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Hongxiao Zhu

Updated on January 19, 2024.

EDUCATION

Ph.D.	Statistics	May 2009
	Rice University, Houston, TX, U.S.A.	
	Thesis: Functional Data Classification and Covariance Estimation	
	Advisor: Dennis D. Cox	
M.S.	Mathematics	July 2004
	University of Arkansas at Little Rock, AR, U.S.A.	
B.S.	Finance	July 2002
	Wuhan University, Wuhan, P.R.China	

RESEARCH INTERESTS

- Bayesian Methods
- Functional Data Analysis
- Statistical Machine Learning
- Applications in Medicine, Neuroscience, Engineering, Bioinformatics, Genetics, and Finance

ACADEMIC EMPLOYMENT

Associate Professor, Virgina Tech	July 2018–Now
Assistant Professor, Virgina Tech	Aug. 2012–June 2018
Post-doctoral Fellow	
Duke University	Sept. 2011–Jul. 2012
Statistical and Applied Mathematical Sciences Institute (SAMSI)	Sept. 2010–Aug. 2011
University of Texas M.D. Anderson Cancer Center	Jan. 2009–Aug. 2010

TEACHING EXPERIENCE

Virginia Tech
- Introduction to Statistical Computing (DAAS) (STAT5054) Fall 2022-23
- Advanced Topics in Regression (STAT6514) Spring 2022
- Advanced Topics in Statistical Inference (STAT6114) 2017–21
- Advanced Topics in Bayesian Statistics (STAT6474) Spring 2014–23
- Methods of Statistical Computing (STAT4004) Spring 2013–21
- Applied Multivariate Analysis (STAT4504/5504G) Fall 2012

University of Arkansas at Little Rock

• Business Calculus	Spring 2004
• Intermediate Algebra	Spring 2004
• Elementary Algebra	Summer 2004

SAMSI

• The basic statistics session, SAMSI Undergraduate Workshop	May 2011
• The session on Functional Object Data, SAMSI Undergraduate Workshop	Feb. 2011
• The session on R, SAMSI Undergraduate Workshop	Oct. 2010

PUBLICATIONS

Peer Reviewed – Statistical Methods

1. Lu, R., **Zhu, H.** and Wu, X. (2023) Estimating mutation rates in a Markov branching process using approximate Bayesian computation, *Journal of Theoretical Biology*, May 21;565:111467.doi: 10.1016/j.jtbi.2023.111467.

2. Huo, S., Morris, J.S. and **Zhu, H.** (2023) Ultra-fast approximate inference using variational functional mixed models, *Journal of Computational and Graphical Statistics*, 32:2,353-365.doi:,10.1080/10618600.2022.2107532.

3. Wu, X. and **Zhu, H.** (2022) Association testing for binary trees—a Markov branching process approach, *Statistics in Medicine*, 41(14):2557–2573. doi:10.1002/sim.9370.

4. **Zhu, H.**, Versace, F., Cinciripini, P. M., Rausch, P. and Morris, J. S. (2018). Robust and Gaussian spatial functional regression models for analysis of event-related potentials, *NeuroImage*, 181 501–512.

5. **Zhu, H.**, Caspers, P., Morris, J. S., Wu, X. and Mueller, R. (2018). A unified analysis of structured sonar-terrain data using Bayesian functional mixed models, *Technometrics*, 60(1) 112–123, doi:10.1080/00401706.2016.1274681.

6. **Zhu, H.**, Morris, J. S., Wei, F. and Cox, D. D. (2017). Multivariate functional response regression, with application to fluorescence spectroscopy in a cervical pre-cancer study, *Computational Statistics and Data Analysis*, 111 88–101.

7. **Zhu, H.***, Lu, R.*, Ming, C., Gupta, A. K. and Müller, R. (2017). Estimating parameters in complex systems with functional outputs—a wavelet-based approximate Bayesian computation approach, in D. Chen, Z. Jin, G. Li, Y. Li, A. Liu, Y. Zhao (Eds), *New Advances in Statistics and Data Science: the 25th ICSA Applied Statistics Symposium.* Springer, New York. (*co-first author).

8. Leon-Novelo L., Womack, A., **Zhu, H.** and Wu, X. (2017). A Bayesian analysis of quantal bioassay experiments incorporating historical controls via Bayes factors, *Statistics in Medicine*, 36(12) 1907–1923.

