ALYSON GABBARD WILSON
Curriculum Vitae
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EDUCATION
Ph.D. Statistics, Duke University, Durham, NC, May 1995
M.S. Statistics, Carnegie Mellon University, Pittsburgh, PA, August 1990
B.A. Mathematical Sciences (summa cum laude), Rice University, Houston, TX, May 1989

PROFESSIONAL EXPERIENCE
Office of Research and Innovation, North Carolina State University, Raleigh, NC
2020- Associate Vice Chancellor for National Security and Special Research Initiatives
2020-2021 Launch Director, Data Science Academy
2014- Principal Investigator, Laboratory for Analytic Sciences

Department of Statistics, North Carolina State University, Raleigh, NC
2015- Professor
2015-2017 Associate Faculty, Department of Computer Science
2014- Data-Driven Science Cluster Coordinator
2014-2019 Director (2019), Associate Director (2014-2018), Data Science Initiative
2013-2019 Chancellor's Faculty Excellence Program in Data-Driven Science
2013-2015 Associate Professor

Institute for Defense Analyses Science and Technology Policy Institute, Washington, DC
2015-2019 IDA Faculty Fellow
2013-2019 Adjunct Research Staff Member
2012-2013 Task Leader
2011-2013 Research Staff Member, STPI and Systems and Analyses Center/System Evaluation Division

Department of Statistics, Iowa State University, Ames, IA
2011-2013 Collaborating Associate Professor
2008-2011 Associate Professor

Statistical Sciences Group, Los Alamos National Laboratory, Los Alamos, NM
2008- Guest Scientist
2003-2008 Project Leader
2000-2008 Technical Lead for DoD Programs
2000-2008 Director of Graduate and Undergraduate Student Programs
1999-2008 Technical Staff Member, Scientist 5

Cowboy Programming Resources, Inc., El Paso, TX
1997-1999 Statistician/Senior Operations Research Systems Analyst
1995-1996 Statistician/Operations Research Systems Analyst

1021 Main Campus Dr, CB 7007, Raleigh, NC 27695-7007
267 Poulton Innovation Center, agwilso2@ncsu.edu, 919-515-1901
https://alysongwilson.github.io

Laboratory of Statistical and Mathematical Methodology, Division of Computer Research and Technology, National Institutes of Health, Bethesda, MD
1991-1992 Mathematical Statistician (GS-1529-9/11)

REFEREED PUBLICATIONS

Patent

E. Chaney, D. Fritsch, S. Pizer, V. Johnson, A. Wilson (1999). U.S. Patent 5,926,568. *Image Object Matching using Core Analysis and Deformable Shape Loci*. Licensed by Accuray (2013).

Books and Edited Volumes

M. S. Hamada, A. G. Wilson, C. S. Reese, H. F. Martz (2008). *Bayesian Reliability.* Springer, New York. Chinese edition (2013).

A. Wilson, G. Wilson, D. Olwell, eds (2006). *Statistical Methods in Counterterrorism: Game Theory, Modeling, Syndromic Surveillance, and Biometric Authentication*. Springer, New York.

A. Wilson, N. Limnios, S. Keller-McNulty, Y. Armijo, eds (2005). *Modern Statistical and Mathematical Methods in Reliability*. World Scientific, Singapore. Chinese edition (2016).

Journal and Conference Publications

J. Bakerman, K. Pazdernik, G. Korkmaz, A. Wilson (2021). Dynamic Logistic Regression and Variable Selection: Forecasting and Contextualizing Civil Unrest. Accepted for publication in *International Journal of Forecasting*.

A. Hollis, R. Smith, A. Wilson (2021). Surrogate Based Mutual Information Approximation and Optimization for Urban Source Localization. Accepted for publication in *International Journal for Uncertainty Quantification*.

J. Cahoon, K. Sanborn, A. Wilson (2021). Practical Reliability Growth Modeling. Accepted for publication in *Quality and Reliability Engineering International*. http://dx.doi.org/10.1002/qre.2822.

S. Singh, A. Paterson, L. Wendelberger, C. Fancher, B. Reich, R. Smith, A. Wilson, J. Jones. Algorithms in Profile Diffraction Analysis (2020). *Handbook on Big Data and Machine Learning in the Physical Sciences Volume 1: Big Data Methods in Experimental Materials Discovery*, eds. I. Foster and S. Kalinin, World Scientific, 501-539. https://doi.org/10.1142/11389.

A. Chakraborty, S. Lahiri, A. Wilson (2020). A Statistical Analysis of Noisy Crowdsourced Weather Data. *Annals of Applied Statistics* 14(1), 116-142. http://dx.doi.org/10.1214/19-AOAS1290.S.

J. Lee, J. Rathsam, A. Wilson (2020). Bayesian Statistical Models for Community Annoyance Survey Data. *Journal of the Acoustical Society of America* 147(4): 2222-2234. https://doi.org/10.1121/10.0001021.

J. Jones, R. Broughton, T. Iamsasri, C. Fancher, A. Wilson, B. Reich, R. Smith (2019). The Use of Bayesian Inference in the Characterization of Materials and Thin Films. Acta Crystallographica, Section A: Foundations and Advances 75(a1).

R. Durodoye, M. Gumpertz, A. Wilson, E. Griffith, S. Ahmad (2019). Tenure and Promotion Outcomes at Four Large Land Grant Universities: Examining the Role of Gender, Race, and

Academic Discipline. Online in *Research in Higher Education*, https://doi.org/10.1007/s11162-019-09573-9.

A. Wilson, M. Schmidt, L. Schmidt, B. Winter (2019). Immersive Collaboration on Data Science for Intelligence Analysis: An Interview with Alyson Wilson and Matthew Schmidt by Lara Schmidt and Brent Winter. *Harvard Data Science Review* 1(2), https://hdsr.mitpress.mit.edu/pub/qkgyckh8.

Y. Tian, H. Bondell, A. Wilson. Bayesian Variable Selection for Logistic Regression (2019). *Statistical Analysis and Data Mining* 12(5): 378-393, https://doi.org/10.1002/sam.11428.

J. Gilman, K. Fronczyk, A. Wilson (2019). Bayesian Modeling and Test Planning for Multi-phase Reliability Assessment. *Quality and Reliability Engineering International* 35(3): 750-760, https://doi.org/10.1002/qre.2406.

E. Typhina, A. Wilson (2019). Discussion of "Effective Interdisciplinary Collaboration Between Statisticians and Other Subject Matter Experts." *Quality Engineering* 31(1): 192-194, https://doi.org/10.1080/08982112.2018.1539233.

K. Gasior, N. Wagner, J. Cores, R. Caspar, A. Wilson, S. Bhattacharya, M. L. Hauck (2019). The Influence of Cellular Contact and the TGF-β Signaling Pathway on the Activation of the Epithelial Mesenchymal Transition. *Cell Adhesion and Migration,* 13(1): 63-75, https://doi.org/10.1080/19336918.2018.1526597.

H. Rendon, A. Wilson, J. Stegall (2018). Intelligence Community Expertise and Social Computing Research as Measurement for Media Reliability. *Intelligence and National Security* 33(7): 1040-1052*,* https://doi.org/10.1080/02684527.2018.1507381.

J. Bakerman, K. Pazdernik, A. Wilson, R. Bahran, G. Fairchild (2018). Twitter Geolocation: A Hybrid Approach. *ACM Transactions on Knowledge Discovery from Data* 20(3): 1-17, https://doi.org/10.1145/3178112.

R. Zoh, A. Wilson, S. Vander Wiel, E. Lawrence (2018). Using the Negative Log-Gamma Distribution for System Reliability Assessment. *Journal of Risk and Reliability* 232(3): 308-319*,* https://doi.org/10.1177/1748006X17692154.

A. Paterson, B. Reich, R. Smith, A. Wilson, J. Jones (2018). Bayesian Approaches to Uncertainty Quantification and Structure Refinement from X-ray Diffraction. *Materials Discovery and Design: Data Science and Optimal Learning*, ed. T. Lookman, Springer, 81-102.

M. Gumpertz, R. Durodoye, E. Griffith, A. Wilson (2017). Retention and Promotion of Women and Minority Faculty in Science and Engineering. *PLoS ONE,* published November 1, 2017, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0187285.

K. Gasior, M. Hauck, A. Wilson, S. Bhattacharya (2017). A Theoretical Model of the Wnt Signaling Pathway in the Epithelial Mesenchymal Transition (EMT). *Theoretical Biology and Medical Modelling* 14:19, https://doi.org/10.1186/s12976-017-0064-7.

B. Weaver, M. Hamada, A. Wilson, J. Bakerman (2017). Bayesian Assurance Tests for Degradation Data. *Quality and Reliability Engineering International* 33(8): 2699-2709.

K. Pazdernik, B. Reich, K. Page, A. Wilson (2017). Hierarchical Bayesian Modeling of Atomic Structural Disorder. *Proceedings of the International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering*, Jeju, Korea.

X. Zhang, A. Wilson (2017). System Reliability and Component Importance under Dependence: A Copula Approach. *Technometrics* 59(2): 215-224, https://doi.org/10.1080/00401706.2016.1142907.

A. Wilson, K. Fronczyk (2017). Bayesian Reliability: Combining Information. *Quality Engineering* 29(1): 119-129, https://doi.org/10.1080/08982112.2016.1211889.

T. Iamsasri, J. Guerrier, G. Esteves, C. Fancher, A. Wilson, R. Smith, E. Paisley, R. Johnson-Wilke, J. Ihlefeld, N. Bassiri-Gharb, J. Jones (2017). A Bayesian Approach to Modeling Diffraction Profiles and Application to Ferroelectric Materials. *Journal of Applied Crystallography* 50: 211-220, https://doi.org/10.1107/S1600576716020057

A. Wilson, K. Fronczyk (2017). National Security Risk Analysis. *Wiley StatsRef: Statistics Reference Online 1*, eds. N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri, J. Teugels, https:// doi.org/10.1002/9781118445112.stat07971/full.

W. C. Lenhardt, M. Conway, E. Scott, B. Blanton, A. Krishnamoorthy, M. Hadzikadic, M. Vouk, A. Wilson (2016). Cross-Institutional Research Cyberinfrastructure for Data Intensive Science. *Proceedings of the IEEE High-Performance Extreme Computing Conference (HPEC) 2016*, https://doi.org/0.1109/HPEC.2016.7761597.

C. Fancher, Z. Han, I. Levin, K. Page, B. Reich, R. Smith, A. Wilson, J. Jones (2016). Use of Bayesian Inference in Crystallographic Structure Refinement via Full Diffraction Profile Analysis. *Scientific Reports* 6:31625, https://doi.org/10.1038/srep31625.

