Yili Hong

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Education

- Ph.D. Iowa State University, Statistics 08/2009
- M.S. Iowa State University, Statistics 12/2005
- B.S. University of Science and Technology of China (USTC), Statistics 07/2004

Current Research Interests

- Machine Learning and Engineering Applications
- Reliability Analysis; Safety of Artificial Intelligence Systems
- Survival Analysis, Longitudinal Data Analysis; Biostatistics
- Spatial Data Analysis; Epidemiology
- Statistical Computing
- Statistical Consulting

Working History

- Associate Professor, Department of Statistics, Virginia Tech 08/2014-*present*
- Assistant Professor, Department of Statistics, Virginia Tech 08/2009-07/2014
- Research Assistant, Department of Statistics, Iowa State University 08/2005-07/2009
- Lab Instructor, Department of Statistics, Iowa State University 08/2007-12/2007
- Summer Intern, Procter & Gamble Pharmaceuticals, Mason, OH 05/2007-08/2007
- Teaching Assistant, Department of Statistics, Iowa State University 08/2004-07/2005

Awards and Honors

- Outstanding Contribution Award for paper published in *Accident Analysis and Prevention*, Transportation Research Board 01/2018
- ASA Physical and Engineering Sciences Award, ASA 05/2017
- The 2016 Wilcoxon Award for best practical application paper in the 2015 issues of *Technometrics*, ASA and ASQ 08/2016
- Elected to ASA SPES Program Chair for JSM 2018 05/2016

- The Stan Ofsthun Award for the best RAMS paper in reliability engineering 01/2015
  Society of Reliability Engineering
- Best Reliability Paper in Quality Engineering, ASQ Reliability Division 05/2014
- ISI Elected Member, International Statistical Institute (ISI) 03/2014
- NISS/ASA Best y-BIS Paper Award, ISBIS 06/2012
- DuPont Young Professor Award, DuPont 06/2011
- The Zaffarano Prize for Graduate Student Research, Iowa State University 04/2010
- George W. Snedecor Award in Statistics, Iowa State University 04/2007
- Holly C. & E. Beth Fryer Award in Statistics, Iowa State University 08/2006
- Graduate Research Excellence Award, Iowa State University 08/2009
- The Laha Travel Award to the Joint Statistical Meetings, 08/2009
  Institute of Mathematical Statistics
- Student Travel Award, the 2008 Spring Research Conference 05/2008
  on Statistics in Industry and Technology, Atlanta, GA
- Alumni Scholarship, Iowa State University 08/2004
- Excellent Undergraduate Thesis Award, USTC 07/2004
- Excellent Undergraduate Research Program Award, USTC 01/2004

Editorial Activities

- *Technometrics*, Associate Editor, 2013-2016, 2016-2019, 2019-2022.
- *Journal of Quality Technology*, Editorial Review Board Member, 2016-2018, 2018-2021.
- *Behaviormetrika*, Associate Editor, 2017–.
- *Journal of Quality Technology*, Guest Editor, 2015-2018, for a special issue on Big Data in Reliability.

Research Grants

1. PI for "Integrating System Physics with Sensor Data for Health Prognostics of Complex Engineered Systems," NSF, $182,967, 08/01/2019-07/31/2022, (sub-award from Univ. of Arkansas).
2. Co-PI for "CSR: Large: VarSys: Managing Variability in High-performance Computing Systems (Phase II)", NSF-CNS, $1,189,778, 08/10/2018-08/09/2020, (PI: Kirk Cameron; other co-PIs: Ali Butt, Layne Watson, Danfeng Yao).
3. Co-PI for "Enabling Resilient and Secured High Performance Computing through Scalable and Parallel Deep Learning System," VT-ICTAS, $80,000, 07/01/2019-06/30/2021, (PI: Cindy Yi).

4. Co-PI for "Automatic Identification of Limnonectes Species Using Image Analysis and Data Analytic Classification Systems," 4VA, $17,708, 02/01/2019-01/31/2020, (PI: Eric Smith, other co-PI: David McLeod from JMU).
5. PI for "Advanced Text Analytics for Anomaly Detections in Warranty Claims," After. Inc., $27,406, 08/10/2017-01/31/2018.
6. Co-PI for "Data-driven Modeling and Optimization for Energy-Smart Manufacturing," NSF-CMMI, $300,000, 09/01/2016-08/31/2019 (PI: Ran Jin; Co-PIs: Sam D. Tajbakhsh, Xinwei Deng).
7. Co-PI for "CSR: Large: VarSys: Managing Variability in High-performance Computing Systems (Phase I)", NSF-CNS, $1,189,778, 08/10/2016-08/09/2018, (PI: Kirk Cameron; other co-PIs: Ali Butt, Layne Watson, Danfeng Yao).
8. Co-PI for "Health Consequences of Disaster-Related Disruptions in Home and Community-Based Supports," DHHS-ASPR, $172,887, 02/15/2015-02/14/2017, (PI: Laura Sands; other co-PI: Karen Roberto).
9. Co-Investigator for "The Effects of Light vs Deep Anesthesia on Postoperative Cognitive Outcomes," NIH-R21, $20,698, 06/01/15-05/31/16, (PI: Laura Sands; sub-contract from UCSF).
10. PI for "Reliability Prediction Based on Dynamic Data Collected with Modern Technology," NSF-CMMI-MES, $210,234, 07/01/2011-06/30/2014.
11. PI for "Statistical Methods for Modern Reliability Data," DuPont Young Professor Grant, $75,000, 08/15/2011-08/14/2014.
12. Co-PI for "Environmental Variability and Disease Emergence: Spatial Patterns of Lyme Disease Emergence in Virginia," NSF-BCS-GSS, $199,998, 09/15/2011-08/31/2013, (PI: Korine Kolivras; other co-PIs: James Campbell, David Gaines, Stephen Prisley).

