Xinwei Deng

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ACADEMIC APPOINTMENTS

Professor, Department of Statistics, Virginia Tech, Blacksburg, VA — June 2022-present

Associate Professor, Department of Statistics, Virginia Tech, Blacksburg, VA — June 2016-May 2022

Assistant Professor, Department of Statistics, Virginia Tech, Blacksburg, VA — May 2011-May 2016

Visiting Assistant Professor, Department of Statistics, University of Wisconsin-Madison, Madison, WI — Aug. 2009 to May 2011

EDUCATION

- Ph.D., School of Industrial and Systems Engineering,
  Georgia Institute of Technology (Aug. 2004 – Aug. 2009)

  Advisors: Professor C. F. Jeff Wu and Professor Ming Yuan
  Major concentration: Statistics.
  Minor: Optimization.

- B.S., Mathematics,
  Nanjing University, China (Sept. 1999 – July 2003).

RESEARCH INTERESTS

- Interface between Experimental Design and Machine Learning
- Modeling and Analysis of High-Dimensional Data
- Statistical Learning and Data Mining
- Design and Analysis of Computer Experiments
- Covariance Matrix Estimation and Its Applications
- Statistical Methods for Nano and Emerging Areas

SELECTED AWARDS & HONORS

- Data Science Faculty Fellow, Virginia Tech, 2022-present.
- College of Science Faculty Fellow, Virginia Tech, 2019-2022.
- Top-cited Article in *Canadian Journal of Statistics*, 2020-2021.

- IISE Transactions Best Application Paper Honorable Mention on Quality and Reliability Engineering, 2021.
- Recognized by "Thank-a-Teacher" from Center for Excellence in Teaching and Learning, Virginia Tech, 2018
- Top-downloaded Article in *Statistical Analysis and Data Mining*, 2017-2018.
- Elected Member of the International Statistical Institute (ISI), 2017.
- IISE Transactions Best Paper Award on Quality and Reliability Engineering, 2017.

EDITORSHIP & PROFESSIONAL COMMITTEE

Associate Editor, *Statistica Sinica*, 2020-Present

Department Editor, *IISE Transactions* on Quality and Reliability Engineering, 2017-Present

Editorial Board, *International Statistical Review*, 2017-Present

Editorial Board, *Quality Engineering*, 2022-Present

Associate Editor, *Statistical Theory and Related Fields*, 2017-Present

Associate Editor, *Chemometrics and Intelligent Laboratory Systems*, 2016-Present

Associate Editor, *Technometrics*, 2016-2018

Co-Guest Editor, *International Journal of Artificial Intelligence*, 2016

Co-Guest Editor, *Statistical Theory and Related Fields*, 2020-2021

Co-Guest Editor, *The New England Journal of Statistics in Data Science*, 2021-2023

Chair, Quality and Productivity Section, ASA, 2022-present

Chair-Elect, Quality and Productivity Section, ASA, 2020-2021

Co-Chair, Organization Committee, IMS/ASA SRC Virtual Meeting 2022

Chair, Management Committee, IMS/ASA Spring Research Conference: 2018-present

Member, Organization Committee, IMS/ASA Spring Research Conference 2019

Co-Chair, Program Committee, Joint Research Conference 2018

Council Member, the Quality, Statistics & Reliability (QSR) Section of INFORMS, 2016-2019

Member, Scientific Program Committee, IMS/ASA Spring Research Conference 2012

RESEARCH GRANTS

Completed

G1. Collaborative Research: A Statistics-Guided Framework for Synthesis and Characterization of Nanomaterials, **NSF-CMMI-1233571**, Sole-PI, $123,192, 09/01/12-08/31/15. (100% credit)

G2. Collaborative Research: Experimental Design and Analysis of Quantitative-Qualitative Responses in Manufacturing and Biomedical Systems, **NSF-CMMI-1435996**, Co-PI, $226,020, 09/01/14-08/31/18. (credit: 50%)

G3. Data-driven Modeling and Optimization for Energy-Smart Manufacturing, **NSF-CMMI-1634867**, Co-PI, $300,000, 09/01/16-08/31/20. (credit: 25%)

G4. EAGER: SSDIM: Ensembles of Interdependent Critical Infrastructure Networks, **NSF-CMMI-1745207**, Co-PI, $200,000, 09/01/2017-08/31/2019. (personal share: $7,528, credit: 3%)

G5. Empirical Model Validation for Thermal Spray Coating Processes, **CCAM** (Commonwealth Center for Advanced Manufacturing), PI, $60,754, 08/11/2014-08/03/2015. (credit: 50%)

G6. An Integrated Modeling Framework for Thermal Spray Processes, **CCAM** (Commonwealth Center for Advanced Manufacturing), Co-PI, $35,000, 02/04/2013-03/31/2014. (credit: 50%)

G7. Ensemble Modeling for Continuous Fiber Manufacturing, Chengdu Jiyi Technology Co. Ltd., Co-PI, $60,000, 07/10/2013-09/10/2014. (credit: 50%)

G8. Live Input Control of Thermal Spray - Phase 3, **CCAM** (Commonwealth Center for Advanced Manufacturing), Co-PI, $87,026, 07/18/2016-06/30/2017. (credit: 30%)

G9. Data Fusion for Complex Engineering Systems, **VT-ICTAS** Diversity and Inclusion Seed Grant, PI, $10,000, 10/15/2016 - 06/30/2017. (credit: 100%)

G10. Modeling and Quality Control for Manufacturing Big Data System, **Procter & Gamble Co.**, Co-PI, $50,000, 08/01/2015-07/31/2016. (credit: 50%)

G11. Big Data Methodologies for Simplifying Traffic Safety Analyses, **Safe-D National UTC**, Co-PI, $109,608, 05/01/2017-08/31/2018. (credit: 50%)

G12. Integrative Genomics Approach to Computational Assessment of Threats (IGACAT), **IARPA**, Co-PI, $3,000,000, 05/01/2017-12/15/2018. (personal share: $119,682, credit: 3%)

G13. Integrative Genomics Approach to Computational Assessment of Threats-Phase 2, **IARPA**, Co-PI, $2,600,000, 12/14/2018-5/31/2020. (personal share: $89,524, credit: 3%)

G14. Driver Risk Evaluation System based on Mobile Phone Sensor Data, **DiDi ChuXing Co.**, Co-PI, $100,000, 12/20/2018-12/20/2019. (credit: 40%)

G15. Investigation on the Robustness of Machine Learning and Artificial Intelligence Algorithms, **NSF-S2ERC Phase II (DoT&E)**, Co-PI, $93,110, 11/01/2019-09/30/2020. (credit: 50%)

G16. A New Urban Growth Model (MuST) for Selected Coastal Cities of the Eastern US. **VT-Center for Coastal Studies Seed Grant**, Co-PI, $12,000, 09/01/2020 - 08/31/2021. (credit: 33%)

G17. A Synergistic Fusion System of Noninvasive Sensors and Synthetic Bio-sensors for Plant Disease Prediction Above and Below Ground, **VT-CALS Integrated Internal Competitive Grant**, Co-PI, $60,000, 03/01/2021 - 06/30/2022. (credit: 15%)

G18. Affiliating VT-SAIL Lab with Academy of Data Science, **VT-Academy of Data Science Seed Grant**. PI, $15,000, 07/01/2021-06/30/2022. (credit: 50%).

