

Jonathan W. Stallings

Curriculum Vitae

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Education

- 2010–2014 **Ph.D. in Statistics**, Virginia Tech, Blacksburg, VA.
Advisor: Dr. John P. Morgan
Dissertation Title: *General Weighted Optimality of Designed Experiments*
- 2009–2010 **M.S. in Statistics**, Virginia Tech, Blacksburg, VA.
- 2005–2009 **B.S. in Mathematics**, University of Mary Washington, Fredericksburg, VA.
Summa Cum Laude
Honors Thesis: *Improved Covariance Eigenvalue Estimates and Line Estimation*

Academic Positions

- 2014–Present **Assistant Professor (Tenure-Track)**, North Carolina State University, Raleigh, NC.

Publications

- [1] B. Reich, K. Pacifici, and J. Stallings, “Integrating auxiliary data in optimal spatial design for species distribution modeling,” (*Submitted*).
- [2] A. Brandt, Y. Wen, M. Liu, J. Stallings, and H. H. Huang, “Interactions between transfemoral amputees and a powered knee prosthesis during load carriage,” *Scientific Reports*, vol. 7, no. 1, p. 14480, 2017.
- [3] R. E. Neal, II, J. H. Rossmeisl, Jr, J. L. Robertson, C. B. Arena, E. M. Davis, R. N. Singh, J. Stallings, and R. V. Davalos, “Improved local and systemic anti-tumor efficacy for irreversible electroporation in immunocompetent versus immunodeficient mice,” *PLoS ONE*, vol. 8, no. 5, p. e64559, 2013.
- [4] J. C. Bergh and J. W. Stallings, “Field evaluations of the contributions of predators and the parasitoid, *aphelinus mali*, to biological control of woolly apple aphid, *eriosoma lanigerum*, in virginia, usa,” *BioControl*, vol. 61, no. 2, pp. 155–165, 2016.
- [5] B. M. Brown, J. W. Stallings, J. S. Clay, and M. L. Rhoads, “Periconceptual heat stress of holstein dams is associated with differences in daughter milk production during their first lactation,” *PLoS ONE*, 2016.
- [6] B. M. Brown, J. W. Stallings, J. S. Clay, and M. L. Rhoads, “Periconceptual heat stress of holstein dams is associated with differences in daughter milk production and composition during multiple lactations,” *PLoS ONE*, vol. 10, no. 10, 2015.
- [7] H. Wang, S. Masters, Y. Hong, J. Stallings, J. Falkinham, M. Edwards, and A. Pruden, “Effect of disinfectant, water age, and pipe material on occurrence and persistence of legionella, mycobacteria, pseudomonas aeruginosa, and two amoebas,” *Environmental Science & Technology*, vol. 46, no. 21, pp. 11566–11574, 2012.

