

# *Thomas W. Sager*

## **Professor of Statistics**

Department of Information Risk and Operations Management (IROM)  
CBA 5.202, MC B6500  
University of Texas  
Austin, Texas 78712

Tel. (512) 471-5232  
FAX: (512) 471-0587  
Email: TomSager@mail.utexas.edu

### **MAJOR EMPLOYMENT EXPERIENCE**

#### **CURRENT POSITION:**

Professor of Statistics (1993 -)  
CBA Foundation Advisory Council Centennial Fellowship #4

#### **PREVIOUS POSITIONS:**

Co-Director, Center for Statistical Sciences (1990 - 2001)  
Associate Professor of Statistics (1982-93)  
Department of MSIS, Univ Texas at Austin  
Research Scientist (1981-87)  
Applied Research Laboratories, Austin  
Assistant Professor of Statistics (1979-82)  
Department of General Business, Univ Texas at Austin  
Visiting Assistant Professor of Statistics (1978-79)  
Departments of Mathematics & General Business, Univ Texas at Austin  
Assistant Professor of Statistics (1973-78)  
Department of Statistics, Stanford University

#### **Also:**

Visiting Professor, Thammasat University, Bangkok, Thailand (part of 1993, 95, 97, 99-01, 03, 05, 08)  
Visiting Associate Professor (summer, 1983), School of Education, Stanford University  
Visiting Scholar (summer, 1979 & 1980), Stanford University  
Trumpet player (1969-70), 60th U.S. Army Band

### **EDUCATION**

PhD in statistics (University of Iowa, 1973)  
MS in statistics (University of Iowa, 1971)  
BA in mathematics and economics (University of Iowa, 1968)  
*Summa cum laude* and *With Honors*

## PUBLICATIONS

1. "Consistency in nonparametric estimation of the mode," (1975) *Annals of Statistics*, **3**, 698-706.
2. "Relating spatial distributions of pollutants to health effects," (1976) *Proceedings of the Ninth International Biometric Conference II*; 35-58. The Biometric Society, Raleigh, N.C.
3. "Estimation of a multivariate mode," (1978) *Annals of Statistics*, **6**, 802-812.
4. "A new approach to regression in certain time/space series problems," (1978) *Time Series and Ecological Processes*, 265-278. The Society for Industrial and Applied Mathematics, Philadelphia, PA.
5. "An iterative method for estimating a multivariate mode and isopleth," (1979) *Journal of the American Statistical Association*, **74**, 329-339.
6. "Maximum likelihood estimation of isotonic modal regression" (with Prof. Ron Thisted of Univ. of Chicago), (1982) *Annals of Statistics*, **10**, 690-707.
7. "Nonparametric maximum likelihood estimation of spatial patterns," (1982) *Annals of Statistics*, **10**, 1125-1136.
8. "Estimating modes and isopleths," (1983) *Communications in Statistics*, **A12**, 529-557. [Invited.]
9. "Searching for and exploiting structure in higher dimensional density estimation," (1986) *Classification as a Tool of Research* (Ed. W. Gaul and M. Schader), 389-396, North-Holland, [refereed].
10. "An isopleth method for mapping multidimensional distributions," (1986) *Statistical Image Processing and Graphics* (Ed. E. Wegman and D. DePriest), 307-319, Marcel Dekker, [refereed].
11. "An application of isotonic regression to multivariate density estimation," (1986) *Advances in Order-Restricted Statistical Inference*, Springer-Verlag, 69-90.
12. "Characterization of a ranked-set sample with application to estimating distribution functions" (with Prof. Lynne Stokes), (1988) *Journal of the American Statistical Association*, **83**, 374-381.
13. "Statistical profile estimation in database systems" (with Prof. Mike Mannino and Prof. P.C. Chu), (1988) *ACM Computing Surveys*, **20**, 191-221.
14. "A surface response analysis of ozone and its precursors" (with Dr. M.W. Hemphill), (1988), paper 88-44.1. *Proceedings of Air Pollution Control Association*.
15. "Statewide ozone trends - Texas" (with Dr. M.W. Hemphill and James P. Gise), (1988), paper 88-45.7. *Proceedings of Air Pollution Control Association*.
16. "On the reliability of NMOC measurements for ozone modeling" (with Alfredo Vaquiax and Dr. M.W. Hemphill), (1988), paper 88-66.9. *Proceedings of Air Pollution Control Association*.
17. "Table for the asymptotic distribution of univariate mode estimators" (with Prof. A. Narayanan), (1989) *Journal of Statistical Computation and Simulation*, **33**, 37-51.
18. "Statistical assumptions matter in data analysis for Texas ozone non-attainment sites" (with Dr. M.W. Hemphill and Alfredo Vaquiax), (1990) *Journal of Air and Waste Management Association* (formerly *Journal of the Air Pollution Control Association*), **40**, 199-205.

