Curriculum Vita for
Fred W. Huffer

Education:

B.S. in Mathematics, Massachusetts Institute of Technology, 1978

Ph.D. in Statistics, Stanford University, 1982

Experience:

8/82–8/88
Assistant Professor, Department of Statistics, Florida State University

8/88–8/02
Associate Professor, Department of Statistics, Florida State University

8/02–present
Full Professor, Department of Statistics, Florida State University

1983–1996, 2001–2006, 2008–2013, 2016
Member of JSAG/NSASAG consulting group, Department of Statistics, Stanford University

Publications:

Huffer, F. W. Variability orderings related to coverage problems on the circle. *Journal of Applied Probability* **23**, 97-106 (1986).

Huffer, F. W. Slepian's inequality via the central limit theorem. *Canadian Journal of Statistics* **14**, 367-370 (1986).

Huffer, F. W. and L. A. Shepp. On the probability of covering the circle by random arcs. *Journal of Applied Probability* **24**, 422-429 (1987).

Huffer, F. W. Inequalities for the M/G/∞ queue and related shot noise processes. *Journal of Applied Probability* **24**, 978-989 (1987).

Bock, M. E., P. Diaconis, F. W. Huffer, and M. D. Perlman. Inequalities for linear combinations of gamma random variables. *Canadian Journal of Statistics* **15**, 387-395 (1987).

Huffer, F. W. Divided differences and the joint distribution of linear combinations of spacings. *Journal of Applied Probability* **25**, 346-354 (1988).

Huffer, F. W. Some results concerning random arcs on the circle. *Journal of Applied Probability* **25**, 833-838 (1988).

Huffer, F. W. Ordering distributions on the circle with respect to uniformity. *Journal of Multivariate Analysis* **33**, 310-327 (1990).

Huffer, F. W., and McKeague, I. W. Weighted least squares estimation for Aalen's additive risk model, *Journal of the American Statistical Association* **86**, 114-129 (1991).

Wu, H., and Huffer, F. W. Modeling the Distribution of Plant Species Using the Autologistic Regression Model, *Environmental and Ecological Statistics* **4**, 49-64 (1997).

Doss, H., Huffer, F. W., and Lawson, K. L. Bayesian Nonparametric Estimation via Gibbs Sampling for Coherent Systems with Redundancy, *Annals of Statistics* **25**, 1109-1139 (1997).

Huffer, F. W., and Lin, C. T. Computing the Exact Distribution of the Extremes of Sums of Consecutive Spacings, *Computational Statistics and Data Analysis* **26**, 117-132 (1997)

Huffer, F. W., and Lin, C. T. Approximating the Distribution of the Scan Statistic Using Moments of the Number of Clumps, *Journal of the American Statistical Association* **92**, 1466-1475 (1997).

Huffer, F. W., and Wu, H. Markov Chain Monte Carlo for Autologistic Regression Models with Application to the Distribution of Plant Species, *Biometrics* **54**, 509-524 (1998).

Huffer, F. W., and Lin, C. T. An Approach to Computations Involving Spacings with Applications to the Scan Statistic, In: J. Glaz and N. Balakrishnan (Eds.), *Scan Statistics and Applications*, Birkhauser, Boston, 141–163 (1999).

Huffer, F. W., and Lin, C. T. Using Moments to Approximate the Distribution of the Scan Statistic, In: J. Glaz and N. Balakrishnan (Eds.), *Scan Statistics and Applications*, Birkhauser, Boston, 165–190 (1999).

Huffer, F. W., and Park, C. A Test for Multivariate Structure, *Journal of Applied Statistics* **27**, 633-650 (2000).

Huffer, F. W., and Lin, C. T. Computing the Joint Distribution of General Linear Combinations of Spacings or Exponential Variates, *Statistica Sinica* **11**, 1141–1157 (2001).

Huffer, F. W., and Park, C. The Limiting Distribution of a Test for Multivariate Structure, *Journal of Statistical Planning and Inference* **105**, 417–431 (2002).

Huffer, F. W., One-Dimensional Poisson Growth Models With Random and Asymmetric Growth. *Methodology and Computing in Applied Probability*, **4**, 257–278 (2002).

Doss, H., and Huffer, F. W. Monte Carlo Methods for Bayesian Analysis of Survival Data Using Mixtures of Dirichlet Process Priors, *Journal of Computational and Graphical Statistics*, **12**, 282–307 (2003).

