**Monnie McGee**

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**Current Position**

*Associate Professor*, Department of Statistical Science, Southern Methodist University.

**Education**

1994 *Ph.D., Statistics,* Rice University, Houston, TX
 **Dissertation:** *Tests for Harmonic Components in the Spectra of Categorical Time Series,* directed by Katherine B. Ensor
1993 *MA, Statistics,* Rice University
1990 *BA, Mathematics and English,* Austin College, Sherman, TX

**Major Research Interests**

* Preprocessing and analysis of DNA gene expression microarrays, RNA-seq data, DNA methylation data, and other high-throughput biological assays
* Developing pedagogical methods and creating curriculum for college-level statistics courses. Invited to discuss methods with statistics education students across United States.
* Measurement error in graphical models
* Covariate selection for multivariate time series data sets with few observations.

**Awards**

**2016 – 2017 Dedman Interdisplinary Research Institute Fellow**

Lead a group called “Big Data and Society” in a year-long discussion of the ethical and economic impact of Big Data in today’s world.

Submitted a NSF TRIPODS grant, “Foundational Network Science Research as a Mechanism for Education and Outreach in Data Science” ($1,477,658).

**2015 Thomas Tunks University Distinguished Citizen Award**

Given to individuals who have demonstrated outstanding citizenship through dedicated service to the University and its governance

**2012 SMU Excellence in Mentoring Award**

Recognizes mentors who play a significant role in the personal and professional development of Engaged Learning students. Selection is made based on student document of the mentor relationship and the quality of the completed project.

**Academic Employment**

2002 – 2007 *Assistant Professor*, Southern Methodist University, Dallas, Texas

Taught undergraduate and graduate courses, served as department seminar chair, member of department student recruiting committee, developed two new courses

1998-2002 *Assistant Professor*, Hunter College, City University of New York

Responsible for teaching undergraduate and graduate courses in the Department of Mathematics and Statistics. Coordinated introductory statistics courses, served on the departmental Personnel and Budget Committee, Faculty Senate Teacher Evaluation Committee, and Departmental Educational Policy Committee.

1999 & 2000 (June to August), *Visiting Scholar*, Stanford University

Invited to spend two summers in the Department of Statistics at Stanford University as a summer research associate. Presented and discussed research with the members of the department.

1995-98 *Biostatistician,* The Rockefeller University

Provided statistical advice on experiment design and analysis and collaborated with principal investigators on various studies. Conducted courses and various seminars on statistical topics of interest to the university community. Reviewed all statistical designs for the protocols for scientific content and ethical merit.

1994 – 1995: Data Analyst Intern, Electricité de France, Clamart, France.

Analyzed electricity consumption data to determine a model to forecast very short term demand.

**External Grants and Contracts**

“Position Sensitive P-Mer Frequency Clustering with Applications to Classification” *National Institutes of Health*, 1R21HG005912-01A1, 7/1/11 – 5/31/14, (MPI - Michael Hahsler and Monnie McGee). $385, 239 (Scientific Review Score, 26).

 “A Comprehensive Approach to Pre-processing of Affymetrix GeneChip Data”, *National Institutes of Health* 1 R15GM079742-01, 1/1/2007 – 12/31/2010 (PI Monnie McGee), $211,465 (Scientific Review Score, 117)

 “Gabapentin for the Pruritis of Cholestasis.” *National Institutes of Health*, 1 R0-3 DK58682-01, 2001-2003, (with N.V. Bergasa), $100,000

“Study to Assess the Participation and Outcome Patterns in Postsecondary Occupational Education.” *U.S. Department of Education*, 2000-2001 (with T. Bailey and M. Scott)

“Dronabinol for the pruritus of cholestasis.” *Clinical Trials Office, Columbia University, College of Physicians*, 2000-2002 (with N. V. Bergasa)

“Symptom Management with HIV Infected Older Persons.” *Department of Health and Human Services Public Health Service Area R15 Grant* (PA99-026), 2000-2002, ), $153,000 (with Kathleen Nokes)

“Effect of Dietary Fiber and Dietary Fat on Biomarkers of Risk for Breast Cancer.” *National Institutes of Health*, 1997, $36,945. (with Jerome J. DeCosse, H.L. Bradlow, W.J. Cennarazzo, E.R. DeOlivera e Silva, D.G. Miller, C.P. Martucci, C.E. Seidman, and D.W. Sepkovic)

“NSAID Colon Cancer Chemopreventions: Biomarker Responses.” *National Cancer Institute, National Institutes of Health RO1 Grant*, 1996, $3,181,987. (with S.J. Shiff, B. Rigas, H. Rotterdam, R.C. Kurtz, P. Arvind)

“Dietary Plant Phenolics; Effect on Colonic Biomarkers, 1995.” *National Cancer Institute, National Institutes of Health RO3 Grant,* $1,475,376*.* (with S.J. Shiff, B. Rigas, M. Lipkin, H. Newmark, K. Yang, P. Arvind, and C.S. Yang)

**Refereed Publications (\*co-authored with PhD or Masters student)**

\*“Bayesian regularization of Gaussian graphical models with measurement error (published online September 3, 2020). *Computational Statistics and Data Analysis*, 156, April 2021, 107085 (with Linh Nghiem and Michael Byrd).

\*“Analyzing Influences on US Baby Name Trends” (December 17, 2019*). SMU Data Science Review*: <https://scholar.smu.edu/datasciencereview/vol2/iss3/8/>., (with L. Ludwig, M. Hightower, and D. Engels).

“Deep Dive into Visual Representation and Interrater Agreement using Data from a High-School Diving Competition” (August 30, 2019). *Journal of Statistics Education.* <https://doi.org/10.1080/10691898.2019.1632759> (single author).

