Pang Du

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Department of Statistics
Virginia Tech
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Education

Ph.D., Statistics (2006), Purdue University, West Lafayette, IN
M.S.E., Computer Science (2002), The Johns Hopkins University, Baltimore, MD
M.A., Mathematics (2002), The Johns Hopkins University, Baltimore, MD
M.S., Mathematics (1999), University of Science and Technology of China, Anhui, China
B.S., Mathematics (1996), University of Science and Technology of China, Anhui, China

Research Interests

- **Functional data analysis and nonparametric smoothing**

  Types of data: data of curves, surfaces or shapes, long time series or collection of time series data, spectral data, image data, data generated from nonlinear processes, data of complex objects.
- **High dimensional data and statistical learning**

  Types of data: bioinformatics data, data of high dimensions, network data, data for classification or clustering.
- **Lifetime data analysis and survival models**

  Types of data: data on failure times or terminal events, censored data, data with detection limits.
- **Diagnostic test data and ROC curve methodology**

  Types of data: data on medical diagnostic tests, industrial testing data.

Professional Experience

Associate Professor with tenure, Department of Statistics, Virginia Tech, 2012 - Present
Associate Department Head, Department of Statistics, Virginia Tech, Apr 2018 - Aug 2019
Faculty Visitor, Statistical & Applied Mathematical Sciences Institute, NC, Aug 2013 - May 2014
Assistant Professor, Department of Statistics, Virginia Tech, 2006 - 2012

Publications
Note: Names with "__" were PhD students at the completion of the paper.

[**41**] Wang, L., **Du, P.**, and Jin, R. (2020). MOSS: multi-modal best subset modeling in smart manufacturing. *Sensors*, in press.

[**40**] Xu, Y., **Du, P.**, Senger, R., Robertson, J., and Pirkle, J. (2020). ISREA: An efficient peak-preserving baseline correction algorithm for Raman spectra. *Applied Spectroscopy*, in press.

[**39**] Sun, J., **Du, P.**, Miao, H., and Liang, H. (2020). Robust feature screening procedures for single and mixed types of data. *Journal of Statistical Computation and Simulation* 90(7), 1173–1193.

[**38**] Huttanus, H.M., Vu, T., Guruli, G., Tracey, A., Carswell, W., Said, N., **Du, P.**, Parkinson, B.G., Orlando, G., and Robertson, J.L. (2020). Raman chemometric urinalysis (Rametrix) as a screen for bladder cancer. *PLoS ONE* 15(8): e0237070.

[**37**] Senger, R. S., Sullivan, M., Gouldin, A., Lundgren, S., Merrifield, K., Steen, C., Baker, E., Vu, T., Agnor, B., Martinez, G., Coogan, H., Carswell, W., Kavuru, V., Karageorge, L., Dev, D., **Du, P.**, Sklar, A., Pirkle, J., Guelich, S., Orlando, G., and Robertson, J. L. (2020). Spectral characteristics of urine from patients with end-stage kidney disease analyzed using Raman chemometric urinalysis (Rametrix). *PLoS ONE* 15(1): e0227281.

[36] Li, M., Knolton, K., Pruden, A., Ponder, M., Xia, K., Teets, C., and **Du, P.**(2020). Fate of pirlimycin and antibiotic resistance genes in dairy manure slurries in response to temperature and pH adjustment. *Science of Total Environment* 710:136310.

[35] Gao, Z., **Du, P.**, Jin, R., and Robertson, J. L. (2020). Surface temperature monitoring in liver procurement via functional variance change point analysis. *Annals of Applied Statistics* 14(1), 143–159.

[34] Chen, C., Pankow, C. A., Oh, M., Heath, L. S., Zhang, L., **Du, P.**, Xia, K., and Pruden, A.(2019). Effect of antibiotic use and composting on antibiotic resistance gene abundance and resistome risks of soils receiving manure-derived amendments. *Environmental International* 128: 233–243.

[33] Senger, R. S., Kavuru, V., Sullivan, M., Gouldin, A., Lundgren, S., Merrifield, K., Steen, C., Baker, E., Vu, T., Agnor, B., Martinez, G., Coogan, H., Carswell, W., Karageorge, L., Dev, D., **Du, P.**, Sklar, A., Orlando, G., Pirkle, J., and Robertson, J. L. (2019). Spectral characteristics of urine specimens from healthy human volunteers analyzed using Raman chemometric urinalysis (Rametrix). *PLoS ONE* 14(9): e0222115.

[32] Gao, Z., Shang, Z., **Du, P.**, and Robertson, J. L. (2019). Variance change point detection under a smoothly-changing mean trend with application to liver procurement. *Journal of the American Statistical Association* 114(526), 773–781.