G19. The Dynamics of Common Knowledge on Social Networks: An Experimental Approach, **Air Force Research Laboratory,** Co-PI, $1,770,836, 09/30/2017 – 09/29/2022. (subcontract, personal share: $95,648, credit: 100%)

G20. Building Flexible Small-Scale GPU Computing Power for Statistics and Artificial Intelligence Laboratory, **VT-COS Research Equipment Grant,** Co-PI, $20,838, 01/01/2022-06/30/2022. (credit: 33%).

Active

G21. Expeditions: Collaborative Research: Global Pervasive Computational Epidemiology, **NSF-CISE-Expedition**, Co-PI, $1,694,126, 04/01/2020-3/31/2025. ($113,669, credit: 7%)

G22. Investigating Robustness and Uncertainty of AI Algorithms in Cyber Physical Systems, **CCI (Commonwealth Cyber Initiative)**, PI, $25,000, 07/01/2021-12/31/2022. (credit: 34%).

G23. Comprehensive Assessment and Diagnostics for Federated AI Algorithms in Cyber Physical Systems, **COVA-CCI (Commonwealth Cyber Initiative-Coastal Virginia)**, PI, $50,000, 07/01/2021-12/31/2022. (credit: 34%).

G24. Research Program on Artificial Intelligence Enabled Technologies, **Deloitte & Touche LLP**, Co-PI, $257,559, 07/01/2021 – 06/30/2023. (subcontract, personal share: $50,856, credit: 100%)

G25. Broad One Health Endectocide-based Malaria Intervention in Africa (BOHEMIA), **Barcelona Institute for Global Health (ISGlobal)**, Co-PI, $1,408,507, 02/01/2019-6/30/2023 (subcontract, personal share: $20,936, credit: 100%)

PUBLICATIONS

Refereed Articles

1. Deng, X., Yuan, M., and Sudjianto, A. (2007). A Note on Robust Kernel Principal Component Analysis, *Contemporary Mathematics*, **443**, 21–33.

2. Deng, X., Joseph, V. R., Sudjianto, A., and Wu, C. F. J. (2009). Active Learning via Sequential Design with Applications to Detection of Money Laundering, *Journal of the American Statistical Association*, **104(487)**, 969–981.

3. Deng, X., Joseph, V. R., Mai, W., Wang, Z. L., and Wu, C. F. J. (2009). A Statistical Approach to Quantifying the Elastic Deformation of Nanomaterials, *Proceedings of the National Academy of Sciences*, **106(29)**, 11845–11850.

4. Deng, X. and Yuan, M. (2009). Large Gaussian Covariance Matrix Estimation with Markov Structures, *Journal of Computational and Graphical Statistics*, **18(3)**, 640–657.

5. Mai, W. and **Deng, X.** (2010). Applications of Statistical Quantification Techniques in Nanomechanics and Nanoelectronics, *Nanotechnology*, **21(40)**, 405704.

6. Shao, J., Wang, Y., **Deng, X.**, and Wang, S. (2011). Sparse Linear Discriminant Analysis by Thresholding for High Dimensional Data, *Annals of Statistics*, **39(2)**, 1241–1265.

7. Morgan, J.P. and **Deng, X.** (2012). Experimental Design, *WIREs Data Mining and Knowledge Discovery*, **2**, 164–172.

8. Shao, J. and **Deng, X.** (2012). Estimation in High-Dimensional Linear Models with Deterministic Covariates, *Annals of Statistics*, **40(2)**, 812–831.

9. Carbo, A.[#], Bassaganya-Riera, J., Pedragosa, M., Viladomiu, M., Marathe, M., Eubank, S., Wendesdorf, K., Bisset, K., Hoops, S., **Deng, X.**, Alam, M., Krosnteiner, B., Mei, Y., and Hontecillas, R. (2013). Predictive Computational Modeling of the Mucosal Immune Responses during Helicobacter Pylori Infection, *PLoS ONE* **8(9)**: e73365.

10. Zhang, Q.[#], **Deng, X.** Qian, P. Z. G., and Wang, X. (2013). Spatial Modeling for Refining and Predicting Surface Potential Mapping with Enhanced Resolution, *Nanoscale*, **5**, 921–926.

11. Deng, X.* and Tsui, K. W. (2013). Penalized Covariance Matrix Estimation using a Matrix-Logarithm Transformation, *Journal of Computational and Graphical Statistics*, **22(2)**, 494–512.

12. Yeo, I-K, Johnson, R. A., and **Deng, X.** (2014). An Empirical Characteristic Function Approach to Selecting a Transformation to Normality, *Communications for Statistical Applications and Methods*, **21(3)**, 213–224.

13. Li, H.[#], **Deng, X.**, Kim, D-Y, and Smith, E. P. (2014). Modeling Maximum Daily Temperature using a Varying Coefficient Regression Model, *Water Resource Research*, **50(4)**, 3073–3087.

14. Alam, M.[#], **Deng, X.***, Philipson, C., Bassaganya-Riera, J., Bisset, K., Carbo, A., Eubank, S., Hontecillas, R., Hoops, S., Mei, Y., Abedi, V., and Marathe, M. (2015). Sensitivity Analysis of an ENteric Immunity Simulator (ENISI)-based Model of Immune Responses to *Helicobacter pylori* Infection, *PLoS ONE*, **10(9)**, e0136139.

15. Jin, R. and **Deng, X.** (2015). Ensemble Modeling for Data Fusion in Manufacturing Process Scale-up, *IIE Transactions*, **47(3)**, 203–214.

16. Deng, X., Hung, Y., and Lin, C. D. (2015). Design for Computer Experiments with Qualitative and Quantitative Factors, *Statistica Sinica*, **25**, 1567–1581.

17. Deng, X. and Jin, R. (2015). QQ Models: Joint Modeling for Quantitative and Qualitative Quality Responses in Manufacturing Systems, *Technometrics*, **57(3)**, 320–331.

18. Wang, X.[#], Wu, S., Wang, K., **Deng, X.**, Liu, L., and Cai, Q. (2016) A Spatial Calibration Model for Nanotube Film Quality Prediction, *IEEE Transactions on Automation Science and Engineering*, **13(2)**, 903-917.

19. Zeng, L., **Deng. X.**, and Yang, J. (2016). Constrained Hierarchical Modeling of Degradation Data in Tissue-engineered Scaffold Fabrication, *IIE Transactions*, **48(1)**, 16-33.

20. Jiang, H. J., **Deng, X.***, Lopez, V., and Hamann, H. (2016). Online Updating of Computer Model Output Using Real-time Sensor Data, *Technometrics*, **58(4)**, 472-482.

21. Li, H.[#], **Deng, X.**, Dolloff, A., and Smith, E. P. (2016). Bivariate Functional Data Clustering: Grouping Streams based on a Varying Coefficient Model of the Stream Water and Air Temperature Relationship, *Environmetrics*, **27(1)**, 15-26.

