– INFORMS Simulation Society (I-SIM)

2025–2028 I-SIM PhD Colloquium Committee

2022–2025 Elected I-SIM Board Member and Treasurer

2019–2022 Chair and Member of I-SIM Diversity Committee

2023– INFORMS Applied Probability Society

2024– INFORMS Optimization Society

2020– INFORMS Computing Society

2020– INFORMS Junior Faculty Group

2019– Institute of Industrial and Systems Engineers (IISE)

2019–2020 American Statistical Association (ASA)

2020–2022 Collaboratory for Coastal Adaptation over Space and Time (C-CoAST) Hub

Proposal Review Panelist

2024 CMMI Game Changer Academies Panel Fellow

NSF Ad Hoc Review, Computational and Data-Enabled Science and Engineering (CDS&E)

NSF Civil, Operations Engineering in Division of Mechanical, and Manufacturing Innovation (CMMI-OE)

NSF CDS&E in Mathematical and Statistical Sciences (CDS&E-MSS)

NSF Cyberinfrastructure for Sustained Scientific Innovation (CSSI-OAC)

Editorial Service

2026–2027 **Special Issue Editor**, ACM Transactions of Modeling and Computer Simulation

2025– **Associate Editor (AE)**, Operations Research

2025– **Associate Editor (AE)**, Naval Research Logistics

2024– **Associate Editor (AE)**, Journal of Simulation

2022, 2028 **Proceedings Editor**, Winter Simulation Conference

Journal Reviewer

Operations Research (OPRE)

Mathematical Programming (MAPR)

SIAM Journal on Optimization (SIOPT)

INFORMS Journal on Computing (IJOC)

Management Science

Journal of Optimization Theory and Applications (JOTA)

Optimization Methods and Software (OMS)

EURO Journal on Computational Optimization (EJCOMP)

IMA Journal of Numerical Analysis (IMAJNA)

European Journal on Operations Research (EJOR)

Journal of Simulation (JOS)

Computers and Operations Research (CAOR)

Vietnam Journal of Mathematics (VJOM)

ACM Transactions of Modeling and Computer Simulation (TOMACS)

IISE Transactions

Journal of Supercomputing

Entropy

Systems Dynamics Review

Risk Analysis

International Journal of Electrical Power and Energy Systems

Paper/Poster Competition Review

2026 Paper Judge, DAIS Best Student Paper Competition, IISE Annual Conference

2021 Paper Judge, Energy Systems Track (ENRE), IISE Annual Conference

2018 Poster Judge, Engineering Graduate Symposium, University of Michigan

2016 Poster Judge, Computational Science and Engineering Student Competition, Purdue University

Proceedings Editorial Service

2025–2028 co-Chair, Ph.D. Colloquium Track, Winter Simulation Conference

2024 co-Chair, Poster Track, Winter Simulation Conference

2023, 2026 co-Chair, Analysis Methodology Track, Winter Simulation Conference

2021–2023 Reviewer, Simulation Optimization Track, Winter Simulation Conference

2021–2023 Reviewer, Model Uncertainty & Robust Simulation Track, Winter Simulation Conference

Book Chapter Reviewer

2019 Larson, J., Menickelly, M., and Wild, S. 2019. Derivative-free optimization methods. *Acta Numerica*, 28, 287-404. doi: 10.1017/S0962492919000060

Event Organizer

Workshop Organizer:

2026 I-SIM Workshop (3 days), NC State University, Raleigh, NC

2026 I-SIM Summer School for Applied AI Initiative (1 day), jointly with College of Engineering, NC State University, Raleigh, NC

2025 SimOpt Library (3 hours), Winter Simulation Conference, Orlando, FL

2024 SimOpt Library (3 hours), Winter Simulation Conference, Seattle, WA

2023 SimOpt Library (3 hours), Winter Simulation Conference, San Antonio, TX

2022 SimOpt Library (2 hours), Winter Simulation Conference, Singapore

Cluster/Stream Organizer:

2027 Derivative-free and Simulation-based Optimization Stream Chair, the 26th International Symposium on Mathematical Programming (ISMP)

2026 Simulation Cluster Chair, INFORMS Healthcare Conference

2022 Derivative-free Optimization Cluster Chair, the 7th International Conference on Continuous Optimization (ICCOPT)

Session Organizer:

2020–2024 Simulation Optimization Track, INFORMS Annual Meeting

2022, 2025 Model Uncertainty & Robust Simulation Track, Winter Simulation Conference

2021 Simulation Optimization Track, Canadian Operational Research Society

Invited Conference Panelist

2025 Summer School Mentoring Panel with co-Panelists: Luigi Bobbio, Spyros Schismenos, Antony Man-Cho So, and Frivev Ulus, invited by Stefano Cipolla and Hongyu Zhang, EUROPT 2025 (22nd Conference on Advances in Continuous Optimization), Southampton, UK