9. **Zhu, H.**, Strawn, N. and Dunson, D. B. (2016). Bayesian graphical models for multivariate functional data, *Journal of Machine Learning Research*, 17(204) 1–27.

10. Zhang, L., Baladandayuthapani, V., **Zhu, H**, Baggerly, K. A., Majewski, T., Czerniak, B. A. and Morris, J. S. (2016). Functional CAR models for large spatially correlated functional datasets, *Journal of the American Statistical Association–Theory and Methods*, 111(514) 772–786.

11. Yang, J., **Zhu, H.**, Choi, T. and Cox, D. D. (2016). Smoothing and mean-covariance estimation of functional data with a Bayesian hierarchical model, *Bayesian Analysis* 11(3) 649–670.

12. **Zhu, H.**, Yao, F. and Zhang, H. H. (2014). Structured functional additive regression in reproducing kernel Hilbert spaces, *Journal of the Royal Statistical Society: Series B* 76 581–603.

13. **Zhu, H.**, Brown, P. J. and Morris, J. S. (2012). Robust classification of functional and quantitative image data using functional mixed models, *Biometrics* 68(4) 1260–1268.

14. Wei, F. and **Zhu, H.** (2012). Group coordinate descent algorithms for nonconvex penalized regression, *Computational Statistics and Data Analysis* 56(2) 316–326.

15. **Zhu, H.**, Brown, P. J. and Morris, J. S. (2011). Robust, adaptive functional regression in functional mixed model framework, *Journal of the American Statistical Association–Theory and Methods* 106(495) 1167–1179.

16. **Zhu, H.**, Vannucci, M. and Cox, D. D. (2010). A Bayesian hierarchical model for classification with selection of functional predictors, *Biometrics* 66 463–473.

17. **Zhu, H.** and Cox, D. D. (2009). A functional generalized linear model with curve selection in cervical pre-cancer diagnosis using fluorescence spectroscopy, *Optimality: The Third Erich L. Lehmann Symposium* 57 173–189.

Peer Reviewed – Interdisciplinary Research

18. **Zhu, H.**, Gupta, A. K., Wu, X., Goldsworthy, M., Wang, R., Mikkilineni, M., and Müller, R. (2023). A validation study for a bat-inspired sonar sensing simulator. PLoS ONE 18(1): e0280631. doi: 10.1371/journal.pone.0280631.

19. Tanveer, M. H., Thomas, A., Ahmed, W. and **Zhu, H.** (2021) Estimate the unknown environment with biosonar echoes—a simulation study *Sensors* 21(12): 4186. doi: 10.3390/s21124186.

20. Tanveer, M. H., Wu, X., Thomas, A., Ming, C., Mueller, R., Tokekar, P. and **Zhu, H.** (2020) A simulation framework for bioinspired sonar sensing with Unmanned Aerial Vehicles. *PLoS ONE* 15(11): e0241443. doi: 10.1371/journal.pone.0241443.

21. Banerjee, S., **Zhu, H.**, Tang, M., Wu, X., Feng, W., and Xie, H. (2019) Identifying transcriptional regulatory modules among different chromatin states in mouse neural stem cells. *Frontiers in Genetics* 9:731. doi: 10.3389/fgene.2018.00731.

22. Tang, M., Hasan, M.S., Zhang, L., **Zhu, H.**, and Wu, X. (2019) vi-HMM: A novel HMM-based method for sequence variant identification in short read data. *Human Genomics.* 13, 9. doi: 10.1186/s40246-019-0194-6.

23. Richey, J. A., Sullivan-Toole, H., Strege, M., Carlton, C., McDaniel, D., Komelski, M., Epperley, A., **Zhu, H.**, Allen, I. C. (2019) Precision Implementation of Minimal Erythema Dose (MED) Testing to Assess Individual Variation in Human Inflammatory Response. *Journal of Visualized Experiments.* (152), e59813, doi:10.3791/59813.

24. Tran, H., **Zhu, H.**, Wu, X., Kim, G., Clark, C., Larose, H., Haak, D., Askew, S., Barney, J., Westwood, J., Zhang, L. (2018) Identification of differentially methylated sites with weak methylation effect, *Genes* 9(2), doi:10.3390/genes9020075.