Publications

Peer-reviewed Journal Articles

Student co-authors are underlined

1. Sun, Q., Ye,. Z. and **Hong, Y.** (2019), Statistical Modeling of Multivariate Destructive Degradation Tests with Blocking, *Technometrics*, tentatively accepted.
2. Fang, G., Pan, R., and **Hong, Y.** (2019), A Copula-based Reliability Analysis for Degrading System with Accelerated Degradation Processes, *Reliability Engineering & System Safety*, in press.
3. Xie, Y., Xu, L., Li, J., Deng, X., **Hong, Y.**, Kolivras, K. N., and David N. Gaines (2019), Spatial Variable Selection and An Application to Virginia Lyme Disease Emergence, *Journal of the American Statistical Association*, DOI: https://doi.org/10.1080/01621459.2018.1564670.
4. Ding, Y., Yang, Q., King, C., and **Hong, Y.** (2019), A General Accelerated Destructive Degradation Testing Model for Reliability Analysis, *IEEE Transactions on Reliability*, DOI: 10.1109/TR.2018.2883983.

5. Cameron, K., Anwar, A., Cheng, Y., Xu, L., Li, B., Ananth, U., Bernard, J., Jearls, C., Lux, T., **Hong, Y.**, Watson, L., and Butt, A. (2019), MOANA: Modeling and Analyzing HPC I/O Variability, *IEEE Transactions on Parallel and Distributed Systems*, DOI: 10.1109/TPDS.2019.2892129.

6. Stevens, L. K., Kolivras, K. N., **Hong, Y.**, Thomas, V. A., Campbell, J. B., and Prisley, S. P. (2019), Future Lyme Disease Risk in the Southeastern United States Based on Projected Land Cover, *Geospatial Health*, Vol. 14, pp. 153-162.

7. Yuan, M., Tang, C., **Hong, Y.**, and Yang, J. (2018), Disentangling and Assessing Uncertainties in Multiperiod Corporate Default Risk Predictions, *The Annals of Applied Statistics*, Vol. 12, pp. 2587-2617.

8. Lee, I., **Hong, Y.**, Tseng, S. T., and Dasgupta, T. (2018), Sequential Bayesian Design for Accelerated Life Tests, *Technometrics*, Vol. 60, pp. 472-483.

9. **Hong, Y.**, Zhang, M., and Meeker, W. Q., (2018), Big Data and Reliability Applications: The Complexity Dimension, *Journal of Quality Technology*, Vol. 50, pp. 135-149.

10. Zhang, M., **Hong, Y.**, and Balakrishnan, N. (2018), The Generalized Poisson Binomial Distribution and the Computing of Its Distribution Functions, *Journal of Statistical Computation and Simulation*, Vol. 88, pp. 1515-1527.

11. He, K., Zhang, Q., and **Hong, Y.** (2018), Profile Monitoring based Quality Control Method for Fused Deposition Modeling Process, *Journal of Intelligent Manufacturing*, open access, DOI: 10.1007/s10845-018-1424-9.

12. Sands, L. P., Xie, Y., Pruchno, R., **Hong, Y.**, and Heid, A. (2018), Older Adults' Health Care Utilization a Year After Experiencing Fear or Distress from Hurricane Sandy, *Disaster Medicine and Public Health Preparedness*, Vol. 12, pp. 578-581.

13. Xie, Y., King, C., **Hong, Y.**, and Yang, Q. (2018), Semiparametric Models for Accelerated Destructive Degradation Test Data Analysis, *Technometrics*, Vol. 60, pp. 222-234.

14. Wang, X., Ye, Z., **Hong, Y.**, and Tang, L. C. (2018), Analysis of Field Return Data with Failed-But-Not-Reported Events, *Technometrics*, Vol. 60, pp. 90-100.

15. King, C., **Hong, Y.**, Xie, Y., Van Mullekom, J. H., DeHart, S. P., and DeFeo, P. A. (2018), A Comparison of Traditional and Maximum Likelihood Approaches to Estimating Thermal Index for Polymeric Materials, *Journal of Quality Technology*, Vol. 50, pp. 117-129.

16. Yuan, M., **Hong, Y.**, Escobar, L. A., and Meeker, W. Q. (2018), Tolerance Interval for (Log) Location-Scale Family of Distributions, *Quality Technology and Quantitative Management*, Vol. 15, pp. 374-392.

17. Duan, Y., **Hong, Y.**, Meeker, W. Q., Stanley, D. L., and Gu, X. (2017), Photodegradation Modeling Based on Laboratory Accelerated Test Data and Predictions Under Outdoor Weathering for Polymeric Materials, *The Annals of Applied Statistics*, Vol. 11, pp. 2052-2079.

18. Yang, Q., **Hong, Y.**, Zhang, N., and Li, J. (2017), A Copula-Based Trend-Renewal Process Model for Analysis of Repairable Systems With Multitype Failures, *IEEE Transactions on Reliability*, Vol. 66, pp. 590-602.

19. Liu, X., Liu, C., and **Hong, Y.** (2017), Analysis of Multiple Tank Car Releases in Train Accidents, *Accident Analysis and Prevention*, Vol. 107, pp. 164-172.

20. Xu, Z., **Hong, Y.**, Meeker, W. Q., Osborn, B. E., and Illouz, K. (2017), A Multi-level Trend-renewal Process for Modeling Systems with Recurrence Data, *Technometrics*, Vol. 59, pp. 225-236.

21. Xie, Y., **Hong, Y.**, Escobar, L. A., and Meeker, W. Q. (2017), A General Algorithm for Computing Simultaneous Prediction Intervals for the (Log)-Location-Scale Family of Distributions, *Journal of Statistical Computation and Simulation*, Vol. 87, pp. 1559-1576.

22. King, C., **Hong, Y.**, and Meeker, W. Q. (2017), Product Component Genealogy Modeling and Field-Failure Prediction, *Quality and Reliability Engineering International*, Vol. 33, pp. 135-148.

23. Khosrowpour, A., Xie, Y., Taylor, J. E., and **Hong, Y.** (2016), One Size Does Not Fit All: Establishing the Need for Targeted Eco-Feedback, *Applied Energy*, Vol. 184, pp. 523-530.