H. Graham, A. Motsinger-Reif, J. Buse, T. Havener, A. Wilson, M. Wagner, D. Rotroff, ACCORD/ACCORDion Investigators (2016). Incorporating Concomitant Medications into Genome-Wide Analyses for the Study of Complex Disease and Drug Response. *Frontiers in Genetics/Applied Genetic Epidemiology* 7:138, https://doi.org/10.3389/ fgene.2016.00138.

L. Dewald, R. Holcomb, S. Parry, A. Wilson (2016). A Bayesian Approach to Evaluation of Operational Testing of Land Warfare Systems. *Journal of the Military Operations Research Society* 21(4).

J. Berry, L. Fostvedt, D. Nordman, C. Phillips, C. Seshadhri, A. Wilson (2015). Why Do Simple Algorithms for Triangle Enumeration Work in the Real World? *Internet Mathematics* 11(6): 555-571, https://doi.org/10.1080/15427951.2015.1037030.

R. Brost, C. Phillips, D. Robinson, D. Stracuzzi, A. Wilson, D. Woodbridge (2015). Computing Quality Scores and Uncertainty for Approximate Pattern Matching in Geospatial Semantic Graphs. *Statistical Analysis and Data Mining* 8(5/6): 340-352.

R. Dickinson, L. Freeman, B. Simpson, A. Wilson (2015). Statistical Models for Combining Information: Stryker Reliability Case Study. *Journal of Quality Technology* 47(4): 400-415.

E. Casleton, U. Genschel, A. Wilson (2014). A Pilot Study for Teaching Metrology in an Introductory Statistics Course. *Journal of Statistics Education* 22(3), http://www.amstat.org/publications/jse/v22n3/casleton.pdf.

J. Berry, L. Fostvedt, D. Nordman, C. Phillips, C. Seshadhri, A. Wilson (2014). Why Do Simple Algorithms for Triangle Enumeration Work in the Real World? *Proceedings of 5th Innovations in Theoretical Computer Science (ITCS) Conference*, 225-234.

M. Hamada, A. Wilson, B. Weaver, R. Griffiths, H. Martz (2014). Bayesian Binomial Assurance Tests for System Reliability Using Component Data. *Journal of Quality Technology* 46(1): 24-32. *Paper selected for JQT invited session at 2014 INFORMS Annual Meeting*.

J. Wendelberger, A. Wilson, S. Stinnett, B. Gaydos (2014). Working in Interdisciplinary Teams. *Chance* 27(4): 31-33.

C. S. Reese, A. Wilson (2014). Discussion of "Methods for Planning Repeated Measures Accelerated Degradation Tests." *Applied Stochastic Models in Business and Industry* 30(6): 674-676.

J. Guo, A. Wilson (2013). Bayesian Methods for Estimating the Reliability of Complex Systems using Heterogeneous Multilevel Information. *Technometrics* 55(4): 461-472.

J. Guo, D. Nordman, A. Wilson (2013). Bayesian Nonparametric Models for Community Detection. *Technometrics* 55(4): 390-402.

B. Weaver, M. Hamada, S. Vardeman, A. Wilson (2012). A Bayesian Approach to the Analysis of Gauge R&R Data. *Quality Engineering* 24(4): 486-500.

C. M. Anderson-Cook, L. Lu, G. Clark, S. P DeHart, R. Hoerl, B. Jones, R. J. MacKay, D. C. Montgomery, P. A. Parker, J. Simpson, R. Snee, S. Steiner, J. Van Mullekom, G. G. Vining, A. G. Wilson (2012). Statistical Engineering—Forming the Foundations, *Quality Engineering* 24: 110-132.

C. M. Anderson-Cook, L. Lu, G. Clark, S. P DeHart, R. Hoerl, B. Jones, R. J. MacKay, D. C. Montgomery, P. A. Parker, J. Simpson, R. Snee, S. Steiner, J. Van Mullekom, G. G. Vining, A. G. Wilson (2012). Statistical Engineering—Roles for Statisticians and the Path Forward, *Quality Engineering* 24: 133-152.

L. Lu, C. Anderson-Cook, A. Wilson (2011). Choosing a Consumption Strategy for a Population of Systems based on Reliability. *Journal of Risk and Reliability (Proceedings of the Institution of Mechanical Engineers, Part O)*, 225(4): 407-423.

A. Wilson, C. Anderson-Cook, A. Huzurbazar (2011). A Case Study for Quantifying System Reliability and Uncertainty. *Reliability Engineering and System Safety*, 96(9): 1076–1084.

C. Anderson-Cook, S. Crowder, A. Huzurbazar, J. Lorio, J. Ringland, A. Wilson (2011). Quantifying Reliability Uncertainty from Catastrophic and Margin Defects: A Proof of Concept. *Reliability Engineering and System Safety* 96(9): 1063-1075.

M. Hamada, A. Huzurbazar, S. Vander Wiel, A. Wilson (2011). Assessing the Risks of Sampling Rates for Surveilling a Population. *Quality Engineering* 23(3): 242-252.

S. Vander Wiel, A. Wilson, T. Graves, C. S. Reese (2011). A Random Onset Model for Degradation of High-Reliability Systems. *Technometrics* 53(2): 163-172.

C. S. Reese, A. Wilson, J. Guo, M. Hamada, V. Johnson (2011). A Hierarchical Model for Estimating Reliability from Weapon System Surveillance Data. *Journal of Quality Technology* 43(2): 127-141.

A. Wilson, C. Anderson-Cook (2010). Discussion of "Reliability Growth Management Metrics and Statistical Methods for Discrete-Use Systems" by Hall, Ellner, Mosleh. *Technometrics* 52(4): 397-400.

G. Wilson, A. Wilson (2009). Collaboration at Frontiers of the Disciplines. *Academic Exchange Quarterly* 13(4): 94-97.

A. Wilson, A. Huzurbazar, K. Sentz (2009). The Imprecise Dirichlet Model For Multilevel Systems Reliability. *Journal of Statistical Theory and Practice* 3(1): 211-223.

N. Singpurwalla, A. Wilson (2009). Probability, Chance, and the Probability of Chance. *IIE (Institute for Industrial Engineers) Transactions* 41(1): 12-22.

G. Parnell, L. Borio, D. Banks, G. Brown, A. Wilson (2008). Scientists Urge DHS to Improve Bioterrorism Risk Assessment. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 6(4): 1-4.

C. Anderson-Cook, T. Graves, N. Hengartner, R. Klamann, A. Koehler, A. Wilson, G. Anderson, G. Lopez (2008). Reliability Modeling Using Both System Test and Quality Assurance Data. *Journal of the Military Operations Research Society* 13: 5-18.

A. Wilson, A. Huzurbazar (2007). Bayesian Networks for Multilevel System Reliability. *Reliability Engineering and Systems Safety* 92(10): 1413-1420.

A. Wilson, L. McNamara, G. Wilson (2007). Information Integration for Complex Systems. *Reliability Engineering and Systems Safety* 92(1): 121-130.

C. Anderson-Cook, T. Graves, M. Hamada, N. Hengartner, V. Johnson, C. S. Reese, A. Wilson (2007). Bayesian Stockpile Reliability Methodology for Complex Systems with Application to a Munitions Stockpile. *Journal of the Military Operations Research Society* 12(2): 25-38.

A. Wilson (2007). Hierarchical Markov Chain Monte Carlo for Bayesian System Reliability. *Encyclopedia of Statistics in Quality and Reliability*, F. Ruggeri, R. Kenett, F. Faltin, eds. Wiley, Chichester, UK, 824-828.

A. Wilson, T. Graves, M. Hamada, C. S. Reese (2006). Advances in Data Combination, Analysis, and Collection for System Reliability Assessment. *Statistical Science* 21(4): 514-531.

S. Keller-McNulty, G. Wilson, A. Wilson (2005). The Impact of Technology on the Scientific Method, with discussion. *Chance* 18(4): 4-8.

M. Hamada, H. Martz, C. S. Reese, T. Graves, V. Johnson, A. Wilson (2004). A Fully Bayesian Approach for Combining Multilevel Failure Information in Fault Tree Quantification and Corresponding Optimal Resource Allocation. *Reliability Engineering and Systems Safety* 86(3): 297-305.

A. Wilson, M. Hamada, M. Xu (2004). Assessing Production Quality with Nonstandard Measurement Errors. *Journal of Quality Technology* 36(2): 193-206.

C. S. Reese, A. Wilson, M. Hamada, H. Martz, K. Ryan (2004). Integrated Analysis of Computer and Physical Experiments. *Technometrics* 46(2): 153-164.

A. Wilson, C. S. Reese, M. Hamada, and H. Martz (2003). Integrated Analysis of Computational and Physical Experimental Lifetime Data. In *Mathematical Reliability: An Expository Perspective*, R. Soyer, N. Singpurwalla, T. Mazzuchi, eds. Kluwer Press, 183-194.

S. Keller-McNulty, A. Wilson. Reliability for the 21st Century (2003). In *Mathematical and Statistical Methods in Reliability*, B. Lindqvist, K. Doksum, eds., World Scientific, 15-30.

M. Hamada, H. Martz, C. S. Reese, A. Wilson (2001). Finding Near-Optimal Bayesian Experimental Designs via Genetic Algorithms. *The American Statistician* 55(3): 175-181.

A. Wilson (1998). Sample Size Calculations for Test and Evaluation. *The ITEA Journal of Test and Evaluation* 19(September/October): 46-51.

A. Wilson, V. Johnson. Models for Shape Deformation (1995). In *Bayesian Statistics 5*, J. Berger, J. Bernardo, A. P. Dawid, A. F. M. Smith, eds. Oxford University Press, 801-808.

A. Knebel, S. Janson-Bjerklie, J. Malley, A. Wilson, J. Marini (1994). Comparison of Breathing Comfort During Weaning with Two Ventilatory Modes. *American Journal of Respiratory and Critical Care Medicine* 149(January): 14-18.

Submitted/In Preparation

L. Wendelberger, A. Wilson, B. Reich. Multi-Model Penalized Regression. In preparation for *Journal of Applied Statistics*.

C. Edwards, R. Smith, J. Mattingly, A. Wilson. Localization of Fixed and Moving Radiation Sources using a Feedforward Neural Network with an Array of Sensors.

A. Hollis, N. Clark, T. Moore, A. Wilson. Bayesian Approaches for Long-Range Precision Fire Evaluation. In preparation for *Military Operations Research Journal*.