[31] Chen, C., Guron, G. K., Pruden, A., Ponder, M., **Du, P.**, and Xia, K. (2018). Antibiotics and antibiotic resistance genes in bulk and rhizosphere soils subject to manure amendment and vegetable cultivation. *Journal of Environmental Quality* 47(6), 1318–1326.

[30] Charlton, J., **Du, P.**, Cho, J.-H., and Xu, S. (2018). Measuring relative accuracy of malware detectors in the absence of ground truth. *IEEE MILCOM 2018*.

[29] **Du, P.**, Sun, Z., Chen, H., Cho, J.-H., and Xu, S. (2018). Statistical estimation of malware detection metrics in the absence of ground truth. *IEEE Transactions on Information Forensics and Security* 13(12), 2965–2980.

[28] Wind, L., Krometis, L.-A., Hession, W. C., Chen, C., **Du, P.**, Jacobs, K., Xia, K., and Pruden, A. (2018). Fate of pirlimycin and antibiotic-resistant fecal coliforms in field plots amended with dairy manure or compost during vegetable cultivation. *Journal of Environmental Quality* 47, 436–444.

[27] Chen, T. and **Du, P.** (2018). Promotion time cure rate model with nonparametric form of covariate effects. *Statistics in Medicine* 37(10), 1625–1635.

[26] Chen, T. and **Du, P.** (2018). Mixture cure rate models with accelerated failures and nonparametric form of covariate effects. *Journal of Nonparametric Statistics* 30(1), 216–237.

[25] Sun, X., **Du, P.**, Wang, X., and Ma, P. (2018). Optimal penalized function-on-function regression under a reproducing kernel Hilbert space framework. *Journal of the American Statistical Association* 113(524), 1601–1611.

[24] **Du, P.** (2014). Discussion of "Sparse semiparametric nonlinear model with application to chromatographic fingerprints" by Wiezbicki, Guo, Du and Guo. *Journal of the American Statistical Association* 109, 1349–1350.

[23] Lian, H., **Du, P.**, Li, Y., and Liang, H. (2014). Partially linear structure identification in generalized additive models with NP-dimensionality. *Computational Statistics and Data Analysis* 80, 197–208.

[22] **Du, P.**, Wu, P., and Liang, H. (2014). Variable selection for ultra-high dimensional logistic models. *Contemporary Mathematics* 622, 141–158.

[21] Searle, C. L., Belden, L. K., **Du, P.**, and Blaustein, A. R. (2014). Stress and chytridiomycosis: Exogenous exposure to corticosterone does not alter amphibian susceptibility to a fungal pathogen. *Journal of Experimental Zoology Part A: Ecological Genetics and Physiology* 321(5), 243–253.

[20] Chen, Y., **Du, P.**, and Wang, Y. (2014). Variable selection in linear models. *WIREs Computational Statistics* 6, 1–9.

[19] **Du, P.** and Wang, X. (2014). Penalized likelihood functional regression. *Statistica Sinica* 24(2), 1017-1041.

[**18**] Wang, X., **Du, P.**, and Shen, J. (2013). Smoothing splines with varying smoothing parameter. *Biometrika* 100(4), 955–970.

[**17**] Chambers, D. L., Wojdak, J. M., **Du, P.**, and Belden, L. K. (2013). Pond acidification may explain differences in corticosterone among salamander populations. *Physiological and Biochemical Zoology* 86(2), 224–232.

[**16**] **Du, P.**, Parmeter, C. F., and Racine, J. S. (2013). Nonparametric kernel regression with multiple predictors and multiple shape constraints. *Statistica Sinica* 23(3), 1347–1371.

[**15**] **Du, P.** (2012). Invited book review for "Smoothing Splines: Methods and Applications" by Yuedong Wang, *Biometrics* 68, 1327–1328.

[**14**] Liang, H. and **Du, P.** (2012). Maximum likelihood estimation in logistic regression models with a diverging number of covariates. *Electronic Journal of Statistics* 6, 1838–1846.

[**13**] **Du, P.**, Cheng, G., and Liang, H. (2012). Semiparametric regression models with additive nonparametric components and high dimensional parametric components. *Computational Statistics and Data Analysis* 56, 2006–2017.

[**12**] Ma, S. and **Du, P.** (2012). Variable selection in partly linear regression model with diverging dimensions for right censored data. *Statistica Sinica* 22, 1003–1020.

[**11**] Wang, L., **Du, P.**, and Liang, H. (2012). Two-component mixture cure rate model with spline estimated nonparametric components. *Biometrics* 68, 726–735.

[**10**] Chambers, D. L., Wojdak, J. M., **Du, P.**, and Belden, L. K. (2011). Corticosterone level changes throughout larval development in the amphibians *Rana sylvatica* and *Ambystoma jeffersoniannum. Copeia* 2011(4), 530-538.