24. Bedair, K. **Hong, Y.**, Li, J., and Al-Khalidi, H. R. (2016), Multivariate Frailty Models for Multi-type Recurrent Event Data and an Application to Cancer Prevention Trial, *Computational Statistics and Data Analysis*, Vol. 101, pp. 161-173.

25. King, C., **Hong, Y.**, DeHart, S. P., DeFeo, P. A., and Pan, R. (2016), Planning Fatigue Tests for Polymer Composites, *Journal of Quality Technology*, Vol. 28, pp. 227-245.

26. Thapa, R., Burkhart, H. E., **Hong, Y.**, and Li, J. (2016), Modeling Loblolly Pine (*Pinus taeda L.*) Clustered Survival Time with Time-dependent Covariates and Shared Frailties, *Journal of Agricultural, Biological, and Environmental Statistics*, Vol. 21, pp. 92-110.

27. Xu, Z., **Hong, Y.**, and Jin, R. (2016), Nonlinear General Path Models for Degradation Data with Dynamic Covariates, *Applied Stochastic Models in Business and Industry*, Vol. 32, pp. 153-167.

28. Rubio, F. J. and **Hong, Y.** (2016), Survival and Lifetime Data Analysis with a Flexible Class of Distributions, *Journal of Applied Statistics*, Vol. 43, pp. 1794-1813.

29. Li, J., **Hong, Y.**, Thapa, R., and Burkhart, H. E. (2015), Survival Analysis of Loblolly Pine Trees with Spatially Correlated Random Effects, *Journal of the American Statistical Association*, Vol. 110, pp. 486-502.

30. Liu, X. and **Hong, Y.** (2015), Modeling Correlated Railroad Crude Oil Tank Car Releases Using a Generalized Binomial Model, *Accident Analysis and Prevention*, Vol. 84, pp. 20-26.

31. **Hong, Y.**, Duan, Y., Meeker, W. Q., Stanley, D. L., and Gu, X. (2015), Statistical Methods for Degradation Data with Dynamic Covariates Information and an Application to Outdoor Weathering Data, *Technometrics*, Vol. 57, pp. 180-193.

32. **Hong, Y.**, King, C., Zhang, Y., and Meeker, W. Q. (2015), Bayesian Life Test Planning for Log-Location-Scale Family of Distributions, *Journal of Quality Technology*, Vol. 47, pp. 336-350.
33. Seukep, S. E., Kolivras, K. N., **Hong, Y.**, Li, J., Prisley, S. P., Campbell, J. B., Gaines, D. N., and Dymond, R. L. (2015), An Examination of the Demographic and Environmental Variables Correlated with Lyme Disease Emergence in Virginia, *EcoHealth*, Vol. 12, pp. 634-44.
34. **Hong, Y.**, Li, M., and Osborn, B. (2015), System Unavailability and Cost Analysis Based on Window-Observed Recurrent Event Data, *Applied Stochastic Models in Business and Industry*, Vol. 31, pp. 122-136.
35. Xu, Z., **Hong, Y.**, and Meeker, W. Q. (2015), Assessing Risk of a Serious Failure Mode Based on Limited Field Data, *IEEE Transactions on Reliability*, Vol. 64, pp. 51-62.
36. Li, J., Kolivras, K. N., **Hong, Y.**, Duan, Y., Seukep, S. E., Prisley, S. P., Campbell, J. B., and Gaines, D. N. (2014), Spatial and Temporal Emergence Pattern of Lyme Disease in Virginia, *The American Journal of Tropical Medicine and Hygiene*, Vol. 91, pp. 1166-1172.
37. **Hong, Y.** and Meeker, W. Q. (2014), Confidence Interval Procedures for System Reliability and Applications to Competing Risks Models, *Lifetime Data Analysis*, Vol. 20, pp. 161-184.
38. Meeker, W. Q. and **Hong, Y.** (2014), Reliability Meets Big Data: Opportunities and Challenges (with discussion), *Quality Engineering*, Vol. 26, pp. 102-116.
39. Ye, Z., **Hong, Y.**, and Xie, Y. (2013), How do Heterogeneities in Operational Environments Affect Field Failures?, *The Annals of Applied Statistics*, Vol. 7, pp. 2249-2271.
40. **Hong, Y.** and Meeker, W. Q. (2013), Field-Failure Predictions Based on Failure-time Data with Dynamic Covariate Information, *Technometrics*, Vol. 55, pp. 135-149.
41. Yang, Q., Zhang, N., and **Hong, Y.** (2013), Statistical Reliability Analysis of Repairable Systems with Dependent Component Failures under Partially Perfect Repair Assumption, *IEEE Transactions on Reliability*, Vol. 62, pp. 490-498.
42. **Hong, Y.** (2013), On Computing the Distribution Function for the Poisson Binomial Distribution, *Computational Statistics and Data Analysis*, Vol. 59, pp. 41-51.
43. Yang, Q., **Hong, Y.**, Chen, Y., and Shi, J. (2012), Failure Profile Analysis of a Single Repairable System Using Trend-renewal Process, *IEEE Transactions on Reliability*, Vol. 61, pp. 180-191.
44. Al-Khalidi, H. R., **Hong, Y.**, Fleming, T. R., and Therneau, T. (2011), Insights on the Robust Standard Error Under Recurrent Events Model, *Biometrics*, Vol. 67, pp. 1564-1572.
45. **Hong, Y.** and Meeker, W. Q. (2011), The Importance of Identifying Different Components of a Mixture Distribution in the Prediction of Field Returns. *Applied Stochastic Models in Business and Industry*, Vol. 27, pp. 280-289.
46. **Hong, Y.**, Ma, H., and Meeker, W. Q. (2010), A Tool for Evaluating Time-Varying-Stress Accelerated Life Test Plans with Log-Location-Scale Distributions. *IEEE Transactions on Reliability*, Vol. 59, pp. 620-627.

47. **Hong, Y.** and Meeker, W. Q. (2010), Field-Failure and Warranty Prediction Using Auxiliary Use-rate Data. *Technometrics*, Vol. 52, pp. 148-159.