Doran, N.A., Arnold, A.J., Parker, W.C., and Huffer, F.W. Deviation from Red Queen behaviour at stratigraphic boundaries: evidence for directional recovery, In: A.B. Beaudoin and Head, M.J. (eds), *The Palynology and Micropalaeontology of Boundaries*, Geological Society, London, Special Publications, **230**, 35–46 (2004).

Huffer, F. W., and Lin, C. T. Spacings, Linear Combinations of, article in *Encyclopedia of Statistical Sciences* (2nd ed), edited by N. Balakrishnan, et al, Vol. **12**, p. 7866–7875 (2005).

Doran, N.A., Arnold, A.J., Parker, W.C., and Huffer, F.W. Is Extinction Age Dependent? *PALAIOS*, **v. 21, no. 6**, 571–579 (2006).

Chaimongkol, S., Huffer, F.W., and Kamata, A. A Bayesian approach for fitting a random effect differential item functioning across group units. *Journal of Thai Statistical Association*, **4**, 27–41 (2006).

Huffer, F. W., and Park, C. A Test for Elliptical Symmetry. *Journal of Multivariate Analysis*, **98**, 256–281 (2007).

Chaimongkol, S., Huffer, F.W., and Kamata, A. An explanatory differential item functioning (DIF) model by the WinBUG 1.4. *Songklanakarin Journal of Science and Technology*, **29(2)**, 449–458 (2007).

Huffer, F.W., Sethuraman, J., and Sethuraman, S. A study of counts of Bernoulli strings via conditional Poisson processes. *Proceedings of the American Mathematical Society.*, **137**, No. 6, 2125–2134 (2009).

Su, J., Srivastava, A., Zhu, Z, and Huffer, F. A Fully Statistical Framework for Detection of Shapes in Image Primitives. *Seventh IEEE Workshop on Perceptual Organization in Computer Vision (POCV), in conjunction with CVPR* , (June 2010).

Su, J., Srivastava, A., Zhu, Z, and Huffer, F. Detecting Shapes in 2D Point Clouds Generated from Images. *International Conference on Pattern Recognition (ICPR)*, 17–24 (August 2010).

MacDonald, I.R., Smith, M., and Huffer, F.W. Community structure comparisons of lower slope hydrocarbon seeps, northern Gulf of Mexico. *Deep-Sea Research II*, **57**, 1904–1915 (2010).

Segal, M.R., Xiao, Y., and Huffer, F.W. Clustering with exclusion zones: genomic applications. *Biostatistics*, **12** No. 2, 234–246 (2011).

Uhm, D., Huffer, F.W., and Park, C. Additive risk model using piecewise constant hazard function. *Communications in Statistics - Simulation and Computation*, **40** No. 9, 1458-1477 (2011).

Huffer, F.W., and Sethuraman, J. Joint distributions of counts of strings in finite Bernoulli sequences. *Journal of Applied Probability*, **49** 758–772 (2012).

Su, J., Srivastava, A., and Huffer, F.W. Detection, classification and estimation of individual shapes in 2D and 3D point clouds. *Computational Statistics & Data Analysis*, **58** 227–241 (2013).

Wiltshire, J., Huffer, F.W., and Parker, W.C. A General Class of Test Statistics for Van Valen's Red Queen Hypothesis. *Journal of Applied Statistics*, **41** 2028–2043 (2014)

Zhao, H. Huffer, F. and Niu, X-F., Time-Varying Coefficient Models with ARMA-GARCH Structures for Longitudinal Data Analysis. *Journal of Applied Statistics*, **42** 309–326 (2015)

Bryner, D., Huffer, F., Srivastava, A., and Tucker, J.D. Underwater Minefield Detection in Clutter Data Using Spatial Point-Process Models. *IEEE Journal of Oceanic Engineering*, **41**, 670–681 (2016)

Sadiq, B., Brown, P., Huffer, F., Onubogu, U., Dutton, M., Becker, A., Rahman, S., (2015). Effect of meteorological variables on malaria incidence in Ogun State, Nigeria. *International Journal of Public Health and Epidemiology*, 4(10), 205-215.

I. R. MacDonald, O. Garcia-Pineda, A. Beet, S. Daneshgar Asl, L. Feng, G. Graettinger, D. French-McCay, J. Holmes, C. Hu, F. Huffer, I. Leifer, F. Muller-Karger, A. Solow, M. Silva, and G. Swayze. Natural and unnatural oil slicks in the Gulf of Mexico. *Journal of Geophysical Research: Oceans*, 120(12), 8364–8380, December 2015.