Peer-Reviewed Panel Reports

Empowering the Defense Acquisition Workforce to Improve Mission Outcomes Using Data Science. Committee for Improving Defense Acquisition Workforce Capability in Data Use National Academies of Sciences, Engineering, and Medicine, https://doi.org/10.17226/25979, 2021.

Improving Defense Acquisition Workforce Capability in Data Use: Proceedings of a Workshop in Brief, National Academies of Sciences, Engineering, and Medicine, https://doi.org/10.17226/25922, 2020.

Complex Decision Making in Networked Systems of Humans and Machines: A Multidisciplinary Approach. Committee on Integrating Humans, Machines and Networks: A Global Review of Data-to-Decision Technologies, National Research Council of the National Academies, 2014.

Assessing the Reliability of Complex Models: Mathematical and Statistical Foundations of Verification, Validation, and Uncertainty Quantification. Committee on Mathematical Foundations of Verification, Validation, and Uncertainty Quantification, National Research Council of the National Academies, 2012.

Phase III Report on Review of the Testing of Body Armor Materials for Use by the U.S. Army. Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, National Research Council of the National Academies, 2012.

Industrial Methods for the Effective Testing and Development of Defense Systems. Panel on Industrial Methods for the Effective Test and Development of Defense Systems National Research Council of the National Academies, 2011.

Phase II Report on Review of the Testing of Body Armor Materials for Use by the U.S. Army. Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, National Research Council of the National Academies, 2010.

Phase I Report on Review of the Testing of Body Armor Materials for Use by the U.S. Army: Letter Report. Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, National Research Council of the National Academies, 2009.

Department of Homeland Security Bioterrorism Risk Assessment: A Call for Change. Committee on Methodological Improvements to the Department of Homeland Security's Biological Agent Risk Analysis, National Research Council of the National Academies, 2008.

Mathematics for Analysis of Petascale Data: Report on a Department of Energy Workshop. Applied Mathematics Program of the Office of Advanced Scientific Computing Research (ASCR), Office of Science, Department of Energy, 2008.

Improved Operational Testing and Evaluation and Methods of Combining Test Information for the Stryker Family of Vehicles and Related Army Systems: Phase II Report. Panel on Operational Test Design and Evaluation of the Interim Armored Vehicle, National Research Council of the National Academies, 2004.

Improved Operational Testing and Evaluation: Better Measurement and Test Design for the Interim Brigade Combat Team with Stryker Vehicles, Phase I Report. Panel on Operational Test Test Design and Evaluation of the Interim Armored Vehicle, National Research Council of the National Academies, 2003.

Peer-Reviewed Technical Reports

J. Lee, J. Rathsam, A. Wilson (2019). Statistical Modeling of Quiet Sonic Boom Community Response Survey Data. NASA/TM-2019-220427.

M. Avery, J. Cartier, S. Cazares, P. Dolph, J. Fregeau, J. Holzer, K. Morrison, S. Nunes, K. Papadantonakis, S. Renn, J. Snyder, K. Spencer, A. Wilson (2013). Review of Methods and Algorithms for Dynamic Management of CBRNE Collection Assets. IDA Document ID P-4995.

M. Ambroso, A. Kelley, A. Wilson (2013). Reliability Basics: Key Reliability Concepts for DT&E. IDA Document ID P-4925.

E. Adelizzi, R. Bontz, J. Fleury, A Kelley, A. Kim, R. Mahoney, J. Palguta, S. Renn, G. Sharp, J. Urban, R. Uy, A. Wilson (2013). Analytical Support to the Hard and Deeply Buried Target Defeat Deep Dive Team: Final Report. IDA Document ID P-4998.

S. Jonas and A. Wilson. Foresight and Understanding from Scientific Exposition (2012). IDA Document ID 2012-08482.

B. Lal, S. Jonas, A. Wilson, E. Lee, A. Richards, V. Peña (2012). An Outcome Evaluation of the National Institutes of Health (NIH) Director's Pioneer Award (NDPA) Program, FY 2004-2006. IDA Document ID P-4899.

B. Lal, S. Jonas, A. Wilson, E. Lee, A. Richards, V. Peña (2012). Preliminary Findings of Outcome Evaluation of the National Institutes of Health (NIH) Director's Pioneer Award (NDPA) Program, FY 2004-2006. IDA Document ID 2012-07132.

M. Ambroso, B. Barrois, J. Buontempo, D. DeRiggi, J. Fox, M. Fries, K. Guerrera, J. Hong, D. Hunter, A. Kim, S. Ouellette, G. Sharp, R. Uy, G. Willmes, A. Wilson (2012). Independent Review and Assessment of the Ground-Based Midcourse Defense System. IDA Document ID P-4802.

L. Freeman, A. Wilson, M. Nuñez (2012). Leveraging Simulation Rools into Operational Test Solutions for MQ-9 Using Experimental Design and Analysis Techniques (Memorandum). IDA Document ID 2012-06610.

B. Lal, S. Jonas, A. Wilson, E. Lee, V. Peña, A. Richards (2012). NDPA Program Evaluation Study Design (Memorandum). IDA Document ID 2012-06285.

P. Flattau, S. Nash, M. Nuñez, A. Wilson, D. Basco, A. Laskey, S. Jonas (2011). Overlap, Redundancy, and Fragmentation in the 2011 Inventory of Federal STEM Education. IDA Document ID 2011-06156.

P. Kegelmeyer et al. Network Discovery, Characterization, and Prediction: A Grand Challenge LDRD Final Report (2010). Sandia National Laboratories SAND Report 2010-8715.

C. Anderson-Cook, M. Hamada, A. Huzurbazar, A. Wilson, Q. Fatherley (2009). B-61 Subsystem Resource Allocation Case Study. LA-UR-09-05932.

D. Monroe, A. Huzurbazar, E. Kelly, A. Wilson, D. Ceman, J. Trujillo, D. Borovina (2009). An Element of Test Fire Optimization: Detonator Reliability for Potential Future Designs (Preliminary Report). LA-CP-09-00726.

A. Wilson, Q. Fatherley, M. Mundt, M. Dvorack (2008). Case Study System Uncertainty Block Diagram. LA-UR-08-1000.

R. Barber, B. Smith, R. Valicenti, S. McCready, K. Kelley, D. Crane, B. Aubert, F. Guerra, D. Harradine, S. Joyce, A. Wilson, G. Wilson, E. Lawrence, J. Reynolds, J. Bridgewater, M. Salmon, J. Mitchell, D. Schwartz, D. Brown, M. Prime, T. Sisneros, P. Burgardt, C. Necker, D. Veirs, T. Ickes, W. Ward, D. Gardiner, C. Cady, B. Taylor, R. Brunner, A. Chavez, D. Court, A. Sharif Heger, A. Charmatz, E. Schwegler, S. Abeln, D. Riha, B. Thacker (2007). Engineering Assessment of the Los Alamos National Laboratory—Manufactured Type 126 Pit. LA-CP-07-0778.

D. Harradine, S. Joyce, A. Wilson, G. Wilson, E. Lawrence, J. Reynolds, J. Bridgewater (2007). Requalification of Plutonium Chemical Aspects of LANL Manufactured Pits. LA-CP-07-0777.
D. Monroe, A. Munger, K. Laintz, A. Wilson, J. Kramer (2007). PETN Stabilization: Thermal Stress Effects of Four PETN Batches. LA-CP-07-0804.
T. Zocco, L. Morales, D. Teter, S. Larson, T. Stephens, A. Wilson, M. Elliot (2007). Enhanced Surveillance Campaign Input to the LANL 2007 Annual Assessment. LA-CP-07-0306.
C. Anderson-Cook, T. Graves, E. Lawrence, S. Vander Wiel, A. Wilson, G. Anderson, N. Delacruz, G. Lopez (2007). Stockpile Reliability Estimates for the TOW Missile. LA-CP-07-0998.
C. Anderson-Cook, T. Graves, A. Koehler, E. Lawrence, S. Vander Wiel, A. Wilson (2005). Comparing Different System Reliability Estimation Methods. LA-UR-05-9401.
A. Wilson (2005). Nuclear Explosives Package Reliability Assessment Methodology. LA-CP-05-0904.
A. Wilson, T. Graves, N. Hengartner, R. Klamann, A. Koehler, G. Anderson, K. Deal, G. Lopez (2004). Development of an Integrated Stockpile Reliability Model for the TOW Missile. LA-CP-04-0644.
A. Wilson, S. Keller-McNulty (2003). Complex Information Integration for Reliability and Performance Estimation for the BMD Family of Systems. LA-UR-03-5598.
N. Hengartner, A. Wilson (2003). Bayesian Stockpile Reliability Methodology for Complex Systems with Application to the STINGER Missile Stockpile. LA-CP-03-0894.
S. Eubank, C. Barrett, S. Michalak, D. Roberts, A. Wilson, G. Wilson (2002). Assessment of Responses to Smallpox Attack: Report to the Office of Homeland Security. LA-CP-02-0284.
C. S. Reese, J. Morzinski, A. Wilson (2002). Assessing Stinger Stockpile Reliability Using Information Integration Technology. LA-CP-02-0164.
A. Wilson, T. Graves, G. Hemphill (2002). Statistical Analysis Appendix for Process Qualification Plan 145. LA-CP-02-0104.
J. Booker, S. Keller-McNulty, M. Meyer, C. S. Reese, A. Wilson (2001). Probabilistic Information Integration Technology. LA-UR-01-1060.
T. Graves, A. Wilson (2001). Statistical Analysis of Part Homogeneity. LA-CP-01-0450.
T. Graves, A. Wilson (2001). Statistical Analysis of Gallium Concentrations. LA-CP-01-0449.
A. Wilson (2001). Statistical Analysis of DCArc Data and Statistical Analysis of RFP Tbred Data. LA-CP-01-0346.
T. Graves, A. Wilson (2001). Statistical Analysis of Plutonium Exchange Data (1985-1988) and AWE Exchange Data. LA-CP-01-0194.
A. Wilson (2001). Chemical Analysis of WR Ingot Data. LA-CP-01-0193.
T. Graves, A. Wilson (2001). Statistical Appendix for Process Qualification Plan 141a and Process Qualification Plan 150-Rev A: Plutonium Assay by Controlled Potential Coulometry and Dissolution. LA-CP-01-0187.
T. Graves, A. Wilson (2001). Statistical Appendix for Process Qualification Plan 153-Rev A: Spectrophotometric Determination of Iron in Plutonium Materials. LA-CP-01-0186.
T. Graves, A. Wilson (2001). Statistical Appendix for Process Qualification Plan 142-Rev A: Pu Isotopic Distributions of Pu Materials by Thermal Ionization Mass Spectrometry. LA-CP-01-0185.
A. Wilson, S. Keller-McNulty (2000). Statistical Representations for Information Integration. LA-UR-00-4850.