19. "A comparison of two approaches to classification of air pollution data" (with Prof. A. Narayanan), (1990), *Journal of Official Statistics*, **5**, 375-389.
20. "Importance of NO<sub>x</sub> control suggested by NMOC-NO<sub>x</sub>-Ozone data analysis" (with Dr. Robert McAllister, James P. Gise, and Dr. M.W. Hemphill), (1991), paper 91-75.1. *Proceedings of Air and Waste Management Association*.
21. "Identification of ozone trends masked by effects of weather and seasonal variations - a Houston case study" (with James P. Gise and Dr. M.W. Hemphill), (1991), paper 91-66.6. *Proceedings of Air and Waste Management Association*.
22. "Are the Federal sentencing guidelines meeting Congressional goals? An empirical and case law analysis" (with Theresa Walker Karle), (1991). *Emory Law Journal*, **40**, 393-444.
23. "Nearest neighbor hot-deck imputation for missing values with SAS/IML" (with J.P. Gise and Dr. M.W. Hemphill), (1991), *Proceedings of South Central SAS Regional Conference*, 189-197.
24. "Factor analysis of trends in acidic deposition in Texas" (with C. Kessler, Dr. T. Porter, Dr. D. Firth, Dr. M.W. Hemphill), (June, 1992), *Atmospheric Environment*.
25. "Comparing nonmethane organic compounds, NO<sub>x</sub>, and daily maximum ozone concentrations by site and by year" (with Dr. R. McAllister, P. O'Hara, J. Robbins), (1992), paper 92-85.01. *Proceedings of Air and Waste Management Association*.
26. "Adaptive algorithmic response surface estimation" (with Dr. M.W. Hemphill), (1992), *Proceedings of South Central SAS Regional Conference*, 252-266.
27. "Site redundancy in urban ozone monitoring" (with Alison Miller), (1994) *Journal of Air and Waste Management Association*, **44**, 1097-1102.
28. "The mode of a beta distribution and its uses in industrial applications" (with Prof. A. Narayanan), (1993) *Journal of Air and Waste Management Association*.
29. "Analysis of potential integrated exposure over threshold: 15 Houston sites," (with Prof. Edward George and Elizabeth Murff), (1995) *Proceedings of Air and Waste Management Association Annual Meeting*, 95-TA43.01.
30. "Ambient ozone exposure on the micro scale," (with Alison Miller-Gonzalez and J. Patrick King), (1995) *Proceedings of Air and Waste Management Association Annual Meeting*, 95-WA84A.5.
31. "Assessing network optimization in Houston: concepts and measures," (1995) *Proceedings of Air and Waste Management Association Annual Meeting*, 95-WP82.02.
32. "Temporal and geographical statistical modeling: A new paradigm" (with Dr. M.W. Hemphill), (1996) *Proceedings of SAS Users Group International 21st Annual Conference*, 1327-35. [invited]
33. "SAS/GIS and SAS/SPECTRAVIEW for Visualization-Driven Analysis: An application supporting ambient ozone control policy" (with Dr. M.W. Hemphill), (1996) *Proceedings of 6th Annual South-Central Regional SAS Users' Group Conference*.
34. "Applying the SAS System for Visual-Driven Analysis to the support of ambient ozone control policy" (with Dr. M. W. Hemphill), (1996) *Proceedings of A&WMA Computing in Environmental Resource Management Conference*.

35. "Estimation of the CDF of a finite population in the presence of a calibration sample" (with Dr. Ming Luo and Prof. Lynne Stokes), (1997) *Journal of Environmental and Ecological Statistics*, 346-352.
36. "Industry segmentation and predictor motifs for solvency analysis of the life/health insurance industry," (with Prof. Etti Baranoff and the late Prof. Robert C. Witt), (1999) *Journal of Risk and Insurance*, **66**, 99-123.
37. "A semiparametric regression approach to adjusting for meteorological variables in air pollution" (with Prof. Thomas Shively), (1999) *Environmental Science and Technology*, 3873-3880.
38. "A semiparametric stochastic spline model as a managerial tool for potential insolvency," (with Prof. Etti Baranoff and Prof. Thomas Shively), (2000) *Journal of Risk and Insurance*, **67**, 369-396.
39. "Nonuniform regulatory treatment of broker distribution systems: An impact analysis for life insurers," (with Prof. Etti Baranoff and Dalit Baranoff), (2000) *Journal of Insurance Regulation*, **19(1)**, 94-129.
40. "Claims for glandular supplements still unsubstantiated," (with Dr. D. R. Davis, Dr. S. Senn, Dr. D. Altman, Dr. C. McDonald) [letter] (2001) *Journal of Applied Nutrition*, **51**, 106-110.
41. "The relationship between asset risk, product risk, and capital in the life insurance industry," (with Prof. Etti Baranoff), (2002) *Journal of Banking and Finance*, **26**, 1181-1197.
42. "The relations among organizational and distribution forms and capital and asset risk structures in the life insurance industry," (with Prof. Etti Baranoff), (2003) *Journal of Risk and Insurance*, **70(3)**, 375-400.
43. "What's running life insurers' asset allocation decisions? Regulation, financial rating, owners/manager conflicts or other determinants?" (with Prof. Etti Baranoff), *Seminar Proceedings of the International Insurance Society, Inc. - Volume 2004, July, 2004*, 113-127 – [winner of the \$3,000 Shin Prize].
44. "The relative efficiency of ranked set sampling in ordinary least squares regression", (with Prof. Elizabeth Murff), *Environmental and Ecological Statistics* **13:1**, 41-51, March, 2006.
45. "Integrated risk management in life insurance companies," (with Prof. Etti Baranoff), *The Geneva Papers on Risk and Insurance – Issues and Practice* [Special Issue] 29-53, July, 2006 [winner of the \$10,000 Shin Research Excellence Award for insurance scholarship].
46. "Capital and risk revisited: A structural equation model approach for life insurers," (with Prof. Etti Baranoff and Dr. Savas Papadopoulos), *Journal of Risk and Insurance* **74:3** 653-681, Sept, 2007.
47. "Patents, venture capital, and software start-ups," (with Prof. Ronald Mann), *Research Policy* **36:2** 193-208, 2007.
48. "Valuable patents redux: On the enduring merit of using patent characteristics to identify valuable patents," (with Prof. John Allison), *Texas Law Review* **85:7** 1769-1797, 2007.
49. "Boronic acid based peptidic receptors for pattern-based saccharide sensing in neutral aqueous media, an application in real life samples," (with Dr. Nicola Y. Edwards, Prof. John T. McDevitt, and Prof. Eric V. Anslyn). *Journal of the American Chemical Society*, 2007, **129**, 13575-13583.