University and Department Service

Committee Member

2025–2026 Curriculum Committee, NCSU OR

2025–2026 PhD Admissions Committee, NCSU OR

2025–2026 Search Committee, NCSU ISE

2024–2026 Awards Committee, NCSU ISE

2024–2025 Master's Admission Committee, NCSU ISE

2023–2024 Data Science Minor Committee, NCSU ISE

2023–2024 Recruiting and Outreach Committee, NCSU ISE

2022–2023 PhD Admissions Committee, NCSU ISE

2021–2023 Search Committee, NCSU ISE

Mentorship Services

2025– New Faculty Mentoring for Jacob Peloquin, NCSU ISE

2023–2024 Honors Program Panelist, NCSU Office of Undergraduate Research

2020– Senior Design Mentor (See Mentoring and Advising), NCSU

2020 Academic Packways Career Preparation Panelist, NCSU Graduate School

Judge

2022 3MT (3-Minute Thesis) Competition, NCSU ISE

2019, '21, '26 Senior Design, NCSU ISE

Active Member

2022– Quantum Faculty Group, NCSU

2020– Coastal Resilience and Sustainability Initiative, NCSU

2022 Wellness in Academia Working Group, NCSU

2021–2023 Faculty Mediation and Grievance Cohort, NCSU

2020– **Simulation Archive Support**

Mentor and Member of Planning Committee, Physical National Archive of Simulation Methods and Software Located on NCSU Campus.

Outreach, Visibility, and Recruitment Service

2023–2025 ISE/OR Grad Recruitment Meetings, NCSU ISE

2024–2025 Graduate Recruitment Simulation Visualization Tour, NCSU ISE

2024–2025 Simulation Visualization Tour for Dean and Applied IE Director, NCSU COE

2023 Engineering Open House Simulation Tour for High Schoolers, NCSU ISE

2022 Summer Camp Simulation Workshop, NCSU

2021 Dedication Week Simulation Posters, NCSU ISE

Code and Software

1. `SimOpt` **at** simopt.org: **Simulation Optimization Library**, developed in Python, open-source on GitHub with capabilities including

   A growing library of simulation models and optimization problems (continuous, integer, and mixed-integer; deterministic and stochastic, constrained), paired with a diverse set of benchmark solvers, featuring an object-oriented framework for solver evaluation with controlled randomness, tools for finite-time performance comparison with uncertainty quantification, and capabilities for solver tuning and low-fidelity metamodeling with data farming. The library includes extensive documentation, a GUI for non-programmers, web-based implementation, and instructional workshops and tutorials.

2. `CAMP` **at** https://github.com/ozgesurer/digital_twins/tree/main/dynCalib/dyncalib/RW: **Conformal Active Monitoring Process**, with Ö. Sürer and X. Chen. Developed in Python, open source on GitHub.

   A framework that integrates Active Learning for Digital Twin calibration, uses a non-exchangeable split Conformal Prediction to construct predictive intervals, and employs change-point monitoring to maintain reliable predictive performance of the real world systems under distributional shift

3. `scoreTree` **at** https://github.com/sshashaa/scoreTree: **Building trees for probabilistic prediction**, with Ö. Sürer and M. Plumlee. Developed in Python, open source on GitHub.

4. `ARGA` **at** https://github.com/sshashaa/arga: **Adaptive Ranking and Selection Based Genetic Algorithm with Input Uncertainty and Robust Budget Allocation**, developed in Python, open-source on GitHub, with K. Vahdat.

5. `SOFS` **at** https://github.com/sshashaa/fs-nested-partitioning: **Simulation Optimization based Feature Selection**, E. Houser, and A. Sadeghi. Developed with R and Python including

   Rapid screening and nested partitioning for a 0-1 simulation optimization to solve feature selection, benchmarking with `ARGA` and Bayesian Optimization in Python, synthetic Dataset generator for testing, bias correction with single, double, and conditional double, and condition double warp-speed bootstrapping.

6. `SASTRO-DF` **at** https://github.com/sshashaa/s-astro-df: **Stratified Adaptive Sampling with Trust Regions using Derivative-free Models**, with P. Jain, and K. Konrad, developed in Matlab and in Python added to SimOpt, open source on GitHub including

   Interpolation and regression routines for model construction, point selection routines for geometry improvement, strata construction using revised trees, interior point solvers, and mixed-integer programming for variance reduction, budget allocation integration with adaptive sampling, sampling procedures to work with high-dimensional datasets.

7. `ASTRO(DF)` **Adaptive Sampling Trust Region Optimization for Stochastic Non-convex Problems** with two-stage estimation at https://github.com/INFORMSJoC/2024.0575, with Y. Ha, developed in Python, open source on GitHub, including

Built-in direct search routine, reuse of history with rotated coordinate-basis point selector, auxiliary variance model construction, corresponding sampling rules for derivative-based and derivative-free stochastic problems with and without use of common random numbers (CRN).

DOI: https://doi.org/10.1287/ijoc.2024.0575.cd

8. **Traffic Signal Control Stochastic Simulation Generator**, with Y. Ha, Hankinson, K. Xu, W. Chrochocinski, and B. Alvarenga, developed in MATLAB and Python, open source on GitHub, object-oriented scalable randomized network and optimization.