25. Bukvic, A., **Zhu, H.**, Lavoie, R. and Becker, A. (2018). The role of proximity to waterfront in residents' relocation decision-making post-Hurricane Sandy, *Ocean and Coastal Management*, 154 8–19.

26. Ming, C., **Zhu, H.** and Müller, R. (2017). A simplified model of biosonar echoes from foliage and the properties of natural foliages, *PLoS ONE*, doi: 10.1371/journal.pone.0189824

27. Ming, C., Gupta, A. K., Lu, R., **Zhu, H.** and Müller, R. (2017). A computational model for biosonar echoes from foliage, *PLoS ONE*, 12(8), doi:10.1371/journal.pone.0182824.

28. Müller, R. , Gupta, A. K., **Zhu, H.**, Pannala, M., Gillani, U. S., Fu, Y., Caspers, P. and Buck, J. R. (2017). Dynamic substrate for the physical encoding of sensory information in bat biosonar, *Physical Review Letters*, 118(158102) 1–5.

29. Sun, M., Sun, Z., Wu, X., Rajaram, V., Keimig, D., Lim, J., **Zhu, H.** and Xie, H. (2016). Mammalian brain development is accompanied by a dramatic increase in Bipolar DNA methylation, *Scientific Reports*, 6(32998) 1–11.

30. Wu, X. and **Zhu, H.** (2015). A Bayesian analysis of copy number variations in array comparative genomic hybridization data. *Biomedical Data Mining* 4(116) 1–12.

31. Karunasena, E., McIver, L. J., Bavarva, J. H., Wu, X., **Zhu, H.** and Garner, H. R. (2015). 'Cut from the same cloth': Shared microsatellite variants among cancers link to ectodermal tissues-neural tube and crest cells, *Oncotarget* 6(26) 22038–47.

32. Wu, X. and **Zhu, H.** (2015). Fast maximum likelihood estimation of mutation rates using a birth-death process, *Journal of Theoretical Biology* 366 1–7.

33. Wu, X., Sun, M., **Zhu, H.** and Xie, H. (2015) Nonparametric Bayesian clustering to detect bipolar methylated genomic loci. *BMC Bioinformatics* 16, 11. doi: 10.1186/s12859-014-0439-2.

34. Karunasena, E., McIver, L. J., Rood, B. R., Wu, X., **Zhu, H.**, Bavarva, J. H. and Garner, H. R. (2014). Somatic intronic microsatellite loci differentiate glioblastoma from lower-grade gliomas, *Oncotarget* 5(15) 6003–6014.

Peer Reviewed – Conference Proceedings

35. Wahad, M., Islam, M., Wu, X. and **Zhu, H.** (2022) Fast Simulation of Trees and Forests for Bat-inspired Sonar Sensing (with presentation). *2022 The 5th International Conference on Information and Computer Technologies (ICICT).*

36. Tanveer, M. H., **Zhu, H.**, Ahmed, W., Thomas, A., Imran, B. M., Salman M. (2021) Mel-spectrogram and deep CNN based representation learning from biosonar implementation on UAVs. *2021 International Conference on Computer, Control and Robotics (ICCCR).*

37. Tanveer, M. H., Thomas, A., Wu, X. and **Zhu, H.** (2020). Simulate forest trees by integrating L-System and 3D CAD Files. *2020 3rd International Conference on Information and Computer Technologies (ICICT).*

38. Tanveer, M. H., Thomas, A., Wu, X., Mueller, R., Tokekar, P. and **Zhu, H.** (2020). Recreating Bat behavior on quad-rotor UAVs—a simulation approach. *The Thirty-Third International FLAIRS Conference (FLAIRS-33).*

Other Conference Proceedings

39. **Zhu H.**, Vannucci, M. and Cox, D. D. (2007). Functional data classification in cervical pre-cancer diagnosis—a Bayesian variable selection model. *Joint Statistical Meetings Proceedings 2007.*

40. **Zhu, H.**, Wu, X., Xu, X., and Wu, C. (2007). Feature extraction and categorization of patient respiration pattern in radiation therapy. *XVth International Conference on the Use of Computers in Radiation Therapy (ICCR) Conference Proceedings 2007.*

In Progress

41. Lu, R. and **Zhu, H.** Scalable and robust functional region detection via multiple testing in basis-space.

42. **Zhu, H.**, Lu, R., Guo, Q. and Li, G. Region detection on sparse longitudinal functional data on manifold.