50. "Mortgage backed securities and capital of life insurers: Was the industry prepared for the credit crunch of 2007-2008?" (with Prof. Etti Baranoff), *The Geneva Papers on Risk and Insurance – Issues and Practice* [Special Issue] 3-23, July, 2008 [winner of the \$10,000 Shin Prize for research excellence in insurance scholarship].
51. "Market discipline in life insurance: insureds' reaction to rating downgrades in the context of enterprise risks," (with Prof. Etti Baranoff), *Proceedings of the 35th Seminar of the European Group of Risk and Insurance Economics* (pub. in assoc. with The Geneva Association) **347**, October, 2008
52. "A Bayesian approach to non-parametric monotone function estimation," (with Prof. Thomas S. Shively and Prof. Stephen Walker), 2009, *Journal of the Royal Statistical Society, Series B* **71:1** 159-175.
53. "An empirical map of enterprise risk space for life insurers: Implications for ERM," (with Prof. Etti Baranoff), 2009, *Society of Actuaries 2009 Enterprise Risk Management Proceedings*.
54. "The impact of mortgage-backed securities on capital requirements of life insurers in the financial crisis of 2007–2008," (with Prof. Etti Baranoff), 2009, *The Geneva Papers on Risk and Insurance – Issues and Practice* **34**, 100-118 [selected by the editors of *The Geneva Papers* as one of the 12 best recent papers in the journal: see [http://www.palgrave-journals.com/gpp/free\\_articles.html](http://www.palgrave-journals.com/gpp/free_articles.html)]
55. "Do life insurers' asset allocation strategies influence performance within the enterprise risk framework?" (with Prof. Etti Baranoff), 2009, *The Geneva Papers on Risk and Insurance – Issues and Practice* **34**, 242-259.
56. "Kolmogorov-Smirnov Tests", signed article for *Encyclopedia of Research Design*, June 2010, Sage Publications.
57. "The interplay between insurers' financial and asset risks during the crisis of 2007–2009", (with Prof. Etti Baranoff), 2011, *The Geneva Papers on Risk and Insurance – Issues and Practice* **36**, 38-379.
58. "Capital and risk interrelationships in the life and health insurance industries: Theories and applications," (with Prof. Etti Baranoff and Prof. Bo Shi), *The Handbook of Insurance*, 2013, 889-915. [The *Handbook* was the winner of the 2015 Kulp-Wright Award from the American Risk and Insurance Association for an outstanding original contribution to the literature of risk management and insurance.]
59. "Operational, legal and tax issues in life settlement transactions", (with Prof. Bruce Evans and Prof. David Russell), 2013, *Journal of Insurance Regulation* **32**, 101-118.
60. "The risk of variable annuity guarantees and life insurer capital," (with Prof. Etti Baranoff, and Prof. Bo Shi), *Asia-Pacific Journal of Risk and Insurance*, 2016 [winner of best paper prize - \$1,000, awarded at annual meeting in Chengdu, China] **10**, 155-192.
61. "What US health insurers' data show for ACA 'Repealers', " (with Prof. Etti Baranoff, Dr. Dalit Baranoff, Prof. Bo Shi), *American Journal of Accountable Care*, (September 14) 2016.
62. "Product diversification in health insurance with comprehensive coverage benefits U.S. health Insurers," (with Prof. Etti Baranoff and Prof. Bo Shi), (January) 2016, *Journal of International & Interdisciplinary Business Research*, 2016, (vol 3) 14-28.
63. "A three-state early warning system for the European Union," (with Dr. Savas Papadopoulos, Prof. Etti Baranoff, and Pantelis Stavroulias) *Journal of Risk*, 2018 (Vol 21, No. 1) 1-36.

64. “Systemic early warning systems for EU14 based on the 2008 crisis: proposed estimation and model assessment for classification forecasting,” (with Dr. Savas Papadopoulos and Pantelis Stavroulias) *Journal of Banking Regulation*, 2018.

65. “Was the U.S. Life Insurance Industry in Danger of Systemic Risk by Using Derivative Hedging Prior to the 2008 Financial Crisis?” (with Prof. Etti Baranoff, Prof. Patrick Brockett, and Prof. Bo Shi) *Quantitative Finance and Economics*, 2019, **3(1)**, 145-164.

62 abstracts for *Mathematical Reviews*.

In preparation or submitted:

66. “The financial superiority of Medicaid specialist insurers explained: A novel transactions cost/supply chain approach”, (with Prof. Etti Baranoff, Dr. Dalit Baranoff, and Prof. Bo Shi) *Geneva Papers on Risk and Insurance –Issues and Practice*, 2020, [revise and resubmit].