[**9**] **Du, P.**, Jiang, Y., and Wang Y. (2011). Smoothing spline ANOVA frailty model for recurrent event data. *Biometrics* 67, 1330–1339.

[**8**] Tang, L., **Du, P.**, and Wu, C. (2010). Compare diagnostic tests using transformation-invariant smoothed ROC curves. *Journal of Statistical Planning and Inference* 140, 3540–3551.

[**7**] Woodall, W. H., Birch, J. B., and **Du, P.** (2010). Discussion of Nonparametric profile monitoring by mixed effects modeling by Qiu, Zou and Wang. *Technometrics* 52, 285–287.

[**6**] **Du, P.**, Ma, S. and Liang, H. (2010). Penalized variable selection procedure for Cox models with semiparametric relative risk. *Annals of Statistics* 38, 2092–2117.

[**5**] **Du, P.** and Ma, S. (2010). Frailty model with spline estimated nonparametric hazard function. *Statistica Sinica* 20, 561–580.

[**4**] **Du, P.** and Tang, L. (2009). Transformation-invariant and nonparametric monotone smooth estimation of ROC curves. *Statistics in Medicine* 28: 349–359.

[**3**] **Du, P.** (2009). Nonparametric modeling of the gap time in recurrent event data. *Lifetime Data Analysis* 15: 256–277.

[**2**] **Du, P.** and Gu, C. (2009). Penalized pseudo-likelihood hazard estimation: a fast alternative to penalized likelihood. *Journal of Statistical Planning and Inference* 139: 891–899.

[**1**] **Du, P.** and Gu, C. (2006). Penalized likelihood hazard estimation: efficient approximation and Bayesian confidence intervals. *Statistics and Probability Letters* 76: 244–254.

Grants

CURRENT

[**1**] Agency: National Science Foundation
     Amount: $160,005 (*08/15/2019 - 07/31/2022*)
     Title: *Collaborative Research: A symphony of smoothing and change point analysis*
     Role: Principal Investigator ($160,005 for VT, 100% credit for Du, DMS-1916174)
     Description: Develop a suite of statistical methods for retrospective change point analysis with the aid of smoothing.

AWARDED

[**6**] Agency: National Science Foundation
Amount: $454,426 (*08/01/2016 - 07/31/2020*)
Title: *Collaborative Research: Analysis of longitudinal multi-scale data in immunological bioinformatics — Feature selection, graphical models, and structure identification*
Role: Principal Investigator ($125,226 for VT, 100% credit for Du, DMS-1620945)
Joint PIs: Hua Liang (George Washington University),
       Hongyu Miao (University of Texas Health Sciences Center at Houston)
       and Haoquan Wu (Texas Tech University Health Sciences Center).
Description: Develop a suite of statistical methods for analyzing longitudinal multi-scale data in immunological bioinformatics.

[**5**] Agency: U.S. Department of Agriculture
Amount: $278,911 (*01/01/2018 - 12/31/2020*)
Title: *Training future leaders to solve resource challenges at the confluence of water and society*
Role: Senior Personnel ($278,911 for VT, 0% credit for Du)
PIs: W. Cully Hession (VT BSE), Leigh-Anne Krometis (VT BSE),
       Brian Badgley (VT CSES), Amber Vallotton (VT VCE)
Description: Summer research experience for undergraduate students.

[**4**] Agency: Virginia Tech College of Science Dean's Discovery Fund
Amount: $18,250 (*08/01/2019 - 12/31/2019*)
Title: *Statistical monitoring of Raman spectral data from biomedical studies*
Role: Principal Investigator (100% credit for Du),
co-PIs: John Robertson (VT BME) and Ryan Senger (VT BSE).
Description: Support a GRA to develop a statistical testing procedure for distinguishing two groups of Raman spectra.

[**3**] Agency: U.S. Department of Agriculture
Amount: $2,250,000 (*01/01/2015 - 01/31/2019*)
Title: *Identification and management of critical control points in the spread of antibiotic resistance from animal manure to raw produce*
Role: Statistical Consultant ($2,250,000 for VT, 0.5 summer months for Du)
PIs: Amy Pruden-Bagchi (VT CE), Katherine Knowlton (VT DS),
       Monica Ponder (VT FST), Kang Xia (VT CSES),
       W. Cully Hession (VT BSE), Leigh-Anne Krometis (VT BSE),
       Tiffany Drape (VT ALCE).
Description: Understand how antibiotic use in livestock is transmitted to antibiotic resistance in humans and design strategies to manage such transmission.