43. **Zhu, H.**, Sun, Y. and Lee, J. Bayesian functional data region selection with Ising priors.

44. **Zhu, H.** and Morris, S. The BayesFMM package.

PRESENTATIONS

Invited Talks

1. **Zhu, H.** Region Detection on Functional Data, Department of Statistical Sciences and Operations Research, Virginia Commonwealth University. Nov. 2023.

2. **Zhu, H.** Model data heterogeneity with Dirichlet Diffusion Trees, 5th International Conference on Econometrics and Statistics (Ecosta), June, 2022.

3. **Zhu, H.** Ultra-fast approximate inference using variational functional mixed models. International Chinese Statistical Association (ICSA) Applied Statistics Symposium 2020, Virtual Meeting, Dec. 2020.

4. **Zhu, H.** A computational approach for sonar-based self-flying drones. Bio-Inspired Science & Technology (BIST) Center, Blacksburg, VA, Oct. 2018.

5. **Zhu, H.** Multivariate functional response regression. ENAR 2018 Spring Meeting, Atlanta, GA, Mar. 2018.

6. **Zhu, H.** Health analytics with Big Data. Advancing the Human Condition Symposium, Virginia Tech, Blacksburg, VA, Nov. 2017.

7. **Zhu, H.** Bayesian region selection in functional regression. The 26th International Chinese Statistical Association (ICSA) Applied Statistical Symposium, Chicago, IL, June 2017.

8. **Zhu, H.** Bayesian region selection in functional regression. CFE-CMStatistics 2016, Seville, Spain, Dec. 2016.

9. **Zhu, H.** Fast Bayesian inference for complex, ultra - high dimensional functional data. The 25th International Chinese Statistical Association (ICSA) Applied Statistical Symposium, Atlanta, GA, June 2016.

10. **Zhu, H.** Bayesian modeling of complex, high-dimensional data, Department of Mathematics, Georgetown University, Washington DC, April 2016.

11. **Zhu, H.** HCP data: task-fMRI and individual differences in behavior, invited lecture in the big data working group, SAMSI, NC, Oct. 2015.

12. **Zhu, H.** Robust functional mixed models for spatially correlated functional regression, Department of Mathematics, Clemson University, SC, USA. Sept. 2015.

13. **Zhu, H.** Robust functional mixed models for spatially correlated functional regression, the Southern Regional Council of Statistics Summer Research (SRCOS) Workshop, Carolina Beach, NC, June 2015.

14. **Zhu, H.** Functional mixed models for spatially correlated functional regression, Joint 24th ICSA Applied Statistics Symposium and 13th Graybill Conference, Fort Collins, CO, June 2015.

15. **Zhu, H.** Functional data graphical models—a review and look forward. Frontiers in Functional Data Analysis Workshop, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, AB, Canada. June 2015.

16. **Zhu, H.** Statistical modeling of biosonar data. Bioinspired Science and Technology Center (BIST), Virginia Tech, VA, April 2015.

17. **Zhu, H.** Statistical analysis of neuroscience data. Virginia Tech Center for Autism Research (VTCAR), Virginia Tech, VA, Jan. 2015.

18. **Zhu, H.**, Dunson, D. B. and Strawn, N. Bayesian graphical models for multivariate functional data. University of Texas MD Anderson Cancer Center, May 2014 ; National Cancer Institute, Washington DC, March 2012; University of Connecticut, CT Feb. 2012; Department of Mathematics, Massachusetts Institute of Technology, MA Feb. 2012; Department of Mathematics, University of Utah, UT, Jan. 2012.

19. **Zhu, H.**, Brown, P. J. and Morris, J. S. Robust, adaptive models for complex functional data. Department of Mathematics, University of Utah, UT, Jan. 2012; Department of Epidemiology & Biostatistics, University of South Florida, FL, May 2011.

20. **Zhu, H.**, Brown, P. J. and Morris, J. S. Robust classification of functional and quantitative image data using functional mixed models, Analysis of Objective Data (AOD) Transition Workshop, SAMSI, NC, June 2011.

Contributed Talks

21. **Zhu, H.** Fast Simulation of Trees and Forests for Bat-inspired Sonar Sensing. The 5th International Conference on Information and Computer Technologies (ICICT), Mar. 2022.