67. “Managed care and medical loss ratio indices and risk,” (with Prof. Bo Shi, Prof. Etti Baranoff, and Dr. Dalit Baranoff) [Working paper, 2017]

68. “Health insurance specialists: Trends in healthcare utilization and performance by market segment,” (with Prof. Bo Shi, Prof. Etti Baranoff, and Dr. Dalit Baranoff) [Working paper, 2017]

69. “Market discipline in life insurance: Insureds’ reaction to rating downgrades in the context of enterprise risks”, (with Prof. Etti Baranoff), (Jan, 2008) [under revision for *Journal of Money Credit and Banking*].

70. “Credit risk stress testing for EU15 banks: A model combination approach,” (with Dr. Savas Papadopoulos and George Papadopoulos), [submitted to *International Journal of Central Banking*]

71. “Does product concentration benefit or harm health insurers?” (with Prof. Bo Shi, Prof. Etti Baranoff, and Dr. Dalit Baranoff) [Working paper, 2017]

72. “Relations between health insurers’ managed care risks and financial risks post PPACA”, (with Prof. Bo Shi, Prof. Etti Baranoff, and Dr. Dalit Baranoff) [Working paper, 2017]

73. “Learning at scale in a collaborative chronic care network: Insights from a discrete choice experiment”, (with (Shannon Provost, Emre Yucel, Sarah Myers, Dr. Richard Colletti, Dr. Peter Margolis, Karen Zeribi, Dr. Wallace Crandall) [under revision, 2016]

74. “The ACA and trends in healthcare utilization and loss ratios: An index-based approach,” (with Prof. Etti Baranoff, and Prof. Bo Shi) [Working paper, 2016]

75. “Surrenders in the life insurance industry: A systemic risk of runs?” (with Prof. Etti Baranoff and Daniel Haefeli), 2013.

76. “Managed care and financial risks of PPACA”, (with Prof. Etti Baranoff, Prof. Bo Shi, and Dr. Dalit Baranoff), (2014) [submitted to Risk Theory Society]

77. “Implications for U.S. health insurers of future growth in the age 65+ population,” (with Prof. Etti Baranoff, Prof. Bo Shi), August, 2012

78. "Market discipline during the financial crisis of 2007-2009: Impact of mortgage backed securities on the demand for life insurance" (with Prof. Etti Baranoff), [under revision], 2009
79. "Identification and estimation in nonparametric simultaneous equation models", (with Prof. Thomas S. Shively) [Progress – theory 75% complete; software 75% complete (5000 lines of code – last revised February 2006); paper still to be written; (target journal: *Journal of Econometrics*).
80. "Rebalancing target capital in the financial sector: The case of life insurance", (with Prof. Etti Baranoff and Prof. Thomas Shively), [under revision] (Dec, 2007).
81. "Life insurers' asset allocation dynamics and performance", (with Prof. Etti Baranoff), [first draft and PowerPoint presentation – has been vetted at ARIA conference in Chicago]

### SELECTED INVITED PRESENTATIONS

- "Relating spatial distributions of pollutants to health effects," August, 1976. Boston, Massachusetts. Ninth International Biometrics Conference.
- "A new approach to regression in certain time/space series problems," June, 1977. Alta, Utah. SIMS Research Application Conference on Ecology and Time Series.
- "Statistical issues in air pollution assessment," November 15, 1977. IBM Scientific Center, Palo Alto, CA. APAP Workshop, Nov 14-18, 1977.
- "Statistical issues in air pollution assessment," November 30, 1977. San Jose State University. Department of Meteorology Seminar.
- "Statistics, air pollution and health," April 20, 1978. University of Washington. Department of Biostatistics Seminar.
- "Isotonic regression in the regression setting," May 16, 1978. University of California, Berkeley. Stanford-Berkeley Joint Colloquium in Statistics.
- "Statistical issues in air pollution research," November 21, 1978. Austin chapter of American Statistical Association.
- "Maximum likelihood estimation of spatial patterns," July 26, 1979. Stanford University.
- "Isotonic regression and geography," April 13, 1981. University of Iowa. Conference on Order-Restricted Statistical Inference, April 12-16, 1981.
- "Elliptical contour plotting," August, 1981. Applied Research Laboratories, Austin. ONR Project Review.
- "Some thoughts on the difficulties of multivariate density estimation," May 25, 1982. Applied Research Laboratories, Austin. ONR Project Review.
- "An isopleth method for mapping multidimensional distributions," May, 1983. Statistical Image Processing and Graphics Workshop, Luray, Virginia.
- "Demonstration of the microcomputer statistical packages MSUSTAT and STATPRO," March 22, 1984. Austin Chapter of American Statistical Association.
- "Dimensionality reduction in density estimation", SREB/ASA Summer Research Conference in Statistics, June 13, 1984. Arkadelphia, Arkansas.
- "Searching for and exploiting structure in higher dimensional density estimation," Ninth Annual Meeting of German Classification Society, June 27, 1985. University of Karlsruhe, West Germany.
- "Applications of isotonic regression to multivariate density estimation," Order Restricted Inference Conference, September 11, 1985. University of Iowa.
- "State-wide ozone trends" (with Jim Gise, Bruce Broberg, and Dr. M.W. Hemphill), Annual meeting of Air Pollution Control Association, June, 1988. Dallas.
- "A surface response analysis of ozone and its precursors" (with Dr. M.W. Hemphill), Annual meeting of Air Pollution Control Association. June, 1988. Dallas.
- "The Center for Statistical Sciences and Quality Control," Austin chapter of American Society for Quality Control, May 12, 1989. Austin.
- "Statistical analysis of the impact of weather on ozone in Houston," Texas Air Control Board, September 12, 1989. Austin.