\*“[AWS EC2 Instance Spot Price Forecasting Using LSTM Networks](https://scholar.smu.edu/cgi/viewcontent.cgi?article=1109&context=datasciencereview)” (August 17, 2019). SMU Data Science Review: https://scholar.smu.edu/datasciencereview/vol2/iss2/8/ (with J. Lancon, Y. Kunwar, J.D. Stroud and R. Slater).

“Case for Omitting Tied Observations in the Two-Sample t-test and the Wilcoxon-Mann-Whitney test” (July 24, 2018). *PLoS One* (2017 IF 2.806)https://doi.org/ 10.1371/journal.pone.0200837 (single author).

“The Ontology for Biomedical Investigations” (2016). *PLoS One* (IF 2.806) 11(4): e0154556. (*authors in alphabetical order*: A. Bandrowski, R. Brinkman, M. Brochhausen, M. H. Brush, B. Bug, M. C. Chibucos, K. Clancy, M. Courtot, D. Derom, M. Dumontier, L.Fan, J. Fostel, G. Fragoso, F. Gibson, A. Gonzalez-Beltran, M.A. Haendel, Y. He, M.Heiskanen, T. Hernandez-Boussard, M. Jensen, Y. Lin, A. L. Lister, P. Lord, J. Malone, E. Manduchi, N. Morrison, J. A. Overton, H. Parkinson, B. Peters, P. Rocca-Serra, A. Ruttenberg, S.-A. Sansone, R. H. Scheuermann, D. Schober, B. Smith, L.N. Soldatova, C. J. Stoeckert Jr, C. F. Taylor, C. Torniai, J. A. Turner, R. Vita, P. L. Whetzel, J. Zheng).

\*“Metagenomic Classification Using an Abstraction Augmented Markov Model” (2016). *Journal of Computational Biology* (IF 1.537) 23(2): 111 – 122. (with X. Zhu).

“Just in Time Teaching in Statistics Classrooms” (2016). *Journal of Statistics Education* 24(1): 16 – 26 (with L. Stokes and P. Nadolsky).

\*“Mapping cell populations in flow cytometry data for cross-sample comparison using the Friedman-Rafsky test statistic as a distance measure” (2016). *Cytometry Part A* (IF 3.181) 89 (1): 71 – 88. (with C Hsiao, M Liu, R Stanton, Y Qian, and RH Scheuermann)

\*“Metadata-driven Comparative Analysis Tool for Sequences (meta-CATS): an Automated Process for Identifying Significant Sequence Variations Dependent on Differences in Viral Metadata” (2013). *Virology* (IF 1.805), 447(1): 45- 61 (with BE Pickett, M Liu, EL Sadat, RB Squires, JM Noronha, S He, W Jen, S Zaremba, Z Gu, L Zhou, CN Larsen, I Bosch, L Gerhke, EB Klem, and RH Scheuermann).

“Coping with Nonstationarity in Categorical Time Series” (2012). *Journal of Probability and Statistics* (IF 0.6) Volume 2012, Article ID 417393: doi: 10.1155/2012/417393 (with I. Harris).

\*“Influenza Sequence Feature Variant Type (Flu-SFVT) analysis: evidence for a role of NS1 in influenza host range restriction” (2012). *Journal of Virology* (IF 4.439) 86: 5857 – 5866 (with J. Noronha, M. Liu, R. B. Squires, B. Pickett, B. Hale, G. Air, S. Galloway, T. Takimoto, M. Schmolke, V. Hunt, E..Klem, A. García-Sastre, and R. H. Scheuermann. doi:10.1128/JVI.06901-11.

\* “A gene selection method for GeneChip array data with small sample sizes” (23 December 2011) *BMC Genomics* (IF 3.867) 2011, 12 (Suppl 5):S7 doi:10.1186/1471-2164-12-S5-S7 [http://www.biomedcentral.com/1471-2164/12/S5/S7](https://webmail.smu.edu/owa/redir.aspx?C=d9f7c8d607c94a9bb6a9978c1fb83492&URL=http%3a%2f%2fwww.biomedcentral.com%2f1471-2164%2f12%2fS5%2fS7) (with Z. Chen, Q. Liu, M. Kong, X. Huang, Y. Deng and R. H. Scheuermann.

\*“Identifying Differentially Expressed Genes based on probe level data for GeneChip arrays” (2010). *International Journal of Computational Biology and Drug Design (IJCBDD)* (IF 0.8), 3(3), **DOI:** 10.1504/IJCBDD.2010.038028 (with Z. Chen, Q. Liu, Y. M. Kong, X. Huang, J. Y. Yang, and R. H. Scheuermann).

 “Analyzing taxonomic classification using extensible Markov models” (2010). *Bioinformatics*, (IF 5.766) 26(18): 2235-41. Epub 2010 Jul 12 (with RM Kotamarti, M Hahsler, D Raiford, and MH Dunham).

\* “A Distribution-Free Convolution Model for Background Correction of Oligonucleotide Microarray Data” (2009). *BMC Genomics*, (IF 3.867) 10(Suppl 1):S19 (with Z. Chen, Q. Liu, M. Kong, Y. Deng, and R.H. Scheuermann).

