

# Jan Hannig

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## EDUCATION

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Ph.D., Statistics, July, 2000  
Michigan State University, East Lansing, Michigan  
Advisor: Professor A. V. Skorokhod

Mgr. (M.S. equivalent), Mathematics, June, 1996  
(Concentration in probability and random processes.)  
Charles University, Prague, Czech Republic  
Advisor: Professor J. Štěpán

## PROFESSIONAL EXPERIENCE

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- *Professor/Associate Professor*, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill, 2013 – present/2008 – 2013
- *Faculty Appointee*, National Institute of Standards and Technology, 2018 – present
- *Visiting Investigator*, Fred Hutchinson Cancer Research Center, Spring 2017.
- *Associate Professor/Assistant Professor*, Department of Statistics, Colorado State University, 2006 – 2008/2000 – 2006
- *Guest Researcher*, National Institute of Standards and Technology, 2003 – 2008
- *Visiting Assistant Professor*, Department of Statistics, University of Chicago  
Fall 2006
- *Honorary Fellow, Summer Internship in Probability*, University of Wisconsin - Madison, Summer 2001, 2002
- *Graduate Teaching Assistant*, Michigan State University, 1996 – 2000
- *Statistical Consultant*, Michigan State University, 1999 – 2000
- *Teaching Assistant*, Charles University, Prague, Czech Republic, 1995 – 1996
- *Computer Assistant*, Charles University, Prague, Czech Republic, 1993 – 1996

## HONORS & AWARDS

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- Elected Fellow of The American Statistical Association, 2016
- Kavli Fellow, National Academy of Sciences, 2015
- Elected Member of the International Statistical Institute, 2006
- Graduation with high honors (Summa Cum Laude), Charles University, Prague, 1996

## BOOK CHAPTERS

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1. D. L. Sonderegger\* and **J. Hannig** (2014), Fiducial theory for free-knot splines, in *Contemporary Developments in Statistical Theory, Festschrift in honor of Professor Hira L. Koul*, Springer, pp. 155 – 189. doi:10.1007/978-3-319-02651-0\_10
2. **J. Hannig**, H. Iyer, T. C. M. Lee (2011), Fiducial Inference and Generalizations, in *International Encyclopedia of Statistical Science*, Springer, pp. 515-519.
3. **J. Hannig**, J. S. Marron, G. Samorodniztky and F. D. Smith (2003), Log-normal durations can give long range dependence, Mathematical Statistics and Applications: Festschrift for Constance van Eeden, *IMS Lecture Notes – Monograph Series*, **42**, pp. 333 – 344. <http://www.jstor.org/stable/4356246>

## RESEARCH PAPERS

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### Refereed Journal Papers

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1. J.P. Williams, C.B. Storlie, T. M. Therneau, C. R. Jack Jr. and **J. Hannig**, A Bayesian Approach to Multi-State Hidden Markov Models: Application to Dementia Progression, to appear in *Journal of American Statistical Association* accepted in February 2019. doi:10.1080/01621459.2019.1594831
2. S.D. Neupert and **J. Hannig**, BFF: Bayesian, Fiducial, Frequentist Analysis of Age Effects in Daily Diary Data (2020), *Journal of Gerontology: Psychological Sciences*, **75**, pp. 67-79. doi:10.1093/geronb/gbz100
3. Y. Cui\* and **J. Hannig** (2019), Estimation and testing of survival functions via generalized fiducial inference with censored data, with discussion and rejoinder by the authors, *Biometrika*, **106**, pp. 501-518. doi:10.1093/biomet/asz016

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\*Student co-author at the time the research was conducted.

4. Y. Liu, **J. Hannig** and A. Pal Majumder (2019), Second-Order Probability Matching Priors for the Person Parameter in Unidimensional IRT Models, *Psychometrika*, **84**, pp. 701-718. doi:10.1007/s11336-019-09675-4
5. K. Hindberg\*, **J. Hannig**, F. Godtliebsen (2019), A novel scale-space approach for multinormality testing and the k-sample problem in the high dimension low sample size scenario. *PLoS ONE*, **14**(1): e0211044A. doi:10.1371/journal.pone.0211044
6. J. P. Williams\* and **J. Hannig** (2019), Non-penalized variable selection in high-dimensional linear model settings via generalized fiducial inference, *Annals of Statistics*, **47**, pp. 1723-1753. doi:10.1214/18-AOS1733
7. S. Almada Monter, A. Budhiraja, and **J. Hannig** (2018), Source detection algorithms for dynamic contaminants based on the analysis of a hydrodynamic limit, *SIAM Journal Applied Math*, **78**, pp. 2279-2625. doi:10.1137/15M1044497
8. Q. Feng\*, M. Jiang\*, **J. Hannig** and J. S. Marron (2018), Angle-Based Joint and Individual Variation Explained, *Journal of Multivariate Analysis*, **166**, pp. 241-265. doi:10.1016/j.jmva.2018.03.008
9. **J. Hannig**, Q. Feng\*, H. Iyer, J. Wang and X. Liu (2018), Fusion learning for Inter-laboratory Comparisons, *Journal of Statistical Planning and Inference*, **195**, pp. 64-79. doi:10.1016/j.jspi.2017.09.011
10. Y. Liu and **J. Hannig** (2017), Generalized fiducial inference for logistic graded response models, *Psychometrika*. **82**, pp. 1097-1125. doi:10.1007/s11336-017-9554-0
11. L. Liao\*, C. Park, **J. Hannig** and K.-H. Kang (2016), Auto-covariance Function Estimation via Penalized Regression, *Journal of Computational and Graphical Statistics*, **25**, pp. 1041-1056 doi:10.1080/10618600.2015.1086356
12. **J. Hannig**, H. Iyer, R. C. S. Lai\* and T. C. M. Lee (2016), Generalized Fiducial Inference: A Review and New Results, *Journal of American Statistical Association*, **111**, pp. 1346-1361. doi:10.1080/01621459.2016.1165102
13. Y. Liu\* and **J. Hannig** (2016), Generalized Fiducial Inference for Binary Logistic Item Response Models, *Psychometrika*, **81**, pp. 290-324. doi:10.1007/s11336-015-9492-7
14. X. Liu, X. Xu and **J. Hannig**, (2016) Least squares generalized inferences in unbalanced two-component normal mixed linear model, *Computational Statistics*, **31**, pp. 973-988. doi:10.1007/s00180-015-0604-8
15. Q. Feng\*, **J. Hannig**, J.S. Marron (2016), A Note on Automatic Data Transformation, *STAT*, **5**, pp. 82 – 87. doi:10.1002/sta4.104
16. P. Borysov\*, **J. Hannig**, J.S. Marron, E. Muratov, D. Fourches and A. Tropsha (2016), Activity Prediction and Identification of Mis-annotated Chemical Compounds Using Extreme Descriptors, *Chemometrics*, **30**, pp. 99 – 108. doi:10.1002/cem.2776.