- "Linking academic statistics with industry," Society of Manufacturing Engineers, November 16, 1989. Austin.
- "Progress in understanding the statistics of Houston ozone," Texas Air Control Board, April 17, 1990. Austin.
- "Houston ozone follows an AR(1) model," Texas Air Control Board, August 9, 1990. Austin.
- "Analysis of precursor relationships to ozone; State and Houston area ozone trends," Ambient monitoring and data analysis issues workshop for industry, government, and academia, March 13, 1991. Rice University.
- "Identification of ozone trends masked by effects of weather and seasonal variations - a Houston case study," Annual meeting of Air and Waste Management Association. June, 1991. Vancouver, Canada.
- "Spatial statistics in environmental problems," January, 1993, Sematech, Austin.
- "Universal numerical algorithm for mapping environmental indicators and trends," December, 1993, Environmental Protection Agency/Oregon State, Corvallis, Oregon.
- "Environmental program building -- the Texas air experience," with (James P. Gise and Dr. M.W. Hemphill), Rice University, February 21, 1994.
- "Analysis of potential integrated exposure over threshold: 15 Houston sites," Annual Meeting of Air and Waste Management Association, San Antonio, Texas, June 20, 1995.
- "Ambient ozone exposure on the micro scale," Annual Meeting of Air and Waste Management Association, San Antonio, Texas, June 21, 1995.
- "Assessing network optimization in Houston: concepts and measures," Annual Meeting of Air and Waste Management Association, San Antonio, Texas, June 21, 1995.
- "Temporal and geographical statistical modeling," SAS Users Group International 21st Annual Conference, Chicago, March 12, 1996.
- NISS/EPA Workshop panel discussion on priorities and feasible approaches to setting air quality standards, Research Triangle Park, September 18-19, 1996.
- "Air pollution policy and the utility of statistics," American Statistical Association and American Society for Quality Control chapter meeting, San Antonio, January 14, 1997.
- "Ozone trends: Adjusting for meteorology," Photochemical Air Monitoring System Workshop, TNRCC, Austin (with Professor Thomas Shively), April 18, 1997.
- "Life Risk-Based-Capital reviewed through the lens of transaction-cost economics: Should There Be Equal Treatment for Different Specialties?," (with Prof. Etti Baranoff), Risk Theory Society, Athens, Georgia, April, 17-19, 1998.
- "Managing capital structure: the case of life insurers – a semiparametric simultaneous equations approach", (with Prof. Etti Baranoff and Prof. Thomas Shively), paper presented at the annual meeting of the Risk Theory Society, April 2004, New York.
- "What's running life insurers' asset allocation decisions? Regulation, financial rating, owners/manager conflicts or other determinants?" (with Prof. Etti Baranoff), paper presented at annual meeting of International Insurance Society, July, 2004, London.
- "Integrated risk management in life insurance companies," (with Prof. Etti Baranoff), paper presented at annual meeting of International Insurance Society, July, 2006 [winner of the \$10,000 Shin Research Excellence Award for insurance scholarship].
- "In Praise of Monetary Unit Sampling," Austin chapter of American Statistical Association, October 5, 2006.
- "Money for nothing, or the magic of ranked-set sampling", invited paper at Conference of Texas Statisticians at Baylor University, March 31, 2007.
- "Mortgage backed securities and capital of life insurers: Was the industry prepared for the credit crunch of 2007-2008?" (with Prof. Etti Baranoff), invited paper presented at IIS (International Insurance Society) annual meeting, July 2008, in Taipei, Taiwan [won \$10,000 Shin Prize for research excellence in insurance scholarship]
- "Is the U.S. life insurance industry in danger of systemic risk by using hedging derivatives?" (with Prof. Etti Baranoff, Prof. Patrick Brockett, and Bo Shi), paper presented at American Risk and Insurance Association, session on Systemic Risk, San Diego, August, 2011
- "50 Years of Statistics at Iowa," presented at 50<sup>th</sup> anniversary of the Department of Statistics at the University of Iowa, Iowa City, Iowa, April, 2015.