22. Sun, H.[#], **Deng, X.**, Wang, K., and Jin, R. (2016). Logistic Regression for Crystal Growth Process Modeling through Hierarchical Nonnegative Garrote based Variable Selection, *IIE Transactions,* **48(8)**, 787-796.

23. Deng, X., Lin, C. D., Liu, K-W, and Rowe, R. K. (2017). Additive Gaussian Process for Computer Models with Qualitative and Quantitative Factors, *Technometrics,* **59(3)**, 283-292.

24. Li, H.[#], **Deng, X.**, and Smith E. (2017). Missing Data Imputation for Paired Stream and Air Temperature Sensor Data, *Environmetrics*, **28(1)**, e2426.

25. Zheng, H.[#], Tsui, K-W, Kang, X. and **Deng, X.*** (2017). Cholesky-based Model Averaging for Covariance Matrix Estimation, *Statistical Theory and Related Fields*, **1(1)**, 48-58.

26. Nino-Ruiz, E. D.[#], Sandu, A., and **Deng, X.** (2019). A Parallel Ensemble Kalman Filter Implementation Based on Modified Cholesky Decomposition, *Journal of Computational Science,* **36**, 100654.

27. Sun, H.[#], Rao, P. K., Kong, Z., **Deng, X.**, and Jin, R. (2018). Functional Quantitative and Qualitative Models for Quality Modeling in a Fused Deposition Modeling Process, *IEEE Transactions on Automation Science and Engineering,* **15(1)**, 393-403.

28. Wu, H.[#], **Deng, X.***, and Ramakrishnan, N. (2018). Sparse Estimation of Multivariate Poisson Log-Normal Model and Inverse Covariance for Counting Data, *Statistical Analysis and Data Mining*, **11**, 66–77.

29. Nino-Ruiz, E. D.[#], Sandu, A., and **Deng, X.** (2018). An Ensemble Kalman Filter Implementation Based on Modified Cholesky Decomposition for Inverse Covariance Matrix Estimation, *SIAM Journal on Scientific Computing*, **40(2)**, A867–A886.

30. Zeng, L. and **Deng, X.** and Yang, J. (2018). A Constrained Gaussian Process Approach to Modeling Tissue-engineered Scaffold Degradation, *IISE Transactions,* **50(5)**, 431-447.

31. Lan, Q.[#], Sun, H., Robertson, J., **Deng, X.**, and Jin R. (2018). Non-invasive Assessment of Liver Quality in Transplantation based on Thermal Imaging Analysis, *Computer Methods and Programs in Biomedicine*, 164, 31-47.

32. Kang, L., Kang, X., **Deng, X.** and Jin, R. (2018). Bayesian Hierarchical Models for Quantitative and Qualitative Responses, *Journal of Quality Technology*, **50(3)**, 290-308.

33. Jin, R., **Deng, X.*,** Chen, X., Zhu, L., and Zhang, J. (2019). Dynamic Quality Models in Consideration of Equipment Degradation, *Journal of Quality and Technology,* **51(3)**, 217-229.

34. Shen, S.[#], Mao, H.[#], and **Deng, X.*** (2019). An EM-Algorithm Approach to Open Challenges on Correlation of Intermediate and Final Measurements, *Quality Engineering*, **31(3)**, 505-510.

35. Xie, Y.[#], Xu, L., Li, J., **Deng, X**., Hong, Y., and Kolivras, K. N. (2019). Spatial Variable Selection via Elastic Net with an Application to Virginia Lyme Disease Case Data, *Journal of the American Statistical Association,* **114 (528)**, 1466-1480.

36. Li, Y.[#], Jin, R., Sun, H., **Deng, X.**, and Zhang, C. (2020). Manufacturing Quality Prediction Using Smooth Spatial Variable Selection Estimator with Applications in Aerosol Jet Printed Electronics Manufacturing, *IISE Transactions,* **52(3)**, 321-333.

37. Shen, S.[#], Mao, H., and **Deng., X.*** (2019). Rejoinder: An EM-Algorithm Approach to Open Challenges on Correlation of Intermediate and Final Measurements, *Quality Engineering,* 31(3), 516-521.

38. Shen, S.[#], Kang, L., and **Deng, X.** (2020). Additive Heredity Model for the Analysis of Mixture-of-Mixtures Experiments, *Technometrics*, **62(2)**, 265-276.

39. Mao, H.[#], **Deng, X.**, Lord, D., Guo, F. (2019). Adjusting Finite Sample Bias for Poisson and Negative Binomial Regression in Traffic Safety Modeling, *Accident Analysis and Prevention,* **131**, 112-121.

40. Wan, H.[#], Shao, Y., Campbell, J. B., and **Deng, X.** (2019). Mapping Annual Urban Change using Time Series Landsat and NLCD Data, *Photogrammetric Engineering & Remote Sensing*, **85(10)**, 715-724.

41. Shen, S.[#], Zhang, Z., and **Deng, X.*** (2020). On Design and Analysis of Funnel Testing Experiments in Webpage Optimization, *Journal of Statistical Theory and Practice,* **14**, article 3.

42. Kang, X., **Deng, X.***, Tsui, K. and Pourahmadi, M. (2020). On Variable Ordination of Modified Cholesky Decomposition for Estimating Time-Varying Covariance Matrices, *International Statistical Review*, **88(3)**, 616-641.

43. Kang, X., and **Deng, X.*** (2020). An Improved Modified Cholesky Decomposition Approach for Precision Matrix Estimation, *Journal of Statistical Computation and Simulation,* **90(3)**, 443-464.

44. Cedeno-Mieles, V.[#], Hu, Z.[#], **Deng, X.,** Ren, Y., et al. (2020). Networked Experiments and Modeling for Producing Collective Identity in a Group of Human Subjects Using an Iterative Abduction Framework, *Social Network Analysis and Mining*, **10**, article 11.

45. Kang, X., and **Deng, X.*** (2020). Design and Analysis of Computer Experiments with Quantitative and Qualitative Inputs: A Selective Review, *WIREs Data Mining and Knowledge Discovery,* **10(3)**, e1358.

46. Wu, Q.[#], **Deng, X.**, Wang, S., and Zeng, L. (2021) Constrained Varying-Coefficient Model for Time-Course Experiments in Soft Tissue Fabrication, *Technometrics*, **63(2)**, 249-262.

47. Chan, V.[#], Tsui, K-W, Wei, Y., Zhang, Z. and **Deng, X.*** (2021). Efficient Estimation of Smoothing Spline with Exact Shape Constraints, *Statistical Theory and Related Fields*, **5(1)**, 55-69.

48. Chu. S.[#], Jiang, H., Xue. Z., and **Deng, X.*** (2021). Adaptive Convex Clustering of Generalized Linear Models with Application in Purchase Likelihood Prediction, *Technometrics*, **63(2)**, 171-183.