Bryner, D., Huffer, F., Rosenthal, M., Tucker, J.D, and Srivastava, A. Estimation of Linear Target-Layer Trajectories Using Cluttered Point Cloud Data. *Computational Statistics & Data Analysis*, **102**, 1–20 (October 2016)

Darshan Bryner, Steven W. Criscione, Andrew M. Leith, Quyen Huynh, Fred Huffer, and Nicola Neretti. GINOM: A Statistical Framework for Assessing Interval Overlap of Multiple Genomic Features. *PLoS Comput Biol* **13(6)**: e1005586 (2017)

Rosenthal, M., Bryner, D., Huffer, F., Evans, S., Srivastava, A., and Neretti, N. Bayesian Estimation of Three-Dimensional Chromosomal Structure from Single-Cell Hi-C Data. *Journal of Computational Biology* **26**, 1191-1202 (2019)

Guanyu Hu and Fred Huffer. Modified Kaplan-Meier estimator and Nelson-Aalen estimator with geographical weighting for survival data. *Geographical Analysis*, **52(1)**, 28–48 (2020)

Hu, Guanyu and Xue, Yishu and Huffer, Fred. A comparison of Bayesian accelerated failure time models with spatially varying coefficients. *Sankhya B*, 1–17 (2020)

Huffer, Fred W, and Park, Cheolyong. A Simple Rule for Monitoring the Error Rate of Random Forest for Classification. *Quantitative Bio-Science*, **39(1)**, 1–15 (2020)

Submitted:

Hu, G., Huffer, F., Chen, M-H. New Development of Bayesian Variable Selection Criteria for Spatial Point Process with Applications.

Conference Proceedings:

Spandan Mishra, O. Arda Vanli, Fred W. Huffer, and Sungmoon Jung. Regularized discriminant analysis for multi-sensor decision fusion and damage detection with Lamb waves. *SPIE Proceedings*, Volume 9803 (April 20, 2016).

Technical Report:

Jeffrey W. Stein, Fred W. Huffer and Xufeng Niu, A Space-Time Modeling Approach to Assess the Effects of El Nino (1997).

Doctoral Students:

Cheolyong Park (defended November 1992).
Title of Thesis: *A Preliminary Test for Structure*

Chien-Tai Lin (defended August 1993)
Title of Thesis: *The Computation of Probabilities Which Involve Spacings, With Applications to the Scan Statistic*

Hulin Wu (defended in June 1994).
Title of Thesis: *Regression Models for Spatial Binary Data With Application to the Distribution of Plant Species*

Kevin Lawson (co-advised by Hani Doss – defended in July 1994)
Title of Thesis: *Bayesian Nonparametric Estimation via Gibbs Sampling for Coherent Systems with Redundancy*

Jeffrey Stein (defended in June 1997).
Title of Thesis: *A Class of Space-Time Models for Monitoring Station Data with Application to El Ñino Events*

Feiming Chen (defended in November 2002)
Title of Thesis: *Bayesian Modeling of Multivariate Spatial Binary Data with Application to the Distribution of Plant Species*

Saengla Chaimongkol (co-advised by Dr. Akihito Kamata of the College of Education, defended in April 2005)
Title of Thesis: *Modeling Differential Item Functioning (DIF) Using Multilevel Logistic Regression Models: A Bayesian Perspective*

Seo-eun Choi (co-advised by Dr. Kevin Speer from the Dept. of Oceanography, defended in July 2007)
Title of Thesis: *A Statistical Approach to an Ocean Circulation Inverse Problem*

Daiho Uhm (defended in August 2007)
Title of Thesis: *Flexible Additive Risk Models Using Piecewise Constant Hazard Functions*

Haiyan Zhao (co-advised by Xufeng Niu, defended in September 2010)
Title of Thesis: *Time-Varying Coefficient Models With ARMA-GARCH Structures for Longitudinal Data Analysis*

Zhi Li (co-advised by Xufeng Niu, defended in October 2010)
Title of Thesis: *Multistate Intensity Model with AR-GARCH Random Effect for Corporate Credit Rating Transition Analysis*

Jelani Wiltshire (defended in October 2010)
Title of Thesis: *Age Effects in the Extinction of Planktonic Foraminifera: A New Look at Van Valen's Red Queen Hypothesis*

