XIAO WANG

765-496-7574 ⋄ wangxiao@purdue.edu
150 North University Street ⋄ West Lafayette, IN 47907
http://www.stat.purdue.edu/~wangxiao

EDUCATION

University of Michigan *August 2000 - May 2005*
Ph.D. in Statistics
Advisors: Professors Vijay Nair and Michael Woodroofe

University of Science and Technology of China *September 1997 - July 2000*
M.S. in Mathematics

University of Science and Technology of China *September 1993 - July 1997*
B.S. in Mathematics

RESEARCH INTERESTS

Machine Learning — AI, deep learning, big data, theory and applications
Functional Data Analysis — Functional regression, image analysis, asymptotic theory
Nonparametric Statistics — Nonparametric regression, shape-restricted regression
Reliability — Degradation analysis, stochastic analysis

WORK EXPERIENCES

Purdue University April 2024 - present
Department Head, Purdue University

Department of Statistics, West Lafayette, IN

Purdue University March 2024 - present
J.O. Berger and M.E. Bock Professor of Statistics, Purdue University

Department of Statistics, West Lafayette, IN

Purdue University August 2023 - April 2024
Interim Department Head, Purdue University

Department of Statistics, West Lafayette, IN

Purdue University July 2017 - present
Full Professor

Department of Statistics, West Lafayette, IN

MD Anderson Cancer Center August 2016 - March 2017
Visiting Associate Professor

Department of Biostatistics, Houston, TX

SAMSI   August 2015 - December 2015
Research Fellow

SAMSI, NC

Purdue University   July 2011 - July 2017
Associate Professor

Department of Statistics, West Lafayette, IN

Purdue University   July 2009 - July 2011
Assistant Professor

Department of Statistics, West Lafayette, IN

University of Maryland Baltimore County   July 2005 - July 2009
Assistant Professor

Department of Mathematics and Statistics, Baltimore, MD

Proctor & Gamble   May 2003 - August 2003
Intern

Proctor & Gamble, Cincinnati OH

University of Michigan   August 2000 - May 2005
Graduate Research/Teaching Assistant

Department of Statistics, Ann Arbor, MI

HONOR AND AWARDS

Distinguished Lecture, IMS Asia Pacific Rim Meeting (IMS-APRM),	*2026*
Keynote speeker, Korea AI Association,	*November 2024*
Plenary Speaker, Korean Statistical Society Summer Conference,	*June 2022*
Professional Achievement Award, Purdue University,	*2022-2023*
Elected Fellow of the American Statistical Association (ASA)	*2021*
Elected Fellow of the Institute of Mathematical Statistics (IMS)	*2021*
Regina and Norman F. Caroll Research Award, Purdue University	*2017 - 2018*
Graduate Student Mentoring Award, Purdue University	*2014 - 2015*
Team Award, Purdue University	*2014 - 2015*

EDITORIAL BOARD AND SERVICES

Associate Editor, JASA	*2014 -2016, 2019 - present*
Associate Editor, Technometrics	*2010 - present*
Associate Editor, Lifetime Data Analysis	*2014 - present*
Associate Editor, Electronic Journal of Statistics	*2011 - 2012*
Council of Section Representative of ASA SLDS Section	*2019-2021*
Faculty Advisor of ASA Purdue Chapter	*2019 - 2021*
President of ASA Maryland Chapter	*2006 - 2009*

— Funded Proposals —

NSF-MMS   09/01/2023 - 08/31/2026
PI: 100%

· Neural Inference of Dynamical Systems, $237,438

Society of Actuaries   03/01/2025-12/01/2025
Co-PI: 1/3

· Synthetic Medical Claims Data , $45,000

Wells-Fargo Gift Fund   01/01/2022-01/01/2024
PI: 100%

· Partially Monotonic Deep Neural Networks, $50,000

NSF-DMS   08/01/2016 - 07/31/2019
PI: 100%

· Prediction Models Based on Large Scale Image Data, $100,000

CRISP, Purdue University   07/31/2018 - 07/30/2019
Co-PI: 50%

· Resilient Operations of Unmanned Aerial Vehicle Systems, one of three seed grant awards, Center for Resilient Infrastructures, Systems, and Processes (CRISP), $40,000

i-GSDI, Purdue University   04/30/2018 - 08/31/2018
Co-PI: 50%

· An AI-based Hybrid Pilot Drowsiness Detection System, Institute for Global Security and Defense Innovation(i-GSDI), $40,000,

SAMSI   09/01/2016 - 12/31/2016
PI: 100%

· Research visit to SAMSI Brain Imaging program, $24,000

NSF: MCTP   09/01/2013 - 08/31/2018
Senior Personnel

· Sophomore Transitions: Bridges into a Statistics Major and Big Data Research Experience via Learning Communities, $608,532