17. S. Bhamidi, **J. Hannig**, C. Y. Lee and J. Nolen (2015), The importance sampling technique for understanding rare events in Erdős-Rényi random graphs, *Electronic Journal of Probability*, **20**, Article 107, pp. 1–30. doi:10.1214/EJP.v20-2696
18. R. C. S. Lai\*, **J. Hannig** and T. C. M. Lee (2015), Generalized Fiducial Inference for Ultrahigh-Dimensional Regression, *Journal of American Statistical Association*, **110**, pp. 760 – 772. doi:10.1080/01621459.2014.931237
19. M. Heller, **J. Hannig** and M. R. Leadbetter (2015), Optimal sample planning for system state analysis with partial data collection, *STAT*, **4**, pp. 69 – 80. doi:10.1002/sta4.79
20. C. Park, **J. Hannig** and K-H. Kang (2014), Nonparametric Comparison of Multiple Regression Curves in Scale-Space, *Journal of Computational and Graphical Statistics*, **23**, pp. 657 – 677. doi:10.1080/10618600.2013.822816
21. P. Borysov\*, **J. Hannig** and J. S. Marron (2014), Asymptotics of hierarchical clustering for growing dimension, *Journal of Multivariate Statistics*, **124**, pp. 465 – 479. doi:10.1016/j.jmva.2013.11.010
22. **J. Hannig**, R. C. S. Lai\* and T. C. M. Lee (2014), Computational Issues of Generalized Fiducial Inference, *Computational Statistics and Data Analysis* special issue on Imprecision in Statistical Data Analysis, **71**, pp. 849 – 858. doi:10.1016/j.csda.2013.03.003
23. Y. Zhang\*, E. K. P. Chong, **J. Hannig** and D. Estep (2013), On Continuum Limits of Markov Chains with Applications to Network Modeling, *IEEE Access*, **1**, pp. 577 – 595. doi:10.1109/Allerton.2011.6120369
24. Y. Zhang\*, E. K. P. Chong, **J. Hannig** and D. Estep (2013), Continuum Modeling and Control of Large Nonuniform Wireless Networks via Nonlinear Partial Differential Equations, *Abstract and Applied Analysis*, Article ID 262581, 16 pages. doi:10.1155/2013/262581
25. **J. Hannig** (2013), Generalized Fiducial Inference via Discretization, *Statistica Sinica*, **23**, pp. 489 – 514. <http://www3.stat.sinica.edu.tw/statistica/oldpdf/A23n22.pdf>
26. N. Burch\*, E. K. P. Chong, D. Estep and **J. Hannig** (2013), Analysis of Routing Protocols and Interference-limited Communication in Large Wireless Networks via Continuum Modeling, *Journal of Engineering Mathematics*, **79**, pp. 183 – 199. doi:10.1007/s10665-012-9566-9
27. **J. Hannig**, T. C. M. Lee and C. Park (2013), Metrics for SiZer Map Comparison, *STAT*, **2**, pp. 49 – 60. doi:10.1002/sta4.17
28. J. Cisewski\* and **J. Hannig** (2012), Generalized Fiducial Inference for Normal Linear Mixed Models, *Annals of Statistics*, **40**, pp. 2102 – 2127. doi:10.1214/12-AOS1030
29. **J. Hannig** and Min-ge Xie (2012), A note on Dempster-Shafer Recombinations of Confidence Distributions, *Electronic Journal of Statistics*, **6**, pp. 1943 – 1966. doi:10.1214/12-EJS734

30. J. Cisewski\*, E. Snyder, **J. Hannig** and L. Oudejans (2012), Support vector machine classification of suspect powders using laser induced breakdown spectroscopy (LIBS) spectral data, *Journal of Chemometrics*, **26**, pp. 143 – 149. doi:10.1002/cem.2422
31. C. M. Wang, **J. Hannig**, H. K. Iyer (2012), Pivotal methods in the propagation of distributions, *Metrologia*, **49**, pp. 382 – 389. doi:10.1088/0026-1394/49/3/382
32. C. M. Wang, **J. Hannig**, H. K. Iyer (2012), Fiducial Prediction Intervals, *Journal of Statistical Planning and Inference*, **142**, pp. 1980 – 1990. doi:10.1016/j.jspi.2012.02.021
33. D. Wandler\* and **J. Hannig** (2012), Generalized Fiducial Confidence Intervals for Extremes, *Extremes*, **15**, pp. 67 – 87. doi:10.1007/s10687-011-0127-9
34. D. Wandler\* and **J. Hannig** (2012), A Fiducial Approach to Multiple Comparisons, *Journal of Statistical Planning and Inference* **142**, pp 878 – 895. doi:10.1016/j.jspi.2011.10.011
35. C. B. Storlie\*, **J. Hannig** and T. C. M. Lee (2011), Statistical consistency of the data association problem in multiple target tracking, *Electronic Journal of Statistics*, **5**, 1227 – 1275. doi:10.1214/11-EJS639
36. D. Wandler\* and **J. Hannig** (2011), Fiducial Inference on the largest mean of a multivariate normal distribution, *Journal of Multivariate Statistics*, **102**, pp. 87 – 104. doi:10.1016/j.jmva.2010.08.003
37. C. Park, T. C. M. Lee and **J. Hannig** (2010), Multiscale Exploratory Analysis of Regression Quantiles using Quantile SiZer, *Journal of Computational and Graphical Statistics*, **19**, pp. 497 – 513. doi:10.1198/jcgs.2010.09120
38. P. J. Brockwell and **J. Hannig** (2010), CARMA( $p, q$ ) Generalized Random Processes, *Journal of Statistical Planning and Inference*, special volume in honor of Manny Parzen, **140**, pp. 3613 – 3618. doi:10.1016/j.jspi.2010.04.028
39. S. S. Lee and **J. Hannig** (2010), Detecting jumps from levy jump diffusion processes, *Journal of Financial Economics*, **96**, pp. 271-290. doi:10.1016/j.jfineco.2009.12.009
40. **J. Hannig** and T. C. M. Lee (2009), Generalized Fiducial Inference for Wavelet Regression, *Biometrika*, **96**, pp. 847 – 860. doi:10.1093/biomet/asp050
41. C. Park, **J. Hannig** and K.-H. Kang (2009), Improved SiZer for Time Series, *Statistica Sinica*, **19**, pp. 1511 – 1530. <http://www.jstor.org/stable/24308915>
42. C. Park, A. Vaughan, **J. Hannig** and K.-H. Kang (2009), SiZer Analysis for Comparison of Time Series, *Journal of Statistical Planning and Inference*, **139**, pp. 3974 – 3988. doi:10.1016/j.jspi.2009.05.003
43. **J. Hannig** (2009), On Generalized Fiducial Inference, *Statistica Sinica*, **19**, pp. 491 – 544. <http://www.jstor.org/stable/24308841>

44. C. B. Storlie\*, T. C. M. Lee, **J. Hannig** and D. Nychka (2009), Tracking of Multiple Merging and Splitting Targets: A Statistical Perspective, with comments and rejoinder by the authors, *Statistica Sinica*, **19**, pp. 1 – 52. <http://www.jstor.org/stable/24308700>
45. L. E\*, **J. Hannig** and H. Iyer (2008), Fiducial Intervals for Variance Components in an Unbalanced Two-component Normal Mixed Linear Model, *Journal of American Statistical Association*, **103**, pp. 854 – 865. doi:10.1198/016214508000000229
46. E. K. P. Chong, D. Estep and **J. Hannig** (2008), Continuum Modeling of Large Networks, *International Journal of Numerical Modeling: Electronic Networks, Devices, and Fields*, **21**, pp. 169 – 186. doi:10.1002/jnm.651
47. H. Li\*, P. R. Barbosa\*, E. K. P. Chong, **J. Hannig** and S. R. Kulkarni, Zero-Error Target Tracking with Limited Communication (2008), *IEEE Journal on Selected Areas in Communications, Special Issue on Control and Communications*, **26**, pp. 686 – 694. doi:10.1109/JSAC.2008.080510
48. **J. Hannig**, H. K. Iyer and C. M. Wang (2007), Fiducial approach to uncertainty assessment: accounting for error due to instrument resolution, *Metrologia*, **44**, pp. 476 – 483. doi:10.1088/0026-1394/44/6/006
49. **J. Hannig** and J. S. Marron (2006) Advanced Distribution Theory for SiZer, *Journal of American Statistical Association*, **101**, pp. 484 – 499. doi:10.1198/016214505000001294
50. **J. Hannig**, H. K. Iyer and P. Patterson\* (2006), Fiducial Generalized Confidence Intervals, *Journal of American Statistical Association*, **101**, pp. 254 – 269. doi:10.1198/016214505000000736
51. **J. Hannig**, E. K. P. Chong and S. R. Kulkarni (2006), Relative Frequencies of Generalized Simulated Annealing, *Mathematics of Operation Research*, **31**, pp. 199 – 215. doi:10.1287/moor.1050.0177
52. **J. Hannig** and T. C. M. Lee (2006), Robust SiZer for Exploration of Regression Structures and Outlier Detection, *Journal of Computational and Graphical Statistics*, **15**, pp. 101 – 117. doi:10.1198/106186006X94676
53. **J. Hannig** and T. C. M. Lee (2006), On Poisson signal estimation under Kullback-Leibler discrepancy and squared risk, *Journal of Statistical Planning and Inference*, **136**, pp. 882 – 908. doi:10.1016/j.jspi.2004.08.012
54. **J. Hannig** (2006), Asymptotic Bounds for Coverage Probabilities for a Class of Confidence Intervals for the Ratio of Means in a Bivariate Normal Distribution, *Journal of Probability and Statistical Science*, **4**, pp. 41 – 49.
55. **J. Hannig**, L. E\*, A. Abdel-Karim\* and H. K. Iyer (2006), Simultaneous Fiducial Generalized Confidence Intervals for Ratios of Means of Lognormal Distributions, *Austrian Journal of Statistics*, **35**, pp. 261 – 269. doi:10.17713/ajs.v35i2&3.372