[**2**] Agency: National Science Foundation
Amount: $200,000 (*06/01/2010 - 05/31/2013*)
Title: *Collaborative Research: Nonparametric smoothing for data with multiple components*
Role: Principal Investigator ($100,006 for VT, 100% credit for Du, DMS-1007126).
Collaborative PI: Hua Liang.
Description: Develop nonparametric smoothing spline methods for data with complex structures.

[**1**] Agency: Institute for Biomedical and Public Health Sciences, Virginia Tech
Amount: $20,000 (*01/01/2009 - 12/31/2009*)
Title: Spatial risk mapping of Ixodes scapularis and Borrelia burgdorferi in
     Virginia: Evaluation of risk and spread of Lyme disease
Role: Co-Principal Investigator.
     PI: Eric Smith.
     Co-PIs: David Gaines, Dana Hawley, Korine Kolivras, Stephen Sedlock.
Description: Seed money for a project studying the spread of the Lyme disease
     in Virginia.

Honors

Elected Member of the International Statistical Institute (since 2011).

Student Paper Award Finalist, Section on Nonparametric Statistics, American Statistical Association. Baltimore, Maryland. July 30 - August 3, 2017.

Honorable Paper Award, Section on Statistics in Epidemiology, American Statistical Association. Salt Lake City, Utah. July 29 - August 2, 2007.

Best Paper Award, International Chinese Statistical Association 2006 Applied Statistics Symposium. Storrs, Connecticut. June 14-17, 2006.

Ross Assistantship, Purdue University, August 2002 - August 2006.

Invited Talks and Department Colloquia

[**44**] "Two-sample test on funscalar data with application to hemodialysis monitoring by Raman spectroscopy". *The 2020 ICSA Applied Statistics Symposium*, Houston, Texas, December 15, 2020.

[**43**] "Sparse logistic regression on functional data". *The 2020 ICSA Applied Statistics Symposium*, Houston, Texas, December 14, 2020.

[**42**] "A new change point analysis problem motivated by a liver procurement study". *Department of Mathematics, University of Arizona*, Tucson, Arizona, December 7, 2020.

[**41**] "A new change point analysis problem motivated by a liver procurement study". *Department of Statistics, University of Georgia*, Athens, Georgia, October 8, 2020.

[**40**] "A new change point analysis problem motivated by a liver procurement study". *Department of Mathematical Sciences, Michigan Technological University*, Houghton, Michigan, October 2, 2020.

[**39**] "Two sample test on mixed data". *Department of Statistics and Actuarial Science, University of Waterloo*, Waterloo, Ontario, Canada, May 7, 2020.

[**38**] "Statistical monitoring of hemodialysis treatments via Raman spectral analysis". *ICSA-Canada Chapter 2019 Symposium*, Kingston, Ontario, Canada, August 10, 2019.

[**37**] "Sparse graphical modeling of longitudinal data". *The 2019 ICSA Applied Statistics Symposium*, Raleigh, North Carolina, June 10, 2019.

[**36**] "Surface temperature monitoring in liver procurement via functional variance change point analysis". *The 4th International Conference on Big Data and Information Analytics*, Houston, Texas, December 17, 2018.

[**35**] "Surface temperature monitoring in liver procurement via functional variance change point analysis". *The 2nd International Conference on Econometrics and Statistics*, The City University of Hong Kong, Hong Kong, June 19, 2018.

[**34**] "Variance change point detection under a smoothly-changing mean trend". *Department of Mathematics, Hong Kong Baptist University*, Hong Kong, June 19, 2018.

[**33**] "Variance change point detection under a smoothly-changing mean trend". *The 1st International Conference on Econometrics and Statistics*, The Hong Kong University of Science and Technology, Hong Kong, June 17, 2017.

[**32**] "Variance change point detection under a smoothly-changing mean trend". *2017 Conference on Advanced Statistics at Jiangxi University of Finance and Economics*, Nanchang, Jiangxi, China, June 11, 2017.

[**31**] "Promotion time cure rate model with nonparametric form of covariate effects". *2017 Conference on Lifetime Data Science*, Storrs, Connecticut, May 26, 2017.

[**30**] "Variance change point detection under a smoothly-changing mean trend with application to liver procurement". *Department of Biostatistics and Epidemiology, University of Pennsylvania*, Philadelphia, Pennsylvania, January 31, 2017.

[**29**] "Optimal penalized function-on-function regression under a reproducing kernel Hilbert space framework". *Department of Statistical Sciences and Operations Research, Virginia Commonwealth University*, Richmond, Virginia, November 17, 2016.

[**28**] "Optimal penalized function-on-function regression under a reproducing kernel Hilbert space framework". *Department of Mathematical Sciences, SUNY at Binghamton*, Binghamton, New York, October 6, 2016.

[**27**] "Optimal prediction for functional linear regression with a functional response". *The 2016 ICSA Applied Statistics Symposium*, Atlanta, Georgia, June 14, 2016.