49. Wang, H.[#], Zhang, Q., Wang, K., and **Deng, X.** (2020). A Statistics-Guided Approach to Dimensional Quality Characterization of Freeform Surfaces with an Application to 3D Printing, *Quality Engineering,* **32(4)**, 721-739.

50. Kang, X., Chen, X., Jin, R., Wu, H. and **Deng, X.*** (2021). Multivariate Regression of Mixed Responses for Evaluation of Visualization Designs, *IISE Transactions*, **53(3)**, 313-325.

51. Kang, X., and **Deng, X.** (2021). On Variable Ordination of Modified Cholesky Decomposition for Sparse Covariance Matrix Estimation, *Canadian Journal of Statistics*, **49(2)**, 283-310.

52. Wang, L.[#], Chen, X.[#], Kang, S., **Deng, X.**, and Jin R. (2020). Meta-modeling of High-Fidelity FEA Simulation for Efficient Product and Process Design in Additive Manufacturing, *Additive Manufacturing*, **35**, 101211.

53. Li, Y. and **Deng, X*.** (2021). A Sequential Algorithm for Elastic I-Optimal Design of Generalized Linear Models, *Canadian Journal of Statistics*, **49(2)**, 438-470.

54. Mao, H.[#], **Deng, X.**, Jiang, H., Shi, L., Li, H., Tuo, L., and Guo, F. (2021). Driving Safety Assessment for Ride-hailing Drivers, *Accident Analysis and Prevention*, **149**, 105574.

55. Xie., W. and **Deng, X.** (2020). Scalable Algorithms for the Sparse Ridge Regression, *SIAM Journal on Optimization*, **30(4)**, 3359-3386.

56. Cedeno-Mieles, V.[#,] Ren, Y., Hu, Z. **Deng, X.**, et al., (2020). Data Analysis and Modeling Pipelines for Controlled Networked Social Science Experiments, *PLoS ONE*, **15(11)**, e0242453.

57. Xiao, Q., Mandal, A., Lin, C. D., and **Deng X.*** (2021). EzGP: Easy-to-Interpret Gaussian Process Models for Computer Experiments with both Quantitative and Qualitative Factors, *SIAM/ASA Journal of Uncertainty Quantification*, **9(2)**, 333-353.

58. Wan, H.[#], McLaughlin, D., Yang, S., van Eerden, B., Ranganathan, S., and **Deng, X.** (2021). Remotely-sensed Evapotranspiration for Informed Urban Forest Management, *Landscape and Urban Planning*, **210**, 104069.

59. Mao, H.[#], Guo, F., **Deng, X.**, and Doerzaph, Z. (2021). Decision-adjusted Driver Risk Predictive Models using Kinematics Information, *Accident Analysis and Prevention*, **156**, 106088.

60. Zeng, Y.[#], Chen, X., **Deng, X.**, and Jin R. (2021). A Prediction-Oriented Optimal Design for Visualization Recommender System, *Statistical Theory and Related Fields*, **5(2)**, 134-148.

61. Kang, S., **Deng, X.**, and Jin, R. (2021). Cost-Efficient Data-Driven Approach to Design Space Exploration for Personalized Geometric Design in Additive Manufacturing, *Journal of Computing and Information Science in Engineering*, **21(6)**, 061008.

62. Kang, X., Ranganathan, S., Kang, L., Gohlke, J., and **Deng, X.** (2021). Bayesian Auxiliary Variable Model for Birth Records Data with Qualitative and Quantitative Responses, *Journal of Statistical Computation and Simulation*, **91(16)**, 3283-3303.

63. Li, Y., and **Deng, X.*** (2021). On Efficient Design of Pilot Experiments for Generalized Linear Models, *Journal of Statistical Theory and Practice*, **15**, article 83.

64. Peng, T., Jiang, H., Kim, H., and **Deng, X.*** (2021) Robust Estimation of Sparse Precision Matrix using Adaptive Weighted Graphical Lasso Approach, *Journal of Nonparametric Statistics*, **33(2)**, 249-272.

65. Kang, S., Ran, J., **Deng, X.**, and Kenett, R. S. (2021). Challenges of Modeling and Analysis in Cybermanufacturing: A Machine Learning and Computation Perspective, *Journal of Intelligent Manufacturing*, in press.

66. Lian, J.[#], Freeman, L., Hong, Y., and **Deng, X.*** (2021). Robustness with Respect to Class Imbalance in Artificial Intelligence Classification Algorithms, *Journal of Quality Technology*, **53(5)**, 505-525.

67. Li, Y.[#], **Deng, X.**, Ba, S., Myers, W. R., Brenneman, W. A., Lange, S. J., Zink, R., and Jin, R. (2022). Clustering-based Data Filtering for Manufacturing Big Data Systems, *Journal of Quality Technology*, **54(3)**, 290-302.

68. Li, Y., Kang, L., and **Deng, X.*** (2022). A Maximin Φ_p-Efficient Design for Multivariate Generalized Linear Models, *Statistica Sinica*, 2047-2069.

69. Kang, X., Kang, L., Chen, W., and **Deng, X.*** (2022). A Generative Approach to Modeling Data with Qualitative and Quantitative Responses, *Journal of Multivariate Analysis*, **190**, 104952.

70. Peng, X.[#], Salado, A., and **Deng, X.** (2022). A Parallel Tempering Approach for Efficient Exploration of the Verification Tradespace in Engineered Systems, *IEEE Transactions on Systems, Man, and Cybernetics*: *Systems*, **52(11)**, 7223-7235.

71. Liang, Q.[#], Ranganathan, S., Wang, K., and **Deng, X.*** (2022). JST-RR Model: Joint Modeling of Ratings and Reviews in Sentiment Prediction, *Technometrics*, in press.

72. Hong, Y., Lian, J.[#], Xu, L., Min, J.[#], Wang, Y.[#], Freeman, L., and **Deng, X.** (2022). Statistical Perspectives on Reliability of Artificial Intelligence Systems, *Quality Engineering*, in press.

73. Kenett, R. S., Gotwalt, C., Freeman, L., and **Deng, X.*** (2022). Self-Supervised Cross Validation using Data Generation Structure, *Applied Stochastic Models in Business and Industry*, **38(5)**, 750-765.

74. Wang, Y.[#], Lee, I-C, Hong, Y., and **Deng, X.** (2022). Building Degradation Index with Variable Selection for Multivariate Sensory Data, *Reliability Engineering & System Safety*, **227**, 108704.

75. Xiao, Q., Wang, Y., Mandal, A., and **Deng X.*** (2022). Modeling and Active Learning for Experiments with Quantitative-Sequence Factors, *Journal of the American Statistical Association*, in press.

76. Chen, X., Kang, X., Jin, R., and **Deng, X.*** (2022). Bayesian Sparse Regression for Multivariate Mixed Responses with Application to Runtime Metrics Prediction in Fog Computing, *Technometrics*, in press.

[#]: work with students
[*]: work as a corresponding author

Refereed Conference Papers

77. Lozano, A. C., Jiang, H. J., and **Deng, X.** (2013). Robust Joint Sparse Estimation of Multiresponse Regression and Inverse Covariance Matrix, *19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2013)*, 293-301. (Acceptance rate 18%).