- [8] B. A. Trumbo, K. H. Nislow, J. Stallings, M. Hudy, E. P. Smith, D.-Y. Kim, B. Wiggins, and C. A. Dolloff, "Ranking site vulnerability to increasing temperatures in southern appalachian brook trout streams in virginia: An exposure-sensitivity approach," *Transactions of the American Fisheries Society*, vol. 143, no. 1, pp. 173–187, 2014.
- [9] J. P. Morgan and J. W. Stallings, "On the A -criterion of experimental design," *Journal of Statistical Theory and Practice*, vol. 8, no. 3, pp. 418–422, 2013.
- [10] C. Hickey, T. A. Hatch, J. Stallings, and T. K. Wolf, "Under-trellis cover crop and rootstock alter growth, components of yield, and fruit composition of cabernet sauvignon," *American Journal of Enology and Viticulture*, vol. 67, no. 3, 2016.
- [11] J. King, J. Stallings, M. Riaz, and L. Williams, "To log, or not to log: Using heuristics to identify mandatory log events - a controlled experiment," *Empirical Software Engineering Journal*, To appear.
- [12] A. McNamara, V. Akash, S. J., and J. Staddon, "Predicting mobile app privacy preferences with psychographics," ACM, October 2016.
- [13] J. P. Morgan and J. Stallings, "Optimal experimental design that targets meaningful information," *WIREs Computational Statistics*, vol. 9, no. 2, 2017.
- [14] M. Riaz, M. P. Singh, J. Slankas, J. Stallings, and L. Williams, "Digs: A framework for discovering goals for security requirements engineering," in *ESEM*, 2016.
- [15] S. V. Joseph, J. Stallings, T. C. Leskey, G. Krawczyk, D. Polk, S. E. Wright, B. Butler, and J. C. Bergh, "Spatial distribution of brown marmorated stink bug (hemiptera: Pentatomidae) injury in apple orchards in mid-atlantic states," *Journal of Economic Entomology*, no. 107, pp. 1839–1848, 2014.
- [16] J. Stallings, E. Vance, J. Yang, M. W. Vannier, J. Liang, L. Pang, L. Dai, I. Ye, and G. Wang, "Determining scientific impact using a collaboration index," *Proceedings of the National Academy of Sciences*, 2013.
- [17] J. Stallings and J. P. Morgan, "General weighted optimality of designed experiments," *Biometrika*, vol. 102, no. 4, pp. 925–935, 2015.
- [18] J. Stallings, "Type IV errors: How collaboration can lead to simpler analyses," *AMSTAT News*, vol. 440, pp. 24–25, February 2014.
- [19] J. Terrell, A. Kofink, J. Middleton, C. Rainear, E. Murphy-Hill, C. Parnin, and J. W. Stallings, "Gender differences and bias in open source: Pull request acceptance of women versus men," *PeerJ Computer Science*, 2017.
- [20] C. E. Webster, E. M. Koballa, S. H. Bernacki, J. Stallings, H. O. L, R. I. D., and M.-L. D., "Evaluation of the geoemetric accuracy of computed and microcomputed tomography of the distal radial articular surface in cats," *Medical Engineering & Physics*, (In Revision).

Presentations/Talks

- “Identifying and Modeling Sources of Variation: It’s What Statisticians Do” Invited Talk at Virginia Tech 2017.
- “Designing for What’s Important: a Comparison of Bayesian and General Weighted Optimality Criteria” Invited Talk at INFORMS 2017.
- “Designing for What’s Important: a Comparison of Bayesian and General Weighted Optimality Criteria” Invited Talk at ICSA 2017.
- “Designing Experiments to Maximize Information: A Survey of Classical and Modern Experimental Design”, April 2017, NCSU Department of Chemical and Biomolecular Engineering.
- “What my Experiment Died From: Common Types of Sources of Variation in Designed Experiments” Fall Technical Conference 2017. Student Presenter: Katherine Allen.
- “Parsimonious Modeling for Kinematic Data” SPEED session at JSM 2017. Student Presenter: Md Nazmul Islam.
- “Local Variable Selection in Experimental Designs” Contributed session at JSM 2017. Student Presenter: Munir Winkel
- “Designing for What’s Important: a Comparison of Bayesian and General Weighted Optimality Criteria” Contributed session at JSM 2017.
- “Analysis of Split-Plot Designs with Whole-Plot and Split-Plot Measurements” Contributed session at JSM 2016.
- “Analysis of Split-Plot Designs with Whole-Plot and Split-Plot Measurements” International Conference on Design of Experiments (ICODOE). 2016
- “Carryover Designs Including Washout Periods.” Designed Experiments: Recent Advances in Methods and Applications (DEMA). 2015.
- “Power and Practicality of Large Supersaturated Designs.” Designed Experiments: Recent Advances in Methods and Applications (DEMA). 2015. (Presenter: Varun Khemani)
- “Weighted Optimality Criteria and Design Search Algorithms.” Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago. 2015.
- “Carryover Designs Including Washout Periods.” Contributed session at JSM 2015. Chair: Stephanie DeHart.
- Six Sigma Master Black Belt: Advanced Design of Experiments. North Carolina State University, Raleigh, NC. May 2015.
- “Optimal Designs Under Reduced Baseline Parameterizations” Invited talk at Design and Analysis of Experiments Conference, SAS, Cary, NC, March 2015.
- “From Second-Rate Mathematician to First-Rate Scientist” Invited talk at University of Mary Washington, Fredericksburg, VA, November 2014.
- “Optimal Design for a Weighted Set of Estimable Functions.” Contributed session at JSM 2014. Chair: Lee McDaniel.
- “Understanding and Improving the Client-Consultant Interaction.” Topic Contributed Panel at JSM 2013. Organizer: Doug Zahn, Chair: Eric Vance, Panelists: Heather Smith, Jon Stallings, Sandra Stinnett, and Doug Zahn; August 2013
- “Here’s My Data, Now What?” What LISA Collaborators Do.” Mu Sigma Rho Research Seminar, Blacksburg, VA; October 2012
- “Design and Analysis of Experiments.” LISA Short Course Series, Blacksburg, VA; September 2011, January 2012, September 2012, January 2013, June 2013