48. **Hong, Y.**, Escobar, L. A., and Meeker, W. Q. (2010), Coverage Probabilities of Simultaneous Confidence Bands and Regions for Log-Location-Scale Distributions, *Statistic & Probability Letters*, Vol. 80, pp. 733-738.

49. Escobar, L. A., **Hong, Y.**, and Meeker, W. Q. (2009), Simultaneous Confidence Bands and Regions for Log-Location-Scale Distributions with Censored Data, *Journal of Statistical Planning and Inference*, Vol. 139, No. 9, pp. 3231-3245.

50. **Hong, Y.**, Meeker, W. Q., and McCalley, J. D. (2009), Prediction Intervals for Remaining Life of Power Transformers Based on Left Truncated and Right Censored Lifetime Data, *The Annals of Applied Statistics*, Vol. 3, No. 2, pp. 857-879.

51. Meeker, W. Q., Escobar, L. A., and **Hong, Y.** (2009), Using Accelerated Life Tests Results to Predict Product Field Reliability, *Technometrics*, Vol. 51, No. 2, pp. 146-161.

52. **Hong, Y.**, Meeker, W. Q., and Escobar, L. A. (2008), The Relationship Between Confidence Intervals for Failure Probabilities and Life Time Quantiles, *IEEE Transactions on Reliability*, Vol. 57, No. 2, pp. 260-266.

53. **Hong, Y.**, Meeker, W. Q., and Escobar, L. A. (2008), Avoiding Problems with Normal Approximation Confidence Intervals for Probabilities, *Technometrics*, Vol. 50, No. 1, pp. 64-68.

Peer-reviewed Conference Papers, Book Chapters, Encyclopedia Articles

54. Lu, L., Lee, I., and **Hong, Y.** (2019), Bayesian Sequential Design Based on Dual Objectives for Accelerated Life Tests, Book chapter for "Statistical Quality Technologies: Theory and Practice" by Springer, in press.

55. Lux, T. C. H., Watson, L., Chang, T. H., Bernard, J., Li, B., Yu, X., Xu, L., Back, G., Butt, A. R., Cameron, K. W., Yao, D., and **Hong, Y.** (2018), Novel meshes for multivariate interpolation and approximation, ACMSE '18 Proceedings of the ACMSE 2018 Conference, Article No. 13.

56. Chang, T. H., Watson, L. T., Lux, T. C. H., Li, B., Xu, L., Butt, A. R., Cameron, K. W., and **Hong, Y.** (2018), A Polynomial Time Algorithm for Multivariate Interpolation in Arbitrary Dimension via the Delaunay Triangulation, ACMSE '18 Proceedings of the ACMSE 2018 Conference, Article No. 12.

57. Chang, T. H., Watson, L. T., Lux, T. C. H. Raghvendra, S., Li, B., Xu, L., Butt, A. R., Cameron, K. W., and **Hong. Y.**, (2018). Computing the umbrella neighbourhood of a vertex in the Delaunay triangulation and a single Voronoi cell in arbitrary dimension. In SoutheastCon 2018. IEEE, St. Petersburg, FL, USA, pp. 1-8. DOI: 10.1109/SECON.2018.8479003

58. Chang, T. H., Watson, L. T., Lux, T. C. H., Xu, L., Back, G., Butt, A. R., Cameron, K. W. and **Hong, Y.** (2018), Predicting System Performance By Interpolation Using A High-

Dimensional Delaunay Triangulation, HPC '18 Proceedings of the High Performance Computing Symposium, Article No. 2.

59. Lux, T. C. H., Watson, L., Chang, T. H., Li, B., Bernard, J., Xu, L., Back, G., Butt, A. R., Cameron, K. W. and **Hong, Y.** (2018), Predictive Modeling Of I/O Characteristics in High Performance Computing Systems, HPC '18 Proceedings of the High Performance Computing Symposium, Article No. 8.

60. Lux, T. C. H., Watson, L., Bernard, J., Chang, T. H., Li, B., Xu, L., Back, G., Butt, A. R., Cameron, K. W. and **Hong, Y.** (2018), Nonparametric Distribution Models for Predicting and Managing Computational Performance Variability, IEEE SoutheastCon, 2018, DOI: 10.1109/SECON.2018.8478814.

61. Fang, G., Pang, R., and **Hong, Y.** (2018), A Copula-based Multivariate Degradation Analysis for Reliability Prediction, *Reliability and Maintainability Symposium (RAMS), 2018 Annual*, DOI: 10.1109/RAM.2018.8463026.

62. King, C. B., Xu, Z., Lee, I., and **Hong, Y.** (2018), Reliability Analysis of Polymeric Materials, *Wiley StatsRef: Statistics Reference Online*, DOI: 10.1002/9781118445112.stat08081.

63. Lux, T. C. H., Watson, L., Chang, T. H., Bernard, J., Li, B., Xu, L., Back, G., Butt, A. R., Cameron, K. W. and **Hong, Y.** (2017), A first look: Using linux containers for deceptive honeypots. SafeConfig '17 Proceedings of the 2017 Workshop on Automated Decision Making for Active Cyber Defense, Pages 15-22.

64. Xie, Y., Jin, Z., **Hong, Y.**, and Van Mullekom, J. H. (2017), Statistical Methods for Thermal Index Estimation Based on Accelerated Destructive Degradation Test Data, Chapter 12 for "Statistical Modelling for Degradation Data," Springer.

65. Jin, Z., Xie, Y., **Hong, Y.**, and Van Mullekom, J. H. (2017), ADDT: An R Package for Analysis of Accelerated Destructive Degradation Test Data, Chapter 14 for "Statistical Modelling for Degradation Data," Springer.

66. Zhang, Y., Liao, H, and **Hong, Y.** (2015), Planning Accelerated Destructive Degradation Tests with Initiation Time, *Reliability and Maintainability Symposium (RAMS), 2015 Annual*.

67. Meeker, W. Q., **Hong, Y.**, and Escobar, L. A. (2011), Degradation Models and Data Analyses, *Encyclopedia of Statistical Sciences*.

68. Meeker, W. Q., **Hong, Y.**, and Escobar, L. A. (2011), The Failure-based Paradigm, *The Wiley Encyclopedia of Operations Research and Management Science*.