M. McNulty, A. Wilson, S. Keller-McNulty (2000). Information Integration Technology. LA-UR-00-4849.

A. Wilson, M. Morris, J. Morrison (1999). NMD BMC2 Algorithm Analysis: Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software. LA-CP-99-0264.

Primary Author of *Draft Joint Tactical Ground Station Regression Testing System Assessment*. Prepared for U.S. Army Operational Evaluation Command, 1997.

Primary Author of *Draft Joint Tactical Ground Station Product Verification Test/First Article Test Operational Assessment*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft Joint Tactical Ground Station Product Verification Test/First Article Test Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Analysis Report*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Test and Evaluation Report*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test Analysis Report*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test and Evaluation Report*. Prepared for U.S. Army Operational Evaluation Command, 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command, 1995.

EXTERNAL FUNDING

Research Funding

2020-2021 Reliability Modeling and Experimental Design for the Extended Range Cannon Artillery Increment 2, U.S. Military Academy at West Point, $20,000 (PI)

2019-2023 Laboratory for Analytic Sciences, National Security Agency and other U.S. and International Intelligence Community Partners, $70M (PI)

2019-2020 MAVEN Test and Evaluation Research, Carnegie Mellon University, $250,000 (PI)

2018-2022 Science of Test Research Consortium, Director Operational Test and Evaluation and Developmental Test and Evaluation Test Resource Management Center, $478,430 (PI)

2017-2019 Dose-Response Modeling of Existing Sonic Boom Datasets, National Institute of Aerospace for NASA, $95,000 (PI)

2016-2021 NRT-DESE: Interdisciplinary Research Traineeships in Data-Enabled Science and Engineering of Atomic Structure, $2.99M (Co-Investigator)

2014-2020	Consortium for Nonproliferation Enabling Capabilities, National Nuclear Security Administration, $24M (overall), $300,000/year (Wilson, Co-Investigator)
2014-2018	The Science of Test: Advanced Test and Evaluation in Support of the DOD Test and Evaluation Enterprise, Director Operational Test and Evaluation and Developmental Test and Evaluation Test Resource Management Center, $6.3M (overall), $100,000/year (Wilson, Co-Investigator)
2013-2018	Laboratory for Analytic Sciences, National Security Agency and other U.S. and International Intelligence Community Partners, $56M (PI)
2014-2017	North Carolina Data Sciences and Analytics Initiative, UNC-General Administration, $2.17M (overall), $721,000 (NCSU, Co-PI)
2014-2016	PARAKEET: Performance and Reliability Assessments for Knowledge of Electronic Emissions Technology, National Nuclear Security Administration, $10.5M (overall), $40,000/year (Wilson, Co-Investigator)
2014	Data Readiness Level, Laboratory for Analytic Sciences, $100,000 (PI). Technical Coordinator for Data Readiness Task.
2013-2015	Science of Security Lablet, National Security Agency, $2.5M (overall), $50,000/year (Wilson, Co-Investigator)
2013-2014	Information Content to Assess Data Readiness, Laboratory for Analytic Sciences, $50,000 (overall), $25,000 (Wilson, Co-PI)
2013-2014	Scalable Clustering Methods for Dynamic Health Data, Research Innovation Seed Funding, North Carolina State University, $26,000 (Co-PI)
2013	Data Collection Instrument to Evaluate the Scientific Impact of Logistical Support Provided by the United States Antarctic Program, National Science Foundation, $150,000 (IDA project, PI)
2013	Bibliometrics and Expert Judgment Methodology, IDA Corporate Research Program, $15,000 (PI)
2013	Early Detection of Reliability Growth Issues, IDA Corporate Research Program, $15,000 (PI)
2012-2013	Dynamic Analysis and Management of CBRNE Collection Assets, Defense Threat Reduction Agency, $400,000 (IDA project, PI)
2012	Formalizing Observational Studies and Expert Panels, IDA Corporate Research Program, $60,000 (Co-PI)
2010-2013	Statistically Significant Relational Data Mining, Sandia National Laboratories, $1,699,000 (overall), $265,000 (Wilson, Co-Investigator)
2008-2012	Estimative Language and Statistical Relational Learning, Sandia National Laboratories, $285,000 (Co-PI)
2005-2008	LANL Systems Main Technical Element, Department of Energy Enhanced Surveillance Campaign, $2.5M/year (LANL project, PI)
2004	Ballistic Missile Defense System On-Alert Capability Assessment, Missile Defense Agency, $150,000 (LANL project, PI)
2003-2008	Munitions Stockpile Reliability Assessment, Department of Defense/Department of Energy Joint Munitions Program, $600,000/year (LANL project, PI)
2002-2004	Space and Missile Defense Command Critical Measurements Program, Missile Defense Agency, $300,000/year (LANL project, PI)
2001-2002	Stores Separation Project, F-22 Program Office, $300,000/year (LANL project, PI)

2001 Software Reliability Assessment, Army Test and Evaluation Command, $100,000 (LANL project, PI)

Teaching Funding

2016 A Department-Wide Mentoring Initiative to Encourage URM Student Success in Statistics, North Carolina State University Diversity Mini-Grant Program, $1600 (Co-Investigator)

2014 Workshop on Opportunities for Modern Statistics in Materials and Chemistry Research, Eastman Chemical Company, $9000 (Co-PI)

2014 North Carolina State University Library Alt-Textbook Mini-Grant, $500 (PI)

2011 Mathematics and Statistics Opportunities for Undergraduates Conference, Iowa State University Women's Enrichment Mini-Grant, $800 (Co-PI)

2010-2011 Strengthening Quantitative Literacy Using Case-Based Learning, Iowa State University Miller Faculty Fellowship, $9672 (Co-PI)

HONORS

Awards

2019 North Carolina American Statistical Association Senior Statistician Award for outstanding contributions to the theory and practice of statistics, particularly for contributions to the development of the subject in North Carolina

2019 NCSU Department of Statistics D.D. Mason Award for faculty excellence

2018 American Statistical Association Section on Statistics in Defense and National Security Distinguished Achievement Award

2017 American Statistical Association Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award for the Laboratory for Analytic Sciences

2017 North Carolina State University Research Leadership Academy

2017 2016-2017 Alumni Association Outstanding Research Award

2015 Fellow of American Association for the Advancement of Science

2015 Army Wilks Award

2012 Elected Member of the International Statistical Institute

2009 Department of Energy Defense Programs Award of Excellence for significant contributions to the Stockpile Stewardship Program through contributions to the Joint Munitions Program

2008 Los Alamos National Laboratory Director's Distinguished Performance Award (Large Team), Detonator Powder Aging

2008 Department of Energy Defense Programs Award of Excellence for significant contributions to the Stockpile Stewardship Program through contributions to understanding high explosive detonator powder longevity

2008 Fellow of the American Statistical Association

2008 LANL Star Award, Los Alamos Women's Diversity Working Group and the Office of Equal Opportunity and Diversity

2007 Department of Energy Defense Programs Award of Excellence as member of the Los Alamos National Laboratory Core Surveillance Transformation Team

2005 Los Alamos National Laboratory Achievement Award for leadership in the quality initiative to transform reliability assessment for the nuclear stockpile

2003 Best Broad-Appeal Paper (with S. Keller-McNulty) for *Uncertainty Quantification for Complex Engineered Systems*, JANNAF 39th Combustion/27th Airbreathing Propulsion/21st Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting, Colorado Springs, CO
2000 Los Alamos National Laboratory Achievement Award for leadership in DoD program development
1995 Savage Dissertation Award in Bayesian Statistics for *Statistical Models for Shapes and Deformations* (advisor V. Johnson)
1993 Honorable Mention, Gertrude Cox Scholarship, American Statistical Association's Committee on Women in Statistics and the Caucus for Women in Statistics
1992 Clare Boothe Luce Fellowship for Women in Science, Duke University
1992 James B. Duke Fellowship in Statistics, Duke University
1992 National Institute of Health, Division of Computer Research and Technology Employee of the Month
1989 National Science Foundation Graduate Research Fellowship
1989 Phi Beta Kappa

Recognition by Appointment to National Service

2021-2022 National Academies of Sciences, Engineering, and Medicine's Committee for Emerging Trends in Aviation Safety
2021-2022 National Academies of Sciences, Engineering, and Medicine's Committee on Risk Analysis for Nuclear War and Nuclear Terror
2021 Pacific Northwest National Laboratory Chemical Dynamics Initiative Review Committee
2021 National Academies of Sciences, Engineering, and Medicine's Panel on Review of Selected Divisions of the National Institute of Standards and Technology Information Technology Laboratory
2020 External Review Committee, Department of Statistics, Brigham Young University
2019-2021 National Academies of Sciences, Engineering, and Medicine's Committee for Improving Defense Acquisition Workforce Capability in Data Use
2018-2023 National Institute for Statistical Sciences Board of Trustees, Finance Committee (2018-2020), Executive Committee (2021-2023)
2018-2021 Committee on Applied and Theoretical Statistics, National Academies of Sciences, Engineering, and Medicine
2017-2021 Computational Information Systems Laboratory, National Center for Atmospheric Research Advisory Panel
2008-2018 Sandia National Laboratories' Predictive Engineering Science Panel
2017 National Academies of Sciences, Engineering, and Medicine's Steering Committee on Learning from the Science of Cognition and Perception for Decision Making: A Workshop
2013-2015 Bowling Green State University Department of Mathematics and Statistics Computational Mathematics and Statistics Advisory Board
2013 Department of Energy Applied Mathematics Program Committee of Visitors
2013 Invited Participant, Department of Energy Office of Science Advanced Scientific Computing Research Crosscutting Requirements Review

2012-2014 National Academies of Sciences, Engineering, and Medicine's Committee on Integrating Humans, Machines and Networks: A Global Review of Data-to-Decision Technologies

2011-2012 National Academies of Sciences, Engineering, and Medicine's Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, Phase 3

2010-2012 National Academies of Sciences, Engineering and Medicine's Committee on Mathematical Foundations of Validation, Verification, and Uncertainty Quantification

2010 National Academies of Sciences, Engineering, and Medicine's Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, Phase 2

2010 Invited Participant, Defense Threat Reduction Agency/Sandia National Laboratories Workshop on Challenges in Computational Social Science