 “The Ontology of for Biomedical Investigations” (2009). *Nature Precedings*. (IF 0.34) (with in alphabetical order, R. Brinkman, B. Bug, K. Clancy, M. Courtot, D. Derom  L. Fan,  J. Fostel, G. Fragoso, F. Gibson, Y. He, T. Hernandez-Boussard, P. Lord, A. L. Lister, J. Malone, E. Manduchi, N. Morrison, H. Parkinson, B. Peters, P. Rocca-Serra, A. Ruttenberg, S.A. Sansone, R. H. Scheuermann, D. Schober, B. Smith, L. N. Soldatova, C. J. Stoeckert, Jr., C. F Taylor, P. L. Whetzel, J. Zheng). http://dx.doi.org/10.1038/npre.2009.3623.1

\*“A Bayesian Approach to Zero-Numerator Problems Using Hierarchical Models” *Journal of Data Science* 6, (2008): 261 - 268 (with Z. Chen).

“Tests for Multiple Peaks in the Spectra of Categorical Time Series.” *Communications in Statistics A: Theory and Methods* (IF 0.397) 36, (2007): 2891 – 2900 (sole author).

\*“A Distribution Free Summarization Method for Affymetrix GeneChip® Arrays.” *Bioinformatics* (IF 5.766) 23:3 (2007): 321-327 (with Z. Chen, Q. Liu, and R.H. Scheuermann).

 “Aging and AIDS: Werner syndrome helicase a cofactor for HIV-1 replication.” *Journal of Biological Chemistry* (IF 4.573) 282 (2007): 12048-12057(with A. Sharma, S. Awasthi, C.K. Harrod, E.F. Matlock, S. Khan, L. Xu, D,K. Burns, D.J. Skiest, C. Van Lint, A.M. Girard, R.J. Monnat, and R. Harrod)

\*“Parameter Estimation for the Exponential-Normal Convolution Model for Background Correction of Affymetrix GeneChip Data,” *Statistical Applications in Genetics and Molecular Biology* (IF 1.717) 5, (2006): Article 24 (with Z. Chen).

“Analysis of a Pilot Study for Amelioration of Itching in Liver Disease: When is a Failed Trial not a Failure?” *The American Statistician* (IF 1.436) 60, (2006): 303 - 308 (with N.V. Bergasa)

“Gabapentin treatment for the Pruritus of Cholestasis: Results of a Double Blind Placebo Trial.” *Hepatology* 44 (IF 11.055), (2006): 1317-1323 (with N. V. Bergasa,I. Ginsburg, D. Engler)

“A Human T-Cell Lymphotropic Virus Type 1 Enhancer of Myc-Transforming Potential Stabilizes Myc-TIP60 Transcriptional Interactions” *Molecular and Cellular Biology* (IF 4.427) 25, (2005): 6178-6198 (with S. Awasthi, A. Sharma, K. Wong, J. Zhang, E.F. Matlock, L. Rogers, P. Motloch, S. Takemoto, H. Taguchi, M. D. Cole, B. Luscher, O. Dittrich, H. Tagami, Y. Nakatani, A. M. Girard, L. Gaughan, C. N. Robson, R. J. Monnat, Jr., and R. Harrod)

“A Pilot Study of Mind-Body Changes in Adults with Asthma Who Use Mental Imagery.” *Alternative Therapies in Health and Medicine* (IF 1.329) 10 (2004): 66-71 (with G. N. Epstein, J. Halper, E.A. Manhart Barrett, C. Birdsall, K. Phillips and S. Lowenstein )

“The Level and Species of Plasma Non-Esterified Fatty Acids are not Related to Elevated Plasma Apolipoprotien B Levels in Familial Combined Hyperlipidemia.” *Journal of Medicine*, (IF 2.244) 32 (2004): 349-63 (with R. Shamir, K.J. Williams, J.L. Cortner, L.C. Hudgins, L.C. Levine, and E.A. Fisher)

“Pilot Study of Bright-Light Therapy Reflected Toward the Eyes for the Pruritus of Cholestasis.” *American Journal of Gastroenterology*, (IF 10.3283) 96 (2001): 1563-1570 (with N.V. Bergasa, M.J. Link, M. Keogh, G. Yaroslavsky, R.N. Rosenthal)

“Alcohol Consumption Raises HDL Cholesterol Levels by Increasing Production Rate of Apolipoproteins A-I and A-II.” *Circulation,* (IF 14.43) 102 (2000): 2347-2352 (with E.de Oliviera e Silva, D. Foster, C.E. Seidman, J.D. Smith, J.L. Breslow, and E.A. Brinton )

“Human Zona Pellucida Micromanipulation and Monozygotic Twinning Frequency after IVF.” *Human Reproduction*, (IF 4.621) 15 (2000): 890-895 (with E. S. Sills, M. Moomjy, N. Zaninovic, L. Veeck, G. D. Palermo and Z. Rosenwaks )

“A Prospective, Randomized Comparison of Ovulation Induction Using Highly Purified Follicle-Stimulating Hormone Alone and with Recombinant Human Luteinizing Hormone in In-Vitro Fertilization.” *Human Reproduction*, (IF 4.621) 14 (1999): 2230-2235 (with E.S. Sills, D. P. Levy, M. Moomjy, and Z. Rosenwaks)

“U-shape Relationship Between Change in Dietary Cholesterol Absorption and Plasma Lipoprotein Responsiveness and Evidence for Extreme Interindividual Variation in Dietary Cholesterol Absorption in Humans.” *Journal of Lipid Research*, (IF 5.559) 39 (1998) 2415-2422 (with E Sehayek, C. Nath, T. Heinemann, C. Seidman, P. Samuel, and J.L. Breslow)

“Tests for Harmonic Components in the Spectra of Categorical Time Series.” *Journal of Time Series Analysis*, (IF 1.0) 19 (1998): 309 – 324 (with K.B. Ensor )