69. Meeker, W. Q., **Hong, Y.**, and Escobar, L. A. (2011), The Condition-based Paradigm, *The Wiley Encyclopedia of Operations Research and Management Science*.

70. **Hong, Y.** and Meeker, W.Q. (2010), Field Failure Prediction Using Dynamic Environmental Data. Chapter 16 in *Mathematical and Statistical Methods in Reliability. Applications to Medicine, Finance and Quality Control* (Eds. N. Balakrishnan, M. Nikulin, V. Rykov), Birkhauser: Boston.

71. McCalley, J. D., Honavar, V., Ryan, S. M., Meeker, W. Q., Qiao, D., Roberts, R. A., Li, Y., Pathak, J., Ye, M., **Hong, Y.** (2007), Integrated Decision Algorithms for Auto-steered Electric Transmission System Asset Management, *International Conference on Computational Science (1)*, pp. 1066-1073.

Other Contributions

72. **Hong, Y.**, Liao, H., Yashchin, E., and Tsung, F. (2018), Editor's Notes on Special Issue on "Reliability and Maintenance Modeling with Big Data", *Journal of Quality Technology*, Vol. 50, pp. 133-134.
73. Xu, L., and **Hong, Y.** (2017), Book review for "Functional Shape Analysis", *Journal of Quality Technology*, Vol. 49, pp. 419-420.
74. Sands, L. P., Xie, Y., Yuan, M., and **Hong, Y.** (2015), Change In Reports of Unmet Need for Help with ADL or Mobility Disabilities Across Three Years, *The Gerontologist*, Vol. 55(Suppl 2), pp. 722-723.
75. Meeker, W. Q. and **Hong, Y.** (2014), Rejoinder for "Reliability Meets Big Data: Opportunities and Challenges," *Quality Engineering*, Vol. 26, pp. 127-129.
76. **Hong, Y.** and King, C. (2014), Invited discussion on "EM-based Likelihood Inference for Some Lifetime Distributions Based on Left Truncated and Right Censored Data and Associated Model Discrimination" by N. Balakrishnan and D. Mitra, *South African Statistical Journal*, Vol. 48, 181-182.
77. **Hong, Y.** and Xu, Z. (2014), Invited discussion on "Methods For Planning Accelerated Repeated Measures Degradation Tests" by B. Weaver and W. Q. Meeker, *Applied Stochastic Models in Business and Industry*, Vol. 30, pp. 672-673.

Software Development

1. **Hong, Y.**, Xu., L., Xie, Y., and Jin, Z. (2018). SpatialVS: Package for Spatial Variable Selection. R package version 1.0.
2. Lee, I.-C. and **Hong, Y.** (2017). SeqBayesDesign: Sequential Bayesian Design. R package version 1.0.
3. **Hong, Y.**, and Zhang, M. (2017). GPB: Generalized Poisson Binomial Distribution. R package version 1.0.
4. **Hong, Y.**, Xie, Y., Jin, Z., and King, C. B. (2016). ADDT: A package for analysis of accelerated destructive degradation test data. R package version 2.0.
5. **Hong, Y.**, Xie, Y., and Xu, Z. (2014). SPREDA: Statistical Package for Reliability Data Analysis. R package version 1.0.
6. **Hong, Y.**, Xie, Y., and King, C. B. (2014). ADDT: A package for analysis of accelerated destructive degradation test data. R package version 1.0.

7. **Hong, Y.** (2013). poibin: The Poisson Binomial Distribution. R package version 1.2.

Presentations

Those with an "∗" are invited talks.

1.* "*Nonlinear General Path Models for Multivariate Degradation Data with Repeated Measures and Covariates*," ICISE 2019, Seoul, S. Korea 06/2019

2.* "*Nonlinear General Path Models for Multivariate Degradation Data with Repeated Measures and Covariates*," MMR 2019, Hong Kong 06/2019

3.* "*Big Data and Reliability Applications: The Complexity Dimension*," JQT invited session at SRC 2019, Blacksburg, VA 05/2019

4.* "*Spatial Variable Selection via Adaptive Elastic Net and An Application to Virginia Lyme Disease Case Data*," INFORMS 2018, Phoenix, AZ 11/2018

5.* "*Sequential Test Planning for Polymer Composites*," Department of IEEM, National University of Singapore 10/2018

6.* "*Sequential Test Planning for Polymer Composites*," FTC 2018, West Palm Beach, FL 10/2018

7.* "*A Multi-level Trend-renewal Process for Modeling Systems with Recurrence Data*," Canadian Statistics Society Annual Meeting, 2018, Montreal, Canada 06/2018

8.* "*Big Data and Reliability Applications: The Complexity Dimension*," IISE Webinar 04/2018

9.* "*Statistical Modeling for Service Life Prediction of PV Materials and Laminates*," 4th Atlas/NIST Workshop on Photovoltaic Materials Durability, Gaithersburg, MD 12/2017

10.* "*A Flexible Method for Building Degradation Index from Multivariate Degradation Signals*," INFORMS 2017, Houston, TX 10/2017

11.* "*Sequential Test Planning for Polymer Composites*," INFORMS 2017, Houston, TX 10/2017

12.* "*Two-sided Tolerance Intervals for the (Log)-Location-Scale Family of Distributions*," INFORMS 2017, Houston, TX 10/2017

13.* "*Planning Fatigue Tests for Polymer Composites*," FTC 2017, Philadelphia, PA 10/2017

14.* "*Sequential Test Planning for Polymer Composites*," QPRC 2017, Storrs, CT 06/2017

15.* "*Planning Fatigue Tests for Polymer Composites*," JQT invited session, SRC 2017, New Brunswick, NJ 05/2017

16.* "*Sequential Test Planning for Polymer Composites*," Department of Mathematics and Statistics, University of South Florida 04/2017

17.* "*Bayesian Life Test Planning for Log-Location-Scale Family of Distributions*," JQT invited session, INFORMS, Nashville, TN 11/2016

18.* "*Reliability Meets Big Data: Opportunities and Challenges*," INFORMS, Nashville, TN 11/2016