2009-2011 University of Michigan Predictive Science Academic Alliance Program Review Panel, Department of Energy

2009 National Academies of Sciences, Engineering, and Medicine's Committee to Review the Testing of Body Armor Materials for Use by the U.S. Army, Phase 1

2008-2011 National Academies of Sciences, Engineering, and Medicine's Panel on Industrial Methods for the Effective Testing and Development of Defense Systems

2008 Invited Participant, Chief of Naval Operations Distinguished Fellows Workshop on Critical Infrastructure Vulnerability

2008 Organizing Committee and Invited Participant, Department of Energy Office of Science Applied Mathematics Research Program, Workshop on Mathematical Issues for Petascale Data Sets

2006-2007 National Academies of Sciences, Engineering, and Medicine's Panel on Methodological Improvement to the Department of Homeland Security's Biological Agent Risk Analysis

2006 Invited Participant, Department of Energy Office of Science Workshop on Mathematical Research Challenges in Optimization of Complex Systems

2006 Subcommittee Co-chair, Verification and Uncertainty Quantification, DOE Office of Nuclear Energy and Office of Advanced Scientific Computing Research, Simulation and Modeling for Advanced Nuclear Energy Systems Workshop

2006 Chair, American Statistical Association President's Task Force on Statistics in Defense and National Security

2002-2003 National Academies of Sciences, Engineering, and Medicine's Panel on the Operational Test Design and Evaluation of the Interim Armored Vehicle

TEACHING

University

F2015 **ST 495/CSC 495 Introduction to Data Sciences** (46 students, 3 Cr.), North Carolina State University undergraduate course. Co-taught with R. Chirkova.

F2014 **ST 495/CSC 495 Introduction to Data Sciences** (49 students, 3 Cr.), North Carolina State University undergraduate course. Co-taught with R. Chirkova.

F2013 **ST 740 Bayesian Inference and Analysis** (34 students, 3 Cr.), North Carolina State University graduate course.

F2013 **ST 515 Experimental Statistics for Engineers** I (56 students, 3 Cr.), North Carolina State University graduate course. *Thank-a-Teacher Recipient*.

F2012 **STAT 6289 Bayesian Computation** (10 students, 3 Cr.), George Washington University graduate course.
S2011 **STAT 544 Bayesian Statistics** (19 students, 3 Cr.), ISU graduate course.
S2010 **STAT 544 Bayesian Statistics** (32 students, 2 sections, 3 Cr.), ISU graduate course.
F2009 **STAT 326 Introduction to Business Statistics II** (146 students, 4 sections, 3 Cr.), ISU undergraduate course. Co-coordinated with U. Genschel (258 students, 7 sections).
S2009 **STAT 544 Bayesian Statistics** (28 students, 3 Cr.), ISU graduate course.
S2009 **LAS 290G Special Problems/Understanding Technical Risk: Culture and Analysis** (5 students, 1 Cr.), ISU undergraduate course. Co-taught with G. Wilson.
F2008 **STAT 101 Principles of Statistics** (87 students, 2 sections, 4 Cr.), ISU undergraduate course.
S1995 **STA 290 Case Studies in Applied Statistics**, Duke University graduate course. Co-taught with M. Lavine.

Short Courses

2008 A. Wilson, C. Anderson-Cook, M. Hamada, S. Vander Wiel, E. Lawrence. Statistical Methods for Core Surveillance, Los Alamos National Laboratory, Los Alamos, NM
2004 C. Anderson-Cook, A. Wilson, A. Koehler, T. Graves, C. Chiu. Integrated Reliability Assessment. U.S. Army Aviation and Missile Command, Huntsville, AL
2004 A. Wilson. Reliability Section Joint Nuclear Explosives Training Facility Surveillance Engineering Course, Los Alamos National Laboratory, Los Alamos, NM
2003 S. Keller-McNulty, A. Wilson, G. Wilson, A. Koehler. Information Integration Technologies for Complex Systems. Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN
2003 S. Keller-McNulty, N. Hengartner, A. Wilson, C. S. Reese. Integrated Reliability Assessment. Marine Corps Program Department, Fallbrook, CA
2002 A. Wilson, D. Leishman, C. S. Reese. Knowledge Integration for Decision Making. Army SMART Conference, Salt Lake City, UT
2000 A. Wilson, C. S. Reese, S. Keller-McNulty, M. Meyer, J. Booker, T. Bement, M. McNulty. Data, Knowledge, and Information Integration to Support Decision Making. U.S. Army Conference on Applied Statistics, Rice University, Houston, TX
1992 A. Wilson. DCRT 213: SAS Fundamentals II. National Institutes of Health, Bethesda, MD
1992 A. Wilson. DCRT 212: SAS Fundamentals I. National Institutes of Health, Bethesda, MD
1992 A. Wilson, F. Yamada. DCRT 256: Topics in S-PLUS. National Institutes of Health, Bethesda, MD

Educational Outreach

2003- National Youth Science Camp, Bartow, WV (www.nysc.org)
2018- Professional Strategies Working Group, Department of Statistics, NC State University, Raleigh, NC
2020 Teamwork, Developing Business and Professional Skills for Graduate Students and Postdocs Virtual Event, Duke University, Durham, NC
2020 Harnessing Data for Decision Making, Office of Undergraduate Research Connect Power Hour, NC State University, Raleigh, NC

2020 Data Science, Discussion for Faculty and Students from Nagoya University, NC State University, Raleigh, NC
2018 Statistics and Big Science, Keynote, NC Science Olympiad, Raleigh, NC
2018 Women in Data Science Panel Discussion, WiDS Raleigh @ NC State, Raleigh, NC
2014 Interdisciplinary Collaborations between Government, Industry, and Academia. Korean-American Scientist and Engineering Association, North Carolina Chapter.
2011 EDGE@ISU presents Mathematics and Statistics Opportunities for Undergraduates. Iowa State University, Ames, IA
2010 Preparing Future Faculty: Returning to Academia. Iowa State University, Ames, IA.
2010 Statistics in Defense and Security. Iowa Alliance Mathematics/ Statistics Research Experience for Undergraduates, Iowa State University, Ames, IA
2008 National Alliance for Doctoral Studies in the Mathematical Sciences, Second Annual Iowa Mathematical Field of Dreams Conference. Iowa State University, Ames, IA
2006 Statistics and Big Science. StatFest 2006, University of Texas, El Paso

ADVISING AND MENTORING

2016- NCSU Cluster Faculty External Mentor
2014- NCSU Department Faculty Research and Teaching Mentor
2016 NCSU Mentor-Ring Mentor

Postdoctoral Fellows

2019-2020 Christine Brugh
2017-2019 Eli Typhina
2016-2018 Héctor Rendón
2015-2017 Karl Pazdernik

Ph.D. Students

2018 Milo Page, North Carolina State University, Department of Statistics, "Automated Data Imputation: Extending Low Rank Matrix Imputation Techniques For Statistical Prediction Modeling" (co-mentored by C. Gotwalt)
2017 Jordan Bakerman, North Carolina State University, Department of Statistics, "Twitter Analytics: Geotag Imputation, Forecasting, and Dynamic Variable Selection" (co-mentored by K. Pazdernik)
2017 Yiqing Tian, North Carolina State University, Department of Statistics, "Variable Selection in Logistic Regression with Applications" (co-advisor with H. Bondell)
2016 Xiang Zhang, North Carolina State University, Department of Statistics, "Contributions to Statistical Methods for High-Dimensional and Dependent Data" (co-advisor with L. Li)
2016 Zhen Han, North Carolina State University, Department of Statistics, "Statistical Methods for Relational Data: Visualization, Classification, and Topic Modeling on Networks"
2012 Roger Zoh, Iowa State University, Department of Statistics, "Using the Negative Log-Gamma Distribution for Bayesian System Reliability Assessment"
2011 Jiqiang Guo, Iowa State University, Department of Statistics, "Bayesian Methods for System Reliability and Community Detection"

2008 Kari Sentz, Binghamton University, Department of Systems Science and Industrial Engineering, "Methods of Probability and Imprecise Probability for Uncertainty Quantification in Applied Problems" (co-major professor with G. Klir)

In progress

Conor Artman, North Carolina State University, Department of Statistics
Andrew Hollis, North Carolina State University, Department of Statistics (co-advisor with R. Smith)
Laura Wendelberger, North Carolina State University, Department of Statistics (co-advisor with B. Reich)

M.S. Students

2019 Jasme Lee, North Carolina State University, Department of Statistics, "Dose-Response Modeling of Quiet Sonic Boom Community Response Survey Data" (co-mentored by J. Rathsam)
2015 Hillary Graham, North Carolina State University, Department of Statistics, "Incorporating Concomitant Medications into Linear Models for Genome-Wide Association Studies" (co-mentored by D. Rotroff)
2011 Susan Vander Plas, Iowa State University, Department of Statistics, "Statistical Analysis of Atom Probe Mass Spectra"
2011 Matt Simpson, Iowa State University, Department of Statistics, "A Bayesian Analysis of an Exchange and Specialization Experiment"
2011 Erin Buchanan, Iowa State University, Department of Statistics, "Credible Intervals: Practical Applications in Energy Efficiency Impact Evaluation"
2011 Jing Li, Iowa State University, Department of Statistics, "Test Plans for Weibull Bayesian Assurance Testing in Reliability"
2010 Ralph Culver, Iowa State University, Department of Statistics, "Bayesian Analysis of Gauge R&R Data"
2010 Robert Foster, Iowa State University, Department of Statistics, "Simulation Analysis of a Bayesian Test Plan for Sequential Data from a Homogeneous Poisson Process"
2010 Randy Griffiths, Iowa State University, Department of Statistics, "Using Hierarchical Models to Find Test Plans for Binary Data"
2009 Roger Zoh, Iowa State University, Department of Statistics, "Comparison of Various Methods for Constructing Confidence Intervals for Two Multivariate Capability Indices in a Gauge R&R Study"

Ph.D. Committee Member

2021 Bowen Liu, North Carolina State University, Department of Statistics
2021 Matthew Miller, North Carolina State University, Department of Statistics
2020 Katherine Allen Moyer, North Carolina State University, Department of Statistics
2020 Joyce Cahoon, North Carolina State University, Department of Statistics
2019 Arnab Chakraborty, North Carolina State University, Department of Statistics
2019 Bharat Balagopal, North Carolina State University, Department of Electrical and Computer Engineering
2019 Isaac Michaud, North Carolina State University, Department of Statistics
2018 Adam Amos-Binks, North Carolina State University, Department of Computer Science