“Abdominal Hysterectomy Practice Patterns in the United States.” *Journal of Gynecology and Obstetrics*, (IF 4.704) 63 (1998): 277-283 (with E.S. Sills, J. Saini, C.A. Steiner, and H.F. Gretz)

“Supracervical and Total Abdominal Hysterectomy Trends in New York State 1990-1996.” *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, (IF 2.046) 75 (1998): 903-910 (with E.S. Sills, J. Saini, M.S. Applegate, and H.F. Gretz)

“T and B Lymphocytes Play a Minor Role in Atherosclerotic Plaque Formation in the Apolipoprotein E-Deficient Mouse.” *Proceedings of the National Academy of Sciences* (IF 49.423), 94 (1997): 4642-4646 (with H.M. Dansky, S.A. Charlton, and J.D. Smith)

“Average Duration of Normal Labour Among Chinese Primigravidas [French].” *J Gynecol Obstet Biol Reprod* (France), 26 (1997): 704-710 (with E.S. Sills, J.D. Baum, X. Ling, D.P. Levy, and C.J. Lockwood)

**Refereed Conference Presentations**

“Comparison of Variable Selection Methods for Forecasting from Short Time Series”. IEEE 6th International Conference on Data Science and Advanced Analytics (DSAA 2019), Washington, D.C., October 5 – 8, 2019 (with Robert A. Yaffee).

“Metagenomic Classification Using and Abstraction Augmented Markov Model”, International Biometric Conference (IBC 2018), Barcelona, Spain, July 7 – 13, 2018 (with Sylvia Zhu).

“A Comparative Forecast Evaluation of the trajectories of post-Chornobyl nuclear accident psycho-social sequelae”, International Symposium on Forecasting (ISF 2018), Boulder, Colorado, USA, June 16 – 20, 2018 (with Robert A. Yaffee).

 “Visualization of DNA/RNA Structure using Temporal CGRs.” IEEE 6th Symposium on Bioinformatics and Bioengineering (BIBE 2006), Washington, DC, October 16-18, 2006 (with M.H. Dunham, D. Quick, Y. Wang, and J.A. Waddle)

 “Classifier Fusion for Poorly-Differentiated Tumor Classification using both Messenger RNA and MicroRNA Expression Profiles.” Life Sciences Society Computational Systems  Bioinformatics Conference (CSB 2006), Stanford, California, August 14-18, 2006 (with Y. Wang, M.H. Dunham, and J.A. Waddle)

“Gabapentin treatment for the Pruritus of Cholestasis: Results of a Double Blind Placebo Trial.” American Association for the Study of Liver Disease Annual Meetings, Boston, MA, 2004 (with N. V. Bergasa, I. Ginsburg, and D. Engler)

“Effect of Periovulary 17-beta Estradiol Fluctuations on Conception in Controlled Ovarian Hyperstimulation and In Vitro Fertilization with GnRH-agonist Suppression.” 15th FIGO World Congress of Gynecology and Obstetrics, Copenhagen, Demark, 1997 (with E.S. Sills, L.I. Barmat, H-C Liu, G.L. Schattman, Z. Rosenwaks)

“Alcohol Raises HDL Levels by Increasing Production of Apo A-I and Apo A-II.” 69th Annual Meeting of the American Heart Association, 1996 (with E. R. DeOlivera e Silva, D. Foster, and E.A. Brinton)

**Book Chapters**

"Statistical Approaches to Gene Expression Microarray Data Preprocessing" in *Biological Data Mining* (2009). Jake Chen and Stefano Lonardi, editors (with E. McClellan, M. Kong and R.H. Scheuermann), Chapman & Hall/CRC Press.

 “Power Analysis and Sample Size Determination for Well-Known Time Series Models.” in *Introduction to Time Series Analysis* by R. Yaffee. New York: Academic Press, 2000.

**Published Book Reviews**

*Interpreting Economic and Social Data: A Foundation for Descriptive Statistics (2009)* by Othmar W. Winkler. Berlin: Springer-Verlag. *The American Statistician*, 2012: 66(2), p.139*.*

*Gene Expression Studies Using Affymetrix Microarrays,* Göhlmann and Talloen (2009) *Journal of Biopharmaceutical Statistics*, 2010: 20 (2), p 488 - 490.

*Practical Time Series*. Janacek, Gareth (2001). London: Arnold Publishers. *Journal of the American Statistical Association*, 2002: 97, p. 363.

**Work Submitted or Under Revision**

\*“Examining uses of DFT distance metrics in SARS-COV2 genomes” (2020). With Micah Thornton.

\*“Relationship between Judges' Scores and Dive Attributes from Live Video in Diving Competitions” (2020). With Bianca Luedeker.

\*“A Simple Correction Procedure for High-Dimensional General Linear Models with Measurement Error” (2020). With M.C. Byrd.

“AWS EC2 Spot Pricing Using Long Term Short Memory Neural Networks” (2019), with Y. Kunwar, J. Lancon, J.D. Stroud, and R. Slater.

“Flowthrough Centrality: A Stable Centrality Measure” (2019). with Chuck Mann, Eli Olinick, and David Matula.

 “A Comparative Forecast Evaluation of the trajectories of post-Chornobyl nuclear accident psycho-social sequelae” (2018), with Robert A. Yaffee.

\*“Weighted Averages for Reconstructed Pathways: A novel method for pathway level analysis of gene expression profiles” (2017), with E. McClellan and R.H. Scheuermann.

\*“Statistical Hypothesis Testing for Classification of DNA Sequences using Abstraction Augmented Markov Models and Extensible Markov Models”(2017), with X. Zhu.

**Works in Progress (\*co-authored with PhD student)**

*Investigation of Time Peaks and Plateaus for High School Track and Field Athletes.* (with Jacy Sparks and Ben Williams).