56. F. Gao, **J. Hannig**, T.-Y. Lee and F. Torcaso (2004) Exact  $L^2$  small balls of Gaussian processes, *Journal of Theoretical Probability*, **17**, pp. 503 – 520.  
doi:10.1023/B:JOTP.00000020705.28185.4c
57. **J. Hannig** and T. C. M. Lee (2004), Kernel Smoothing of Periodograms under Kullback-Leibler Discrepancy, *Signal Processing*, **84**, pp. 1255 – 1266.  
doi:10.1016/j.sigpro.2004.04.007
58. F. Gao, **J. Hannig** and F. Torcaso (2003), Comparison Theorems for Small Deviations of Random Series, *Electronic Journal of Probability*, **8**, paper no. 21, pp. 1 – 17. doi:10.1214/EJP.v8-147
59. F. Gao, **J. Hannig** and F. Torcaso (2003) Integrated Brownian motions and Exact  $L_2$ -small balls, *Annals of Probability*, **31**, pp. 1320 – 1337. <http://www.jstor.org/stable/3481492>
60. F. Gao, **J. Hannig**, T.-Y. Lee and F. Torcaso (2003), Laplace transforms via Hadamard Factorization, *Electronic Journal of Probability*, **8**, paper no. 13, pp. 1 – 20.  
doi:doi:10.1214/EJP.v8-151
61. **J. Hannig**, C. M. Wang and H. K. Iyer (2003), Uncertainty calculation for the ratio of dependent measurements, *Metrologia*, **40**, pp. 177 – 183. doi:10.1088/0026-1394/40/4/306
62. **J. Hannig** (2003), On filtrations related to purely discontinuous martingales, *Séminaire de Probabilités XXXVI*, Lecture Notes in Mathematics **1801**, pp. 360 – 365.
63. **J. Hannig**, J.S. Marron and R.H. Riedi (2001), Zooming statistics: Inference across scales, *Journal of Korean Statistical Society*, **30**, pp. 327 – 345.

## Refereed Proceedings

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1. Y. Zhang\*, E. K. P. Chong, **J. Hannig** and D. Estep (2010), On Continuum Limits of Markov Chains and Network Modeling, Proceedings of the 49th IEEE Conference on Decision and Control, Atlanta, Georgia, December 15–17, 2010, pp. 6779 – 6784.
2. P. R. Barbosa\*, H. Li\*, E. K. P. Chong, **J. Hannig**, S. R. Kulkarni (2006), Zero-Error Target Tracking Through Limited Querying of One-Bit Sensors, Proceedings of the Forty-Fourth Annual Allerton Conference on Communication, Control, and Computing, Monticello, Illinois, September 27–29, 2006, pp. 1424 – 1431.
3. **J. Hannig**, E. K. P. Chong and S. R. Kulkarni (2005), Relative frequencies of non-homogeneous Markov chains in simulated annealing and related algorithms, in Proceedings of the Joint 44th IEEE Conference on Decision and Control and European Control Conference, Seville, Spain, December 12–15, 2005 (Invited paper), pp. 6626 – 6631.

## Other

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1. **J. Hannig**, S. Riman, H. Iyer and P. M. Vallone, Are Reported Likelihood Ratios Well Calibrated?, to appear in *Forensic Science International: Genetics Supplement Series*, (extended abstract). doi:10.1016/j.fsigss.2019.10.094
2. **J. Hannig** (2019), Discussion of "Prior-based Bayesian Information Criterion (PBIC)" by Bayarri et al, *Statistical Theory and Related Fields*, **3**, pp. 30-31. doi:10.1080/24754269.2019.1611144
3. **J. Hannig** (2017), Discussion of "Beyond objective and subjective in statistics?" by Gelman and Hennig, *Journal of Royal Statistical Society Ser. B*, **180**. p. 1009. doi:10.1111/rssa.12276
4. **J. Hannig** (2015) Review of the Book *Essential Statistical Inference*, by Boos and Stefanski, *Journal of Agricultural, Biological, and Environmental Statistics*, **20**, pp. 299–300. doi:10.1007/s13253-015-0199-0
5. **J. Hannig** (2014), Discussion of "On the Birnbaum Argument for the Strong Likelihood Principle" by D. G. Mayo, *Statistical Science*, **29**, pp. 254 – 258. doi:10.1214/14-STS474
6. L. E, **J. Hannig** and H. K. Iyer (2008) Fiducial Generalized Confidence Interval for Median Lethal Dose (LD50), technical report - partially included in later work, (82 pages).
7. **J. Hannig** (2005) On Multidimensional Fiducial Generalized Confidence Intervals, CSU Technical Report 2005-1, Department of Statistics, Colorado State University.
8. **J. Hannig** (2000) *On purely discontinuous martingales*, Ph.D. dissertation, Michigan State University, East Lansing, MI, USA.
9. **J. Hannig** (1996) *On conditional distributions as limits of martingales*, Mgr. dissertation, Charles University, Prague, Czech Republic (in Czech).

## Currently Reviewed:

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1. S. Wu\*, **J. Hannig**, T.C.M. Lee, Uncertainty Quantification in Ensembles of Honest Regression Trees using Generalized Fiducial Inference, being revised. <https://arxiv.org/abs/1911.06177>
2. S. Wu\*, **J. Hannig**, T.C.M. Lee, Uncertainty Quantification for Sparse High Dimensional Principal Component Regression, submitted to *Electronic Journal of Statistics* in September 2019,
3. J. P. Williams\*, Y. Xie, **J. Hannig**, The EAS approach for graphical selection consistency in vector autoregression models, submitted to *Journal of the Royal Statistical Society ser B* in December 2019. <https://arxiv.org/abs/1906.04812>



4. W. Li\*, **J. Hannig** and S. Mukherjee, Subspace Clustering through Sub-Clusters, under revision for *Journal of Machine Learning Research*. (30 pages) <https://arxiv.org/abs/1811.06580>
5. Randy C. S. Lai, **J. Hannig** and Thomas C. M. Lee, Method G: Uncertainty Quantification for Distributed Data Problems using Generalized Fiducial Inference, submitted to *Journal of Computational and Graphical Statistics* in June 2019. <https://arxiv.org/abs/1805.07427>
6. W. Li\*, **J. Hannig** and C. D. Jones, A Note on Optimal Sampling Strategy for Structural Variant Detection Using Optical Mapping, re-submitted to *Communications in Statistics* in January 2020. <http://arxiv.org/abs/1910.04067>
7. I. Carmichael, B. C. Calhoun, K. A. Hoadley, M. A. Troester, J. Geradts, H. D. Couture, L. Olsson, C. M. Perou, M. Niethammer, **J. Hannig** and J.S. Marron, Joint and individual analysis of breast cancer histologic images and genomic covariates, submitted to *Annals of Applied Statistics* in January 2020. <https://arxiv.org/abs/1912.00434>

## COURSES TAUGHT

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### At the University of North Carolina at Chapel Hill

*Graduate level:* Mathematical Statistics I, STOR 654 – F08 (11)<sup>†</sup>, F09 (20), F13 (15), F14 (15), F16 (30), F17 (26), F18(22); Mathematical Statistics II, STOR 655 – S11 (26), S12 (10), S15 (9); S15 (13); Bayesian Statistics, STOR 757 – S10 (19), S14 (11), S16 (9); Statistical Computing, STOR 890 – F11(26), Topics in Foundations of Statistics, STOR 890 – S18(7).

*Undergraduate level:* First Year Seminar, STOR054 – S14 (21), S16 (20), F16 (20); Introduction to Statistics, STOR155 – F09 (97), S11 (108), F12 (207); Probability, STOR435, S09 (54) F17 (96); Regression, STOR455, F10 (66), F18 (73), F19(90)

### At Colorado State University

*Graduate level:* Stochastic processes ST721 (3 times), Probability ST720 (2 times), Advanced Topics in Inference ST740 (once), Probability ST520 (7 times), Mathematical Statistics ST530 (7 times).

*Undergraduate level:* Statistics and Probability for Engineers ST309 (once).

### At Michigan State University

*Undergraduate level:* Statistical Methods STT200 (once), Introduction to Business Statistics STT315 (6 times).