78. Jiang, H. J., **Deng, X.**, Lopez, V., and Hamann, H. (2013). A Statistical Approach to Real-time Updating and Automatic Scheduling of Physical Models, *ASME 2013 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems*, IPACK2013-73042.

79. Nino-Ruiz, E. D.[#], Sandu, A., and **Deng, X.** (2015). A Parallel Ensemble Kalman Filter Implementation based on Modified Cholesky Decomposition. *The 6th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (ScalA'15)*, Article 4. DOI=http://dx.doi.org/10.1145/2832080.2832084.

80. Cadena, J.[#], Basak, A.[#], **Deng, X.**, and Vullikanti, A. (2017). Graph Scan Statistics with Uncertainty. *32nd AAAI Conference on Artificial Intelligence (AAAI-18)* (acceptance rate 25%).

81. Cedeno-Mieles, V. [#], Ren, Y., Hu, Z. **Deng, X.** et al. (2018). Pipelines and Their Compositions for Modeling and Analysis of Controlled Online Networked Social Science Experiments, *IEEE Proceedings of the 2018 Winter Simulation Conference (WSC 2018).*

82. Ren, Y., Cedeno-Mieles, V.[#], Hu, Z.[#], **Deng, X.** et al. (2018). Generative Modeling of Human Behavior and Social Interactions Using Abductive Analysis, *The 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2018)* (acceptance rate 15%).

83. Hu, Z.[#], Cedeno-Mieles, V., **Deng, X.,** Ren, Y. et al. (2019). On the Modeling and Agent-Based Simulation of a Cooperative Group Anagram Game. *IEEE Proceedings of the 2019 Winter Simulation Conference (WSC 2019).*

84. Cedeno-Mieles, V.[#], Hu, Z.[#], **Deng, X.,** Ren, Y. et al. (2019). Mechanistic and Data-Driven Agent-Based Models to Explain Human Behavior in Web-Based Group Anagrams Games, *The 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2019)* (acceptance rate 14%).

85. Shao, H., **Deng, X.**, Zhang, C., Zheng, S., Khorasgani, H., Farahat, A. and Gupta, C. (2019). Multivariate Bernoulli Logit-Normal Model for Failure Prediction, *The Conference of the Prognostics and Health Management Society 2019 (PHM, 2019)*.

86. Hu, Z.[#], **Deng, X.**, Marathe, A., Swarup, S., and Vullikanti, A. (2019). Decision-Adjusted Modeling for Imbalanced Classification: Predicting Rooftop Solar Panel Adoption in Rural Virginia, *The Computational Social Science (CSS 2019) Annual Conference.*

87. Shojaee, P.[#], Zeng, Y.[#], Chen, X., Jin, R., **Deng, X.**, and Zhang, C. (2021). Deep Neural Network Pipelines for Multivariate Time Series Classification in Smart Manufacturing, *The 4th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS 2021)*.

88. Hu, Z.[#], **Deng, X.**, and Kuhlman, C. J. (2021). An Uncertainty Quantification Approach for Agent-Based Modeling of Human Behavior in Networked Anagram Games, *IEEE Proceedings of the 2021 Winter Simulation Conference (WSC 2021).*

89. Hu, Z.[#], **Deng, X.**, and Kuhlman, C. J. (2021). Versatile Uncertainty Quantification of Contrastive Behaviors for Modeling Networked Anagram Games, *in the International Conference on Complex Networks and their Applications (CNA 2021)*.

90. Fisher, W.[#], Zhang, Q., Li, X., and **Deng, X.** (2022). A NURBS Fitting Approach for Quality Assessment of 3D Printing, *Proceedings of the 2022 IISE Annual Conference*, in press.

91. Liu, X.[#], Hu, Z., **Deng, X.**, and Kuhlman, C. J. (2022). A Bayesian Uncertainty Quantification Approach for Agent-Based Modeling of Networked Anagram Games, *Winter Simulation Conference (WSC 2022)*, in press.

92. Liu, X.[#], Hu, Z., **Deng, X.**, and Kuhlman, C. J. (2022). Bayesian Approach to Uncertainty Visualization of Heterogeneous Behaviors in Modeling Networked Anagram Games, *The International Conference on Complex Networks and their Applications (CNA 2022)*, in press.

93. Guo, Q.[#], Chen, J., Wang, D., Yang, Y., **Deng, X.**, Huang J., Carin, L., Tao, C. and Li, F. (2022). Tight Mutual Information Estimation with Contrastive Fenchel-Legendre Optimization, *Advances in Neural Information Processing Systems* (*NeurIPS 2022*), in press.

Book Chapter

94. Moon, J. Y.[#], Chaibub Neto, E., **Deng, X.**, and Yandell, B. S. (2014). Bayesian Causal Phenotype Network Incorporating Genetic Variation and Biological Knowledge, in *Probabilistic Graphical Models for Genetics, Genomics and Postgenomics,* Oxford University Press.

95. Michalak, P., Sobral, B. W., Abedi, V., Kim, Y-B., **Deng, X.**, Philipson, C., Viladomiu, M., Lu, P., Wendelsdorf, K., Hontecillas, R. and Bassaganya-Riera, J. (2015). From Big Data Analytics and Network Inference to Systems Modeling, in *Computational Immunology: Models and Tools, Elesvier.*

96. Alam, M.[#], Abedi, V., Bassaganya-Riera, J., Wendelsdorf, K. Bisset, K., **Deng, X.**, Eubank, S., Hontecillas, R., Hoops, S., Marathe, M. (2015). Agent-Based Modeling and High Performance Computing, in *Computational Immunology: Models and Tools, Elesvier.*

97. Deng, X.*, Hung, Y., and Lin, C. D. (2017). Design and Analysis of Computer Experiments, in *Handbook of Research on Applied Cybernetics and Systems Science, IGI Global*, 264-279.

98. Lozano, A. C., Jiang, H. J., and **Deng, X.** (2018). Log-Nonlinear Formulations for Robust High-Dimensional Modeling, *in Log-Linear Models, Extensions, and Applications*, MIT press.

99. Kang, X., Zhang, Z. and **Deng, X.*** (2020). Covaraince Estimation via the Modified Cholesky Decomposition, *Springer Handbook of Engineering Statistics, 2nd edition*, in press.

100. Guo, Q.[#], Ravishanker N., and **Deng, X.** (2022). Association-based Optimal Subpopulation Selection for Multivariate Data, in *Innovations in Multivariate Statistical Modeling*, in press.

101. Lin, C. D., Chien, P., and **Deng, X.** (2021) Efficient Experimental Design for Regularized Linear Models, in *Advances and Innovations in Statistics and Data Science*, in press.