Kunle Olumide (defended in October 2010)
Title of Thesis: *A Probabilistic and Graphical Analysis of Evidence in O.J. Simpson's Murder Case Using Bayesian Networks*

Rommel Bain (defended in December 2012)
Title of Thesis: *Monte Carlo Likelihood Estimation for Conditional Autoregressive Models with Application to Sparse Spatiotemporal Data*

Yingfeng Tao (defended in May 2013)
Title of Thesis: *The Frequentist Performance of Some Bayesian Confidence Intervals for the Survival Function*

Robert Holden (defended in September 2013)
Title of Thesis: *Failure Time Regression Models for Thinned Point Processes*

Alexia Athienitis-Makris (co-advised by James Mortimer and Meenakshi Devidas, defended in October 2013)
Title of Thesis: *A Monte Carlo Approach to Change Point Detection in a Liver Transplant Population*

Guanyu Hu (defended in November 2017)
Title of Thesis: *Spatial Statistics and its Applications in Biostatistics and Environmental Statistics*

Yiming Feng (defended in April 2019)
Title of Thesis: *Marked Determinantal Point Processes*

Zhiji Tang (defended in July 2020)
Title of Thesis: *A Pair Correlation Function for Non-Stationary Spatial Point Processes that Depends on Covariates*

Idris Demirsoy (defended in November 2020)
Title of Thesis: *Estimating the Intensity of Point Processes on Linear Networks*

Presentations:

National Meetings

Preliminary tests for structure. Joint Statistical Meetings in San Francisco. August 1993.

Practical remarks on autologistic models for spatial binary data with covariates. Presented at the IMS Topics in Generalized Linear Models Meeting held at Gainesville, Florida from September 29 to October 1, 1994.

Variable selection in autologistic models. Presented in a session on Applications of Generalized Linear Models at the Joint Statistical Meetings in Orlando, Florida. August 1995.

Hypothesis testing for autologistic models based on the pseudo-likelihood function. Joint Statistical Meetings in Chicago. August 1996.

A test for multivariate structure. Joint Statistical Meetings in Dallas. August 1998.

Software for Bayesian analysis of survival data using mixtures of Dirichlet priors. Joint Statistical Meetings in Baltimore. August 1999.

Computing the joint distribution of general linear combinations of spacings or exponential variates. Joint Statistical Meetings in Indianapolis. August 2000.

Spatial Point Process Models for Statistical Mine Detection. 2015 Unmanned Maritime Systems Technology (UMST) Program Review, Sandestin, Florida, January 29, 2015.

The probability of covering the circle by random arcs: qualitative results and numerical explorations. Presented at *A Symposium on Optimal Stopping* at Rice University in Houston Texas on June 28, 2018.

International Meetings:

Approximating the distribution of the scan statistic using moments of the number of clumps. Presented at the *International Conference on Combinatorial Methods & Applications to Probability & Statistics* at McMaster University in Hamilton, Ontario. June 26, 1997.

Symbolic and Numerical Computations for Distributions Involving Linear Combinations of Spacings or Exponential Variates. Presented at the *International Workshop in Applied Probability* at the University of Simon Bolivar in Caracas, Venezuela. January 14, 2002.

Invited Colloquiums/Seminars:

Approximating the distribution of the scan statistic using moments of the number of clumps. Presented in the Mathematics Department Colloquium at the University of South Florida, Tampa, Florida. January 23, 1998.

MCMC Maximum likelihood estimation with application to autologistic models. Dept. of Mathematics, Tamkang University, Tamsui, Taiwan. December 11, 1998.

Nonparametric Bayesian analysis of interval censored data. Academia Sinica, Taiwan. December 14, 1998.

A space-time modeling approach to assess the effects of El Nino. National Central University, Taiwan. December 17, 1998.

Modeling multiple binary responses on a lattice using a clipped multivariate Gaussian Markov random field. Dept. of Mathematics, Tamkang University, Tamsui, Taiwan. May 2004.

Survival analysis and related research topics. Dept. of Mathematics and Statistics, Thammasat University, Phathum Thani, Thailand. December 19-20, 2005.

Bayesian estimation using mixtures of Dirichlet priors; Testing distributions for elliptical symmetry. Chiang Mai University, Thailand. December 28, 2005.

Record Values, Poisson Mixtures, and the Joint Distribution of Counts of Strings in Bernoulli Sequences. Dept. of Statistics, University of Florida, Gainesville, Florida. April 19, 2012.