NSF-DMS: ATD   10/01/2010 - 09/30/2014
PI: 100%

· Collaborative Research: Estimation of Nonlinear Components and Disturbances in Dynamical Systems with Applications to Threat Detection, $101,125

NSF-CMMI   09/01/2010 - 08/31/2014
PI: 100%

· Collaborative Research: A Constrained Optimal Control Approach to Nonparametric Estimation with Applications to Biological, Biomedical and Engineering Systems, $142,000

NSF-DMS   06/01/2008 - 05/31/2010
PI: 100%

· Reliability Inference and Degradation Modeling based on a Class of Nonhomogeneous Levy Processes, $59,474

REPRESENTATIVE PUBLICATIONS

(* represents the student or postdoc author during the research)

1. Hyun, H.J. and **Wang, X.** (2025). Neural Conformal Inference for Jump Diffusion Processes. *Journal of Economoetrics*. In press.

2. Liu, C and **Wang, X.** (2025). Censor Dependent Variational Inference. *ICML 2025*.

3. Qiu, Y.*, Gao, Q.*, and **Wang, X.** (2024). Adaptive Learning of the Latent Space of Wasserstein Generative Adversarial Networks. *Journal of the American Statistical Association*, https://doi.org/10.1080/01621459.2024.2408778.

4. Liu, Y.* and **Wang, X.** (2024). Implicit Generative Prior for Bayesian Neural Networks. *Annals of Applied Statistics*, 18(4), 2804-2862. https://arxiv.org/abs/2404.18008.

5. Kim, J.* and **Wang, X.** (2023). Robust sensible adversarial learning of deep neural networks for image classification. *Annals of Applied Statistics*, 17 (2), 961 - 984. https://doi.org/10.1214/22-AOAS1637.

6. Qiu, Y.* and **Wang, X.** (2023). Efficient Multimodal Sampling via Tempered Distribution Flow. *Journal of the American Statistical Association*, 119(546), 1446–1460.

7. Chen, Y.*, Gao, Q.*, and **Wang, X.** (2022). Inferential Wasserstein GANs. *Journal of Royal Statistical Society, B.*. 84, 83-113, https://doi.org/10.1111/rssb.12476.

8. Zhang, Z.*, **Wang, X.**, Kong, L. and Zhu, H. (2022). High-dimensional spatial quantile function-on-scalar regression. *Journal of American Statistical Association*. **117**, 1563–1578. https://doi.org/10.1080/01621459.2020.1870984.

9. Qiu, Y.* and **Wang, X.** (2021). ALMOND: adaptive latent modeling and optimization via neural networks and Langevin diffusion. *Journal of the American Statistical Association*. **116**, 1124–1236. https://doi.org/10.1080/01621459.2019.1691563

10. Qiu, Y.*, Zhang, L., and **Wang, X.** (2020). Unbiased contrastive divergence algorithm for training energy-based latent variable models. *ICLR 2020*. (**Spotlight top 6%**)

11. Shu, H.*, **Wang, X.**, and Zhu, H. (2020). D-CCA: a decomposition-based canonical correla- tion analysis for high-dimensional datasets. *Journal of the American Statistical Association*, **115**, 292-306.

12. Xu, Y.* and **Wang, X.** (2018). Understanding weight normalized deep neural networks with rectified linear units. *NeurIPS*, 130-139. (**Acceptance rate 20.8%**)

13. Sun, X.*, Pang, D., **Wang, X.**, and Ma, P. (2018). Optimal penalized function-on-function regression under a reproducing kernel Hilbert space. *Journal of the American Statistical Association*, **113**, 1601-1611.

14. **Wang, X.** and Zhu, H. (2017). Generalized scalar-on-image regression models via total variation. *Journal of the American Statistical Association*, **112**, 1156-1168.

15. Qu, S.*, Wang, J. L. and **Wang, X.** (2016). Optimal estimation for the functional Cox model. *Annals of Statistics*, **44**, 1708-1738.

16. **Wang, X.**, Du, P. and Shen, J. (2013). Smoothing splines with varying smoothing parameter. *Biometrika*, **100**, 955-970.

17. **Wang, X.** and Shen, J. (2013). Uniform convergence and rate adaptive estimation of convex functions via constrained optimization. *SIAM Journal of Control and Optimization*, **51**, 2753- 2787.

18. Shen, J. and **Wang, X.** (2011). Estimation of monotone functions via P-splines: A constrained dynamical optimization approach. *SIAM Journal on Control and Optimization*, **49**, 646-671.