2018 Jami Jackson Mulgrave, North Carolina State University, Department of Statistics
2018 Siddharth Rastogi, North Carolina State University, Textile Technology Management
2018 Joshua Day, North Carolina State University, Department of Statistics
2017 Brian Naughton, North Carolina State University, Department of Statistics
2016 Kelsey Gaisor, North Carolina State University, Biomathematics Graduate Program
2016 Priyam Das, North Carolina State University, Department of Statistics
2016 Yuan Zhang, North Carolina State University, Department of Electrical and Computer Engineering
2016 Sam Morris, North Carolina State University, Department of Statistics
2016 Reka Howard, Iowa State University, Department of Statistics
2016 Yan Dora Zhang, North Carolina State University, Department of Statistics
2015 Ryan Parker, North Carolina State University, Department of Statistics
2015 Bradley Turnbull, North Carolina State University, Department of Statistics
2015 Prithwish Bhaumik, North Carolina State University, Department of Statistics
2014 Emily Casleton, Iowa State University, Department of Statistics
2013 Jia Liu, Iowa State University, Department of Statistics
2013 Shiyao Liu, Iowa State University, Department of Statistics
2013 Amy Hoeksema, Iowa State University, Department of Statistics
2012 Karl Pazdernik, Iowa State University, Department of Statistics
2011 Cherie Alf Kientoff, Iowa State University, Department of Statistics
2011 Brian Weaver, Iowa State University, Department of Statistics
2010 Adam Pintar, Iowa State University, Department of Statistics

In progress

Kasia Dobrzycka, North Carolina State University, Department of Statistics
Khuzaima Hameed, North Carolina State University, Department of Statistics
Jirapat Samranvedhya, North Carolina State University, Department of Statistics

M. S. Committee Member

2015 Kaaviya Palanivel Kathirvel, North Carolina State University, Integrated Manufacturing and Systems Engineering Institute
2014 Andrea Kaplan, Iowa State University, Department of Statistics
2010 Luke Fostvedt, Iowa State University, Department of Statistics
2010 Shiyao Liu, Iowa State University, Department of Statistics
2010 Amy Borgen, Iowa State University, Department of Statistics
2008 Brian Weaver, Iowa State University, Department of Statistics

Graduate Research Assistants

2020-2021 Andrew Hollis, Kate Sanborn, Khuzaima Hameed
2019-2020 Andrew Hollis, Joyce Cahoon, Chris Edwards
2018-2019 Katherine Allen Moyer, Andrew Hollis, Jasme Lee, Todd Wilson, Caleb Weaver, Joyce Cahoon
2017-2018 Katherine Allen Moyer, Jordan Bakerman, James Gilman, Nick Johnson, Jasme Lee, Susheela Singh, Laura Wendelberger
2016-2017 Jordan Bakerman, James Gilman, Susheela Singh

2015-2016 Jordan Bakerman, Caleb Browning, James Gilman, Hillary Graham, Zhen Han, Nick Meyer, Xiang Zhang
2014-2015 Caleb Browning, Nick Meyer, Merve Tekbudak
2013-2014 Andrea Kostura

Undergraduate Research Assistants
2019-2020 Kate Sanborn
2014-2015 James Gilman

NCSU Park Scholar Mentor
2019-2023 Katelyn McInerney
2018-2022 Shannon Pinnell
NCSU Department Independent Study
2021 Manali Shireskar

NCSU Consulting Project Mentor
2016 Candice Park and Tian Guo, Survival Analysis of Faculty Retention
2014 Jennifer Ran Wei and Qianwen Tan, NC 4-H Evaluation Learning Circle

LANL Summer Students
2007 Brian Weaver, Iowa State University
2006 Brian Weaver, University of New Mexico
2003 Kristi O'Grady, North Carolina State University
2003 Morgan Harris, Virginia Military Institute
2001 Meng Xu, University of Idaho
2001 Andrew Swift, George Washington University

SERVICE
Editorial
2018-2021 Associate Editor, *Harvard Data Science Review*
2018 Guest editor for *Chance* special issue (April 2018) on defense and national security (with D. Banks)
2012-2014 Associate Editor, *Journal of Uncertainty Quantification*
2011-2013 Reviews Editor of the *Journal of the American Statistical Association* and *The American Statistician*
2010-2012 Managing Editor, *Bayesian Analysis*
2008-2010 Associate Editor for Reviews, *Journal of the American Statistical Association* and *American Statistician*
2006 Guest editor for *Statistical Science* special issue on reliability (with S. Keller-McNulty and C. Anderson-Cook)

Review and Referee
National Science Foundation, Department of Energy Office of Science, National Academies of Sciences, Engineering, and Medicine, Army Research Office, American Association for the Advancement of Science, John Wiley & Sons, Taylor & Francis, Springer, *Applied Stochastic Models in Business and Industry, Bayesian Analysis, Chinese Journal of Aeronautics, CRC*

Press, Harvard Data Science Review, IEEE Transactions on Engineering Management, IEEE Transactions on Fuzzy Systems, IEEE Transactions on Medical Imaging, International Journal of Approximate Reasoning, International Journal of General Systems, Journal of the American Statistical Association, Journal of Statistics Education, Mathematical Geology, Naval Research Logistics, Notices of the American Mathematical Society, *Quality Engineering, Quality and Reliability Engineering International, Reliability Engineering and System Safety, Risk Analysis, South African Statistical Journal, Springer, Stat*, *Statistical Science, Statistics in Medicine, Technometrics*

American Association for the Advancement of Science

2016-2020 Secretary, Section U (Statistics)

American Statistical Association

2019-2021 Vice Chair, Council of Sections
2013-2018 Council of Sections Representative, Section on Statistics in Defense and National Security
2010-2012 Nomination Committee, Section on Bayesian Statistical Sciences
2009-2011 *Techometrics* Management Committee
2009-2011 Program Chair-Elect, Program Chair, Past Program Chair, Section on Bayesian Statistical Sciences (2010 JSM Program Committee)
2009-2010 American Statistical Association Working Group on Strategic Plan Focus: Visibility and Impact in Policy Making
2008-2010 Speakers Committee Chair, Section on Statistics in Defense and National Security
2006-2008 Chair-Elect, Chair, Past Chair, Section on Statistics in Defense and National Security
2004-2005 Secretary/Treasurer/Webmaster, Section on Statistics in Defense and National Security
2002-2003 President, Albuquerque Chapter
2001-2002 Vice-President, Albuquerque Chapter
2000-2005 Member, Committee on Statisticians in Defense and National Security

Institutional Service

North Carolina State University

2021- Analytics Hub Steering Team
2021 Search Committee, Goodnight Distinguished Professorship in Agricultural Analytics
2021 Research Task Force Co-Chair, Post COVID-19 Innovation Task Force
2021 Search Committee Chair, Data Science Academy Executive Director
2021 Search Committee Chair, Data Science Academy Teaching Postdoctoral Fellows
2020- Research Data Security Compliance Steering Group
2020 Research Computing and Data Service Team
2019-2020 Search Committee Chair, Data-Driven Science Cluster
2019-2022 University Standing Committee on Commencement
2016 Task Force for Interdisciplinary and Joint Faculty Review
2014-2017 University Standing Committee on Commencement
2014-2017 University Diversity Advisory Committee

2013-2016 Search Committee, Data-Driven Science Cluster

North Carolina State University, Department of Statistics
2019 Qualifying Exam Committee
2018-2019 Faculty Search Committee
2017-2018 Seminar Committee
2016-2017 Department Head Search Commitee
2014-2015 Big Data Committee
2014-2015 Faculty Search Committee
2013-2015 Preliminary Exam Committee (Chair, 2014-2015)

Institute for Defense Analyses
2012 Baccalaureate Fellows Hiring Committee
2012 Research Associate Hiring Committee
2012 Research Staff Hiring Committee

Iowa State University, College of Liberal Arts and Sciences
2009-2011 College Diversity Committee
2010-2011 Senior Mentor, EDGE@ISU Mentoring Cluster (Enhancing Diversity in Graduate Education, Departments of Mathematics and Statistics)

Iowa State University, Department of Statistics
2010-2011 Graduate Committee
S2011 Seminar Chair
2010-2011 Department Diversity Representative
2009-2010 Curriculum Committee
2009-2010 PhD/MS Exam Committee
2008-2011 Iowa STAT-ers Advisor
2008-2010 Faculty Search Committee
2008-2009 Information Technology/System Administrator Search Committee
2008-2009 Computation Advisory Committee

Los Alamos National Laboratory
2007 Los Alamos National Laboratory Laboratory-Directed Research and Development Exploratory Research in Computing and Information Sciences Peer-Review and Funding Committee
2005 Statistical Sciences Group Leader Search Committee
2003 Los Alamos National Laboratory Fellows Selection Committee
2003 Nuclear Design and Risk Analysis Group Leader Search Committee
2000-2002 Los Alamos National Laboratory Laboratory-Directed Research and Development Exploratory Research in Mathematics, Simulation, and Modeling Peer-Review and Funding Committee

Conference
2018-2020 Defense and Aerospace Test and Analysis Workshop (DATAWorks)
2020 Technical Program Committee

	2019 Co-Chair Committee
	2018 ASA/SDNS General Chair
2019	Organizer, Data Science and Big Data Workshop, University and Global Partnership Network, Raleigh, NC
2017	Advisory Committee, Science of Test Workshop
2000-2016	Army Conference Applied Statistics/Conference on Applied Statistics in Defense
	2000-2016 Executive Committee
	2016 Chair, Organizing Committee
	2014 Program Chair
	2001 Local Organizer, Santa Fe, NM
2016	Organizer, Invited Panel, Public-Private Partnerships to Accelerate Innovation in Intelligence Analysis, American Association for the Advancement of Science Meeting, Washington, DC
2015	Organizing Committee, Institute for Computational and Experimental Research in Mathematics (ICERM) Workshop on Data Science
2014	Organizing Committee, Department of Energy Conference on Data Analysis, Santa Fe, NM
2014	Organizing Committee, Women in Statistics Conference, Cary, NC
2012	Organizer, Invited Session, "Reliability for Complex Systems" for Quality and Productivity Research Conference, Long Beach, CA
2010	Program Committee, Joint Statistical Meetings, Vancouver, BC
2010	Program Committee, Eastern North American Region/International Biometric Society
2010	Organizer, Invited Session, "Bayesian Analysis Invited Session" for Joint Statistical Meetings, Vancouver, BC
2009	Program Committee, Sixth International Symposium on Imprecise Probabilities and Their Applications
2009	Organizer, Invited Session, "Quantitative Methods for Combating Bioterrorism" for Joint Statistical Meetings, Washington, DC
2007	Organizer, Invited Session, "Advances in System Reliability" for Joint Statistical Meetings, Salt Lake City, UT
2005	Organizer, Invited Session, "Experiment Planning Issues in System Reliability" for Design and Analysis of Experiments Conference, Santa Fe, NM
2005	Organizer, Invited Session, "Statistical Methods for Defense Applications" for Spring Research Conference on Statistics in Industry and Technology, Park City, UT
2004	Co-Organizer, Mathematical Methods in Reliability Conference, Santa Fe, NM
2002	Organizer, Invited Session, "Minimizing the Magic: Transforming Knowledge Representations into Statistical Models" for Spring Research Conference on Statistics in Industry and Technology, Ann Arbor, MI

UNREFEREED PUBLICATIONS

Book Reviews

A. Wilson (2013). Web Development with SAS by Example, 3rd ed. *The American Statistician* 67(2): 113.

A. Wilson (2010). Review of Bayesian Evaluation of Informative Hypotheses edited by H. Hoijtink, I. Klugkist, P. Boelen. *Journal of the American Statistical Association* 105(489): 438.