22. **Zhu, H.** and Morris, J. S. Robust, adaptive mixed models for correlated functional data. JSM, Montréal, Canada, Aug. 2013

23. **Zhu, H.**, Yao, F. and Zhang, H. Structured functional additive regression in reproducing kernel Hilbert spaces. ASA/VAS Chapter Meeting, Blacksburg, VA, May 2013.

24. **Zhu, H.**, Yao, F. and Zhang, H. Component selection in functional additive models. JSM, Miami Beach, FL, Aug. 2011.

25. **Zhu, H.**, Brown, P. J. and Morris, J. S. Robust functional mixed models. ENAR, New Orleans, LA, Mar. 2010.

26. **Zhu, H.**, Vannucci, M. and Cox, D.D. Functional data classification with curve selection. Joint Statistical Meetings, Denver, CO., Aug. 2008.

27. **Zhu, H.** and Cox, D.D. Classification with spectroscopic data using Bayesian variable selection. Joint Statistical Meetings, Salt Lake City, UT, Aug. 2007.

28. **Zhu, H.** and Cox, D.D. A functional generalized linear model with curve selection. Third Lehmann Symposium, Houston, TX, Mar. 2007.

Posters

29. **Zhu, H.**, Huo, S., Lu, R. Scalable Modeling of High-Dimensional Biomedical Images and Signals, Data and Decisions Research Blitz Event of Virginia Tech, Blacksburg, VA, Oct. 2018.

30. **Zhu, H.** Wavelet-based imaging genomic modeling in autism spectrum disorder study, The 4th workshop on Biostatistics and Bioinformatics, Atlanta, GA, May 2015.

31. Wu, X. and **Zhu, H.** Nonparametric Bayesian clustering to detect bipolar methylated genomic loci, The 4th Biostatistics and Bioinformatics Workshop, Atlanta, GA, May 2015.

32. **Zhu, H.**, Strawn, N. and Dunson, D. B. Bayesian graphical models for multivariate functional data. SAMSI Massive Datasets Opening Workshop, Durham, NC, Sept. 2012.

33. **Zhu, H.**, Strawn, N. and Dunson, D. B. Bayesian graphical models for multivariate functional data. The Sixth International Workshop on Statistical Analysis of Neuronal Data (SAND6), Pittsburgh, PA, May 2012.

34. **Zhu, H.** and Cox, D.D. Priors for covariance operators. The joint reception between the Department of Statistics at Rice University and M.D. Anderson, Houston, TX May 2008.

HONORS AND AWARDS

- New Researcher Fellowship (with course buyout), Statistical and Applied   2015
  Mathematical Sciences Institute (SAMSI).
- Travel Award, The Sixth International Workshop on Statistical Analysis of   2012
  Neuronal Data (SAND6).
- Travel Award, CBMS Regional Conference–Bayesian Nonparametric Statistical   2010
  Methods.
- The Section on Bayesian Statistical Science (SBSS) Student Paper Competition   2008
  and Travel Award, American Statistical Association (ASA).
- Outstanding Achievement by Graduate Student, Department of Mathematics,   2004
  University of Arkansas at Little Rock.

GRANTS

Awarded

1. National Science Foundation (NSF-CMMI). CDS&E: A computational framework for parsimonious sonar sensing. Role: PI. Amount: $714,082 (credit: 60%). 08/01/2018–07/31/2023.

2. 4-VA Collaborative Research Grant. Shaping community resilience: measuring coping capacity to recurrent flooding in different coastal urban neighborhoods. Role: Co-PI (PI: Anamaria Bukvic) Amount: $21,170.50. 02/01/2019–01/31/2020.

3. National Science Foundation. MRI: Development of a system for high-resolution uninterrupted capture of complex animal motions. Role: Co-PI (PI: Rolf Müller). Amount: $265,666. 10/01/2018–9/30/2022.

4. The Applied Brain and Behavior Grant, Virginia Tech. The development of an animal model for autism through the merging of neuroscience, statistics, and computer science. Role: Co-PI (PI: Mike Bowers) Amount: $12,000. 01/05/2018–06/30/2018.

5. The Data & Decisions Destination Area Concept Proposal, Virginia Tech. A scalable analytical framework for ultra-high dimensional neuroimaging data. Role: PI. Amount: $25,000 (credit: 80%). 12/01/2017–06/30/2018.