### Selected Other Conferences and Contributed Papers

- "Consistency in nonparametric estimation of the mode," May, 1973. Albuquerque, New Mexico. Regional IMS meeting.
- Joint national meetings of IMS and ASA, August, 1974. St. Louis, MO.
- Conference on Medical Aspects of Pollution, December, 1974. San Francisco, CA.
- Joint regional meetings of IMS and ASA, June 13-17, 1976. Stanford, CA.
- Air Quality Assurance Conference, May, 1976. Air Quality Control Association. Berkeley, CA.
- LIRAQ Workshop on computer modeling of air pollution distributions, Feb 23-25, 1977. Berkeley, CA.
- NSF Summer Conference on Quantile Processes, July, 1981. National Science Foundation. Texas A & M University.
- Conference of Texas Statisticians, April 22-23, 1983. Baylor University.
- Conference of Texas Statisticians, April 1984. Baylor University.
- GLIM Conference, July, 1984. University of Texas.
- Institute for Mathematical Statistics Central Regional Meeting and Conference of Texas Statisticians, March 28-30, 1985. University of Texas. (Chaired session on order-restricted inference).
- Conference of Texas Statisticians, April 8-9, 1988. Baylor University. (Organized and chaired April 9 session).
- Conference of Texas Statisticians, April, 1989. Trinity University.
- Conference of Texas Statisticians, March, 1990. Rice University.
- Conference of Texas Statisticians, April 19-20, 1991. Dallas.
- Conference of Texas Statisticians, February 28, 1992. Dallas.
- Conference of Texas Statisticians, April 2-3, 1993. Austin.
- "Solvency Surveillance For The Life and Health Insurance Industry: A Disaggregated and Cascaded Approach," (with Dr. Etti Baranoff and Prof. Robert C. Witt), paper presented at American Risk and Insurance Association annual meeting, August 1993, in San Francisco.
- Conference of Texas Statisticians, April 29-30, 1994, College Station.
- "Investment risk and warning signals for life/health insurance companies," (with Prof. Etti Baranoff and Prof. Robert C. Witt), paper presented at Financial Management Association meeting, 1995, in New York City.
- Conference of Texas Statisticians, April 7-8, 1995, Trinity University
- Conference of Texas Statisticians, April 4-5, 1996, SFA College, Nacogdoches
- "SAS/GIS and SAS/SPECTRAVIEW for Visualization-Driven Analysis: An application supporting ambient ozone control policy" 6th Annual South-Central Regional SAS Users' Group Conference, Austin, October 29, 1996.
- "Applying the SAS System for Visual-Driven Analysis to the support of ambient ozone control policy" A&WMA Computing in Environmental Resource Management Conference, Research Triangle Park, North Carolina, December 3, 1996.
- Conference of Texas Statisticians, April 4-5, 1997, Rice University.
- "Three years of risk-based capital: differential impacts on life/health industry segments," (with Prof. Etti Baranoff), paper presented at American Risk and Insurance Association annual meeting, August 1997, in San Diego.
- Conference of Texas Statisticians, April 24-25, 1998, Baylor University.
- "An examination of linear applications in life solvency studies -- A semiparametric analysis," (with Prof. Thomas Shively and Prof. Etti Baranoff), paper presented at American Risk and Insurance Association annual meeting, August 1998, in Boston.
- "Inconsistencies in insurance broker's laws across states: A review and impact analysis," (with Prof. Etti Baranoff and Ms. Dalit Baranoff), paper presented at Southern Risk and Insurance Association meeting, November 1998, in Williamsburg, VA.
- Conference of Texas Statisticians, April 16-17, 1999, at SMU.

- "The relationship between asset risk, product risk, and capital in the life insurance industry," (with Prof. Etti Baranoff), paper presented at American Risk and Insurance Association annual meeting, August 1999, in Vancouver.
- "The relationship among asset risk, product risk, and capital in the life insurance industry: A semiparametric approach," (with Prof. Thomas Shively and Prof. Etti Baranoff), paper presented at Southern Risk and Insurance Association meeting, November 1999, in Orlando.
- "The effect of regulated versus market risk on the capital structure of life insurers: A structural equation modeling approach," (with Prof. Savas Papadopoulos and Prof. Etti Baranoff), paper presented at American Risk and Insurance Association annual meeting, August 2000, in Baltimore.
- "A semiparametric decision tool for managing capital structure: The case of life insurers," (with Prof. Thomas Shively and Prof. Etti Baranoff), Financial Management Association annual meeting, Aug 2000, in Seattle.
- "The interrelationship among organizational forms and capital structure in the life insurance industry," (with Prof. Etti Baranoff), paper presented at Southern Risk and Insurance Association meeting, November 2000, in San Antonio.
- "The relationship between capital and earnings of life insurers," (with Prof. Etti Baranoff), paper presented at American Risk and Insurance Association annual meeting, Aug 2001, in Indianapolis.
- "The effect of regulated versus market risk on the capital structure of life insurers: a structural equation modeling approach", (with Prof. Etti Baranoff and Dr. Savas Papadopoulos), paper presented at FMA (Financial Management Association) annual meeting, San Antonio, 2002.
- "The Interrelationship among organizational and distribution forms and capital and asset risk structures in the life insurance industry," (with Prof. Etti Baranoff), paper presented at ARIA (American Risk and Insurance Association) annual meeting, Aug 2002, in Montreal.
- "Determinants of asset allocation dynamics in the life insurance industry," (with Prof Etti Baranoff), paper presented at ARIA annual meeting, Aug 2003, in Denver.
- "Life Insurers' Asset Allocation Dynamics and Performance", (with Prof. Etti Baranoff), paper presented at ARIA (American Risk and Insurance Association) annual meeting, Chicago, Aug 2004.
- "Determining Market Values of Individual U.S. Life Insurers", (with Liyan Zhao and Prof. Etti Baranoff), paper presented at ARIA (American Risk and Insurance Association) annual meeting, Chicago, Aug 2004.
- "The relative efficiency of ranked set sampling in ordinary least squares regression", (with Prof. Elizabeth Murff), paper presented at Joint Statistical Meetings, August 2005, Minneapolis.
- "Life insurers' asset allocation dynamics and performance" paper presented at WRIA (Western Risk and Insurance Association) meeting, Jan 2005, in Monterey Bay, CA
- "The relationship between life insurers' asset allocation and performance," (with Prof. Etti Baranoff), paper presented at FMA (Financial Management Association) annual meeting, Oct 2005, in Chicago.
- "Patents, venture capital, and software start-ups," (with Prof. Ronald Mann), paper presented at annual meeting of the ALEA (American Law and Economics Association), May 2006, in Berkeley.
- "An empirical map of enterprise risk space for life insurers: Implications for ERM," (with Prof. Etti Baranoff), paper presented at ARIA (American Risk and Insurance Association) annual meeting, August 2006, in Washington, D.C.
- "Market discipline in life insurance: Insureds' reaction to rating downgrades in the context of enterprise risks," (with Prof. Etti Baranoff), paper presented at:
  - ARIA (American Risk and Insurance Association), Quebec City, Canada, August, 2007.
  - WRIA (Western Risk and Insurance Association), Kauai, January, 2008
  - ARIA (American Risk and Insurance Association), Portland, Oregon, August, 2008.
  - EGRIE (European Group of Risk and Insurance Economists), Toulouse, France, September, 2008.
- "Variable annuities with guaranteed living benefits and mortgage backed securities: A capital crisis for life insurers?" (with Prof. Etti Baranoff and Bo Shi), paper presented at:
  - ARIA (American Risk and Insurance Association), Providence, Rhode Island, August, 2009.
  - Financial Management Association annual meeting, New York, October, 2010
  - EGRIE (European Group of Risk and Insurance Economists), Palma de Majorca, Spain, September, 2012