19. **Wang, X.** and Shen, J. (2010). A class of grouped Brunk estimators and penalized spline estimators for monotone regression. *Biometrika*, **97**, 585-601.

20. **Wang, X.**, Walker, M., Pal, J., Woodroofe, M., Mateo, M. (2008). Model-independent estimation of dark matter distributions. *Journal of the American Statistical Association*, **103**, 1070-1084.

21. **Wang, X.** and Woodroofe, M. (2007). A Kiefer Wolfowitz comparison theorem for Wichsells problem. *Annals of Statistics*, **35**, 1559-1575.

PUBLICATIONS

(* represents the student or postdoc author during research)

— AI, Data Science, and Machine Learning —

1. Hyun, H.J. and **Wang, X.** (2025). Neural Conformal Inference for Jump Diffusion Processes. *Journal of Economoetrics*. In press.

2. Liu, C and **Wang, X.** (2025). Censor Dependent Variational Inference. *ICML 2025*.

3. Yin, H., Qiu, Y. and **Wang, X.** (2025). Wasserstein Coreset via Sinkhorn Loss. *Transactions on Machine Learning Research*.

4. Liu, C. and **Wang, X.** (2025). Doubly Robust Conditional VAE via Decoder Calibration: An Implicit KL Annealing Approach. *Transactions on Machine Learning Research*.

5. Kim, J. and **Wang, X.** (2024). Inductive Global and Local Manifold Approximation and Projection. *Transactions on Machine Learning Research*.

6. Qiu, Y.*, Gao, Q.*, and **Wang, X.** (2024). Adaptive Learning of the Latent Space of Wasserstein Generative Adversarial Networks. *Journal of the American Statistical Association*, https://doi.org/10.1080/01621459.2024.2408778.

7. Liu, Y.* and **Wang, X.** (2024). Implicit Generative Prior for Bayesian Neural Networks. *Annals of Applied Statistics.* 18(4), 2804-2862. https://arxiv.org/abs/2404.18008.

8. Xie, H.*, Xue, F., and **Wang, X.** (2023). Generative Models for Missing Data. *Applications of Generative AI.* Springer.

9. Kim, J.* and **Wang, X.** (2023). Robust sensible adversarial learning of deep neural networks for image classification. *Annals of Applied Statistics*, 17 (2), 961 - 984. https://doi.org/10.1214/22-AOAS1637.

10. Qiu, Y.* and **Wang, X.** (2023). Efficient Multimodal Sampling via Tempered Distribution Flow. *Journal of the American Statistical Association*, 119(546), 1446–1460.

11. Chen, Y.*, Gao, Q.* and Wang, X. (2022). Inferential Wasserstein GANs. *Journal of Royal Statistical Society, B.*. **84**, 83-113. DOI:10.1111/rssb.12476.

12. Gao, Q.* and **Wang, X.** (2021). Theoretical investigation of generalization bounds for adversarial learning of deep neural networks. *Journal of Statistical Theory and Practice.* DOI: `10.1007/s42519-021-00171-6`.

13. Qiu, Y.* and **Wang, X.** (2021). ALMOND:adaptive latent modeling and optimization via neural networks and Langevin diffusion. *Journal of the American Statistical Association.* **116**, 1124–1236. https://doi.org/10.1080/01621459.2019.1691563

14. Xu, Y.* and **Wang, X.** (2020). Weight normalized deep neural networks. *STAT.* DOI: 10.1002/sta4.344.

15. Liu, J.*, Zhang, X.*, Goldwasser, D. and **Wang, X.** (2020). Cross-lingual document retrieval with smooth learning. *The 28th International Conference on Computational Linguistics (COLING 2020)*(**acceptance rate 32.9%**).

16. Zhou, J.*, Jin, L., **Wang, X.**, Sun, D.(2020). Resilient UAV traffic congestion control using fluid queuing models. *IEEE Transactions on Intelligent Transportation Systems.* doi: 10.1109/TITS.2020.3004406.

17. Chen, Y.*, Gao, Q.*, Liang, F., **Wang, X.** (2020). Deep feature selection via deep neural networks. **Winner of the 2019 ASA SLDS Student Paper Award**. *Journal of Computational and Graphical Statistics.* https://doi.org/10.1080/10618600.2020.1814305.