STUDENT ADVISING

Completed

- Han Li (Ph.D. in Statistics at Virginia Tech), "Statistical Modeling and Analysis of Bivariate Spatial-Temporal Data with the Application to Stream Temperature Study", October, 2014 (Co-advisor: Eric Smith). *First Job: Wells-Fargo.*

- Angang Zhang (Ph.D. in statistics at Virginia Tech), "Some Advances in Classifying and Modeling Complex Data", November, 2015. *First Job: Merck.*

- Xiaoning Kang (Ph.D. in statistics at Virginia Tech), "Contributions to Large Covariance and Inverse Covariance Matrices Estimation", July, 2016. *First Job: Assistant Professor at Dongbei University of Finance and Economics, China.*

- Shuyu Chu (Ph.D. in statistics at Virginia Tech), "Change Detection and Analysis of Data with Heterogeneous Structures", July, 2017 (Co-advisor: Achla Marathe). *First Job: Postdoc at IBM Waston Research Center.*

- Huiying Mao (Ph.D. in statistics at Virginia Tech), "Optimal Driver Risk Modeling" August, 2019 (Co-advisor: Feng Guo). *First Job: Postdoc at SAMSI.*

- Sumin Shen (Ph.D. in statistics at Virginia Tech), "Contributions to Structured Variable Selection towards Enhancing Model Interpretation and Computation Efficiency", December, 2019. *First Job: eBay.*

- Zhihao Hu (Ph.D. in statistics at Virginia Tech), "Contributions to Efficient Statistical Modeling of Complex Data with Temporal Structures", February, 2022 (Co-advisor: Christopher J. Kuhlman). *First Job: Google Inc.*

- Yueyao Wang (Ph.D. in statistics at Virginia Tech), "Advancements on the Interface of Computer Experiments and Survival Analysis", February, 2022 (Co-advisor: Yili Hong). *First Job: Sanofi.*

- Yanran Wei (Ph.D. in statistics at Virginia Tech), "Contributions to Data Reduction and Statistical Model of Data with Complex Structures", August, 2022. First Job: *Meta Platforms, Inc.*

Current

- Jiayi Lian (Ph.D. in statistics, expected spring 2024)
- Qing Guo (Ph.D. in statistics, expected spring 2024)
- Xueying Liu (Ph.D. in statistics, expected spring 2025)
- Xinlei Zhang (Ph.D. in statistics, expected spring 2025)
- Kexin Xie (Ph.D. in statistics, expected spring 2026)

TEACHING EXPERIENCE

Spring 2022, Stat 4504/5504G – Applied Multivariate Analysis (SPOT Overall: 5.42/6)
Spring 2022, Stat/CS 5526 – Data Analytics II (SPOT Overall: 5.25/6)
Fall 2021, Stat 4204/5204G – DoE: Concepts and Applications (SPOT Overall: 5.52/6)

Spring 2021, Stat 4204/5204G – DoE: Concepts and Applications (SPOT Overall: 5.04/6)
Spring 2021, Stat 6504 – Experiment Design and Anal II ((SPOT Overall: 6/6)
Spring 2020, Stat/CS 5526–Data Analytics II (SPOT Overall: 5.47/6)
Fall 2019, Stat 5504 – Multivariate Methods (SPOT Overall: 5.67/6)
Spring 2019, Stat 5204 – Experimental Design and Analysis (SPOT Overall: 5.80/6)
Spring 2019, Stat 6424 – Advanced Multivariate Analysis (SPOT Overall: 6/6)
Spring 2018, Stat 5204 – Experimental Design and Analysis (SPOT Overall: 5.60/6)
Spring 2018, Stat/CS 5526–Data Analytics II (SPOT Overall: 5.50/6)
Spring 2017, Stat 5204 – Experimental Design and Analysis (SPOT Overall: 4.86/6)
Spring 2017, Stat 4204/5204G – DoE: Concepts and Applications (SPOT Overall: 5.15/6)
Spring 2017, Stat 6984 – Causality Learning (SPOT Overall: 4.33/6)
Fall 2016, Stat 5504 – Multivariate Methods (SPOT Overall: 5.67/6)
Spring, 2016, Stat/CS 5526 – Data Analytics II (SPOT Overall: 5.18/6)
Spring 2016, Stat5204 – Experimental Design and Analysis (SPOT Overall: 4.10/6)
Fall 2015, Stat 5504 – Multivariate Methods (SPOT Overall: 5.71/6)
Spring, 2015, Stat 5204 – Experimental Design and Analysis (SPOT Overall: 4.96/6)
Fall 2014, Stat 5504 – Multivariate Methods (SPOT Overall: 5.67/6)
Spring 2014, Stat 5304 – Statistical Computing (SPOT Overall: 5.71/6)
Spring, 2014, Stat/CS 5526–Data Analytics II (SPOT Overall: 5.75/6)
Spring, 2013, Stat 6424 – Advanced Multivariate Analysis (SPOT Overall: 6/6)
Fall 2012, Stat 5504 – Multivariate Methods (SPOT Overall: 4.93/6)
Spring 2012, Stat 5304 – Statistical Computing (SPOT Overall: 5/6)
Fall, 2011, Stat/CS 5525 – Data Analytics I (SPOT Overall: 5.20/6)

INVITED TALKS

- A Machine Learning Perspective for Experimental Design via Tight Mutual Information, International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC 2022), Greensboro, NC, 2022.
- Adaptive Convex Clustering for Generalized Linear Models with Applications to Purchase Likelihood Prediction, Department of Information Systems and Statistics, Baruch College, 2021.
- Embracing Experimental Design Thinking for Large-scale Statistical Analysis, The Monie A. Ferst Award Symposium, Atlanta, 2021
- Panel Discussion of Challenge and Future Directions of DoE, Design and Analysis of Experiments Conference (DAE 2021), Virtual, 2021.
- Sequential Design of Computer Experiments with Quantitative and Qualitative Factors in Applications to HPC Performance Optimization, International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC 2021), Virtual, 2021.
- Modeling and Active Learning for Experiments with Quantitative-Sequence Factors, Department of Mathematics and Statistics, University of North Carolina-Greensboro, 2021.
- Modeling and Active Learning for Experiments with Quantitative-Sequence Factors, Department of Mathematical Sciences, Michigan Technological University, 2021.
- Modeling and Active Learning for Experiments with Quantitative-Sequence Factors, Biocomplexity Institute, University of Virginia, 2020.