*Analysis of High School Performance for Collegiate Champions: How early can you tell?* (with Ben Williams).

*\*Misspecification of correlation structures in longitudinal gene expression studies* (with Jacob Turner, Charles Avornyo, Bryn Brakefield, and Kalanka Jayalath).

*A Bayesian Ordinal Model for Determining Components of Interrater Agreement for Diving Competitions* (with Jing Cao).

*\*Nested Dirichlet Hypothesis Testing with Applications to Flow Cytometry Data* (with Jacob Turner, Derek Blankenship, and Gerlinde Obermoser).

**Invited Presentations**

“Just in Time Teaching in the Statistics Classroom”, class discussion with statistics education students, California Polytechnic State University, San Luis Obispo, May 17, 2020.

“Just in Time Teaching in the Statistics Classroom”, class discussion with statistics education students, California Polytechnic State University, San Luis Obispo, May 8, 2019.

“Just in Time Teaching in the Statistics Classroom”, class discussion with statistics education students, California Polytechnic State University, San Luis Obispo, May 17, 2018.

“Just in Time Teaching in the Statistics Classroom”, class discussion with statistics education students, California Polytechnic State University, San Luis Obispo, May 15, 2017.

 “Just in Time Teaching in the Statistics Classroom”. Center for Teaching Excellence Seminar, Southern Methodist University, February 8, 2017.

“Just in Time Teaching in the Statistics Classroom”, American Statistical Association Section on Statistics Education, CAUSE Webinar, January 17, 2017

(https://www.causeweb.org/cause/webinar/teaching/2017-01).

 “FlowMapFR: Mapping Cell Populations in Flow Cytometry Data Using the Friedman-Rafksy Test”, SMU, Department of Computer Science, November 6, 2016.

“FlowMapFR: Mapping Cell Populations in Flow Cytometry Data Using the Friedman-Rafksy Test”, Baylor University, Department of Statistical Science, April 23, 2015.

 “Comparison of Taxonomic Classification Using Variations on Markov Models”, Sam Houston State University, Department of Mathematics and Statistics, October 23, 2013.

 “First Adventures in the Flipped Classroom” SRCOS Summer Research Conference in Statistics, Nashville, TN, June 2-5, 2013.

“Taxonomic Classification Using Extensible Markov Models”, J. Craig Venter Institute, La Jolla, CA, July 27, 2012.

“Improving Statistical Methods in Biological Pathway Analysis”, UTSW Retreat for Collaborative Project Development, May 12, 2011

“Statistical Methods in Genetics and Bioinformatics”, SACNAS National Conference, October 16, 2009

“Beyond Type I Error Rate”, North Texas Chapter of the American Statistical Association, Southern Methodist University, April 30, 2009

“Preprocessing for Affymetrix GeneChip Data: RMA and Beyond”, Keynote Address, 2nd Bi-annual Bioinformatics Workshop, Training Program in Bioinformatics, Texas A&M University, College Station, Texas, October 4, 2008

“Good Advice (That I Ignored) During My First JSM”, First-Time Attendees Address, Joint Statistical Meetings, Salt Lake City, August 2007

“Parameter Estimation for the Exponential-Normal Convolution Model for Background Correction of Affymetrix GeneChip Data,” Southern Methodist University Seminar Series, January 19, 2007.

“Parameter Estimation for the Exponential-Normal Convolution Model for Background Correction of Affymetrix GeneChip Data,” Bio3 Lecture Series, Department of Biostatistics, Bioinformatics and Biomathematics, Georgetown University, Washington, D.C., January 12, 2007.

“Approaches to the Analysis of Affymetrix GeneChip Arrays,” Distinguished Researcher Lecture Series, Department of Clinical Sciences, University of Texas Southwestern Medical Center, March 9, 2006.

“A Distribution Free Summarization Method for Oligonucleotide Microarray Data”, Dallas Area Bioinformatics Workshop, University of Texas Southwestern Medical Center, August 29, 2006.

“Analysis of a Pilot Study for Amelioration of Itching in Liver Disease: When is a Failed Trial not a Failure?” SRCOS Summer Research Conference in Statistics, Kerrville, Texas June 4-7, 2006

“Improvements to the RMA Algorithm for Gene Expression Microarray Background Correction.” Department of Mathematics and Statistics, Mississippi State University, November 17, 2005

 “Using Online Video Examples in Introductory Business Statistics.” SMU Teaching Technology Fair, November 9, 2005

 “Structure and Analysis of Affymetrix Microarrays.” UTSW Bioinformatics Guest Lecture, University of Texas Southwestern Medical Center, October 28, 2005

“Gene Expression Microarray Analysis: An Overview.” Department of Biostatistics, Baylor Health Science Center, Dallas, Texas, October 5, 2005

“Gene Expression Microarray Analysis for Dummies: What I Learned this Summer.” Department of Statistical Science Seminar, Southern Methodist University, September 9, 2005

“Using Online Video Examples in Introductory Business Statistics.” SRCOS Summer Research Conference in Statistics, Clemson University, Clemson, SC, June 5-8, 2005

“Analyzing Pilot Studies with Missing Observations.” University of Texas at Dallas Colloquium, April 19, 2005

“Mixture Transition Monte Carlo: Making MCMC Move.” Working Group on Model Based Clustering, Department of Statistics, University of Washington, Seattle, Washington, 2003

“Mixture Transition Monte Carlo: Making MCMC Move.” Section on Statistical Computing and Section on Bayesian Statistical Sciences, Joint Statistical Meetings, New York, NY, 2002