19.* "*Sequential Test Planning for Polymer Composites*," ISE Department, Wayne State University 11/2016

20.* "*Disentangling and Assessing the Uncertainties in Default Prediction*," IASC-ARS, Singapore 12/2015

21.* "*Statistical Methods for Degradation Data with Dynamic Covariates and an Application to Outdoor Weathering Prediction*," IASC-ARS, Singapore 12/2015

22.* "*Semiparametric Models for Accelerated Destructive Degradation Test Data Analysis*," ISE, NUS, Singapore 12/2015

23.* "*Semiparametric Models for Accelerated Destructive Degradation Test Data Analysis*," ISI 2015, Rio, Brazil 07/2015

24.* "*Multivariate Frailty Models for Multi-type Recurrent Event Data and an Application to Cancer Prevention Trial*," ISI 2015, Rio, Brazil 07/2015

25.* Discussion on "*The Role of Statistics in Modem Reliability*," ISI 2015, Rio, Brazil 07/2015

26.* "*Reliability Meets Big Data: Opportunities and Challenges*," Tsinghua University, Beijing, China 06/2015

27.* "*Survival Analysis of Loblolly Pine Trees with Spatially Correlated Random Effects*," Peking University, Beijing, China 06/2015

28.* "*Spatio-Temporal Modeling of Degradation Data Collected Over a Spatial Region*," MMR 2015, Tokyo, Japan 06/2015

29.* "*Using Degradation Data with Dynamic Covariates to Do Online Monitoring*," MMR 2015, Tokyo, Japan 06/2015

30.* "*Invited Panel Discussion on Fostering Successful Collaboration among Academia, Government, and Industry*," SRC 2015, Cincinnati, OH 05/2015

31.* "*Reliability Meets Big Data: Opportunities and Challenges*," Pacific Rim Statistics Conference on Production Engineering, Shanghai, China 12/2014

32.* "*Statistical Modeling and Analysis of Wavelength Effect On Damage Based EVA Data*," NIST, Gaithersburg, MD 12/2014

33.* "*Service Life Prediction of Field-Exposed Units Based on Laboratory Accelerated Degradation Test Data*," NIST, Gaithersburg, MD 12/2014

34.* "*Statistical Methods for Degradation Data with Dynamic Covariates and an Application to Outdoor Weathering Prediction*," *Technometrics* invited session at INFORMS, San Francisco, CA 11/2014

35.* "*Reliability Meets Big Data: Opportunities and Challenges*," ISE Department, Virginia Tech, Blacksburg, VA 10/2014

36.* "*Planning Fatigue Tests for Polymer Composites*," Plenary talk at International Conference for Quality and Applied Statistics, Lima, Peru 08/2014

37.* "*Statistical Methods for Degradation Data with Dynamic Covariates and an Application to Outdoor Weathering Prediction*," AMSS, China Academia of Sciences, Beijing, China 07/2014

38.* "*Planning Fatigue Tests for Polymer Composites*," NCTS Workshop on Recent Advances on Big Data and Industrial Statistics, National Tsing Hua University, Hsin-Chu, Taiwan 06/2014

39.* "*Planning Fatigue Tests for Polymer Composites*," DuPont, Wilmington, DE 06/2014

40.* "*Service Life Prediction Based on Accelerated Degradation Test Data from Laboratory and Field* ," NIST, Gaithersburg, MD 04/2014

41.* "*Degradation Data Analysis Using Nonlinear Mixed-effects Model with Shape-restricted Regression Splines*," INFORMS, Minneapolis, MN 11/2013

42.* "*Field Failure Prediction Based on Multi-Level Repair and System Usage Information*," INFORMS, Minneapolis, MN 11/2013

43.* "*Accelerated Destructive Degradation Test: Data Analysis and Test Planning*," INFORMS, Minneapolis, MN 11/2013

44.* "*Accelerated Destructive Degradation Test: Data Analysis and Test Planning*," ENBIS, Ankara, Turkey 09/2013

45.* "*Field Failure Prediction Based on Multi-Level Repair and System Usage Information*," International Statistical Institute Satellite Meeting on Statistics in Business, Industry and Risk Management, Hong Kong 08/2013

46. "*Using Spatial Poisson Regression to Investigate Virginia Lyme Disease Emergence*," The 2013 WNAR Conference, Los Angeles, CA 06/2013

47.* "*Accelerated Destructive Degradation Test: Data Analysis and Test Planning*," DuPont, Richmond, VA 05/2013

48.* "*System Unavailability Analysis Based on Window-Observed Recurrent Event*," NCTS Industrial Statistics Research Group Seminar, National Tsing Hua University, Hsin-Chu, Taiwan 12/2012

49.* "*Statistical Methods for Degradation Data with Dynamic Covariates and an Application to Outdoor Weathering Prediction*," INFORMS, Phoenix, AZ 11/2012

50.* "*Statistical Methods for Degradation Data with Dynamic Covariates and an Application to Outdoor Weathering Prediction*," NIST, Gaithersburg, MD 10/2012

51. "*Photodegradation Path Modeling and Analysis with Nonlinear Mixed Models*," JSM, San Diego, CA 08/2012

52.* "*Photodegradation Path Modeling and Analysis with Nonlinear Mixed Models*," NCTS Workshop on Industrial Statistics and Its Applications, National Tsing Hua University, Hsin-Chu, Taiwan 06/2012

53.* "*Field-Failure Predictions Based on Failure-time Data with Dynamic Covariate Information*," the 2nd ICISE, Tainan, Taiwan 06/2012

54.* "*A Special Non-homogeneous Poisson Process Estimation for Window-Observation Repairable Systems*," ISBIS, Bangkok, Thailand 06/2012

55.* "*Photodegradation Path Modeling and Analysis with Nonlinear Mixed Models*," QPRC, Long Beach, CA 06/2012

56.* "*A Tool for Evaluating Time-Varying-Stress Accelerated Life Test Plans With Log-Location-Scale Distributions*," INFORMS, Charlotte, NC 11/2011