18. Qiu, Y.*, Zhang, L., and **Wang, X.** (2020). Unbiased contrastive divergence algorithm for training energy-based latent variable models. *ICLR 2020.* (**Spotlight top 6%**)

19. Qiu, Y.* and **Wang, X.** (2020). Stochastic approximate gradient descent via the Langevin algorithm. *AAAI 2020.* (**acceptance rate 20.6%**)

20. Ren, M.*, Xu, Y.*, Lin, Y.*, Yang, Z. and **Wang, X.** (2019). Sparse deep neural networks using $L_{1,\infty}$ weight normalization. *Statistica Sinica.* DOI 10.5705/ss.202018.0468

21. Mo, Z.*, Chen, H.*, Yang, Z. and **Wang, X.** (2019). Theoretical investigation of generalization bound for residual networks. *International Joint Conference on Artifical Intellegence (IJCAI) 2019.* (**acceptance rate 17.9%**)

22. Xu, Y.* and **Wang, X.** (2018). Understanding weight normalized deep neural networks with rectified linear units. *NeurIPS*, 130-139. (**acceptance rate 20.8%**)

23. Samel, K.*, **Wang, X.**, and Liu, Q. (2017). A neural network approach to real time bidding. *Journal of Purdue Undergraduate Research*, 7, 50-56.

— Functional Data Analysis —

24. Wang, Y., **Wang, X.**, Ibrahim, J., and Zhu, H. (2025). Residual-based Alternative Partial Least Squares for Generalized Functional Linear Models. *Statistica Sinica*, accepted.

25. Li, T., Yu, Y., **Wang, X.**, Marron, J.S., and Zhu, H. (2024). Semi-nonparametric Varying Coefficients Models for Imaging Genetics. *Statistica Sinica*, DOI: 10.5705/ss.202024.011.

26. Zhang, Z.*, Wang, X., Kong, L. and Zhu, H. (2022). High-dimensional spatial quantile function-on-scalar regression. Journal of American Statistical Association. **117**, 1563–1578. https://doi.org/10.1080/01621459.2020.1870984.

27. **Wang, X.**, Liu, Y., and Zhu, H. (2022). Functional finite mixture regression. *Statistica Sinica*, DOI:10.5705/ss.202021.0183.

28. Liu, Y.*, Li, L., and **Wang, X.** (2021). A nonlinear sparse neural ODE model for multiple functional processes. *Canadian Journal of Statistics*. DOI: 10.1002/cjs.11666

29. Sun, X.*, Pang, D., **Wang, X.**, and Ma, P. (2018). Optimal penalized function-on-function regression under a reproducing kernel Hilbert space. *Journal of the American Statistical Association*, 113, 1601-1611.

30. **Wang, X.** and Zhu, H. (2017). Generalized scalar-on-image regression models via total variation. *Journal of the American Statistical Association*, 112, 1156-1168.

31. Qu, S.*, Wang, J.L. and **Wang, X.** (2016). Optimal estimation for the functional Cox model. *Annals of Statistics*, 44, 1708-1738.

32. **Wang, X.** and Ruppert, D. (2015). Optimal prediction in an additive functional model. *Statistica Sinica*, 25, 567-590.

33. Du, P. and **Wang, X.** (2014). Penalized likelihood functional regression. *Statistica Sinica*, 24, 1017-1041.

34. Qu, S.* and **Wang, X.** (2017). Optimal global test for functional linear models. arXiv:1710.022690

35. Chen, Y.*, **Wang, X.**, Kong, L., and Zhu, H. (2016). Local region sparse learning for image-on-scalar regression. arXiv:1605.08501

— High-Dimensional Data and Nonparametric Estimation —

36. Hyun, H.J.* and **Wang, X.** (2025). Fast Cost-Constrained High Dimensional Regression. *Statistica Sinica*, accepted.

37. Yang, J.*, **Wang, X.**, Liu, C. (2023). Partial Conditioning for Inference of Many-Normal-Means with Holder Constraints. *International Journal of Approximate Reasoning*. In press.

38. Wan, C.*, Jia, D. Zhao, Y., Chang, W., Cao, S., **Wang, X.**, and Zhang, C. (2020). A data denoising approach to optimize functional clustering of single cell RNA-sequencing data. *IEEE International Conference on Bioinformatics and Biomedicine 2020 (IEEE BIBM 2020)*. **(acceptance rate 19.4%)**

39. Kim. J.*, Zhu, H., **Wang, X.**, Do, K. (2020). Scalable network estimation with L_0 penalty. *Statistical Analysis and Data Mining.* DOI: https://doi.org/10.1002/sam.11483.

40. Shu, H.*, **Wang, X.**, and Zhu, H. (2020). D-CCA: a decomposition-based canonical correlation analysis for high-dimensional datasets. *Journal of the American Statistical Association*, 115, 292-306.