“Mixture Transition Monte Carlo: A Generalization of MCMC.” Working Group for Model Based Clustering, Department of Statistics, University of Washington, 2001

“Tests for Harmonic Components in the Spectra of Categorical Time Series.” Department of Mathematics and Statistics, Hunter College, 2001

“Women and the Sciences: Myths and Realities.” Panel discussion of female scientists speaking about the challenges and rewards facing women in scientific careers, Hunter College, 2000

“Use and Abuse of Statistics in the Media.” Sonya Kovalesky Day, Program to interest high school girls in mathematics, Hunter College, 2000

“Tests for Harmonic Components in the Spectra of Categorical Time Series.” Department of Statistics Colloquium, Stanford University, 1999

“Teaching Statistics Using SPSS.” Teaching Statistics: Technology and Reasoning Conference, Borough of Manhattan Community College, 1999

“A Test for Harmonic Components in the Spectra of Categorical Time Series” SRCOS Summer Research Conference in Statistics, R. L. Anderson Student Paper Award. Williamsburg, VA, June 1994

“A New Series of Supersaturated Designs.” Thirty-Ninth Army conference on the Design of Experiments, 1994 (with M. Gelder Ehm, and M.N. Elliott)

**Contributed Presentations**

“Peaks and Plateaus in Times for High School Track and Field Athletes”, Topic Contributed Paper, Joint Statistical Meetings, Philadelphia, PA, August 4, 2020.

“A Grading Scheme to Emphasize Mastery”, Topic Contributed Paper, Joint Statistical Meetings, Denver, CO, July 28 – August 1, 2019.

“Interrater Agreement for Diving Competitions”, Joint Statistical Meetings, Vancouver, Canada, July 29 – August 1, 2018.

“Metagenomic Classification Using an Abstraction Augmented Markov Model", International Biometric Conference, Barcelona, Spain, July 7 – 13, 2018.

“Adventures in the Flipped Classroom”, with Lynne Stokes, SMU Department of Statistical Science Seminar Series, November 22, 2013.

“Statistics without the Normal Distribution”, Topic Contributed Paper, Joint Statistical Meetings, Montreal, Canada, August 3 – 8, 2013.

“Supplementing Introductory Statistics Instruction with Online Videos.” Joint Statistical Meetings, Seattle, WA, August 6-10, 2006

“Parameter Estimation for the Convolution Model for Background Correction of Affymetrix GeneChip Data.” Eastern North American Region of the International Biometric Society, Tampa, Florida, March 26-29, 2006

“Coping with Nonstationarity in Categorical Time Series.” Joint Statistical Meetings, Minneapolis, MN, August 5-8, 2005

“Some Practical Solutions to Analyzing Messy Data.” Eastern North American Region of the International Biometric Society Spring Meetings, Austin, Texas, March 20-23, 2005

“Early Classification of Pregnancy Outcome Using Hormone Levels in IVF Patients.” Joint Statistical Meetings, San Francisco, August 2003. (with Galina Kovalevskaya and John O’Connor)

“Observations on Statistics and Graphics in Clinical Presentations.” Section on Teaching Methods and Case Studies in the Health Sciences. Joint Statistical Meetings, Anaheim, CA, 1997

**Internal Grant Awards**

“Metagenomic Classification Using an Abstraction Augmented Markov Model”, University Research Council Travel Award, SMU, $2257.50.

“The Impact of Big Data and Society: The Good, the Bad, and the Ugly”, Dedman College Interdisciplinary Institute Annual Fellows Seminar (2016 – 2017) $10,000, with Daniel Engels (CSE).

“Ethics and Data Science” *Maguire Ethics Center Faculty Course Development Grant*, Southern Methodist University (2015), $10,000 (with Daniel Engels, CSE).

“Statistical Methods for Prediction of Protein Location and Identity in 2D-DIGE Gels.” *University Research Committee Grant*, Southern Methodist University (2004-2005), $5,600

“Creating Web Based Applications for Undergraduate Statistics Courses.” *SMU Teaching and Technology Group and Provost’s Office*, Southern Methodist University (2003-2004), $2,411

“Creating Web Based Applications for Undergraduate Statistics Courses.” *President’s Partners Grant,* Southern Methodist University (2003-2004), $2,400

“Developing a Biometrics Program at Hunter College.” *Hunter College Presidential Incentive and Teaching Grants Awards* (2000-2002), $750

“Evaluation of Approaches to Teaching Introductory Statistics.” *Hunter College Grant Award - Scholarship of Teaching Initiative* (2000 - 2002), $5,000

“Analysis of Ordinal Time Series in the Frequency Domain.” *PSC-CUNY Research Award Renewal* (2000-2001), $3,746

“A Casebook for an Introductory Statistics Course.” *Eugene Lang Junior Faculty Development Award, Hunter College,* (1999-2001), $2,500

“Analysis of Ordinal Time Series in the Frequency Domain.” *PSC-CUNY Research Award*, (1999 - 2000), $6,000

**PhD Students Supervised (in Alphabetical Order)**

Michael Byrd, *Methodology for Gaussian Processes with Measurement Error*, PhD earned December 2019.

Zhongxue Chen, *Preprocessing Methods for High-density Oligonucleotide Array Data*, PhD earned May 2007

Andrew Hardin, *Methods of Realistic Simulation of Oligonucleotide Array Data*, (co-advised with William R. Schucany), PhD earned May 2010.

Mengya Liu, *Combining Model-Based and Machine Learning Approaches to Automated Gating of Flow Cytometry Data*, (co-advised with Richard H. Scheuerman), PhD earned August 2013.