- A New Look of Best Subset Selection for Sparse Ridge Regression from Chance-Constrained Programming, Department of Statistics, University of Illinois Urbana-Champaign, 2019, Champaign, IL.
- Mapping-based Additive Gaussian Process with Sequence Order Inputs, INFORMS Annual Meeting, 2019, Seattle, WA.
- Bayesian Hierarchical Models for Quantitative and Qualitative Responses, Fall Technical Conference (FTC) 2019, Gaithersburg, Maryland.
- Convex Clustering for Generalized Linear Models with Applications to Purchase Likelihood Prediction, The ICSA China Conference 2019, Tianjin, China.
- Gaussian Process Model for Computer Experiments with Non-Quantitative Inputs, The Fifth International Conference on the Interface between Statistics and Engineering (ICISE), 2019, Seoul, South Korea.
- The CCP Selector: Best Subset Selection for Sparse Regression from Chance-Constrained Programming, The 3rd International Conference on Econometrics and Statistics (EcoSta), 2019, Taichung, Taiwan.
- A New Look of Best Subset Selection for Sparse Ridge Regression from Chance-Constrained Programming, The International Conference for Big Data and Modern Statistics (BDMS), 2019, Shanghai, China 2019.
- Varying-Coefficient Gaussian Processes for Computer Models with Quantitative and Qualitative Inputs, Conference on Experimental Design and Analysis (CEDA), 2018, Hsinchu, Taiwan.
- Varying-Coefficient Gaussian Processes for Computer Models with Quantitative and Qualitative Inputs, INFORMS Annual Meeting, 2018, Phoenix, AZ.
- Convex Clustering for Generalized Linear Models with Applications to Purchase Likelihood Prediction, Department of Statistics, University of Connecticut, 2018, Storrs, CT.
- The CCP Selector: Best Subset Selection for Sparse Regression from Chance-Constrained Programming, IBM Thomas J. Watson Research Center, New York, NY, 2018.
- Design and Analysis for Computer Experiments with Qualitative and Quantitative Factors, Nanjing University of Science and Technology, Nanjing, China, 2018.
- Convex Clustering for Generalized Linear Models with Applications to Purchase Likelihood Prediction, Shanghai Jiatong University, 2018, Shanghai, China.
- Robust Estimation of Sparse Multi-Response Regression, Hohai University-Changzhou, 2018, Changzhou, China.
- Convex Clustering for Generalized Linear Models with Applications to Purchase Likelihood Prediction, University of Kentucky, 2018, Lexington, KY.
- Clustering-based Data Filtering for Manufacturing Big Data System, Procter & Gamble Company, 2018, Mason, OH.
- Online Updating of Computer Model Output Using Real-time Sensor Data, Department of Statistics, University of Georgia, 2017, Athens, GA.

- Additive Gaussian Process for Computer Models with Qualitative and Quantitative Factors, INFORMS Annual Meeting, 2017, Houston, TX.
- Change-point Detection for Mixed-type Observations, Spring Research Conference (SRC) 2017, New Brunswick, NJ.
- Bayesian D-Optimal Design of Experiments with Quantitative and Qualitative Responses, IMS-China International Conference on Statistics and Probability, 2017, Nanning, China.
- Additive Gaussian Process for Computer Models with Qualitative and Quantitative Factors, ICSA Canada Chapter Symposium, 2017, Vancouver, Canada.
- A Mixed Variance Component Model for Quantifying the Elasticity Modulus of Nanomaterials, Joint Statistical Meetings (JSM), 2017, Baltimore, MD.
- Design and Analysis for Computer Experiments with Qualitative and Quantitative Factors, School of Mathematics, Beijing Institute of Technology, 2017, Beijing, China.
- Robust Estimation for Sparse Multivariate Regression, Department of Mathematics, Nanjing University, 2017, Nanjing, China.
- Design and Analysis for Computer Experiments with Qualitative and Quantitative Factors, Department of Mathematics, IUPUI, Indianapolis, IN, 2017.
- An Order-Invariant Cholesky-Log-GARCH Model for Multivariate Financial Time Series INFORMS Annual Meeting, 2016, Nashville, TN.
- Online Updating of Computer Model Output Using Real-time Sensor Data, International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC 2016), Greensboro, NC, 2016.
- Design and Analysis for Computer Experiments with Qualitative and Quantitative Factors, IBM Thomas J. Watson Research Center, New York, NY, 2016.
- A Latent Process Approach to Modeling and Analysis of Mixed-type Observations, the First Sino-US Research Conference on Quality, Analytics and Innovations, 2016, Shanghai, China.
- Online Updating of Computer Model Output Using Real-time Sensor Data, Nanjing University, 2016, Nanjing, China.
- Bayesian D-Optimal Design of Experiments with Quantitative and Qualitative Responses, ICSA Applied Statistics Symposium, 2016, Atlanta, GA.
- Online Updating of Computer Model Output Using Real-time Sensor Data, Department of Statistical Sciences and Operational Research, Virginia Commonwealth University, 2015, Richmond, VA.
- Additive Gaussian Process for Computer Models with Qualitative and Quantitative Factors, IMS-China International Conference on Statistics and Probability, 2015, Kunming, China.
- Online Updating of Computer Model Output Using Real-time Sensor Data, the Fifth International Workshop on Reliability Technology and Quality Science, 2015, Beijing, China.
- A Two-stage Risk Modeling in Reject Inference, Department of Industrial and Systems Engineering, Virginia Tech, 2015, Blacksburg, VA.

- A Two-Stage Model Building and Evaluation in Reject Inference, Department of Applied Mathematics, Illinois Institute of Technology, 2015, Chicago, IL.
- Spatial Data Classification in Biomedical Thermal Images, INFORMS Annual Meeting, 2014, San Francisco, CA.
- Bayesian Variable Selection for Computer Experiments, Conference on Experimental Design and Analysis (CEDA) 2014, Taipei, Taiwan.
- Joint Modeling for Mixed Quality Responses in the Manufacturing System, Department of Industrial and Systems Engineering, Virginia Tech, 2013, Blacksburg, VA.
- QQ Model: Joint Modeling with Quantitative and Qualitative Responses in Manufacturing Scale-up, INFORMS Annual Meeting, 2013, Minneapolis, MN.
- Robust Estimation for Sparse Multivariate Regression, School of Mathematics, Peking University, 2012, Beijing, China.
- Robust Estimation for Gaussian Graphical Model and Sparse Multivariate Regression, International Conference on Robust Statistics (ICORS), 2012, Burlington, Vermont.
- Modeling and Analysis of and Analysis of High-Dimensional Data, School of Mathematics Beijing Institute of Technology, 2012, Beijing, China.
- Online Computer Model Updating with Application to Data Center Thermal Management, The Second International Conference on the Interface between Statistics and Engineering (ICISE2), 2012, Tainan, Taiwan.
- Log Covariance Matrix Estimation, Department of Statistics, Texas A&M University, 2012, College Station, TX.
- A Two-stage Modeling Strategy to Quantify Potential Distribution on 2D Nanowire Topography Surface, INFORMS 2011, Charlotte, NC.
- Experimental Designs for Statistical Learning, Joint Statistical Meetings (JSM), 2011, Miami Beach, FL.
- Penalized Covariance Matrix Estimation using a Matrix-Logarithm Transformation, Spring Research Conference (SRC), 2011, Chicago, IL.
- Sliced Latin Hypercube Designs, Quality and Productivity Research Conference (QPRC), 2011, Roanoke, VA.
- Log Covariance Matrix Estimation, the Fourth Erich L. Lehmann Symposium, 2011, Houston, TX.
- Research in Machine Learning: Active Learning via Sequential Design and Log Covariance Matrix Estimation, Department of Mathematics and Statistics, Portland State University, 2011, Portland, OR.
- Experimental Design for Machine Learning, Department of Statistics and Actuarial Science, University of Waterloo, 2011, Waterloo, Canada.
- Experimental Design for Machine Learning, Department of Statistics, University of Pittsburgh, 2011, Pittsburgh, PA.
- Experimental Design for Machine Learning, Department of Statistics, George Mason University, 2011, Fairfax, VA.