A. Wilson (2009). Review of Bayesian Networks and Decision Graphs, 2nd Edition by F. Jensen and T. Nielsen. *Journal of the American Statistical Association* 104(485): 410.

Conference Proceedings

N. Spruill, A. Wilson, E. Seglie (2008). Statistics in Defense and National Security: The Present—You Need More Than Statistics—You Need the Right Statistics. *Proceedings of the Section on Statistics in Defense and National Security*, American Statistical Association, Denver, CO

A. Wilson, C. Anderson-Cook (2007). Analysis and Data Collection Strategies for Multilevel Complex Systems. *Proceedings of the 2007 Mathematical Methods in Reliability Conference*, Glasgow, UK

K. Sentz, A. Wilson (2005). Fault Tree Uncertainty Quantification Using Probabilities and Belief Structures on Basic and Non-Basic Events. *Proceedings of the North American Fuzzy Information Processing Society*, Ann Arbor, MI

N. Hengartner, A. Wilson (2004). Stockpile Reliability Assessment. *Proceedings of the 2004 Mathematical Methods in Reliability Conference*, Santa Fe, NM

C. S. Reese V. Johnson, M. Hamada, A. Wilson (2004). A Hierarchical Model for System Reliability Based on Lifetime Data. *Proceedings of the 2004 Mathematical Methods in Reliability Conference*, Santa Fe, NM

A. Wilson, S. Keller-McNulty (2003). Uncertainty Quantification for Complex Engineered Systems. *Proceedings of JANNAF 39th Combustion/27th Airbreathing Propulsion/21st Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting*, Colorado Springs, CO

A. Wilson (2002). Integrating Information Using Belief Functions. *Proceedings of Mathematical Methods in Reliability 2002*, Trondheim, Norway

H. Martz, M. Hamada, C. S. Reese, A. Wilson (2002). Using Genetic Algorithms to Design Bayesian Reliability Experiments. *Proceedings of Mathematical Methods in Reliability 2002*, Trondheim, Norway

J. Booker, S. Keller-McNulty, M. Meyer, C. S. Reese, A. Wilson (2001). Probabilistic Information Integration Technology. *Proceedings of the 6th Annual Conference on Turbine Engine High Cycle Fatigue*, Jacksonville, FL

A. Wilson. Discussion of Practical Inferences for Decision Making in Industrial Applications (1997). *Proceedings of the Section on Statistical Education*, American Statistical Association, Anaheim, CA

C. McCulloch, J. Laading, A. Wilson, V. Johnson (1996). A Shape-Based Framework for Automated Image Segmentation. *Proceedings of the Section on Bayesian Statistical Science*, American Statistical Association, Chicago, IL

A. Wilson, V. Johnson, S. Pizer, D. Fritsch, L. Yu, E. Chaney (1996). Towards a Framework for Automated Image Analysis. *Proceedings of the Leeds Annual Statistical Workshop: Image Fusion and Shape Variability Techniques*, Leeds, UK

A. Wilson, V. Johnson, L. Yu, S. Pizer (1995). Scale-Space Image Models for Shape Deformation. *Proceedings of the 27th Symposium on the Interface: Computing Science and Statistics*, Interface Foundation of North America, Pittsburgh, PA

A. Wilson, V. Johnson (1994). Priors on Scale-Space Templates. *Proceedings of Mathematical Methods in Medical Imaging III, International Society for Optical Engineering (SPIE)*, Bellingham, WA

A. Wilson, V. Johnson (1994). Using Features to Model Prior Structural Information. *Proceedings of the Section on Statistics in the Physical and Engineering Sciences*, American Statistical Association, Toronto, CA

A. Wilson, J. Malley, J. Pfeifer, A. Petelin (1992). Remarks on the Gibbs Sampler and its Implementation on a Parallel Machine. *Proceedings of the Statistical Computing Section*, American Statistical Association, Boston, MA

Discussion Papers

A. Wilson, M. Morris (1999). Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software: Summary of Presentation at U.S. Army Conference on Applied Statistics. LA-UR-99-5793.

C. McCulloch, J. Laading, A. Wilson, V. Johnson (1996). A Shape-Based Framework for Automated Image Segmentation. Duke University ISDS Discussion Paper 96-31.

A. Wilson, V. Johnson (1994). Priors on Scale-Space Templates. Duke University ISDS Discussion Paper 94-12.

A. Wilson (1994). Cognitive Factors Affecting Subjective Probability Assessment. Duke University ISDS Discussion Paper 94-02.

PRESENTATIONS

Invited/Seminar

2021 Data Science at NC State, Data Economy Committee**,** Board of Science, Technology, and Innovation, Department of Commerce, State of North Carolina

2021 Data Science is for Everyone. 20th Annual Social Equity Leadership Conference, National Academy of Public Administration

2020 What is Big Data and What Does it Mean? Big Data and Artificial Intelligence in Toxicology, Genetics and Environmental Mutagenesis Society of North Carolina Fall Meeting

2020 Big Data: What is It? And What Does it Mean to Me? Webinar for the Scientific Liaison Coalition (https://www.toxicology.org/slc.asp), with Aric LaBarr

2020 Data Science Primer, Webinar for National Academies of Sciences, Engineering, and Medicine's Committee for Improving Defense Acquisition Workforce Capability in Data Use

2019 Demystifying Data Science, North Carolina Women in Machine Learning and Data Science, Research Triangle Park, NC

2019 Laboratory for Analytic Sciences Overview, Intelligence Community Academic Research Symposium, Washington, DC, with Jen Banwart

2019 Data Science and Analytics: What is It? Environmental Protection Agency, Raleigh, NC, with Aric LaBarr

2019 Combining Information to Assess the Reliability of Complex Systems, Joint Statistical Meetings, Denver, CO

2019 Data Science in Defense and National Security, Emerging Data Science Methods for Complex Biomedical and Cyber Data, Augusta, GA

2018 SPAIG Award Collaboration: Laboratory for Analytic Sciences, Joint Statistical Meetings, Vancouver, BC
2018 Partnering for Data Science: The Laboratory for Analytic Sciences, 2018 Symposium on Data Science and Statistics, Reston, VA
2018 Demystifying Data Science, Defense and Aerospace Test and Analysis Workshop (DATAWorks 2018), Springfield, VA
2017 Data Science at the Laboratory for Analytic Sciences, RTI Data Science Lunch and Learn, Research Triangle Park, NC
2017 Data Science at NC State, ORIED Thought Leaders Program on Data Science, Raleigh, NC
2017 Bayesian Methods for Defense and Security, NASA-Langley, Hampton, VA
2017 Data Analytics and National Security, National Nuclear Security Administration, Department of Energy, Washington, DC
2017 Panel on How to Introduce Management to Bayesian Reliability, Joint Statistical Meetings, Baltimore, MD
2017 Statistics and Data Science in Defense and Security, Smith College, Northampton, MA
2017 Introduction to Bayesian Statistics Tutorial, Science of Test Workshop, Springfield, VA
2017 Bayesian Analyis, Statistical Engineering Leadership Webinar
2016 Assurance Testing or Reliability, Quality and Productivity Research Conference, Phoenix, AZ
2016 Leading a Data Analytics Workforce, Panel Discussion, Cisco Data Science for Leaders, Video-Telepresence from Raleigh, NC
2016 Combining Information for Reliability Assessment, Rigorous Test and Evaluation for Defense, Aerospace, and National Security, Alexandria, VA
2016 Developing a Data-Driven Organization, Keynote Panel, Data 4 Decisions Conference and Exposition, Raleigh, NC
2016 Bayesian Reliability: Combining Information, Plenary Talk at Stu Hunter Research Conference, Waterloo, Ontario, CA
2016 Combining Information to Assess System Reliability, Sandia Statistical Sciences Colloquium Series, Albuquerque, NM
2016 Data Science Initiatives at North Carolina State University, Cisco Analytics Speaker Series, Video-Telepresence from Raleigh, NC
2015 Introduction to Data Science: An Interdisciplinary Course for Undergraduates, Joint Statistical Meetings, Seattle, WA
2015 Infusing Bayesian Thinking in Collaborative Projects, Roundtable Breakfast, Section on Physical and Engineering Sciences, Joint Statistical Meetings, Seattle, WA
2015 Combining Information for Uncertainty Quantification, INFORMS Roundtable, Jackson Hole, WY
2015 Estimating System Reliability from Heterogeneous Data, Mathematical Methods in Reliability, Tokyo, Japan
2015 Combining Information to Assess System Reliability, Department of Statistics, University of South Carolina, Columbia, SC
2014 Research at the Laboratory for Analytic Sciences, Virginia Bioinformatics Institute at Virginia Tech Arlington, VA
2014 Combining Information to Assess the Reliability of DoD Systems, Joint Research Conference on Statistics in Quality, Industry, and Technology, Seattle, WA