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<sup>†</sup>semester taught (student enrollment)

## STUDENTS

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### Ph.D. Students

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1. Jonathan Williams, Ph.D. 2019, University of North Carolina at Chapel Hill, *Non-penalized model selection via generalized fiducial inference and Bayesian hidden Markov models*
2. Meilei Jiang, Ph.D. 2018 University of North Carolina at Chapel Hill, (co-advised with J. S. Marron) *Statistical Learning and Integrative Analysis*
3. Yifan Cui, Ph.D. 2018, University of North Carolina at Chapel Hill, (co-advised with M. Kosorok) *Tree-based survival models and precision medicine*
4. Qing Feng, Ph.D. 2016, University of North Carolina at Chapel Hill, (co-advised with J.S. Marron), *Statistical Integration of Information*
5. Dimitris Katsoridas, Ph.D. 2015, University of North Carolina at Chapel Hill, *Applications of Generalized Fiducial Inference in High Frequency Data*
6. W. Jenny Shi, Ph.D. 2015, University of North Carolina at Chapel Hill (co-advised with C.J. Jones), *Bayesian Viral Substitution Analysis and Covariance Estimation via Generalized Fiducial Inference*
7. Abhishek P. Majumder, Ph.D. 2015, University of North Carolina at Chapel Hill (co-advised with A. Budhiraja), *Long time asymptotics of some weakly interacting particle systems and higher order asymptotics of generalized fiducial distribution*
8. Petro Borisov, Ph.D. 2013, University of North Carolina at Chapel Hill (co-advised with J.S. Marron) *Statistical methods in chemoinformatics*
9. Jessi J. Cisewski, Ph.D. 2012, University of North Carolina at Chapel Hill *Generalized Fiducial Inference for Mixed Linear Models*
10. Damian Wandler, Ph.D. 2010, Colorado State University *A Fiducial Approach to Extremes and Multiple Comparisons*
11. Derek Sonderegger, Ph.D. 2010, Colorado State University, (co-advised with H. Wang) *Nonparametric function smoothing: Fiducial inference of free knot splines and ecological applications*

12. Lidong E, Ph.D. 2008, Colorado State University, (co-advised with H. Iyer) *On Applications of Generalized Fiducial Inference*
13. Paul Patterson, Ph.D. 2006, Colorado State University, (co-advised with H. Iyer) *Generalized Confidence Intervals for Mixed Linear Model Problems.*
14. Curt Storlie, Ph.D. 2005, Colorado State University, (co-advised with T.C.M. Lee) *Tracking of Multiple Merging and Splitting Targets with Application to Convective Systems.*
15. Amany Abdel-Karim, Ph.D. 2005, Colorado State University, (co-advised with H. Iyer), *Applications of Generalized Inference.*

### M.S. Students

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1. David Benusa, M.S. 2016, University of North Carolina at Chapel Hill, *Bayesian And Fiducial Methods For Logistic Regression With The Logit Link Function*
2. Yang Liu, M.S. 2014, University of North Carolina at Chapel Hill, *Generalized Fiducial Inference for Binary Logistic Item Response Models*
3. Bouy Chamnan, M.S. 2012, Royal University of Phnom Penh, Cambodia, *Intrinsic Simulation Approach to Generalized Fiducial inference*
4. Dongquiu Pu, M.S. 2012, University of North Carolina at Chapel Hill, (co-advised with J. S. Marron), *Statistical Analysis of Art Auction Data*
5. Diana Hall, M.S. 2011, University of North Carolina at Chapel Hill, (co-advised with C. Jones), *Linear Model for Differential Expression*
6. Douch Makara, M.S. 2010, Royal University of Phnom Penh, Cambodia *Simulation Study Of The Property Of Fiducial Distribution For Multinomial Data*
7. Yuriy Glagolskiy, M.S. 2006, Colorado State University, (completed via distance) *Construction of Fiducial Confidence Intervals for the Mixture of Cauchy and Normal Distributions*
8. Sean Sebastian, M.S. 2003, Colorado State University *Estimating people's willingness to pay to preserve a local historical landmark*
9. Jeremy Wilhelm, M.S. 2002, Colorado State University *A Simulation Study on Competing Distributions for the Maxima of Stationary Normal Processes*

## Undergraduate Students

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1. Svetak Sundhar, undergraduate research project, University of North Carolina at Chapel Hill, *Probabilistic Programing approach to Modeling Generalized Fiduciai Inference*
2. Hanlu Zhang, 2016, University of North Carolina at Chapel Hill, *Anaysis of NC Lottery Pick 4 data.*
3. Aaron Hansley, 2010, University of North Carolina at Chapel Hill  
*Obtaining the fiducial distribution of a Brownian motion through Gibbs sampling*

## Current Students

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1. Weiwei Li, Ph.D. candidate, University of North Carolina at Chapel Hill, (co-advised with Corbin Jones & Sayan Mukherjee)
2. Gang Li, Ph.D. candidate, University of North Carolina at Chapel Hill, (co-advised with Yun Li)
3. Samopriya Basu, Ph.D. candidate, University of North Carolina at Chapel Hill,
4. Jack Prothero, Ph.D. candidate, University of North Carolina at Chapel Hill, (co-advised with J.S. Marron)
5. Alexander Murph, Ph.D. candidate, University of North Carolina at Chapel Hill, (co-advised with Jon Williams)
6. Taylor Petty, Ph.D. candidate, University of North Carolina at Chapel Hill, (co-advised with Hari Iyer)
7. Yiqing Wang, M.S. candidate, University of North Carolina at Chapel Hill, (co-advised with Corbin Jones)
8. Shiting Lu, B.S. candidate. University of North Carolina at Chapel Hill.

## GRANTS AND AWARDS

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8/2019 – 7/2021 *Collaborative Research: Generalized Fiducial Inference in the Age of Data Science*, National Science Foundation DMS-1916115 , PI: **J. Hannig**, in collaborations with T. C. M. Lee at University of California at Davis DMS-1916125 (total of the two projects \$270,000).

9/2016 – 8/2020 *BIGDATA: F: Statistical Approaches to Big Data Analytics*, National Science Foundation IIS-1633074, PI: J. S. Marron and **J. Hannig**, (\$500,000).

9/2015 – 8/2019 *Collaborative Research: Generalized Fiducial Inference for Massive Data and High Dimensional Problems*, National Science Foundation DMS-1512893, PI: **J. Hannig**, in collaborations with T. C. M. Lee at University of California at Davis DMS-1512945 (total of the two projects \$300,000).

10/2010 – 9/2015 *ATD: Stochastic algorithms for countering chemical and biological threats*, National Science Foundation DMS-1016441, PI: **J. Hannig**, Amarjit Budhiraja, M. Ross Leadbetter, (\$896,249).

9/2010 – 8/2014 *Collaborative Research: Generalized Fiducial Inference – An Emerging View*, National Science Foundation DMS-1007543, PI: **J. Hannig**, in collaborations with T. C. M. Lee at University of California at Davis DMS-1007520 and H. Iyer at the Colorado State University DMS-1007543 (total of all three projects \$300,000).

8/2007 – 7/2010 *Generalized Fiducial Inference for Modern Statistical Problems*, National Science Foundation DMS-0707037, PI: **J. Hannig**, co-PIs T. C. M. Lee, H. Iyer (\$243,760).

5/2007 – 4/2010 *Partial Differential Equation Models for Large Networks*, National Science Foundation ECCS-0700559, PI: E. K. P. Chong, co-PIs **J. Hannig**, D. Estep (\$276,833).