- “An empirical map of enterprise risk space for life insurers: Implications for ERM,” (with Prof. Etti Baranoff), paper presented at Society of Actuaries ERM Conference, Chicago, May, 2009.
- “Capital ratio, product risk and asset risk relationships in the U.S. health insurance industry” (with Prof. Etti Baranoff and Bo Shi), paper presented at:
  - World Risk and Insurance Economics Congress, Singapore, July, 2010.
  - Financial Management Association annual meeting, New York, October, 2010
  - Western Regional Risk and Insurance Association, Santa Barbara, January, 2011
  - World Finance Conference, Rhodes, Greece, June, 2011
- “Implications for U.S. health insurers of future growth in the age 65+ population,” (with Prof. Etti Baranoff, Prof. Bo Shi), paper presented at American Risk and Insurance Association, Minneapolis, August, 2012
- “Is the U.S. life insurance industry in danger of systemic risk by using hedging derivatives?” (with Prof. Etti Baranoff, Prof. Patrick Brockett, Prof. Bo Shi), paper presented at
  - Western Regional Risk and Insurance Association, Kona, Hawaii, January, 2012
  - EGRIE (European Group of Risk and Insurance Economists), Palma de Majorca, Spain, September, 2012
- “Does health insurers' bargaining power affect health insurance premium change?” (with Prof. Bo Shi and Prof. Etti Baranoff), paper presented at
  - American Risk and Insurance Association, Washington, D.C., August, 2013
  - Asia Pacific Risk and Insurance Association, New York, July, 2013
- “Surrenders in the life insurance industry: A systemic risk of runs?” (with Prof. Etti Baranoff and Daniel Haefeli), paper presented at ARIA, 2013, paper presented at American Risk and Insurance Association, Washington, D.C., August, 2013
- “Does diversification benefit health insurers?” (with Prof. Bo Shi, Prof. Etti Baranoff, and Dr. Dalit Baranoff), paper presented at WRIEC (World Risk and Insurance Economics Conference), Munich, August, 2015.
- “Variable annuity guarantees: A new threat to financial stability?” (with Prof. Etti Baranoff and Bo Shi), paper presented at WRIEC (World Risk and Insurance Economics Conference), Munich, August, 2015.
- “Health utilization indices: Broad standards for choices and value based health care”, with Prof. Etti Baranoff, Prof. Bo Shi, and Dr. Dalit Baranoff, paper presented at the ARIA meeting in Toronto, Canada, August, 2017
- “Do Some Health Insurers Consistently Perform Better than Others?” with Prof. Etti Baranoff, Prof. Bo Shi, and Dr. Dalit Baranoff, paper presented at the ARIA annual meeting in San Francisco, August, 2019 [presentation by Prof. Etti Baranoff]
- “Comparing Apples to Oranges: Administrative Expenses in Medicare and Private Insurance,” with Prof. Etti Baranoff, Prof. Bo Shi, and Dr. Dalit Baranoff, paper presented at the ARIA annual meeting in San Francisco, August, 2019 [presentation by Dr. Dalit Baranoff]

**DOCTORAL SUPERVISION**  
**(Primary Advisor)**

Sue Leurgans, "Asymptotic distribution theory in generalized isotonic regression," Stanford, 1978. Placed at University of Wisconsin, Madison.

Neil Willits, "An approach to superefficient estimation," Stanford, 1981. Placed at University of California, Davis.

A. Narayanan, "Asymptotic distribution and sample properties of univariate mode estimators", University of Texas, 1986. Placed at University of Indiana, Bloomington.

Walter Johnston, "A tree-based modeling strategy", University of Texas, 1988. Placed at University of Texas Southwestern Medical Center, Dallas.

Ming Luo, [co-chair: Prof. Lynne Stokes] “Estimation of the CDF of a finite population in the presence of measurement error”, 1996. Placed at First Data Corporation, Omaha.

Elizabeth Murff, “On the efficiency of ranked set sampling relative to simple random sampling for estimating the ordinary least squares parameters of the simple linear regression model”, 2001. Placed at Eastern Washington University, Spokane.

Liyan Zhao, “Estimating market values for non-publicly-traded U.S. life insurers,” 2005. Placed at Dell Financial Services, Austin.

Bo Shi, “New aspects of product risk measurement and management in the U.S. life and health insurance industries,” 2012. Placed at Morehead State University, Morehead, Kentucky.

### **MASTERS SUPERVISION**

Each year I have been the primary supervisor for one or two students, on average, in the masters in statistics program at UT.