Bianca Luedeker, *Agreement for Judged Competitions with Multiple Judges, Multiple Measurements, and Measurement Error*. PhD expected May 2022.

Elizabeth McClellan, *Improving* *Statistical Methods in Biological Pathway Analysis*, (co-advising with Richard H. Scheuerman), PhD earned May 2010.

Micah Thornton, *Approaches to Modeling DNA Sequencing, Methylation, and Compositional Data with Potentially Missing Values*. PhD expected August 2021.

Jacob Turner, *A Novel Approach to Modeling Immunology Data derived from Flow Cytometry Data*, PhD earned May 2013.

Xiujun (Sylvia) Zhu, *Statistical Comparisons of Phylogenetic Trees Generated from Metagenomic Data*, PhD earned August 2014.

Kun Zou, *Searching for the Best Microarray Pre-Processing Method Validated with Biologically Meaningful Clustering*, PhD earned August 2010.

**Masters Students Supervised (in Alphabetical Order)**

Aaron Camp (2004) *The Home Field Advantage in the World Series*

Rajan Lamichhane (2007), *Analysis of Microarray Data with Four Conditions and No Replicates*

Luke Peterson (2006)

Syliva Zhu (2012), *What is Normal Summer Temperature for Dallas*?

**PhD Committee Membership**

Shalima Zalsha (PhD earned December 2020) – Lynne Stokes, advisor.

Qutaiba Khasawneh (Ph.D. earned, December 2019) – Jennifer Dworak and Peng Liu, co-advisors.

Ben Williams (PhD earned May 2019) – Lynne Stokes, advisor.

Bivin Sadler (PhD earned June 2014) – Lynne Stokes, advisor.

Yixun Xu (PhD earned July 2015) – Wayne Woodward, advisor.

Ying Lou (PhD earned May 2014) – Jing Cao, advisor.

Wenkai Bao (PhD earned May 2014), *Analysis of Time Series with Time-Varying Frequency Behavior and Long Memory* (Wayne Woodward, Advisor)

Ayman Al-Rawashdeh (PhD earned December 2013) – Jing Cao, advisor.

Anurag (Andy) Nagar (PhD earned December 2013, computer science) – Michael Hahsler, advisor.

Rao Mallik Kotamarti (PhD earned December 2010, Computer Science), *Alignment Free Computation Methods for Metagenomic Bioinformatics* (Margaret Dunham, Advisor)

Jonathan David Sanders (PhD earned May 2009), *A Smoothing-Based Procedure for Time-Series Trend Testing* (Wayne Woodward and William Schucany, Advisors)

Julia Kozlitina (PhD earned May 2008), *Tests for Trend in the Analysis of Genetic Association Studies* (William Schucany, Advisor)

Steve Robertson (PhD earned May 2008), *Generalizations and Applications of the Linear Chirp,* (Wayne Woodward, Advisor)

Soumya Awasthi (PhD earned May 2007, Biology), *Role of the Human T-Cell Lymphotropic Virus Type-1 (HTLV-1) Accesory Protein p30II in Adult T-Cell Leukemogenesis* (Robert Harrod, Advisor)

Eun-Ha Choi (PhD earned May 2004), *EARMA Processes with Spectral Analysis of Non-Stationary Time Series* (Henry Gray and Wayne Woodward, Advisors)

Liangang Liu(PhD earned May 2004), *Spectral Analysis with Time-Varying Frequency* (Wayne Woodward, Advisor)

Yan Zhong (PhD earned May 2004), *Analysis of Time-Varying Frequency Exponential Chirp Process Through Exponential Time Transformation* (W. Woodward and H. Gray, Advisors)

Krista Blevins Cohlmia (PhD earned May 2003), *Filtering M-Stationary Processes* (Henry Gray and Wayne Woodward, Advisors)

**Masters Committee Membership**

Ying Lou (2013) *Parameter Estimate for the Discrete Inverse Weibull Distribution with Censored Observations* (Tony Ng, advisor)

Yalan Hu (2009), *Electricity Records Correction* (Ian Harris, Advisor).

Jason Minter (2009)

Yilan Jia (2007)

**Undergraduate Mentoring**

Jacy Sparks (2019 – 2020): Hamilton Scholar Mentor: Comparison of Peak and Plateau Times for Male and Female Track and Field Athletes.

Neil Martin (2017 – 2018): Engaged Learning Project Mentor: Nonparametric Methods for Risk Assessment.

Yifan Zhang (2017): Hamilton Scholar Mentor: Type I and Type II Error for Methods of Tie-Breaking in Rank-Based Tests.

Kyle Nakatsuka (2013 – 2016): Chair, Independent Studies Major Committee for an Independent Study in Applied Computational Biology.

Audrey Gill (2014 – 2015): Engaged Learning Project Mentor: Promoting Social Change in Trans Rights Activism: A Study in Addressing Prejudice.

Michael McCarthy (2010 – 2012): Engaged Learning Project Mentor: A Spinal Cord Injury Home Care Evaluation Program Evaluation System.

**Courses Developed**

2020: Time Series Analysis (STAT 4363). An undergraduate course teaching methods for analysis of time series data.

2017: Introduction to Statistical Software (STAT 3304). A course using statistical software packages R, SPSS, and SAS for methods learned in introductory statistics.

2016: Quantifying the World (MSDS 7333). A case-based course in advanced methods in statistics for large data sets.

2015: Doing Data Science (MSDS 6306). An introduction to research reproducibility techniques, the statistical software program R, programming in Python, and version control with GitHub.

2015: Statistical Methods for Data Science II (MSDS 6372), Second part of masters-level for the online Master of Science in Data Science program. The course focuses on advanced regression methods and imputation of missing data.