[**26**] "Nonparametric modeling of cure rate data with two-component mixture and promotion time setups". *Division of Biostatistics, School of Public Health, University of Texas Health Science Center at Houston*, Houston, Texas, January 26, 2016.

[**25**] "Cure rate models with nonparametric forms of covariate effects". *Department of Management Science and Statistics, College of Business, University of Texas at San Antonio*, San Antonio, Texas, February 6, 2015.

[**24**] "Cure rate models with nonparametric forms of covariate effects". *Department of Statistics, University of Virginia*, Charlottesville, Virginia, November 21, 2014.

[**23**] "Cure rate models with nonparametric forms of covariate effects". *Department of Statistics, Purdue University*, West Lafayette, Indiana, October 15, 2014.

[**22**] "Cure rate models with nonparametric forms of covariate effects". *Department of Statistics, University of Minnesota*, Minneapolis, Minnesota, October 9, 2014.

[**21**] "Discussion of 'Sparse Semiparametric Nonlinear Model with Application to Chromatographic Fingerprints'". *The 2014 Joint Statistical Meeting, JASA Applications and Case Studies Invited Session*, Boston, MA, August 6, 2014.

[**20**] "Nonparametric kernel regression with multiple predictors and multiple shape constraints". *Department of Statistics, University of North Carolina*, Chapel Hill, North Carolina, January 13, 2014.

[**19**] "Nonparametric spline models for cure rate data". *Department of Statistics, North Carolina State University*, Raleigh, North Carolina, October 31, 2013.

[**18**] "Mixture cure rate model with nonparametric spline regression components". *The 2013 Joint Statistical Conference by the International Chinese Statistical Association (ICSA) and the International Society for Biopharmaceutical Statistics (ISBS)*, Washington, D.C., June 10, 2013.

[**17**] "Two-component mixture cure rate model with spline estimated nonparametric components". *Department of Statistics, University of South Carolina*, Columbia, South Carolina, March 7, 2013.

[**16**] "Two-component mixture cure rate model with spline estimated nonparametric components". *International Conference on Advances in Interdisciplinary Statistics and Combinatorics*, Greensboro, North Carolina, October 6, 2012.

[**15**] "Two-component mixture cure rate model with spline estimated nonparametric components". *Department of Biostatistics, Indiana University School of Medicine*, Indianapolis, Indiana, February 24, 2012.

[**14**] "Two-component mixture cure rate model with spline estimated nonparametric components". *Department of Statistics, University of Illinois at Urbana-Champaign*, Champaign, Illinois, September 8, 2011.

[**13**] "Variable selection in partly linear censored regression model". *International Chinese Statistical Association 2011 Applied Statistics Symposium*, New York City, New York, June 28, 2011.

[**12**] "Variable selection in semiparametric regression model for right censored data". *2011 IISA Conference on Probability, Statistics, and Data Analysis*, Raleigh, North Carolina, April 23, 2011.

[**11**] "Cure Rate Model with Nonparametric Spline Estimated Components". *2010 WNAR/IMS Spring Meeting*, Seattle, WA, June 23, 2010.

[**10**] "Frailty Model with Spline Estimated Nonparametric Hazard Function". *Department of Biostatistics and Epidemiology, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania*, Philadelphia, Pennsylvania, September 9, 2008.

[**9**] "Frailty model with spline estimated nonparametric hazard function". *International Chinese Statistical Association 2008 Applied Statistics Symposium*, Piscataway, New Jersey, June 7, 2008.

[**8**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *Department of Statistics, George Mason University*, Fairfax, Virginia, November 2, 2007.

[**7**] "Penalized likelihood frailty model with smooth baseline hazard function". *The Tenth Meeting of New Researchers in Statistics and Probability*, Salt Lake City, Utah, July 27, 2007.

[**6**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *ICSA 2006 Applied Statistics Symposium*, Storrs, Connecticut, June 15, 2006.

[**5**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *Department of Mathematical Sciences, Indiana University-Purdue University Indianapolis*, Indianapolis, Indiana, March 3, 2006.

[**4**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *Department of Applied Mathematics, University of Colorado at Boulder*, Boulder, Colorado, February 9, 2006.

[**3**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *Department of Statistics, Virginia Tech*, Blacksburg, Virginia, January 31, 2006.

[**2**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *RAND Corporation*, Santa Monica, California, January 23, 2006.

[**1**] "Nonparametric smoothing spline model for gap time hazard function in recurrent event data". *Stowers Institute*, Kansas City, Kansas, January 13, 2006.

Contributed Presentations

[**22**] Topic contributed: "Surface temperature monitoring in liver procurement via functional variance change point analysis". *2019 Joint Statistical Meeting*, Denver, Colorado, July 2019.