6. National Science Foundation (DMS 1611901). Statistical analysis of complex, highly-structured functional data. Role: PI. Amount: $120,000 (credit: 100%). 08/15/2016–07/31/2020.

7. Statistical and Applied Mathematical Sciences Institute (SAMSI). Course Buyout for Dr. Hongxiao Zhu's visit to SAMSI in fall 2015. Role: PI. Amount: $12,600 (credit: 100%). 08/15/2015–12/15/2015.

8. Virginia Tech Center for Autism Research (VTCAR) Seed Award. Imaging genomic modeling in autism spectrum disorder study. Role: PI. Amount: $5,000 (credit: 80%). 01/01/2015–06/15/2015.

9. Award from the University of Michigan Naval Engineering Education Center (UM NEEC). Bio-inspired broadband sonar design, including optimized acoustic baffle structures and associated broadband signal processing. Role: Co-PI (PI: Rolf Müller). Amount: $112,000 (my credit: 10%). 09/15/2014–09/15/2015.

10. Institute for Critical Technology and Applied Science (ICTAS) Junior Faculty Collaborative Award. Breaking boundaries on information encoding in sonar and radar. Role: PI. Amount: $120,000 (credit: 75%). 07/01/2014–06/30/2016.

11. Mentoring Award for New Tenure-track Assistant Professors, Virginia Tech. Role: PI. Amount: $1,500. (credit: 100%). 03/01/2012–06/30/2014.

Service Grants (non-PI/Co-PI role)

12. National Science Foundation (1658620). IRES: US-China collaboration: bats as model organisms for bioinspired engineering. Role: senior personnel. My role is to collaborate with the PI, Dr. Rolf Müller, and faculty members in five other departments at Virginia Tech to provide students with international research experience in bioinspired engineering. Amount: $250,000. Status: awarded. 2/01/2017–01/31/2020.

13. National Institute of Health (NIH) (R01-CA178744). Bayesian methods for complex, high-dimensional functional data in cancer research. Role: consultant. My role is to help the PI, Dr. Jeffrey S. Morris, and his team members at University of Texas MD Anderson Cancer Center to develop software on Bayesian functional mixed models. Amount: $228,750 per year (direct costs). Status: awarded. 9/1/2015–8/31/2020.

COMPUTING & SOFTWARE

Programming Skills

- C/C++, Matlab, R, Python, S-PLUS, SAS and Maple, Mathematica, Fortran, Java.

Algorithms Developed

- The Bayesian functional mixed model package `BayesFMM` (Matlab and C) Oct. 2022
- Adaptive functional mixed models for correlated functional data (Matlab and C) Feb. 2014
- Bayesian graphical models for multivariate functional data (in C++) July 2011
- Functional additive models with component selection (in Matlab) March 2011
- Classification using functional mixed models (in Matlab) June 2010
- A Bayesian RJMCMC algorithm for aCGH data analysis (in R and C) July 2010
- Robust wavelet-based functional mixed models (in Matlab) Oct. 2009
- Bayesian classification with selection of functional predictors (in R) May 2009
- Functional GLM with selection of functional predictors (in R) May 2008
- Classification of multiple functions using Bayesian variable selection (in R) Jan. 2007

ACADEMIC SERVICE

Journal Referee (in parentheses are the numbers of reviews)

Annals of Applied Statistics (7), Annals of Statistics (1), Bayesian Analysis (7), Biometrics (9), Biometrika (1), Biostatistics (3), BMC Genetics (1), Computational Statistics and Data Analysis (3), Electronic Journal of Statistics (3), Journal of the Royal Statistical Society: Series B (3), Journal of Computational and Graphical Statistics (5), Journal of Machine Learning Research (1), Journal of the American Statistical Association (13), Journal of Statistical Theory and Practice (1), Journal of Statistical Software (1), Reliability Engineering & System Safety (1), Scandinavian Journal of Statistics (1), Stat (1), Statistics and Computing (1), Statistics in Biosciences (1), Statistica Sinica (1), Technometrics (3), The Springer Book for International Chinese Statistical Association Symposium (3).