2014: Statistical Methods for Data Science I (MSDS 6371), Masters-level course in classical statistical methods and general linear models for the online Master of Science in Data Science program.

2013: Introduction to Nonparametric Statistics (STAT 4385), Course focuses on methods based on ranks instead of statistical distributions, including Wilcoxon tests. Also introduces students to bootstrapping and nonparametric regression.

2006: Statistical Methods in Bioinformatics (STAT 6358), Graduate course introducing students to high-throughput biological assays, including methods for cleaning and processing data and methods for multiple testing.

**Consulting Activities**

2013 – 2014: New York Medical College, Metropolitan Medical Center, New York City

Working with physicians to calculate sample size for clinical trials involving endpoints with censored observations.

2007 – 2013: SMU-JCVI High-Throughput Data Analysis Project: Working with Richard Scheuermann lab at JCVI and the to advance analysis in high throughput biological assay, such as NGS and FACS.

2010 – Present: Robert Harrod, Department of Biology, Southern Methodist University, provide statistical support for various data analysis projects.

1995 *Computational Statistician,* Electricité de France

Developed a software package which used past knowledge of consumption of electricity to predict the amount of energy necessary to meet very short term demands.

1992 *Statistical Consultant,* Texas Heart Institute, St. Luke's Episcopal Hospital

Consulted with doctors on design of experiments and used survival analysis techniques to pinpoint important factors in the survival of patients after surgery.

1990 *Computer Consultant,* Energy Planning, Inc.

Developed a computer program to model the purchasing, storage, and usage of natural gas for a utility company.

**Professional Activities and Service**

Member, ASA Professional Issues and Visibility Council (2017 – 2020)

Chair, Committee of ASA Representatives to AAAS (2017 – 2020).

American Statistical Association Representative to AAAS Section Q (Education), 2014 – present.

Secretary of Regional Advisory Board, Eastern North American Region of the International Biometric Society, 2012 – 2015.

Judge for Second Annual Caucus for Women in Statistics Poster Competition for Young Women in Grades K to 12, Fall 2005

Coordinator for First Annual Caucus for Women in Statistics Poster Competition for Young Women in Grades K to 12, Fall 2004

Representative-at-Large, Caucus for Women in Statistics, 2001-2003

Organized Fourteenth Annual Gertrude Cox Scholarship Race for Caucus for Women in Statistics, San Francisco, CA, August 5, 2003

Organized Thirteenth Annual Gertrude Cox Scholarship Race for Caucus for Women in Statistics, New York, NY, August 13, 2002

**Memberships in Professional Societies**

International Institute of Forecasters, member since 2018.

American Association for the Advancement of Science, member since 2012

International Biometric Society, Eastern North American Region, member since 2000

American Statistical Association, member since 1991.

**University Awards and Activities**

Quantitative Reasoning and Applications Committee for Core Curriculum, 2020

Data Science Major Advisory Committee, 2019 - present

Department Undergraduate Advisor, 2019 – present

Department Assessment Chair, 2018 – present

Department Graduate Admissions Committee, 2018 - present

Curriculum Committee for Data Science Major, 2018 - present

Curriculum Committee for Data Science Minor, 2017 – 2018.

General Education Committee, 2016 - 2018

Dean of Dedman College Search Committee, 2013 – 2014

Chair, Master of Science in Data Science Curriculum Committee, 2013 - 2014

Engaged Learning Advisory Committee, 2012 – 2015, chair of mentoring subcommittee.

Chair, Masters of Data Science Curriculum Committee, 2013 – 2014

President’s Scholars Selection and Interview Committee, 2010 – 2013

Dedman College Undergraduate Council, 2011- 2014

Chair, Masters’s Degree Curriculum Committee, 2012

University Marshal for Commencement and Opening Convocation, 2009 - 2013

Department Committee for Introductory Statistical Curriculum, 2011 – 2013.

QEP Implementation Committee, 2011 - 2012

Quantitative Analysis Curriculum Committee, 2010 – 2013

Dean of Dedman College Search Committee, 2009 – 2010

Quality Enhancement Program (QEP) Selection Committee, 2009 – 2010

General Education Review Committee, 2008 – 2010

Faculty Advisor, Mustangs for Christ

Department Seminar Organizer, 2002-2005

Departmental subcommittee to review Statistical Computing Course, 2003

Departmental Advisory Committee, 2005

**Journal Referring**

*Journal of Quantitative Analysis in Sports*

*Journal of Statistics Education*

*PLOS One*

*Test*

*Australia-New Zealand Journal of Statistics*

*BMC Bioinformatics*

*Algorithms for Molecular Biology*

*Statistical Applications in Genetics and Molecular Biology*

*The American Statistician*

**Community Service**

Parent Volunteer for Highland Park track meets, swim meets, and gymnastics meets (2016 – 2020).

LitFest Volunteer, Highland Park High School (2018 – 2020)

Senior Activities Chair (2018): Highlander Band Booster Club.

Publicity Chair, Raider Band Booster Club (2017 – 18). Highland Park Middle School.

Bible Class Instructor, Preston Road Church of Christ: Adults and High School.

McCullough Intermediate School Back to School Sign Up Co-Chair (2014): In charge of late registration for fifth and sixth grade students, including collecting student fees and distributing the fees to the appropriate committees.

McCullough Intermediate School and Highland Park Middle School Library Volunteer (2012 – present).

Hyer Elementary Directory Chair (2012 – 2014): In charge of taking information from school registration and creating a printed directory for the elementary school

Chair, Finance and Budget Committee, Christ’s Family Ministries (2009 to 2013): An organization dedicated to providing health related services to members of the community without health insurance.