6/2005 – 5/2008 *Problems related to Gaussian Processes*, National Science Foundation DMS-0504737, sole PI (\$96,000)

2003 IBM Faculty Award (\$7,500)

10/2003 US Junior Oberwolfach Fellow (\$500)—NSF travel award to attend Mini-Workshop: Small Deviation Problems for Stochastic Processes and Related Topics

8/2002 – 5/2003 Travel grant for participants of Summer Internship in Probability (\$2,000)

8/2001 – 5/2002 Travel grant for participants of Summer Internship in Probability (\$2,500)

## PRESENTATIONS

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### International and National Meetings

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1. *Fiducial EAS for graphical VAR model*, The 3rd International Conference on Statistical Distributions and Applications, Grand Rapids, MI, October 2019 (invited)
2. *Are Reported Likelihood Ratios Well Calibrated?*, The 28th Congress of the International Society for Forensic Genetics, Prague, Czechia, September 2019 (oral presentation at a very large conference with no parallel sessions).
3. *Generalized Fiducial Inference: A Review*, Data & Information Fusion Conference, Santa Fe, NM, August 2019 (invited).
4. *Are Bayes Factors Well Calibrated?* The Fifth International Conference on Interface of Statistics and Engineering, Seoul, South Korea, June 2019 (invited).
5. *Are Bayes Factors Well Calibrated?* ICSA 2019 Applied Statistics Symposium, Raleigh, NC, June 2019 (invited).
6. *Deep Fiducial Inference and Data Integration Via Analysis of Subspaces*, Symposium on Data Science and Statistics, Bellevue, WA, May 2019 (invited).
7. *Are Bayes Factors Well Calibrated?* 33rd New England Statistical Symposium, Hartford, CT, May 2019 (invited).
8. *Are Bayes Factors Well Calibrated?* MUMS closing workshop & SPUQ, University of North Carolina, May 2019 (invited).
9. *Are Bayes Factors Well Calibrated?* 6th Bayesian Fiducial Frequentist Conference, Duke University, May 2019 (invited).
10. *Deep Fiducial Inference*, ENAR Spring Meeting, Philadelphia, PA, March 2019 (invited).
11. *Generalized Fiducial Inference: A Review*, Louisiana ASA Chapter Meeting, Baton Rouge, LA, November 2018 (keynote lecture).
12. *Model Selection without penalty using Generalized Fiducial Inference*, The Third Workshop on Higher-Order Asymptotics and Post-Selection Inference, St. Louis, MO, September 2018.
13. *Angle Based Joint and Individual Variation Explained*, Joint Statistical Meetings, Vancouver, BC, August 2018 (invited)

14. *Generalized Fiducial Inference: A Review*, 2018 International Statistical Academic Forum, Qingdao University, China, June 2018 (invited).
15. *Deep Fiducial Inference*, 2018 ICSA China Conference with focus on Data Science, Qingdao, China, June 2018 (invited)
16. *Deep Fiducial Inference*, 5th IMS Asia-Pacific Rim Meeting, Singapore, June 2018 (invited)
17. *Could descendants of Jeffreys, Fisher and Neyman become Best Friends Forever?* ICSA 2018 Applied Statistics Symposium, New Brunswick, NJ, June 2018 (featured invited session).
18. *Deep Fiducial Inference*, Vårens Vakreste Variabler: the FocuStat Conference, Oslo, Norway, May 2018 (invited)
19. *Short course on Generalized Fiducial Inference*, Fifth Bayesian, Fiducial, and Frequentist Conference, University of Michigan, Ann Arbor, MI, May 2018.
20. *Generalized Fiducial Inference and model selection*, Workshop on Lévy processes and time series, Ulm, Germany, September 2017 (invited)
21. *Application of Generalized Fiducial Inference to Biological Sciences*, Joint Statistical Meetings, Baltimore, MD, August 2017 (invited)
22. *Generalized Fiducial Inference and model selection*, 61th ISI World Statistics Congress, Marrakech, Morocco, July 2017 (invited talk and invited discussion)
23. *Generalized Fiducial Inference without penalty in High D*, ICSA Applied Statistics Symposium, Chicago, IL, June 2017 (invited),
24. *Challenges in Generalized Fiducial Inference*, Fourth Bayesian, Fiducial, and Frequentist Conference, Harvard University, Cambridge, MA, May 2017 (invited panelist and speaker).
25. *Generalized Fiducial Inference: A Review*, 11th Probability and Statistics Day, University of Maryland Baltimore County, Baltimore, April 2017 (keynote speaker).
26. *Generalized Fiducial Inference for High Dimensional Problems*, ICSA international conference, Shanghai, China, December 2016 (invited).
27. *Fusion Learning for Inter-laboratory comparisons*, Joint Statistical Meetings, Chicago, IL, August 2016 (invited).

28. *Generalized Fiducial Inference: A Review*, ISBA 2016 World Meeting, Cagliari, Italy, June 2016 (invited).
29. *Generalized Fiducial Inference for Non Parametric Problems*, 3rd conference of the International Society for Non-Parametric Statistics , Avignon France, June 2016 (invited).
30. *Fusion Learning for Inter-laboratory comparisons*, 48th meeting of the Italian Statistical Society, Salerno, Italy, June 2016 (invited).
31. *Generalized Fiducial Inference for High Dimensional Problems*, Conference on Statistical Learning and Data Mining, University of North Carolina, Chapel Hill, NC, June 2016 (invited).
32. *New Challenges in Generalized Fiducial Inference*, Workshop on Fusion Learning, BFF inferences and Statistical Foundations, Rutgers, New Brunswick, NJ, April 2016 (invited).
33. *Generalized Fiducial Inference for Massive data with application to Solar Science*, Joint Statistical Meetings, Seattle, WA, August 2015 (invited).
34. *Generalized Fiducial Inference: A Review*, 60th ISI World Statistics Congress, Rio de Janeiro, Brazil, July 2015 (invited).
35. *Generalized Fiducial Inference for Volatility Estimation*, 2nd Korean-American Kavli Frontier of Science Symposium, Jeju Island, Korea, June 2015 (invited poster).
36. *Generalized Fiducial Inference: A Review*, 11th International Workshop on Objective Bayes Methodology O'Bayes15, Valencia, Spain, May 2015 (invited).
37. *Generalized Fiducial Inference: A Review*, Inference with Confidence Workshop, Oslo, Norway, May 2015 (invited).
38. *Generalized Fiducial Inference*, The first workshop on BFF inference and statistical foundations, Shanghai, China, November 2014 (invited).
39. *Discussion in the Distributional Inference Session*, Joint Statistical Meetings, Boston, MA, August 2014 (topic contributed).
40. *Volatility Estimation using Generalized Fiducial Inference*, IMS Annual Meeting, Sydney, Australia, July 2014 (invited).
41. *Uncertainty Quantification for Massive Data Problems using Generalized Fiducial Inference*, Challenges and Advances in Analysis of Complex High Dimensional Data, Taichung, Taiwan, July 2014 (invited).
42. *Uncertainty quantification for ultrahigh dimensional regression using Generalized Fiducial Inference*, 3rd IMS Asia-Pacific Rim Meeting, Taipei, Taiwan, July 2014 (invited).



43. *Higher order asymptotics for Generalized Fiducial Inference*, Joint ICSA KISS Applied Statistics Symposium, Portland, OR, June 2014 (invited).
44. *Generalized Fiducial Inference and Confidence Distributions*, The Ninth ICSA International Conference, Hong-Kong, December 2013 (invited).
45. *Generalized Fiducial Inference for Volatility Estimation for High Frequency Data*, O'Bayes 2013, Durham, NC, December 2013 (poster).
46. *On Dempster-Shafer combination of confidence distributions*, 59th ISI World Congress, Hong-Kong, August 2013 (invited).
47. *Inference based on Inverse Structural Equation*, Joint Statistical Meetings, San Diego, CA, July 2012 (topic contributed).
48. *Generalized Fiducial Inference for Wavelet Regression*, 2nd IMS Asia-Pacific Rim Meeting, Tsukuba, Japan, July 2012 (invited).
49. *Model Penalized Inference*, ISBA 2012 World Meeting, Kyoto, Japan, June 2012 (poster).
50. *Inference based on Inverse Structural Equation*, SIAM Uncertainty Quantification Conference, Raleigh, NC, March 2012 (invited).
51. *On Generalized Fiducial Inference*, ICSA Applied Statistics Symposium, New York City, NY, June 2011 (invited).
52. *Classification of unknown substance using a SVM Classification Algorithm*, NSF/DTRA Algorithms Workshop, Boston, MA, June 2011 (poster).
53. *Comparison Between Fiducial and Objective Bayesian Inference*, International Workshop on Objective Bayes Methodology, Shanghai, China, June 2011 (invited).
54. *Comparison Between Fiducial and Objective Bayesian Inference*, Spatial program transition workshop, SAMSI, October 2010 (poster).
55. *On Fiducial Inference in Linear Mixed Models*, First Joint Biostatistics Symposium, Beijing, China, July 2010 (invited).
56. *Comparison Between Fiducial and Objective Bayesian Inference*, International Conference on Statistics and Society, Beijing, China, July 2010 (invited).
57. *Generalized Fiducial Inference for Wavelet Regression*, ISBIS, Portoroz, Slovenia, July 2010 (invited).
58. *On Fiducial Inference in Linear Mixed Models*, Joint Research Conference, NIST Gaithersburg, MD, May 2010 (invited).
59. *On Generalized Fiducial Inference*, Workshop on Objective Bayesian for Spatial and Temporal Models, San Antonio, TX, March 2010