2014 Combining Information to Assess System Reliability, Data Mining in Business in Industry, International Symposium on Business and Industrial Statistics/Conference of the ASA Section on Statistical Learning and Data Mining, Durham, NC
2014 Panel on Working in Interdisciplinary Teams, Conference on Women in Statistics, Cary, NC
2014 Panel on Career Flexibility, Conference on Women in Statistics, Cary, NC
2014 Panel on Big Data: When More is Too Much, Chancellors Faculty Excellence Program Symposium, North Carolina State University, Raleigh, NC
2014 Combining Information in Engineering Statistics. College of Textiles, North Carolina State University, Raleigh, NC
2014 Bayesian Approaches to Combining Information for Reliability Assessment. IEEE Eastern North Carolina Section Seminar, Raleigh, NC
2013 Bayesian Methods in Defense and Security. Duke University, Durham, NC.
2013 Bayesian Reliability Applications in the Department of Defense. Quality and Productivity Research Conference, Niskayuna, NY
2013 Bayesian Models for Community Detection. Brown Bag Lunches at IDA Science and Technology Policy Institute and System Evaluation Division, Washington, DC and Alexandria, VA
2012 Bayesian Methods for Estimating System Reliability Using Heterogeneous Multilevel Information. Conference on Data Analysis, Santa Fe, NM (with Jiqiang Guo)
2011 Bayesian Reliability. Roundtable Luncheon, Section on Quality and Productivity, Joint Statistical Meetings, Miami, FL
2011 Collaborations Between Iowa State University and Los Alamos and Sandia National Laboratories. Joint Statistical Meetings, Miami, FL.
2011 Bayesian Methods for Complex Systems. Marketing Colloquium Distinguished Speaker Series, Iowa State University, Ames, IA
2010 Strengthening Quantitatve Literacy Using Case-Based Learning. Problem-Solving Faculty Learning Community, Iowa State University, Ames, IA
2010 Statistical Challenges from Science-Based Stockpile Stewardship. Institute for Defense Analysis Center for Communications Research, La Jolla, CA
2010 Introduction to Bayesian Reliability. Fall Technical Conference, Birmingham, AL
2010 Bayesian Methods for Estimating the Reliability of Complex Systems using Heterogeneous Multilevel Data. University of Minnesota, Minneapolis, MN
2010 Assessing the Methodology for Testing Body Armor. Joint Statistical Meetings, Vancouver, BC
2010 Statistics Methods Used in Defense and Non-Defense Applications. Invited Panel, Joint Statistical Meetings, Vancouver, BC
2010 Bayesian Methods for Estimating the Reliability of Complex Systems using Heterogeneous Multilevel Data. Simon Fraser University, Vancouver, BC
2009 Planning Surveillance for a Stockpile that Might Degrade. Invited Poster, Joint Statistical Meetings, Washington, DC
2009 Terrorist Risk Assessment. Joint Statistical Meetings, Washington, DC
2009 Statistical Challenges from Science-Based Stockpile Stewardship. University of Iowa, Iowa City, IA
2009 Statistical Challenges from Science-Based Stockpile Stewardship. Texas A&M University, College Station, TX

2008 Bayesian Reliability Analysis. Interface 2008 Risk: Reality. Durham, NC
2008 Reliability Case Study. U. S. Military Academy Department of Mathematical Sciences 2008 Statistics Workshop: Real Data and the Art of Statistical Analysis, West Point, NY
2007 How DHS Currently Manages Risk. RISK: Policy, Perception, and Practice Workshop, Statistical and Mathematical Sciences Institute, Research Triangle Park, NC
2007 Joint Munitions Program Munitions Stockpile Reliability Assessment Project. Los Alamos National Laboratory Joint Munitions Program Seminar Series, Los Alamos, NM
2007 Increasing Understanding of the Need for Statistics in Defense and Security. Roundtable Luncheon, Section on Statistics in Defense and National Security, Joint Statistical Meetings, Salt Lake City, UT
2007 Risk Analysis at Los Alamos National Laboratory. Joint Statistical Meetings, Salt Lake City, UT
2006 Bayesian Reliability. Roundtable Luncheon, Joint Statistical Meetings, Seattle, WA
2006 Systems Reliability and Experiment Planning. Interface 2006, Pasadena, CA.
2006 Next Generation Stockpile Reliability Methods. National Nuclear Security Administration Technical Seminar, Washington, DC
2006 Next Generation Stockpile Reliability Assessment. National Nuclear Security Administration Surveillance Policy Integrated Requirements Council, Albuquerque, NM
2005 System Reliability and Experiment Planning. U.S. Army Conference on Applied Statistics, Monterey, CA
2005 Experiment Planning Issues in System Reliability. Design and Analysis of Experiments Conference 2005, Santa Fe, NM
2005 Bayesian Reliability Analysis for Complex Systems. Joint Statistical Meetings, Minneapolis, MN
2005 Reliability Reporting. W88 Annual Assessment Director's Briefing, Los Alamos National Laboratory
2005 Reliability Initiatives. W76 Annual Assessment Director's Briefing, Los Alamos National Laboratory
2004 Techniques for Test Design in the Context of Staged Acquisition. National Research Council Workshop on Spiral Acquisition, Washington, DC
2004 An Overview of Uncertainty in the V&V Context. Foundations 2004: A V&V Workshop, Phoenix, AZ
2004 Predicting Operational Reliability with Quantified Confidence from Limited System Data. Putting the “E”' in T&E, International Test and Evaluation Association, Baltimore, MD
2004 Stockpile Reliability Assessment. ISBA World Meeting, Viña del Mar, Chile
2004 Munitions Stockpile Reliability Assessment. Los Alamos National Laboratory High Explosives Working Group, Los Alamos, NM
2004 Statistics in Defense and National Security at Los Alamos National Laboratory. Chesapeake Bay Chapter, American Statistical Association, Aberdeen, MD
2004 Statistics in Defense and National Security at Los Alamos National Laboratory. Virginia Military Institute, Lexington, VA
2003 Opportunities at Los Alamos National Laboratory. Virginia Military Institute, Lexington, VA
2003 Assessing Risks for Complex Systems: A Case Study in Missile Defense. Joint Statistical Meetings, San Francisco, CA

2002 Combining Information. National Research Council Panel on the Operational Evaluation of the Interim Armored Vehicle
2002 Integrating Information Using Belief Functions. Mathematical Methods in Reliability 2002, Trondheim, Norway
2002 Statistical Methods for Information Integration. Spring Research Conference on Statistics in Industry and Technology, Ann Arbor, MI
2002 Statistics in Defense and National Security. Brigham Young University, Provo, UT
2002 Discussion of Information Integration using Belief Functions. Los Alamos Workshop on Novel Approaches to Uncertainty Quantification, Los Alamos, NM
2001 Data, Information, and Knowledge Integration for Department of Defense Problems. Joint Statistical Meetings, Atlanta, GA
2001 Integrated Analysis of Computer and Physical Experiments. Spring Research Conference on Statistics in Industry and Technology, Roanoke, VA
2001 Information Integration Technology. Risk-Based Design Seminar Series, NASA-Langley, Hampton, VA
2001 Information Integration Technology. Uncertainty Quantification Working Group, Sandia National Laboratories, Albuquerque, NM
2001 Information Integration Technologies. Basic and Applied Simulation Sciences Group, Los Alamos National Laboratory, Los Alamos, NM
2001 Quantifying Uncertainty Using Information Integration Technology. Workshop on Uncertainty in Design, Analysis, and Certification of Engineering Systems, Albuquerque, NM
2000 Data and Information Integration. Roundtable Luncheon at the Joint Statistical Meetings, Indianapolis, IN
2000 Statistical Approaches to DoD Problems at Los Alamos National Laboratory. RAND, Santa Monica, CA
2000 Statistical Methods to Validate Command and Control Software. Joint Research Conference on Statistics in Quality, Industry, and Technology, Seattle, WA
2000 Data, Knowledge, and Information Integration to Support Decision Making. Military Operations Research Society Education Symposium, McLean, VA
1996 A Bayesian Image Model for Automated Feature Identification. Joint Statistical Meetings, Chicago, IL
1994 Using Features to Model Prior Structural Information. Spring Research Conference on Statistics in Industry and Technology, Chapel Hill, NC

Contributed

2015 Estimating Mission Reliability from Heterogeneous Data. Conference on Applied Statistics in Defense, George Mason University, Fairfax, VA
2003 Uncertainty Quantification for Complex Engineered Systems. JANNAF 39th Combustion/27th Airbreathing Propulsion/21st Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting, Colorado Springs, CO
2003 Information Integration for Stockpile Surveillance. U.S. Army Conference on Applied Statistics, Napa, CA
2002 Munitions Stockpile Reliability Assessment. U.S. Army Conference on Applied Statistics, Raleigh, NC

2001 Information Integration Technology for Reliability Assessment. 69th MORS Symposium, Annapolis, MD
2000 Information Integration: An Integration of Computer and Experimental Data with Expert Opinions. Poster at Threat Reduction Science and Technology Showcase at Los Alamos, Los Alamos, NM
2000 Information Integration: An Integration of Computer and Experimental Data with Expert Opinions. Poster at Celebrating Scientific Excellence Through Diversity At LANL, Los Alamos, NM
1999 Validating Control System Software. Poster at the Third Annual DOE/MICS Workshop, Los Alamos, NM
1999 Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software. U.S. Army Conference on Applied Statistics, West Point, NY
1998 Modeling Error in Probability-of-Kill Tables. U.S. Army Conference on Applied Statistics, Las Cruces, NM
1997 Discussion of Practical Inferences for Decision Making in Industrial Applications. Joint Statistical Meetings, Anaheim, CA
1996 Statistical Models for Shapes and Deformations. Special contributed paper for Savage Award session. Joint Statistical Meetings, Chicago, IL
1995 Models for Shape Deformation. Poster at the Fifth Valencia International Meeting on Bayesian Statistics, Alicante, Spain
1994 Priors on Scale-Space Templates. International Symposium on Optics, Imaging, and Instrumentation, San Diego, CA
1992 Remarks on the Gibbs Sampler and its Implementation on a Parallel Machine. Joint Statistical Meetings, Boston, MA

LEADERSHIP AND MANAGEMENT TRAINING

2019 Cultural Competence and Inclusivity Certificate, North Carolina State University
2018 Project Management Professional Certification Training
2014 Leadership for a Diverse Campus, North Carolina State University
2012 Task Leader Training, Institute for Defense Analyses
2006 Los Alamos National Laboratory Management Institute: Situational Leadership, Coaching Skills for Managers, Strategic Project Thinking, Managing Change, Managing Technical Professionals in Organizations
2006 Project Management Toolkit, Los Alamos National Laboratory

CERTIFICATION

2018- Project Management Professional (PMP)
2010- Accredited Professional Statistician (PStat)

MEMBERSHIPS

American Association for the Advancement of Science (Fellow)
American Statistical Association (Fellow)
International Society for Bayesian Analysis
International Statistical Institute (Elected Member)
Institute for Mathematical Statistics

International Statistical Engineering Association