[**21**] Topic contributed: "Surface temperature monitoring in liver procurement via functional variance change point analysis". *2018 Joint Statistical Meeting*, Vancouver, Canada, August 2018.

[**20**] Topic contributed: "Partially linear structure identification in generalized additive models with NP-dimensionality". *2014 Joint Statistical Meeting*, Boston, MA, August 2014.

[**19**] Topic contributed: "Partially linear structure identification in generalized additive models with NP-dimensionality". *2012 Joint Statistical Meeting*, San Diego, CA, August 2012.

[**18**] Topic contributed: "Generalized functional linear regression". *2012 ENAR Spring Meeting*, Washington, DC, April 2012.

[**17**] "Estimation and variable selection for high-dimensional logistic model". *2011 ENAR Spring Meeting*, Miami, Florida, March 2011.

[**16**] "Cure Rate Model with Nonparametric Spline Estimated Components". *Borrowing Strength–Theory Powering Applications: A Conference in Honor of Larry Brown's 70th Birthday*, Philadelphia, PA, December 2010.

[**15**] "Cure Rate Model with Nonparametric Spline Estimated Components". *Analysis of Object Data: Interface Functional and Longitudinal Data Analysis*, Research Triangle Park, NC, November 2010.

[**14**] "Cure Rate Model with Spline Estimated Components". *2010 Conference on Nonparametric Statistics and Statistical Learning*, Columbus, Ohio, May 2010.

[**13**] "Cure Rate Model with Nonparametric Spline Estimated Components". *2010 ENAR Spring Meeting*, New Orleans, Louisiana, March 2010.

[**12**] "Variable selection in partial linear Cox model". *2009 Joint Statistical Meeting*, Washington D. C., August 2009.

[**11**] "Partial linear Cox model". *Innovation and Inventiveness in Statistics Methodologies, Statistics Workshop at Yale University*, New Haven, Connecticut, May 2009.

[**10**] "Transformation-invariant and nonparametric monotone smoothing estimation of ROC curves". *2008 Joint Statistical Meeting*, Denver, Colorado, August 2008.

[**9**] "A transformation-invariant monotone smoothing of receiver operating characteristic curves". *2008 ENAR Spring Meeting*, Arlington, Virginia, March 2008.

[**8**] Topic contributed: "Penalized likelihood frailty model with smooth baseline hazard function". *2007 Joint Statistical Meeting*, Salt Lake City, Utah, July 2007.

[**7**] "Smoothing spline frailty model". *The 85th Annual Meeting of The Virginia Academy of Science*, Harrisonburg, Virginia, May 2007.

[**6**] "Smoothing spline frailty model". *The Third Erich L. Lehmann Symposium*, Houston, Texas, May 2007.

[**5**] "Frailty model with spline estimated baseline hazard function". *2007 ENAR Spring Meeting*, Atlanta, Georgia, March 2007.

[**4**] "Scalable smoothing spline model for hazard estimation and pointwise confidence intervals". *ICSA 2005 Applied Statistics Symposium*, North Bethesda, Maryland, June 2005.

[**3**] "Spline applications to the climate change research". *Purdue Climate Change Research Center Workshop: Climate Change Research and Education at Purdue*, West Lafayette, Indiana, November 2004.

[**2**] "Smoothing spline Gaussian regression for spatial data". *The Fifth Winemiller Symposium: Conference on New Developments of Statistical Analysis in Wildlife, Fisheries, and Ecological Research*, Columbia, Missouri, October 2004.

[**1**] "Smoothing with roughness penalties". *Second Workshop on Statistical Analysis of Neuronal Data*, Pittsburgh, Pennsylvania, May 2004.

Teaching Experience

Virginia Tech
- *Advanced Calculus for Statistics*, STAT 4584 (35 students, Fall 2020)
- *Measure and Probability*, STAT 6105 (8 students, Fall 2020)
- *Functional Data Analysis*, STAT 5554 (1 student, Spring 2020)
- *Measure and Probability*, STAT 6105 (6 students, Fall 2019)
- *Measure and Probability*, STAT 6105 (1 student, Fall 2018)
- *Functional Data Analysis*, STAT 5554 (4 students, Spring 2018)
- *Measure and Probability*, STAT 6105 (12 students, Fall 2017)
- *Theoretical Statistics I*, STAT 4105/5105G (56+4 students, Fall 2017)
- *Topics in Biostatistics: Functional Data Analysis*, STAT 5594 (7 students, Spring 2017)
- *Measure and Probability*, STAT 6105 (19 students, Fall 2016)
- *Theoretical Statistics I*, STAT 4105/5105G (42+8 students, Fall 2016)
- *Topics in Biostatistics: Functional Data Analysis*, STAT 5594 (3 students, Spring 2015)
- *Measure and Probability*, STAT 6105 (10 students, Fall 2014)
- *Theoretical Statistics I*, STAT 4105 (56 students, Fall 2014)
- *Topics in Biostatistics: Functional Data Analysis*, STAT 5594 (7 students, Spring 2013)
- *Measure and Probability*, STAT 6105 (14 students, Fall 2012)
- *Theoretical Statistics I*, STAT 4105 (48 students, Fall 2012)