41. Gao, Q.* and **Wang, X.** (2020). Statistical learning. *Springer Handbook of Engineering Statistics*, Springer.

42. Chen, Y.*, **Wang, X,**, Jung, Y., Abedi, V., Zand, R., Bikak, M. Adibuzzaman, M. (2018). Classification of short single lead electrocardiograms (ECGs) for atrial fibrillation detection using piecewise linear spline and XGBoost. *Physiological Measurement*, 39(10):104006.

43. Xu, Y.*, Jean, F., and **Wang, X.** (2018). On the statistical efficiency of compositional nonparametric prediction. *AISTAT*, 1531-1539. **(acceptance rate 33%)**

44. Qu, S.* and Wang , X. (2017). Simultaneous sparse dictionary learning and pruning. arXiv:1605.07870

45. **Wang, X.**, Du, P. and Shen, J. (2013). Smoothing splines with varying smoothing parameter. *Biometrika*, 100, 955-970.

46. Choi, I.*, Li, B. and **Wang, X.** (2013). Nonparametric estimation of spatial and space-time covariance function. *Journal of Agricultural, Biological, and Environmental Statistics*, 4, 611-630.

47. Li, B. and **Wang, X.** (2012). Discussion of Clustering Random Curves Under Spatial Interdependence with Application to Service Accessibility by H. Jiang and N. Serban. *Technometrics*, 54, 117-118.

48. Cheng, G. and **Wang, X.** (2011). Semiparametric additive transformation model under current status data. *Electronic Journal of Statistics*, 5, 1735-1764.

49. **Wang, X.**, Shen, J. and Ruppert, D. (2011). On the asymptotics of penalized spline smoothing. *Electronic Journal of Statistics*, 5, 1-17.

50. **Wang, X.** (2008). Bayesian free-knot monotone cubic spline regression. *Journal of Computational and Graphical Statistics*, 17, 373-387.

— Shape-Restricted Inference —

51. Lebair, T.*, Shen, J., and **Wang, X.** (2017). Minimax lower bound and optimal estimation of convex functions in the sup-norm. *IEEE Transactions on Automatic Control*, 62 3482-3487.

52. He, S.*, Liu, C. and **Wang, X.** (2017). Modeling and inference of CD4 data. *Statistical Modeling for Degradation Measurements.* Springer.

53. **Wang, X.** and Shen, J. (2013). Uniform convergence and rate adaptive estimation of convex functions via constrained optimization. *SIAM Journal of Control and Optimization*, 51, 2753-2787.

54. Shen, J. and **Wang, X.** (2012). Convex regression via penalized splines: a complementarity approach. *2012 American Control Conference*, Montreal, Canada, June, 2012.

55. Shen, J. and **Wang, X.** (2011). A constrained optimal control approach to smoothing splines, *50th IEEE Conference on Decision and Control*, 1729-1734, Orlando, FL, December, 2011.

56. Shen, J. and **Wang, X.** (2011). Estimation of monotone functions via P-splines: A constrained dynamical optimization approach. *SIAM Journal on Control and Optimization*, 49, 646-671.

57. Shen, J. and **Wang, X.** (2010). Estimation of shape constrained functions in dynamical systems and its application to genetic networks. *2010 American Control Conference*, 5948-5953, Baltimore, MD.

58. **Wang, X.** and Shen, J. (2010). A class of grouped Brunk estimators and penalized spline estimators for monotone regression. *Biometrika*, 97, 585-601.

59. **Wang, X.** and Li, F. (2008). Isotonic smoothing spline regression. *Journal of Computational and Graphical Statistics*, 17, 21-37.

— Reliability and Degradation Analysis —

60. **Wang, X.** and Xu, D. (2010). An inverse Gaussian process model for degradation data. *Technometrics*, 52, 188-197.

61. **Wang, X.** (2010). Wiener processes with random effects for degradation data. *Journal of Multivariate Analysis*, 101, 340-351.

62. **Wang, X.** (2009). Semiparametric inference on a class of Wiener processes. *Journal of Time Series Analysis*, 30, 179-207.

63. **Wang, X.** (2009). Nonparametric estimation of the shape function in a Gamma process for degradation data. *Canadian Journal of Statistics*, 37. 101-118.

64. **Wang, X.** (2008). A Pseudo-likelihood estimation method for nonhomogeneous Gamma process model with random effects. *Statistica Sinica*, 18, 1153-1163.

65. Nair, V. and **Wang, X.** (2004). Discussion of 'Failure Amplification Method: An Information Maximization Approach to Categorical Response Optimization' by Joseph and Wu, *Technometric,*s 46, 19-23.

— Astrostatistics —

66. **Wang, X.**, Walker, M., Pal, J., Woodroofe, M., Mateo, M. (2008). Model-independent estimation of dark matter distributions. *Journal of the American Statistical Association*, 103, 1070-1084.