Discussant

- “Developments in Design” 32nd Quality and Productivity Research Conference, College of Textiles at North Carolina State University, Raleigh, NC. June 2015.

External Funding (Research)

- Submitted **High throughput screening of therapeutic mixtures**, *Department of Defense*, Bereman, PI, Stallings, Co-Investigator.
- Submitted **Integrative Methods to Discover The Role of Toxic Mixtures in Sporadic ALS**, *National Institutes of Health*, Bereman, PI, Stallings, Co-Investigator.
- 2016-2017 **LAS: Experimental Protocols for Evaluating Transliteration Schemes**, *LAS*, Stallings, PI, \$7,500.
- 2015-2018 **NRI: Novel prosthetic arm control based on a Low-dimensional Internal Musculoskeletal Biomechanical (LIMB) model**, *National Science Foundation*, \$879,000 (overall), \$80,000/year, (Stallings, Co-PI).
- 2014-2015 **Science of Security Lablet**, *National Security Agency*, \$2.5 million (overall), \$35,000/year (Stallings, Co-Investigator).

Advising/Mentoring (Current)

Advisor.

- Katherine Allen, Department of Statistics, NCSU

Co-Advisor.

- Nazmul Islam, Department of Statistics, NCSU
- Munir Winkel, Department of Statistics, NCSU

PhD Committee Member.

- Caleb Browning, Department of Statistics, NCSU
- Patrick Morrison, Department of Computer Science, NCSU
- Chirag Gajjar, College of Textiles, NCSU
- Maryam Zahabi, Department of Industrial Engineering, NCSU
- Christopher Theisen, Department of Computer Science, NCSU
- Caroline Webster, Department of Industrial Systems Engineering, NCSU
- Farid Alborzi, Department of Computer Science, NCSU
- Isaac Michaud, Department of Statistics, NCSU
- Akond Rahman, Department of Computer Science, NCSU
- Andrea Brandt, Department of Biomedical Engineering, NCSU

Undergraduate.

- Allison Brooks, Department of Statistics, NCSU
- Jason Day, Department of Statistics, NCSU

Other.

- Varun Khemani, Department of Industrial Systems Engineering, NCSU
- Theresa Mazzoleni, Department of Industrial Systems Engineering, NCSU
- Jared Stegall, Department of Statistics, NCSU

Journals Refereed

- Journal of the American Statistical Association
- Statistica Sinica
- Journal of Statistical Computing and Simulation

- Journal of Statistical Planning and Inference
- Sankhyā: The Indian Journal of Statistics
- Technometrics
- Clinical Trials: Journal of the Society for Clinical Trials
- Studia Scientiarum Mathematicarum Hungarica