57.* "*Statistical Methods for Modern Reliability Data*," DuPont, Wilmington, DE 10/2011

58. "*Service Life Prediction Using Accelerated Degradation Data from Laboratory Testing and Outdoor Weathering Data*," JSM, Miami Beach, FL 08/2011

59.* "*A class of models for degradation data with dynamic covariates*," The Seventh International Conference on MMR, Beijing, China 06/2011

60.* "*Degradation Models, Data Analyses and an Application in Service Life Prediction*," QPRC, Roanoke, VA 06/2011

61.* "*Insights on the Robust Variance Estimator under Recurrent-events Model*," Biostatistics Department, University of Pennsylvania, Philadelphia, PA 09/2010

62. "*Field-Failure and Warranty Prediction Using Auxiliary Use-rate Data*," the Joint Statistical Meetings (JSM), Vancouver, Canada 08/2010

63. "*Field failure prediction using dynamics environmental data* ," New Researcher Conference, UBC, Vancouver, Canada 07/2010

64.* "*Semiparametric Modeling for Photodegradation Paths with Dynamic Environmental Information*," International Conference on Statistical Analysis of Complex Data, Kunming, China 07/2010

65.* "*Prediction Intervals for Remaining Life of Power Transformers Based on Left Truncated and Right Censored Lifetime Data*," National University of Singapore, Singapore 06/2010

66.* "*Field-Failure and Warranty Prediction Using Auxiliary Use-rate Data*," Nanyang Technological University, Singapore 06/2010

67.* "*Field-Failure and Warranty Prediction Using Auxiliary Use-rate Data*," the Joint Research Conference, NIST, Gaithersburg, MD 05/2010

68.* "*Prediction Intervals for Remaining Life of Power Transformers Based on Left Truncated and Right Censored Lifetime Data*," ISE Department, Virginia Tech, Blacksburg, VA 03/2010

69. "*Prediction Intervals for Remaining Life of Power Transformers Based on Left Truncated and Right Censored Lifetime Data*," the Joint Statistical Meetings (JSM), Washington, DC 08/2009

70. "*The Importance of Identifying Different Components of Mixture Distribution in Reliability Predictions*," the Joint Statistical Meetings (JSM), Denver, CO 08/2008

71. "*Prediction Intervals for Remaining Life of Power Transformers Based on Left Truncated and Right Censored Lifetime Data*," 2008 Spring Research Conference on Statistics in Industry and Technology, Atlanta, GA 05/2008

72. "*Normal Approximations for Computing Confidence Intervals for Log-Location-Scale Distribution Probabilities*," the Joint Statistical Meetings (JSM), Seattle, WA 08/2006

Teaching

- **Associate Professor**, Department of Statistics, Virginia Tech 08/2014-*present*
  - Deep Learning and Applications in Survival Analysis (Stat 5594, Spring 2018)
  - Linear Models Theory (Stat 5124, Spring 2015, Spring 2018, Spring 2019)
  - Longitudinal Data Analysis (Stat 5694, Spring 2015, Spring 2017)
  - Biometry II (Stat 5606, Spring 2015, Spring 2017)
  - Survival Analysis (Stat 5684, Fall 2014, Fall 2016)
  - Theoretical Statistics II (Stat 4106, Spring 2018, Spring 2019)
- **Assistant Professor**, Department of Statistics, Virginia Tech 08/2009-07/2014
  - Theoretical Statistics II (Stat 4106, Spring 2014)
  - Linear Models Theory (Stat 5124, Spring 2014)
  - Longitudinal Data Analysis (Stat 5694, Fall 2013)
  - Linear Models Theory (Stat 5124, Spring 2013)
  - Reliability and Survival Analysis (Stat 5454, Fall 2012)
  - Linear Models Theory (Stat 5124, Spring 2012)
  - Longitudinal Data Analysis (Stat 5594, Fall 2011)
  - Linear Models Theory (Stat 5124, Spring 2011)
  - Survival Analysis (Stat 5454, Fall 2010)
  - Longitudinal Data Analysis (Stat 5594, Spring 2010)
  - Survival Analysis (Stat 5454, Fall 2009)
- **Lab Instructor**, Department of Statistics, Iowa State University 08/2007-12/2007
  - Introduction to Business Statistics II (Stat 326, Fall 2007)
- **Teaching Assistant**, Department of Statistics, Iowa State University 08/2004-07/2005

- Theory of Probability and Statistics (Stat 447, Summer 2005)
- Introduction to Business Statistics I (Stat 226, Fall 2004, Spring 2005, Summer 2005)
- Introduction to Statistics for Engineers (Stat 105, Fall 2004, Spring 2005)

Student Advising

- Current PhD advisor for
  - Li Xu (expected spring 2020), co-advising with Layne Watson from CS, dissertation research on HPC variability modeling, functional response prediction, and deep learning for image classification.
  - Thomas Lux (expected spring 2020), co-advising with Layne Watson from CS, dissertation research on HPC variability management, and computation of monotone splines.
  - Yueyao Wang (expected spring 2022), dissertation research on computer experiments and applications in HPC variability management.
- Former PhD advisor for
  - Yuanyuan Duan, Spring 2014, co-advised with Jie Li, dissertation on "Statistical Predictions Based on Accelerated Degradation Data and Spatial Counts Data", Senior Research Statistician, AbbVie.
  - Khaled Bedair, Fall 2014, dissertation on "Statistical Methods for Multi-type Recurrent Event Data Based on Monte Carlo EM Algorithms and Copula Frailties", Assistant Professor, Qatar University.
  - Zhibing Xu, Fall 2014, dissertation on "Statistical Modeling and Predictions Based on Field Data and Dynamic Covariates", Econ & Fin Modeling Sr, Freddie Mac.
  - Caleb King, Spring 2015, dissertation on "Bridging the Gap: Some Problems in Model Specification, Estimation, and Optimal Design from Reliability and Lifetime Data", Research Statistician Tester, JMP.
  - Yimeng Xie, Spring 2016, dissertation on "Advancements in Degradation Modeling, Uncertainty Quantification, and Spatial Variable Selection", Statistician, AstraZeneca China.
  - Miao Yuan, Summer 2016, dissertation on "Corporate Default Predictions and Methods for Uncertainty Quantifications", Data Scientist, Facebook.
  - Zhongnan Jin, Summer 2019, dissertation on "Statistical Methods for Multivariate Functional Data Clustering, Recurrent Event Prediction, and Accelerated Degradation Data Analysis", Statistician, United Airlines.
- Visiting Students
  - I-Chen Lee, visited 2015, from National Tsing-Hua University, now Assistant Professor at National Cheng Kung University.
  - Hung-Ping Tung, 2019, from National Tsing-Hua University.
- Served on 20 PhD and 37 MS committees for graduate students.