67. **Wang, X.**, Woodroofe, M., Pal, J., Walker, M. and Mario, M. (2007). Nonparametric estimation of dark matter distributions, *Statistical Challenges in Modern Astronomy IV* (Editors:G. J. Babu and E. D. Feigelson), 371, 268-279.

68. **Wang, X.** and Woodroofe, M. (2007). A Kiefer Wolfowitz comparison theorem for Wichsell's problem. *Annals of Statistics*, 35, 1559-1575.

69. Walker, M., Mateo, M., Olszewskia,E., Gnedini, O., **Wang, X.**, Sen, B, Woodroofe, M. (2007) Velocity dispersion profiles of seven dwarf spheroidal galaxies. *Astrophysical Journal Letters*, 667, L53-L56.

70. Walker, M., Mateo, M., Olszewski, E., **Wang, X.** and Woodroofe M. (2006). Radial velocity dispersion profile in the Fornax dwarf spheroidal galaxy. *The Astronomical Journal*, 131, 2114-2139.

71. **Wang, X.**, Woodroofe, M., Walker, M., Mateo, M. and Olszewski, E. (2005). Estimating dark matter distributions. *The Astrophysical Journal*, 626, 145-158.

—Others—

72. Cheng, Y., He, J., **Wang, X.** (2000). Gauge transformation to solve (m,n)th KdV Hierarchy. *Journal of University of Science and Technology of China*, 30, 507-516.

MANUSCRIPTS

1. Xie, H., Xue, F., Wang, X., Nonparametrically Identifiable Deep Latent Variable Models for MNAR Data, submitted.

2. Hyun, H.J. and Wang, X., Neural conformal inference of diffusion processes, submitted.

INVITED LECTURES

1. Keynote Speech, Harnessing AI for Bayesian Inference: From Neural Conformal Inference to Neural Adaptive Empirical Bayes, Korea AI Association Conference, 2024

2. Implicit generative priors, JSM 2024

3. Implicit generative priors, 2nd Joint Conference on Statistics and Data Science (JCSDS 2024)

4. Implicit generative priors, 2024 International Conference for Statistics and Data Science

5. Short course in Deep Learning applications in statistical problems, 2024 ICSA Applied Statistics Symposium, Nashville, Tennessee, June 16 - 19, 2024.

6. Panel on statistical research in the age of AI, Statistics in the Age of AI, Washington, DC, May 9—11, 2024.

7. Efficient Multimodal Sampling via Tempered Distribution Flow, Synergies between Nonparametrics, Sequential Analysis and Modern Data Science, In memory of Professor Michael Woodroofe and his contributions to Statistics, University of Michigan, Ann Arbor, September 29—30, 2023.

8. Lecture on Deep Generative Models, ASA Alaska Chapter meeting and workshops, June 21—23, 2023.

9. Inferential Wasserstein Generative Adversarial Networks, Department of Statistics, Indiana University, March 24, 2023

10. Revisiting Latent Variable Models from a Deep Learning Perspective, Department of Biostatistics, NYU GPH, March 2, 2023.

11. Efficient Multimodal Sampling via Tempered Distribution Flow, 2022 International Symposium on Modern Data Science Application, Practice, and Theory (MDSAPT2022), November 19-20, 2022.

12. Challenges in Latent Variable Models and Generative Models, University of North Carolina at Chapel Hill, Nov. 3, 2022.

13. Revisiting Latent Variable Models from a Deep Learning Perspective, Department of Mathematics, University of Maryland, December 1, 2022.

14. Efficient Multimodal Sampling via Tempered Distribution Flow, ICSA-Canada Chapter Symposium 2022, July 8-10, 2022.

15. **Plenary Speaker**, Revisiting latent variable models from a deep learning perspective, Korean Statistical Society Summer Conference, June 23-25, 2022.

16. Revisiting latent variable models from a deep learning perspective, Washington University in St. Louis, December 08, 2021.

17. Revisiting latent variable models from a deep learning perspective, UNC Greensboro, November 03, 2021.

18. Efficient Multi-Modal Sampling via Tempered Distribution Flow, JSM, August 11, 2021.

19. Inferential Wasserstein GANs, the 63rd ISI World Statistics Congress, July 13, 2021.

20. Inferential Wasserstein GANs, Tianyuan Mathematical Center in Northwest China, June 26, 2021.

21. Challenges in latent variable models and generative models, University of Calgary, March 31, 2021.

22. Challenges in latent variable models and generative models, Washington University in St. Louis, March 26, 2021.

23. Challenges in generative models and latent variable models, Recent Advances in Statistical Analysis of Imaging Data, ASA Section on imaging, December 4-5, 2020.