60. *Continuum Modeling of Large Networks*, Workshop on Stochastic Analysis, Charles University, Prague, Czech Republic, January 2010.
61. *Sequential Monte Carlo in Generalized Fiducial Inference*, SMC Transition Workshop, SAMSI, Raleigh NC, November 2009.
62. *Generalized Fiducial Inference for Wavelet Regression*, Joint Statistical Meetings, Washington DC, August 2009 (topic contributed).
63. *Generalized Fiducial Inference for Sparse Linear Systems with Application to Wavelet Regression*, IMS Asia-Pacific Rim Meeting, Seoul, South Korea, June 2009 (invited).
64. *On Problems Arising From Fiducial Inference*, 2009 Barrett lectures, The University of Tennessee, Knoxville, TN, April 2009 (contributed).
65. *Detecting Jumps from Lévy Jump Diffusion Processes*, Workshop on Stochastic Analysis V, Charles University, Prague, Czech Republic, January 2009.
66. *Generalized Fiducial Inference for Sparse Linear Systems with Application to Wavelet Regression*, Winter Workshop on Mathematical Statistics, Bratislava, Slovakia, December 2008 (invited).
67. *On Generalized Fiducial Inference*, Opening Workshop For Program on Sequential Monte Carlo, SAMSI, Research Triangle Park, NC, September 2008 (poster).
68. *On Generalized and Fiducial Inference*, Joint Statistical Meetings, Denver, CO, August 2008 (invited).
69. *On Generalized Fiducial Inference*, MCMSki, Bormio, Italy, January 2008 (poster).
70. *Continuum Modeling of Large Networks*, Workshop on Stochastic Analysis IV, Charles University, Prague, Czech Republic, January 2008.
71. *On Generalized Fiducial Inference*, Workshop on Uncertainty of Measurements, National Institute of Standards and Technology, Gaithersburg, MA, February 2007.
72. *Relative Frequencies of Generalized Simulate Annealing*, Markov Processes and Related Topics, Madison, WI, July 2006 (contributed).
73. *Continuum Models for Large Stochastic Networks*, Conference on Stochastic Networks, Urbana-Champaign, IL, June 2006 (poster).
74. *Extreme Value Theory for SiZer*, Graybill Conference V, Fort Collins, CO, June 2006 (invited).
75. *Small Deviations*, Front Range Probability Day, Boulder, CO, May 2006, (invited).
76. *Extreme Value Theory for SiZer*, Small Deviations and Related Problems, St. Petersburg, Russia, September 2005 (invited).

77. *On Fiducial Generalized Confidence Intervals*, Joint Statistical Meetings, Minneapolis, MN, August 2005, (contributed).
78. *On Fiducial Generalized Confidence Intervals*, Perspectives in Modern Statistical Inference III, Mikulov, Czech Republic, July 2005, (contributed).
79. *Advanced Distribution Theory for SiZer*, The Fourth International Conference on High Dimensional Probability, Santa Fe, NM, June 2005.
80. *Stochastic Processes and Information* Information Science and Technology Colloquium, Colorado State University, Fort Collins, CO, April 2005 (invited).
81. *Advanced Distribution Theory for SiZer*, Seminar on Stochastic Processes, Ithaca, NY, March 2005, (contributed).
82. *Small Deviations*, Workshop on Stochastic Analysis and Applications, Charles University, Prague, Czech Republic, January 2005, (invited).
83. *Advanced Distribution Theory for SiZer*, Workshop on Congestion Control and Heavy Traffic Modeling, SAMSI, Research Triangle Park, NC, June 2004, (invited)
84. *Small Deviations*, Fifth Biennial International Conference on Statistics, Probability and Related Areas, IISA, Athens, GA, May 2004, (invited).
85. *Five minute madness talk on current research*, Workshop on Congestion Control and Heavy Traffic Modeling, SAMSI, Research Triangle Park, NC, October 2003.
86. *Laplace transforms of  $L_2$ -ball, Comparison Theorems and Integrated Brownian motions*, Mini-Workshop: Small Deviation Problems for Stochastic Processes and Related Topics, Mathematical Institute Oberwolfach, Germany, October 2003, (invited).
87. *On Filtrations Related to Purely Discontinuous Martingales*, 24th European Meeting Of Statisticians, Prague, Czech Republic, August 2002, (contributed).
88. *Kullback - Leibler Discrepancy based bandwidth choice for Non-Gaussian Errors*, Perspectives in Modern Statistical Inference II, Brno, Czech Republic, August 2002, (contributed).
89. *Kullback - Leibler Discrepancy based bandwidth choice for Non-Gaussian Errors*, Joint Statistical Meetings, Atlanta, GA, August 2001, (contributed).

## Colloquia & Seminars

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1. *Generalized Fiducial Inference: A Review*, Statistics Seminar, Department of Statistics, University of Kentucky, November 2019.
2. *Data Integration Via Analysis of Subspaces*, Statgen Seminar, Department of Biostatistics and Bioinformatics, Duke University, May 2019.
3. *Generalized Fiducial Inference*, Statistical Seminar, Department of Probability & Mathematical Statistics, Charles University, Prague, Czech Republic, April 2019.
4. *Data Integration Via Analysis of Subspaces*, Colloquium, Department of Biostatistics, University of North Carolina at Chapel Hill, April 2019.
5. *Fusing information using Generalized Fiducial Inference*, Data fusion working group, SAMSI, March 2019.
6. *Are reported likelihood ratios well calibrated?*, model uncertainty working group, SAMSI, March 2019.
7. *Data Integration Via Analysis of Subspaces*, rethinc.ml workshop series, University of North Carolina at Chapel Hill, February 2019.
8. *Model Selection without penalty using Generalized Fiducial Inference*, Mathematics Department Colloquium, University of Louisiana at Lafayette, November 2018.
9. *Angle-based joint and individual variation explained*, Statistics Seminar, Department of Statistics & Biostatistics, University of California at Davis, October 2018.
10. *Fusing information using Generalized Fiducial Inference*, Data fusion working group, SAMSI, October 2018.
11. *Generalized Fiducial Inference: A Review*, Statistics Seminar, Department of Mathematics, Washington University at St. Louis, March 2018.
12. *Generalized Fiducial Inference: A Review*, Department Seminar, Department of Statistics & CSAFE, Iowa State University, March 2018.
13. *Generalized Fiducial Inference: A Review*, Microsoft Distinguished Seminar, University of Washington, May 2017.
14. *Generalized Fiducial Inference: A Review*, Seminar, National Institute of Science and Technology, April 2017.
15. *Generalized Fiducial Inference: A Review*, BBE Seminar, Fred Hutch Cancer Center, March 2017.
16. *Generalized Fiducial Inference: A Review*, Seminar, Department of Statistics, Yale University, October 2016.

17. *Generalized Fiducial Inference: A Review*, Biostatistics Seminar, Department of Biostatistics, Georgetown University, January 2016.
18. *Generalized Fiducial Inference: A Review*, Statistics Seminar, Department of Statistics, George Mason University, December 2015.
19. *Generalized Fiducial Inference: A Review*, Colloquium, Department of Probability and Statistics, Michigan State University, October 2015.
20. *Generalized Fiducial Inference*, Graduate Seminar, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill, October 2014.
21. *Generalized Fiducial Inference*, Statistics Seminar, Department of Decision Sciences, Bocconi University, Milan, Italy, October 2014.
22. *Generalized Fiducial Inference*, Statistics Seminar, Department of Mathematics and Statistics, University of North Carolina at Greensboro, February 2014.
23. *Generalized Fiducial Inference*, Research Colloquium, Department of Statistics, Purdue University, January 2014.
24. *Generalized Fiducial Inference*, Seminar, Department of Statistical Sciences and Operations Research, Virginia Commonwealth University, December 2013.
25. *Generalized Fiducial Inference*, Bayesian Seminar, Department of Statistics, North Carolina State University, October 2013.
26. *Generalized Fiducial Inference*, Statistics Seminar, Department of Mathematical Sciences, Clemson University, October 2013.
27. *On Generalized Fiducial Inference*, Statistics Seminar, Department of Mathematics, Statistics and Computer Science, University of Illinois at Chicago, October 2013.
28. *Continuum modeling of large networks*, Department of Applied Mathematics, Faculty of Information Technology, Czech Technical University in Prague, Czech Republic, May 2013.
29. *Inference Based on Inverse of the Data Generating Equation*, AMCS Seminar, Division of Computer, Electrical and Mathematical Sciences and Engineering, King Abdullah University of Science and Technology, Saudi Arabia, November 2012.
30. *Inference Based on Inverse of the Data Generating Equation*, Statistics Seminar, Department of Statistics & Biostatistics, University of California at Davis, October 2012.