- Experimental Design for Machine Learning, Department of Statistics, Virginia Tech, 2011, Blacksburg, VA.
- Active Learning via Sequential Design with Applications to Detection of Money Laundering, School of Statistics and Management, Shanghai University of Finance and Economics, 2010, Shanghai, China.
- Improvement on Cross-Validation via Sliced Statistical Design, INFORMS 2010, Austin, TX.
- A Statistical Approach to Modeling the Potential Data in Nano-quantification, INFORMS 2010, Austin, TX.
- Large Gaussian Covariance Matrix Estimation with Markov Structures, Joint Statistical Meetings (JSM), 2010, Vancouver, Canada.
- Statistical Quantification in Nanomaterials, First International Workshop on Reliability Technology and Quality Science (IWRTQS), 2009, Beijing, China.
- Sparse Discriminant Analysis for Multi-Categorical Classification, WNAR-IMS Meeting, 2009, Portland, OR.
- A Statistical Approach to Quantifying the Elastic Deformation of Nanomaterials, Center for Quality and Applied Statistics, Rochester Institute of Technology, 2009, Rochester, NY.
- A Statistical Approach to Quantifying the Elastic Deformation of Nanomaterials, Department of Statistics, Purdue University, 2009, West Lafayette, IN.
- Statistical Quantification in Nanomaterials and Research in Machine Learning, Department of Statistics, University of Wisconsin-Madison, 2009, Madison, WI.
- Research in Machine Learning: Active Learning and Covariance Matrix Estimation, Department of Mathematics, Wayne State University, 2009, Detroit, MI.
- Active Learning via Sequential Design with Applications to Detection of Money Laundering, INFORMS 2007, Seattle, WA.
- Active Learning via Sequential Design with Applications to Detection of Money Laundering, Design and Analysis of Experiments (DAE) 2007, Memphis, TN.

PROFESSIONAL SERVICE

Professional Activities

NSF Proposal Reviewer, 2018, 2021

Reviewer for Canada NSERC Discovery Grant Proposal, 2021

NSF Two-Day Review Panel, 2016

NSF Three-Day Review Panel, 2015

Program Committee Member, Global Pervasive Computational Epidemiology (GPCE) Spring Meeting, Charlottesville, VA, 2022

ASA SPES Representative Officer for Spring Research Conference: 2014-2017

Topic-contributed Session organizer, Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings (JSM), Denver, CO, 2019.

Invited Paper Session organizer for the 5th International Conference on Econometrics and Statistics (EcoSta 2022), Kyoto, Japan, 2022

Invited Paper Session organizer for International Conference on Design of Experiments (ICODOE), Memphis, TN, 2019.

Invited Paper Session organizer for The 62nd ISI World Statistics Congress, Kuala Lumpur, Malaysia, 2019.

Invited Paper Session organizer, Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings (JSM), Vancouver, IL, 2018.

Invited Paper Session organizer, Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings (JSM), Chicago, IL, 2016.

Invited Paper Session Chair, CEDA 2018, Hsinchu, Taiwan, 2018.

Invited Paper Session Chair, ICSA-Canada Chapter Symposium, Vancouver, BC, 2017.

Invited Paper Session Chair, ICSA Symposium, Atlanta, GA, 2016.

Invited Paper Session Chair, AISC 2016, Greensboro, NC, 2016.

Invited Paper Session organizer, Section of Quality, Statistics, and Reliability (QSR), INFORMS Annual Meeting, Philadelphia, PA, 2015.

Invited Paper Session organizer, Section of Quality, Statistics, and Reliability (QSR), INFORMS Annual Meeting, Minneapolis, MN, 2013.

Invited Paper Session organizer, Section of Quality, Statistics, and Reliability (QSR) INFORMS Annual Meeting, Charlotte, NC, 2012.

Invited Paper Session organizer, The 2nd International Conference on the Interface between Statistics and Engineering, Tainan, Taiwan, 2012.

Invited Paper Session organizer, IMS/ASA Spring Research Conference, Chicago, IL, 2011.

Invited Paper Session organizer, Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings (JSM), Miami, FL, 2011.

Referee and reviewer for

Annals of Statistics
Journal of the American Statistical Association
Journal of the Royal Statistical Society – Series A
Journal of the Royal Statistical Society – Series B
Journal of the Royal Statistical Society – Series C
Journal of Machine Learning Research
Journal of Computational and Graphic Statistics
Computational Statistics and Data Analysis
Journal of Uncertainty Quantification
Biometrika
Technometrics
Statistica Sinica
Bernoulli Journal
Electronic Journal of Statistics
Scandinavian Journal of Statistics

Canadian Journal of Statistics
International Statistical Review
Statistical Analysis and Data Mining
Statistics and Its Interface
Communications in Statistics
Sankhyā B
American Statistician
IIE (Institute of Industrial Engineers) Transactions
Journal of Statistical Planning and Inference
SIAM Journal on Scientific Computing
Journal of Quality Technology
Statistics and Probability Letters
Computational Statistics
Statistical Papers
PloS ONE
IEEE Transactions on Signal Processing
Journal of Manufacturing Science and Engineering
Quality Technology and Quantitative Management
Journal of Systems Science and Complexity
Conference on Uncertainty in Artificial Intelligence (UAI 2019)
International Conference on Artificial Intelligence and Statistics (AISTAT 2009, 2010, 2012, 2014, 2015, 2016)
International Conference on Machine Learning (ICML 2015, 2016, 2017, 2019, 2020)
International Conference on Learning Representations (ICLR 2022, 2023)
Conference on Neural Information Processing Systems (NeurIPS 2014, 2015, 2017, 2019, 2020, 2021, 2022, 2023)

University Service

Core Faculty Member of Undergraduate Program CMDA (Computational Modeling and Data Analytics), Virginia Tech's Big Data Degree, 2012-present.

CMDA Curriculum Committee Member, 2015-present.

Department Graduate Admissions Committee Member, 2016-present.

Department Qualifying Exam Committee Member, 2015-present.

Department Diversity Committee Member, 2017-present.

Department Diversity Committee Chair, 2021-present.

Department Personnel Committee Member, 2016-2018.

Department Colloquium Committee Chair, 2012-2013, 2016-2017.

CMDA Search Committee Member, 2013-2014.

Department Head Search Committee Member, 2014-2015.

Department Search Committee Member, 2012-2013, 2017-2018, 2018-2019.

VT ISE Department Search Committee Member, 2018-2019.

Department Collegiate Faculty Search Committee Chair, 2021-2022.

VT Geography Department Search Committee Member, 2021-2022.

PROFESSIONAL ASSOCIATIONS

- Member of American Statistical Association (ASA).
- Member of American Society for Quality (ASQ).
- Member of International Chinese Statistical Association (ICSA).
- Member of Institute for Operations Research and the Management Sciences (INFORMS).

COMPUTING SKILLS

- Statistical Package − R, JMP, SAS, Minitab.
- Programming Language − C&C++, Matlab, FORTRAN.