24. Weight Normalized Deep Neural Networks, UIUC, Champaign, March 2019

25. ALMOND: Adaptive Latent Modeling and Optimization via Neural Networks and Langevin Diffusion, 2019 Quality and Productivity Research Conference, Washington DC, June 2019 (Joint with Yixuan Qiu)

26. Weight Normalized Deep Neural Networks, UIUC, East China Normal University, Shanghai, June 2019

27. ALMOND: Adaptive Latent Modeling and Optimization via Neural Networks and Langevin Diffusion, JSM 2019, Denver, July 2019

28. iWGAN: an Autoencoder Wasserstein GAN for Inference, International Workshop on Complex Data and Statistical Learning, Shanghai, September 2019

29. Understanding Weight Normalized Deep Neural Networks with Rectified Linear Units, NeuIPS, Montreal, CA, November, 2018.

30. Statistics and Machine Learning, Department of Statistics, Purdue University, October, 2018.

31. Understanding of Deep Weight Normalized Neural Networks, Deep Learning@Purdue Workshop, August, 2018

32. Weight Normalized Deep Neural Networks, Joint Statistical Meeting, Vancouver, CA, August, 2018.

33. Understanding of Deep Weight Normalized Neural Networks, 9th International Purdue Symposium on Statistics, June, 2018

34. Statistical Understanding of Deep Neural Networks, Department of Statistics, University of Virginia, April, 2018

35. Automated Model Building and Deep Learning, Application-Driven Geometric Functional Data Analysis, Oct 8-11 2017 in honor of Professor Ulf Grenander.

36. Quantile Image-on-Scalar Regression, Department of Statistics, Florida State University, September 2016.

37. Quantile Image-on-Scalar Regression, Department of Biostatistics, MD Anderson Cancer Center, November, 2016.

38. Quantile Image-on-Scalar Regression, Nonparametric Statistics Workshop: Integration of Theory, Methods and Applications, University of Michigan, October, 2016.

39. Optimal Estimation for Functional Cox Model, 4th International Biostatistics Society, Shanghai, July 2016.

40. Simultaneous sparse dictionary learning and pruning, 2nd Taihu Forum, Shanghai, July 2016.

41. Optimal estimation for quantile regression with functional responses, IMS-Pacific Rim, Hong Kong, June 2016.

42. Optimal estimation for quantile regression with functional responses, ICSA, Atlanta, April 2016.

43. Optimal estimation for quantile regression with functional responses, Banff, Canada, February 2016.

44. Optimal Estimation for Functional Cox Model, Honoring Vijay Nair 65th Birthday, Ann Arbor, October 2015.

45. Big Data and Statistics, Beijing Union University, June 2015.

46. Big Data and Statistics, Tencent Company, June 2015.

47. Big Data and Statistics, South University of Science and Technology of China, June 2015.

48. Optimal Estimation for Functional Cox Model, ICSA, June 2015, Joint with Simeng Qu.

49. Optimal Estimation for Functional Cox Model, IUPUI, March 2015.

50. Functional Regression and Image Regression, Statistical and Computational Theory and Methodology for Big Data Analysis, 2014.

51. Optimal Estimation for Functional Cox Model, ICSA, 2013, Joint with Simeng Qu.

52. Penalized Likelihood Functional Regression, 2nd Biostatistics Symposium, Beijing China, July 2012.

53. Nonparametric Degradation Modeling and its Applications, Cornell University, March 2010.

54. Nonparametric Degradation Modeling and its Applications, Georgia Institute of Technology, March 2010.

55. Estimating Dark Matter Distributions, Rice University, February 2008.

56. Estimating Dark Matter Distributions, University of California at Davis, February 2008.

57. Degradation Modeling based on A Class of Wiener Processes, Salt Lake City, Utah, August 2007, 10th New Researchers Conference in Statistics and Probability.

58. Reliability Inference and Predictive Maintenance with Degradation Data, Glasgow, Scotland, July 2007, 5th International Mathematical Methods in Reliability Conference, Invited presentation joint with V. Nair.

59. Degradation Modeling and Reliability Inference based on a Class of Nonhomogeneous Gaussian Processes, INFORMS, San Francisco, November 2005. Invited presentation.

60. Estimating Dark Matter Distributions, Conference of Dark Matter in the Universe, Ann Arbor, October 2005, invited presentation.

61. Degradation Modeling based on Nonhomogeneous Levy Processes, A Conference Hornoring Michael Woodroofe's 65th Birthday, Ann Arbor, October 2005, Invited presentation.