31. *Inference Based on Inverse of the Data Generating Equation*, Graduate Seminar, Department of Statistics & Operations Research, University of North Carolina at Chapel Hill, September 2012.
32. *On Generalized Fiducial Inference for linear mixed models*, Colloquium, Department of Statistics, University of Toronto, November 2011.
33. *On Generalized Fiducial Inference for linear mixed models*, Colloquium, Department of Statistics and Biostatistics, Rutgers University, October 2011.
34. *On Generalized Fiducial Inference*, Colloquium, Department of Applied Mathematics and Statistics, Johns Hopkins University, October 2011.
35. *On Generalized Fiducial Inference*, Department of Statistics, University of New South Wales, Sydney, Australia, March 2011.
36. *On Generalized Fiducial Inference*, Stochastic seminar, Department of Mathematics, University of Utah, November 2010.
37. *Continuum modeling of large networks*, Probability seminar, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill, February 2010.
38. *Continuum modeling of large networks*, Probability seminar, Department of Statistics, Columbia University, New York, NY, December 2009.
39. *On Generalized Fiducial Inference*, Department of Statistics, Chinese University of Hong Kong, October 2009.
40. *On Generalized Fiducial Inference*, Department of Statistical Science, Duke University, September 2009.
41. *On Generalized Fiducial Inference*, Institute of Statistical Science, Academia Sinica, Taipei, Taiwan, July 2009.
42. *On Generalized Fiducial Inference*, Institute of Measurement Science, Slovak Academy of Sciences, Slovakia, December 2008.
43. *On Generalized Fiducial Inference*, Department of Statistics, Seoul National University, S. Korea, June 2008.
44. *Statistical Model for Tracking with Applications*, Department of Statistic, Hankuk University of Foreign Studies, S. Korea, June 2008.
45. *On Generalized Fiducial Inference*, Colloquium, Department of Mathematics and Statistics, Utah State University, October 2007.
46. *On Generalized Fiducial Inference*, Department of Statistics & Operation Research, University of North Carolina - Chapel Hill, April 2007.
47. *Statistical Model for Tracking with Applications*, Colloquium, Department of Mathematics, University of Idaho, April 2007.

48. *Statistical Model for Tracking with Applications*, Probability Seminar, Department of Mathematics, University of Wisconsin-Madison, December 2006.
49. *On Generalized Fiducial Inference*, Department of Statistics Colloquium, Department of statistics & Probability, Michigan State University, December 2006.
50. *Extreme value theory for SiZer*, Stochastic Processes Seminar, Department of Applied Mathematics and Statistics, University of Copenhagen, Denmark, November 2006.
51. *Statistical Model for Tracking with Applications*, Jaroslav Hájek Center for Theoretical and Applied Statistics and Department of Probability & Mathematical Statistics, Charles University, Prague, Czech Republic, November 2006.
52. *On Generalized Fiducial Inference*, Statistics Seminar, Institute of Statistics, Université catholique de Louvain, Louvain-la-Neuve, Belgium, November 2006.
53. *Statistical Model for Tracking with Applications*, Seminar, Department of Statistics, Northwestern University, October 2006.
54. *On Fiducial Inference*, Colloquium, Department of Statistics, University of Toronto, Canada, October 2006.
55. *Statistical Model for Tracking with Applications*, Colloquium, Department of Statistics, University of Georgia, October 2006.
56. *On Fiducial Inference*, Colloquia Series, Department of Statistics, Harvard University, October 2006.
57. *Statistical Model for Tracking with Applications*, Seminar Series, Department of Statistics, The University of Chicago, September 2006.
58. *On Fiducial Inference*, Jaroslav Hájek Center for Theoretical and Applied Statistics and Department of Probability & Mathematical Statistics, Charles University, Prague, Czech Republic, May 2006.
59. *On Fiducial Inference*, SOAR Seminar, Department of Statistics, Colorado State University, April 2006.
60. *Extreme value theory for SiZer*, Probability & Statistics Seminar, Department of Mathematics, University of Utah, October 2005.
61. *Small Deviations*, Applied Mathematics Seminar, Department of Mathematics, Colorado State University, September 2004.
62. *Advanced Distribution Theory for SiZer*, Probability Seminar, Department of Mathematical Sciences, University of Delaware, August 2004.
63. *Relative Frequencies of Generalized Simulated Annealing*, Probability Seminar, Department of Statistics & Probability, Michigan State University, April 2004.

64. *Small Deviations, Comparison Theorems, and Laplace Transforms for the  $L_2$  norm of a stochastic process*, Departmental Colloquium, Department of Statistics & Probability, Michigan State University, April 2004.
65. *Small Deviations, Comparison Theorems, and Laplace Transforms for the  $L_2$  norm of a stochastic process*, Departmental Seminar, Department of Statistics, Colorado State University, February 2004.
66. *Integrated Brownian motions, Laplace transforms of  $L_2$ -ball and Exact  $L_2$ -small balls*, Probability & Harmonic Analysis Seminar, Department of Mathematics, University of Utah, August 2003.
67. *Integrated Brownian motions, Laplace transforms of  $L_2$ -ball and Exact  $L_2$ -small balls*, Probability & Statistics Seminar, Department of Applied Mathematics, University of Colorado - Boulder, March 2003.
68. *Eigenvalues of  $m$ -times integrated Brownian motion and Exact  $L_2$ -small balls*, Summer internship in Probability, Department of Mathematics, University of Wisconsin - Madison, Summer 2002.
69. *Eigenvalues of  $m$ -times integrated Brownian motion and Exact  $L_2$ -small balls*, Probability Seminar, Department of Statistics, Columbia University, Spring 2002.
70. *Eigenvalues of  $m$ -times integrated Brownian motion and Exact  $L_2$ -small balls*, Probability Seminar, Department of Mathematics, Cornell University, Fall 2001.
71. *Eigenvalues of  $m$ -times integrated Brownian motion and Exact  $L_2$ -small balls*, Statistics Seminar, Department of Statistics, Colorado State University, Fall 2001.
72. *On Filtrations Related to Purely Discontinuous Martingales*, Summer internship in Probability, Center for Mathematical Sciences, University of Wisconsin - Madison, Summer 2001.
73. *Are Filtrations Really Information?*, Statistics Seminar, Department of Statistics, CSU, Spring 2001.
74. *On Filtrations Related to Purely Discontinuous Martingales*, Departmental Colloquium, Department of Statistics, Michigan State University, Spring 2000.
75. *On Filtrations Related to Purely Discontinuous Martingales*, Statistics Seminar, Department of Statistics, Purdue University, Spring 2000.
76. *On Filtrations Related to Purely Discontinuous Martingales*, Statistics Seminar, Department of Statistics, Colorado State University, Spring 2000.
77. *On Filtrations Related to Purely Discontinuous Martingales*, Statistics Seminar, Department of Statistics, University of Pennsylvania, Spring 2000.
78. *On Filtrations Related to Purely Discontinuous Martingales*, Statistics Seminar, Department of Statistics, University of North Carolina - Chapel Hill, Spring 2000.



79. *On Filtrations Related to Purely Discontinuous Martingales*, Statistics Seminar, Department of Statistics, Florida State University, Spring 2000.

## CONFERENCES ORGANIZATION

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*BFF 2019*, Program co-chair, 2019.

*SAMSI program on Model Uncertainty*, Local Scientific Coordinator, 2018-2019.

*ICSA Applied Symposium*, Invited session on inference for discrete data, Rutgers, June 2018.