Research/Collaboration Experience

- 2011–2013 **Lead Statistical Collaborator**, *Virginia Tech Laboratory for Interdisciplinary Statistical Analysis (LISA)*, Blacksburg, VA.
- Collaborated on over 80 projects with Virginia Tech faculty and graduate students from a variety of disciplines and improved their research with statistics
 - Developed statistical methodology, performed analysis, and reported results that has led to multiple co-authored publications
 - Researched and utilized a broad range of statistical techniques including, but not limited to, experimental design, mixed models, zero-inflated models, and Bayesian methodology
 - Held weekly walk-in consulting hours where researchers would ask specific statistics questions
 - Mentored a group of associate collaborators to refine their statistical and collaboration skills
- 2011-2012 **SAS Programmer**, *Applied Financial Researcher, Inc.*, Blacksburg, VA.
- Wrote SAS macros to acquire large amounts of financial data from Wharton Research Data Services
 - Manipulated and analyzed financial data
- Summer 2010 **Statistician**, *Capital One*, Richmond, VA.
- Assessed the ability of customer bank data to predict credit risk
 - Aggregated and cleaned data from different departments within the company
 - Built a predictive model including bank information using CART software, and compared the predictions to those from the current model
 - Presented findings to Senior Statisticians and Managers in my department
 - Attended professional development courses focused on presentation and public-speaking skills.

Teaching Experience

- 2014-Present **Assistant Professor**, *North Carolina State University*, Raleigh, NC.
- ST711: Design of Experiments
 - ST445: Introduction to Statistical Computing and Data Management
 - ST431: Introduction to Design of Experiments
 - ST371: Introduction to Probability and Distribution Theory (2016: Thank-A-Teacher)
- Spring 2014 **Instructor**, *Virginia Tech*, Blacksburg, VA.
- Taught Biological Statistics (STAT 3615), an introductory statistics course geared toward biology majors
 - Wrote lectures, assignments, class activities, and exams
 - Created JMP video tutorials that guided students how to perform an analysis
 - Frequently met with students outside classroom to provide additional help

Fall 2013 **Instructor**, *Virginia Tech*, Blacksburg, VA.

- Taught Introduction to Statistics (STAT 2004), an introductory statistics course with approximately 300 students from a variety of disciplines
- Wrote lectures, assignments, projects, and exams
- Created JMP video tutorials that guided students how to perform an analysis
- Managed 8 TAs who graded and administered assignments
- Frequently met with students outside classroom to provide additional help

Summer 2012 and 2013 **Instructor**, *Virginia Tech*, Blacksburg, VA.

- Taught Statistics for the Social Sciences (STAT 3604), an introductory statistics course
- Wrote lectures, assignments, projects, and exams
- Frequently met with students outside classroom to provide additional help

Computer skills

- Statistical Packages: SAS, JMP, R, SPSS
- Mathematica
- Microsoft Office: Word, Excel, PowerPoint
- L^AT_EX

Services

- Webmaster for ASQ Fall Technical Conference, 2017-
- NCSU Statistics Graduate Admissions Committee, 2017-2018
- NCSU Statistics Qualifying Committee, 2016
- Chair: NC State Seminar Series, 2015-2016
- Co-Organizer: NC State Seminar Series, 2014-2015
- President: Mu Sigma Rho Virginia Alpha Chapter, 2011-2013
- President: Statistics Graduate Student Assembly at Virginia Tech, 2011-Present
- Assistant Director: Student Outreach Seminar at Virginia Tech, 2012-Present
- Chair: Mu Sigma Rho Research Seminar, October 2011 & October 2012

Awards

- **SPES Outstanding Presentation Awards Runner-up** for JSM contributed talk “Designing for What’s Important: a Comparison of Bayesian and General Weighted Optimality Criteria”; 2018
- **SPES Outstanding Presentation Awards Runner-up** for JSM contributed talk “Analysis of Split-Plot Designs with Whole-Plot and Split-Plot Measurements”; 2017
- **SPES Outstanding Presentation Awards Runner-up** for JSM contributed talk “Carryover Designs Including Washout Periods”; 2016
- **LISA Collaborator of the Year Award** for excellence in statistical collaboration, voted for by clients (non-statisticians) I collaborated with; 2013
- **John Bartko ‘62 Prize in Statistics** for excellence in statistical collaboration, communication, and consulting; 2013
- **Rose Costain Award** for outstanding graduate service to VT Statistics Department; 2012

Professional Memberships

- American Statistical Association, Member
- American Society for Quality, Associate Member

National Honor Societies

- Pi Mu Epsilon
- Phi Beta Kappa
- Mu Sigma Rho
- Sigma Xi