62. Invited Discussion of "Failure Amplification Method", Technometrics Session, Joint Statistical Meeting, Toronto, August 2004. Joint with V. Nair.

63. Inference for a Class of Degradation Models, Seminars in Statistics and Reliability, Paris, France, May 2004. Invited presentation joint with V. Nair.

64. A Class of Degradation Models for Reliability Inference Based on Nonhomogeneous Gaussian Processes, Fourth International Conference on Reliability and Survival Analysis, Columbia, South Carolina, May 2003. Invited presentation joint with V. Nair.

SUPERVISED STUDENTS

—Formal Advisees —

[] Hyeongjin Hyun, Ph.D. in 2025, current in *Postdoc, Purdue*

Yijia Liu, Ph.D. in 2024, current in *Facebook*

Jungeum Kim, Ph.D. in 2022, current *Assistant Professor, NCState*

Qingyi Gao, Ph.D. in 2021, current in *Facebook*

Yao Chen, Ph.D. in 2020, current in *Novartis*

Yixi Xu, Ph.D. in 2019, current in *Microsoft*

Yixuan Qiu, Ph.D. in 2019, current *Associate Professor at Shanghai Financial and Economic University*

Simeng Qu, Ph.D. in 2018, current in*Goldman Sachs*

Shang He, Ph.D. in 2017, current in *Bluebird Bio*

—**Current Advisees** —

Chuanhui Liu: Trustworthy data analysis (expected Nov 2025)

Halin Shin: High dimensional time series (expected May 2026)

Huiming Xie: Missing data (expected Nov 2025)

Haoyun Yin: Optimal transport and sinkhorn loss (expected Nov 2025)

—**Undergraduate Mentees** —

Lei Fu

Logan T Bradley-Trietsch, current *Master student at Purdue University*

Karan Samel, current *Ph.D. student at Georgia Tech*

Tim Park, current N/A

Kent Gauen, current *Ph.D. student at Purdue University*

SERVICES

- Community
  - Program committee member for NeurIPS 2021, 2022, 2023, 2024
  - Program committee member for ICML 2024
  - Program committee member for ICLR 2020, 2022
  - Council of Sections Representative on Statistical Learning and Data Science, 2019-2021
  - Program committee member for IJCAI 2019
  - Program committee member for AAAI 2019, 2020
  - Faculty Advisor for ASA Indiana Chapter, 2018-2020
  - President of ASA Maryland Chapter, 2006 - 2009
  - Reviewer for: Annals of Statistics, JASA, Journal of Royal Statistical Society, Series B, Annals of Applied Statistics, Biometrika, Technometrics, Journal of Statistical Planning and Inference, Journal of Nonparametric Statistics, Bioinformatics, IIE Transactions, IEEE Transactions, Naval Research Logistics, Statistics & Probability Letters,

IMS Lecture Notes-Monograph Series Volume, Quality & Reliability Engineering International, International Journal of Tomography & Statistics, Journal of Statistical Research, 2011 AMIA Clinical Research Informatics Summit, AAAI, ICML, NeurIPS, ICLR, AISTAT

- University
  - College Award Committee, 2021-2022
  - Data Science Cluster Hiring Committee, 2020-2021, 2021-2022
  - College of Science Grievance Hearing - Alternate, 2010-2011
- Department
  - Faculty hiring committee chair, 2017-present, Purdue
  - Graduate award committee, 2020-present, Purdue
  - Graduate Admission Committee, 2010-present, Purdue
  - Qualifying Exam (Mathematical Statistics) member & Chair, 2009-present, Purdue
  - Undergraduate Program Committee, 2013-2017, Purdue
  - Math placement exam committee, 2013-2017, Purdue
  - Strategic Planning Committee, member, 2011-2012, Purdue
  - Commencement Committee, 2010-2012, Purdue
  - Chair - Puri Memorial Committee, 2010-2011, 2014-2015 Purdue
  - Department Research Colloquium Chair, Spring 2010, Purdue
  - Organizing Committee, member, 1st Statistics Probability Day Conference, 2007, UMBC
  - Organizing Committee, member, 2nd Statistics Probability Day Conference, 2008, UMBC
  - New Faculty Hiring Committee, member, 2005-2009, UMBC
  - Statistics Graduate Program Committee, 2006-2009, UMBC
  - Graduate Admission Committee, 2006-2009, UMBC
  - Department Statistics Seminar Coordinator, 2006-2007, UMBC
  - Ph.D. Defense Committee, member, UMBC
  - Undergraduate/Graduate Student Advisor, UMBC

MEMBERSHIP

- Institute of Mathematical Statistics
- American Statistical Association