*ISI 2017*, Invited session on Bayesian, Fiducial and Frequentist inference, Marrakech, Morocco, July 2017

*JSM 2016*, IMS Program Chair, Chicago, IL 2016

*AISC 2014*, Invited session on Foundations of Statistics, Greensboro, NC, October 2014.

*JSM 2014*, Topic contributed session on Distributional Inference, Boston, MA, August 2014.

*IMS 2014 Annual Meeting*, Invited Session on Foundations of Objective Inference, Sydney, Australia, July 2014.

*JSM 2012*, Invited session on Distributional Inference & Topic Contributed Session on Stochastic Inverse Problems and Model Validation, San Diego, CA, August 2012.

*JSM 2012*, Replacement IMS representative to the contributed sessions organizational meeting, February 2012.

*SAMSI program on Uncertainty Quantification*, Local Scientific Coordinator, 2011-2012.

*ISBIS-2010*, Session on Object Data Analysis, Portoroz, Slovenia, July 2010.

*WNAR/IMS Western Regional Meeting. 2003*, Golden, CO, June 2003—IMS local chair.

*Frontier Probability Days 2007*, Colorado Springs, CO, May 2007

## EDITORIAL WORK

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### Associate Editor

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Journal of American Statistical Association, 2017 – present

Journal of Computational and Graphical Statistics, 2012 – present

Sankhya, 2017 – present

Stat – The ISI's Journal for the Rapid Dissemination of Statistics Research, 2012 – present

Statistica Sinica, guest associated editor for three papers 2007, 2008, 2013

Electronic Journal of Statistics, 2008 – 2013

Journal of Probability and Statistical Science, 2002 – 2008

### Books

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Statistics textbooks by Springer (four times), Houghton Mifflin (once) and Wiley (once).

### Reviews

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Mathematical Reviews (thirteen times), Zentralblatt MATH (twice)

## Journal Papers Referee

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Advances in Statistical Analysis (once), American Statistician (twice), Annals of Applied Statistics (once), Annals of the Institute of Statistical Mathematics (once), Annals of Probability (once), Annals of Statistics (three times), ASTIN Bulletin (once), Axioms (once), Australian and New Zealand Journal of Statistics (once), Bernoulli (three times), Biometrics (twice), Biometrika (six times), Canadian Journal of statistics (three times), Central European Journal of Mathematics (once), Communications in Statistics (seven times), Communication Networks (once), Computational Statistics and Data Analysis (seven times), Chemometrics and Intelligent Laboratory Systems (once), Econometrics (once), Electronic Journal of Statistics (four times), Entropy (once), IEEE Transactions on Reliability (once), International Statistical Reviews (twice), International Journal of Environmental Research and Public Health (once), Journal of Agricultural, Biological and Environmental Statistics (twice), Journal of American Statistical Association (seven times), Journal of Applied Statistics (once), Journal of Banking and Finance (once), Journal of Computational and Graphical Statistics (twice), Journal of Computer Networks (once), Journal of Econometrics (twice), Journal of Empirical Finance (once), Journal of Gerontology (three times), Journal of Mathematical Analysis and Applications (once), Journal of Multivariate Analysis (three times), Journal of Nonparametric Statistics (once), Journal of Royal Statistical Society B (three times), Journal of Statistical Computation and Simulation (three times), Journal of Statistical Planning and Inference (ten times), Journal of Statistical Theory and Practice (once), Journal of Theoretical Probability (twice), Metrika (twice), Probability Theory and Related Fields (once), Proceedings of the American Mathematical Society (twice), Sankhya (twice), Scandinavian Journal of Statistics (twice), Science in China, Series A: Mathematics (once), South African Journal of Statistics (once), STAT (once), Statistics in Medicine (once), Statistica Sinica (three times), Statistical Methods & Applications (once), Statistics and Probability Letters (seven times), Statistical Methodology (once), Statistical Papers (once), Statistical Science (once), Statistics (once), Stochastic Processes and their Applications (once), REVSTAT (twice), Tatra Mountains Mathematical Publications (once), Technometrics (twice), TEST (SEIO) (twice), WIREs Computational Statistics (twice)

## Proceedings

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American Control Conference 2007, 2008, 2009, 2010, 2012 Festschrift for Thomas Kurtz, IEEE Conference on Decision and Control 2005, 2008, IEEE Conference on Management System 2009, Perspectives in Modern Statistical Inference III

## GRANT REVIEWS

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*NSF Panel member* 2010, 2016, 2017, 2019

*NSERC reviewer* 2020

## ADMINISTRATIVE SERVICE

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### Professional Board Membership

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*ENAR Regional Advisory Board*, 2018 – 2020

*NISS UNC representative to the board*, 2018-2020

### University Committees

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#### At The University of North Carolina at Chapel Hill

*UNC Student Stores Advisory Committee*, 2019 – 2022

*UNC Faculty Council Member (elected)*, 2014 – 2017, 2017 – 2020

*UNC Grievance Committee (elected)*, 2018 – 2021

*Data Science PSM planning committee*, 2016 – 2017

*Dean's Distinguished Dissertation Award Review Committee*. 2016, 2018 – 2020

*STOR Department Junior Faculty Mentoring*, 2016 – present

*STOR Target of Opportunity Identification Committee*, (chair) 2015 – 2019

*STOR Diversity liaison*, 2019 – present

*STOR Department Advisory Committee*, 2014 – 2019

*STOR Department MDS Committee & Advising*, 2014 – 2019

*STOR Department Tenure and Promotion and Post Tenure Review*, 2014, 2015, 2017, 2019

*STOR Department Instructional Mentoring*, 2013 – 2019t

*STOR Department Hotelling Lectures*, 2008 – present

*STOR Department Colloquium Committee*, 2008 – 2014

*STOR Faculty Search Committee*, 2011 – 2013, 2017 – 2019 (chair), 2019 – 2020

*STOR Department Chair Search Committee*, 2008

#### At Colorado State University

*Executive Committee*, 2007 – 2008

*Tenure and Promotion Committee*, 2006 – 2008

*Graduate Committee*, 2000 – 2002; 2003 – 2007

*Graduate Screening Committee*, member: 2001 – 2002; 2003 – 2006; chair: 2007

*Faculty Position Search Committees*, 2004 – 2005; 2005 – 2006; 2007 – 2008

*Statistics Department Chair Search Committee*, 2005

*ISTeC Research Advisory Committee*, 2004 – 2005

#### At Michigan State University

*Statistics Department, Student Representative (elected)*, 1997 – 2000

## INTERNATIONAL DEVELOPMENT PROJECT

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- *Royal University of Phnom Penh, Cambodia*, May 2008, 2009, June 2010, May 2011  
Taught a mathematical statistics course as a part of MS in mathematics organized by CIMPA Laos-Cambodia project and Volunteer Lecturer Program of the International Mathematical Union.

## Distance Education

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*Distance Program Director, Colorado State University*  
2003 – 2006.

- Run the day to day operation of the program, e.g., promoting the program to potential students, advising, overseeing instructors and technical production.
- Under my watch the statistics distance program more than doubled: Enrollment increased from 114 in 2001-2002 AY to 245 in 2004-2005 AY; The total credit hours went from 325 in 2001-2002 AY to 673 in 2004-2005 AY; The revenue to the department increased from \$47,788.62 in 2001-2002 FY to \$215,144.52 in 2004-2005 FY.

## COMMUNITY ENGAGEMENT

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- *Penn Live*, provided comments for an article on irregularities in the Pennsylvania Lottery, Spring 2018. [http://www.pennlive.com/news/2018/02/auditor\\_general\\_finds\\_no\\_fault.html](http://www.pennlive.com/news/2018/02/auditor_general_finds_no_fault.html)
- *What Matters in North Carolina* guest interview to discuss statistical assessment of people who have won the lottery multiple times. <http://freedomactionnetwork.com/index.php/2016/12/08/what-matters-for-thursday-december-08-2016/> (The segment is approximately at the 44 minute mark.)
- *Charlotte News & Observer*, consulted for free on an article on irregularities in the NC Education Lottery, Fall 2016 <http://www.charlotteobserver.com/news/special-reports/against-all-odds/article103038972.html>

## MEMBERSHIP

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Institute of Mathematical Statistics, 2000 - present

Bernoulli Society, 2002 - present

International Statistical Institute, 2006 - present

American Statistical Association, 2009 - present

International Society for Bayesian Analysis, 2012 - present

International Biometrics Society (Eastern North American Region), 2017 – present