- *Topics in Biostatistics: Functional Data Analysis*, STAT 5594 (6 students, Spring 2012)
- *Measure and Probability*, STAT 6105 (10 students, Fall 2011)
- *Statistics in Research II*, STAT 5616 (98 students, Spring 2011)
- *Measure and Probability*, STAT 6105 (10 students, Fall 2010)
- *Statistics in Research II*, STAT 5616 (98 students, Spring 2010)
- *Measure and Probability*, STAT 6105 (8 students, Fall 2009)
- *Statistics in Research I*, STAT 5615 (182 students, Fall 2009)
- *Statistics in Research II*, STAT 5616 (93 students, Spring 2009)
- *Statistics in Research I*, STAT 5615 (144 students, Fall 2008)
- *Statistics in Research II*, STAT 5616 (80 students, Spring 2008)
- *Statistics in Research I*, STAT 5615 (136 students, Fall 2007)
- *Statistics in Research II*, STAT 5616 (92 students, Spring 2007)
- *Statistics in Research I*, STAT 5615 (163 students, Fall 2006)

University of Texas at San Antonio
- *Applied Statistics*, STA 3003 (80 students, Spring 2016)
- *Experiments and Sampling*, STA 3313 (24 students, Fall 2015)
- *Data Mining and Data Analytics*, STA 4143/6973 (27 students, Fall 2015)

Purdue University
- *Introduction to Probability Models*, STAT 225 (33 students, Fall 2003)

Professional Memberships

American Statistical Association (ASA), 2004-Present

Institute of Mathematical Statistics (IMS), 2004-Present

International Biometric Society, Eastern North American Region (IBS-ENAR), 2005-Present

International Chinese Statistical Association (ICSA), 2005-Present

Mu Sigma Rho (National Statistical Honor Society), 2006-Present

Professional Service

NSF Panel Review Member

- 2020, MMS/Division of Social and Economic Sciences
- 2020, MPS/Division of Mathematical Sciences
- 2015, BIO/Division of Environmental Biology
- 2015, CISE/Computing and Communication Foundations

Proposal Reviewer, **Chronic Renal Insufficiency Cohort (CRIC)** Study Opportunity Pool Program, 2019 and 2020.

Panel Review Member for the Scientific and Technical Advisory Committee (STAC) of the Chesapeake Bay Program partnership, **Chesapeake Research Consortium (CRC)**, 2016.

Associate Editor for *Journal of Statistical Computation and Simulation* (2015-present, 4 in 2015, 21 in 2016, 19 in 2017, 12 in 2018, 6 in 2019, 19 in 2020).

Referee of 243 papers and revisions (3 before 2009, 6 in 2009, 18 in 2010, 15 in 2011, 32 in 2012, 24 in 2013, 13 in 2014, 15 in 2015, 22 in 2016, 23 in 2017, 28 in 2018, 18 in 2019, 25 in 2020) for 50 journals:

- *Annals of Applied Statistics*
- *Annals of Statistics*

– *Annals of the Institute of Statistical Mathematics*

– *Australian and New Zealand Journal of Statistics*

– *Bayesian Analysis*

– *Bernoulli*

– *BMC Medical Research Methodology*

– *Bioinformatics*

– *Biometrical Journal*

– *Biometrics*

– *Biostatistics*

– *Canadian Journal of Statistics*

– *Computational Statistics and Data Analysis*

– *Contemporary Clinical Trials*

– *Econometrics and Statistics*

– *Environmental and Ecological Statistics*

– *Electronic Journal of Statistics*

– *Electronic Journal of Structural Engineering*

– *Environmental Science and Technology*

– *IEEE Transactions Transactions on Information Forensics and Security*

– *International Journal of Biostatistics*

– *Journal of Agricultural, Biological, and Environmental Statistics*

– *Journal of Applied Statistics*

– *Journal of Biometrics and Biostatistics*

– *Journal of Computational and Graphical Statistics*

– *Journal of Machine Learning Research*

– *Journal of Multivariate Analysis*

– *Journal of Nonparametric Statistics*

– *Journal of Statistical Computation and Simulation*

– *Journal of Statistical and Planning Inference*

– *Journal of the American Statistical Association (TM and ACS)*

– *Journal of the Korean Statistical Society*

– *Journal of the Royal Statistical Society: Series B*

– *Lifetime Data Analysis*

– *PLoS One*

– *Proceedings of the National Academy of Sciences*

– *Psychometrika*

– *Scandinavian Journal of Statistics*

– *Stat*

– *Statistica Sinica*

– *Statistics and Computing*

– *Statistics and Its Interface*

- *Statistics and Probability Letters*
- *Statistics in Biosciences*
- *Statistics in Medicine*
- *Statistical Methods and Applications*
- *Technometrics*
- *WIREs Computational Statistics*