Grant Referee and Review Panel

- National Science Foundation CDS&E-MSS review panel — May 2023
- National Sciences and Engineering Research Council of Canada (NSERC) — Jan. 2021
- NSF SBIR/STTR (4) — June 2020
- Canadian Statistical Sciences Institute (CANSSI) Collaborative Research Team (CRT) Grant (1). — June 2017
- The National Security Agency Mathematical Sciences Program (NSA-MSP). Young Investigators Grant (1). — Feb. 2015

Students/Postdoc Advised

Yizhi Sun (PhD; 2018), Ruijin Lu (PhD; 2019), Shuning Huo (PhD; 2020), M. Hassan Tanveer (Postdoc), Jaeyoung Lee (PhD; ongoing).

Dissertation Committees for PhD Students

Yongjin Cho(Statistics), Zhengzhi Lin(Statistics), Jess Xu(Statistics), Ning Yan (Electrical and Computer Engineering), Islam Harb(Computer Science), Hong Tran (Computer Science), Yanqing Fu (Mechanical Engineering), Anupam Gupta (Mechanical Engineering), Chen Ming (Mechanical Engineering), Philip Caspers (Mechanical Engineering), Harun Yetkin (Electrical Engineering), Ruihao Wang (Mechanical Engineering), Peng Sun (Statistics), Han Li (Statistics), Yuan Miao (Statistics), Shuyu Chu (Statistics), Namhoon Kim (Agricultural and Applied Economics), Hui Yi (Statistics).

Oral Exam Committees for MS Students in Statistics

Samuel Myren, Man Zhang, Furong Sun, Jiali Lin, William Tyler Bradley, Christopher James Casement, Deelan Mohammed Jalil, Yiming Zhang, Jaiyool Kim.

Conference and Event Organizations

- Scientific Programme Committee (SPC), The 7th International Conference on Econometrics and Statistics (EcoSta 2024), Beijing, China — 2023
- Organizer, the invited session on statistical learning from complex data for EcoSta 2024, Beijing, China. — 2023
- Co-Organizer, the invited session on modern statistical inference for complex data for EcoSta 2023, Tokyo, Japan. — 2022
- Organizer, the invited session on machine learning for modern data for EcoSta 2022, Kyoto, Japan. — 2021
- Organizer, the invited session on recent advances in the modeling of functional and high-dimensional data for EcoSta 2021, Virtual. — 2020
- Organizer, the invited session on nonparametric approaches for functional and other high-dimensional data for EcoSta 2018, Hong Kong, China. — 2018
- Chair, the invited session on new advances in modeling of functional data for the ICSA 2017 Meeting, Chicago, IL. — 2017
- Organizer and chair, the invited session on functional data analysis in biomedical research for the ICSA 2017 Meeting, Chicago, IL. — 2017
- Organizer, a group meeting between faculty from the Department of Statistics and the School of Neuroscience at Virginia Tech. — Oct. 2016
- Faculty affiliate, Virginia Tech Center for Autism Research (VTCAR). — 2014–Now
- Faculty affiliate, Institute for Critical Technology and Applied Science (ICTAS) Bioinspired Science and Technology (BIST) Center. — 2014–Now
- Liaison for the NISS-SAMSI affiliates program. — 2015–Now
- Committee member for the American Statistical Association (ASA) Section on Bayesian Statistical Science (SBSS) student paper competition. — 2015
- Organizer of statistics department colloquium series, Virginia Tech — 2013
- Chair of an invited session on Functional Data Analysis, ENAR, New Orleans. — March 2010
- Chair of a contributed session on Bayesian Methods, JSM, Denver. — Aug. 2008
- Organizer of the graduate student orientation, Rice University. — Aug. 2007

Department and University Committees

- Graudate Program Committee   2023
- Bioinformatics Advisory Committee   2022
- Hiring Committee on Stochastic Differential Equations and Analysis   2021–2022
  Department of Mathematics, Virginia Tech.
- Graduate admissions committee, Department of Statistics, Virginia Tech.   2016–Now
- Executive committee, Department of Statistics, Virginia Tech.   2017
- Biostatistics hiring committee, Department of Statistics, Virginia Tech.   2016–2017
- Colloquium committee, Department of Statistics, Virginia Tech.   2013–2014
- Graduate advisory committee, University of Arkansas at Little Rock.   2003–2004

OUTREACH ACTIVITIES

- Exhibit on "Immersive data visualization with virtual reality",   March 2017–2018
  the Kids' Tech University event.