- PhD committee member for, Laura Freeman, Jennifer Kensler, Liaosa Xu, Yimeng Peng, Chen Chen, Lulu Cheng, Austin Rhodes, Rebecca Dickinson, Qing Li, Yangyi Xu, Tianlei Chen, Lin Zhang, Xiang Zhang, Yi Liu, Zhenguo Gao, Angang Zhang, Ting Guan, Jinhui Sun, Yafei Zhang, Tyler Chang.
- MS committee member for, Salman Cheema, Dengfeng Zhang, Xinran Hu, Hui Yi, Wei Ma, Zhibing Xu, Peng Sun, Mingqian Dai, Yan Li, Matthew Lanham, Rong Nie, Joel Anderson, Gabi Marquez Betz, Wanjin Zhang, Yangyi Xu, Jennifer Cheng, Jon Atwood, Shuyu Chu, Rajat Shrivastava, Hongyue Sun, Hao Yu, Meng Zhao, Shuai Zhang, Wenmeg Tian, Karen Narayanan, Babak Barazandeh, Linjun Li, Zhiyang Zhang, Yin Yuan, Deelan Jalil, Shu Han, John Smith, Jiafeng Zhu, Peng Xu, Young Ho Yun, Yanran Wei, Chaoran Wang.

Professional Service

- Service for Professional Associations
  - ASA: SPES program chair-elect, chair, 2016-2018
  - ASA: SRC 2019 local organization committee, member
  - ASA: SPES award committee member, since 2016
  - ISBIS: ISBIS Council member, 2017-2021
  - ISBIS: ISBIS biennial conference program committee 2018
  - ISBIS: Associate Editor for ISBIS Newsletter, since 2013
  - INFORMS: QSR paper competition reviewer, 2014-2019
  - ISERC: best paper competition reviewer, 2019
  - MMR: Technical Program Committee, 2011, 2019
  - ICSA: Student Award Committee for the 2016 ICSA International Conference
- External Reviewers
  - DOE proposal reviewer and panelist
  - Scottish Government Health Directorates proposal reviewer
  - Hong Kong Research Grants Council proposal reviewer
  - Tenure and Promotion review, University of Electro-Communications, Japan
- Others
  - External Examiner for Ph.D. Thesis for McMaster University, Arizona State University
  - Organized numerous invited sessions for several national/international conferences. Since 2015, organized invited session on reliability for SRC 2015, ISI WSC 2015, SRC 2016, US-China Quality Conference 2016, MMR 2017, JSM 2018, MMR 2019.
- Referee for
  - *Technometrics*
  - *IIE Transactions*

- *IEEE Transactions on Reliability*
- *Journal of Quality Technology*
- *Naval Research Logistics*
- *Journal of Statistical Planning and Inference*
- *Journal of Statistical Computation and Simulation*
- *Journal of Biopharmaceutical Statistics*
- *Lifetime Data Analysis*
- *Computational Statistics and Data Analysis*
- *Journal of the American Statistical Association*
- *The Annals of Applied Statistics*
- *Journal of Multivariate Analysis*
- *European Journal of Operation Research*
- *Reliability Engineering and System Safety*
- *Journal of Manufacturing Systems*
- *IEEE Transactions on Power Delivery*
- *IEEE Transactions on Pattern Analysis and Machine Intelligence*
- *Journal of Risk and Reliability*
- *Applied Stochastic Models in Business and Industry*
- *Annals of the Institute of Statistical Mathematics*
- *Reliability Engineering & System Safety*
- *Entropy*
- *Pharmaceutical Statistics*
- *Journal of Applied Statistics*
- *Statistics in Medicine*
- *Statistics Analysis and Data Mining*
- *Statistica Sinica*
- *Computers & Operations Research*
- *Quality and Reliability Engineering*
- *Applied Economics Letters*
- *International Journal of Forecasting*
- *Journal of Systems Science and Complexity*
- *Journal of Statistical Theory and Practice*
- *Quality Engineering*
- *South African Journal of Statistics*
- *Statistical Analysis and Data Mining*
- *Statistics Papers*
- *The American Statistician*

Committee Service at VT

- Department Personnel Committee, Chair, Fall 2016, Spring 2017;
  Member, Fall 2014 - Spring 2016.
- Department Policy/Procedures Committee, Chair, Since Fall 2016.
- Department Executive Committee, Member, Spring 2017.
- Department Graduate Program Committee, Member, Since Fall 2018.
- Department Corporate Partners Committee, Member, Since Fall 2016.
- Qualifying Exam Committee, Member, Spring 2011 - Fall 2015, Since Spring 2018.
- Seminar Committee, Member, Fall 2009, Spring 2010; Chair, Fall 2010 - Spring 2013.
- College Cluster Strategy Committee, Member, Fall 2012, Spring 2013.
- Corporate Partners' Conference Seminar Committee (Member, 2011; chair, 2012).

Skills

- Computer Skills
  Statistical software: R, SAS, JMP;
  Programming Language: C/C++, Python, SQL.
- Languages
  Chinese (Native); English (Fluency).

Professional Memberships

- Elected Member, The International Statistical Institute (ISI)
- Member, The American Statistical Association (ASA)
- Member, Institute of Mathematical Statistics (IMS)
- Member, The International Society for Business and Industrial Statistics (ISBIS)
- Member, The Institute for Operations Research and the Management Sciences (INFORMS)
- Member, Mu Sigma Rho
- Full member, Sigma Xi