Student Paper Award Committee for the 2021 ENAR Spring Meeting.
2018 Student Paper Award Committee for the ASA Section on Nonparametric Statistics.
Invited Session Organizer and Chair for the 2018 ICSA Applied Symposium.
2017 Student Paper Award Committee for the ASA Section on Nonparametric Statistics.
Program Committee for the 3rd International Conference on BioMedical Engineering and Informatics (BMEI'10).
Invited Session Chair for the 2010 ENAR Meeting.
Topic Contributed Session Chair for the 2009 Joint Statistical Meeting.
Contributed Session Chair for the 2008 Joint Statistical Meeting.
Invited Session Chair for the 2008 ENAR Meeting.
Contributed Session Chair for the Third Erich L. Lehmann Symposium.

University and Departmental Services

Department Personnel Committee, Fall 2018 - Summer 2022, Fall 2012 - Summer 2013

Department Graduate Program Committee, Fall 2019 - Summer 2021.

Department Executive Committee, Summer 2018 - Summer 2019

Statistics Service Courses Committee, Summer 2018 - Summer 2019

Collegiate Faculty Search Committee Chair, Fall 2016 - Spring 2018

Internal Review Committee, Fall 2016 - Spring 2017

SAMSI Affiliate Representative for VT Statistics, Fall 2014 - Summer 2015

University Library Committee, Fall 2014 - Spring 2015

Department Search Committee, Fall 2012 - Spring 2013

Chair of Department Colloquium Committee, Fall 2007 - Spring 2008

PhD students supervised:
- Active: Quyen Do, Jie Min
- 2020: Yunnan Xu (June 2020, Novartis Oncology)
- 2019: Yafei Zhang (May 2019, Merck & Co.)
- 2018: Zhenguo Gao (May 2018, *tenure-track AP* at Shanghai Jiaotong University)
- 2016: Jinhui Sun (December 2016, JD.com Inc.)
- 2015: Tianlei Chen (May 2015, Celgene Corporation)
- 2010: Lu Wang (August 2010, Novartis Oncology)

Member of Graduate Student Committees:
- Active: Jon Atwood (PhD),

- 2020: Wenyu Gao (PhD), Byung-Jun Kim (PhD),
- 2019: Quyen Do (MS, Chair), Shane Bookhultz (MS), Chaoran Wang (MS), Wenjing Xue (MS),
- 2018: Robert Soule (MS), Yizhi Sun (PhD), Lin Zhang (PhD),
- 2017: Jaeo Han (MS, Chair), Wei He (MS),
- 2016: Shu Han (MS, Chair), Lata Kodali (MS, Chair), Jia Liu (MS), Keith Lumbard (MS, Chair), Amanda McGough (MS, Chair), Moustafa Salah (PhD, UTSA CS), Furong Sun (MS) Peng Sun (PhD), Yunnan Xu (MS)
- 2015: Chen Chen (PhD),
- 2014: Khaled Bedair (PhD), Gavin Corral (MS), Yajuan Chen (PhD), Celia Eddy (MS), Hamdy Mahmoud (PhD), Yiming Peng (PhD), Meng Zhao (MS),
- 2013: Ting Guan (MS, Chair), Xiaomo Liu (PhD, Com. Sci.), Mike Milo (PhD, Mech. Eng.),
- 2012: Zaili Fang (PhD), Adam James (MS), Nels Johnson (PhD), Matthew Lanham (MS, Chair), Fang Wei (PhD, Plan. Gov. Glob.), Pei Xiao (PhD),
- 2011: Yajuan Chen (MS), Wandi Huang (PhD), Kurt Kubli (MS), Zhiyuan Zheng (PhD, Econ.),
- 2010: Jinsong Chen (PhD), Jonathan Duggins (PhD), Laura Freeman (PhD), Qing He (MS, Fishery), Rajyalashmi Kola (ME, Civ. Eng.),
- 2009: Xiaowei Wang (PhD), Linyan Wen (MS),
- 2008: Zhonggai Li (PhD), Pei Xiao (MS),
- 2007: Wandi Huang (MS), Mi Hyun Lee (PhD), Huan Zhang (MS)