### **TEACHING SUMMARY**

Introductory MBA and BBA Honors core statistics, econometric modeling, unstructured learning and time series, multivariate analysis, statistical computing.

Taught Executive Education short courses in Supply Chain Risk (2012, 2014, 2015, 2016, 2018, 2020) and Data Analytics (2014-2019), IIM Indore (2018) and at SWRI (Southwest Research Institute) (2018).

Taught time series modeling for Division of Statistics and Scientific Computing, May, 2008-May, 2019. Nominated by IROM Department for the McCombs Excellence in Education Award (2015, 2017, and 2019).

Selected Outstanding Professor by MS Business Analytics students, 2014.

Nominated for the Joe Beasley Teaching Excellence Award for outstanding MBA core professor, 2020. Won the Joe Beasley Teaching Excellence Award for outstanding MBA core professor, 1992.

### **RECENT UNIVERSITY, COLLEGE, and DEPARTMENT SERVICE**

- Member, IROM Executive Committee (2012 - 2014) – faculty decision-making body for IROM
- Member, Department of Statistics Extended Budget Council (2015 – )
- Member, Department of Statistics faculty recruiting committee, PhD admissions committee
- Chair (2013, 2014), McCombs Tenure Track Teaching Awards Committee – College teaching awards for tenure track McCombs faculty
- Member (2012), McCombs NTT Teaching Awards Committee (2012) – College teaching awards for non-tenure track McCombs faculty
- Member (2014, 2015, 2016), McCombs Hall of Fame Committee – selection of worthy business leaders to honor for lifetime service to UT, Texas, and society
- Member, memorial resolution committee for the late Professor Charles T. Clark (2015)
- Member, memorial resolution committee for the late Professor Peter W. M. John (2015)

- Member, PhD admissions for IROM quantitative areas (every year) – admits new PhD students to the program
- Wrote and evaluated PhD qualifying exam in statistics for IROM (– 2015)
- Member, 3<sup>rd</sup>-year review committee for an Assistant Professor (2016)
- Member, post-tenure review committee for a full Professor (2015-2016)
- Chair, post-tenure review committee for a full Professor (2016)
- Member, promotion committee for an Associate Professor (2016)
- Member, promotion committee for an Associate Professor (2018)
- Member, post-tenure review committee for a full Professor (2018)
- Member, promotion committee and appointment as Chair of Statistics for external hire (2018)
- Member NTT (non-tenure track) promotions committee for four faculty in Department of Statistics (2018)
- Member, ad hoc MBA grievance committee (fall 2018)
- Member, merit review committee for Statistics group in IROM (2018-2020)
- Member, PhD admissions committee for Statistics group in IROM (2018-2020)
- Chair, Review Committee (promotions, merit review) for Department of Statistics (2017-2020)
- Member, teaching review committee for a full Professor (2019)
- Member, teaching review committee for a full Professor (2019)
- Member, IROM committee for revision of STA309/STA371 (quantitative analytics in BBA curriculum)

### EDITORIAL SERVICE

Associate Editor for *Journal of Risk and Insurance* (2001-18)

Referee for:

Advances in Order-Restricted Inference  
American Journal of Managed Care  
American Statistician  
American Mathematical Society (National Security Agency)  
Annals of Statistics  
ARO proposal referee  
Austin Technology Incubator  
Biometrics  
Canadian Journal of Statistics  
Communications in Statistics  
Computational Statistics and Data Analysis  
Decision Sciences  
Decision Support Systems  
Geneva Papers on Risk and Insurance: Issues and Practice  
International Statistical Review  
Journal of Agricultural Food Chemistry  
Journal of American Statistical Association  
Journal of Environmental and Ecological Statistics  
Journal of Marketing Research  
Journal of Nonparametrics  
Journal of Risk and Insurance  
Journal of Risk Management and Insurance Review  
Journal of Statistical Computation and Simulation  
Journal of Statistical Planning and Inference

Journal of the Academy of Marketing Science  
Mathematical Reviews (62 abstracts)  
North American Actuarial Journal  
National Science Foundation proposal referee  
Probability and Statistics Letters  
Psychometrika  
Research in Use (Bureau of Business Research)  
Scandinavian Journal of Statistics  
Small Business Research  
Statistica Sinica  
Statistics and Probability Letters  
Transportation Research

### **PROFESSIONAL ORGANIZATIONS**

Institute of Mathematical Statistics  
American Risk and Insurance Association  
American Statistical Association  
Risk Theory Society  
Austin Chapter of American Statistical Association  
(President, 1982-83; Vice-President, 1981-82; Council Rep, 1985-9, 2011- ; Treasurer, 2017 -)

### **Other**

Hosted 2015 annual meeting of Conference of Texas Statisticians, April, 2015  
Hosted 2009 annual meeting of the Risk Theory Society in Austin, April, 2009  
Listed in original *Who's Who in America*

**CONSULTANT FOR:**

Businesses:

American Airlines  
American Express  
Animal Medical & Surgical Hospital  
AON Corp  
Apple Computer  
Autodesk  
Bank of America  
Bankers Trust  
BMC Software  
Boatmen's Bank  
Centex Homes  
CH2M Hill  
Dillards Department Stores  
Eaton Corp  
Encore Orthopedics  
Ernst & Young  
First American Corporation  
Ford Motor  
Frito-Lay  
Galveston Bay Greyhound Racing Association  
Halliburton Oilfield Services  
Jacobs Engineering  
Kleinfelder  
London Market Insurers  
Lonestar Overnight  
McDermott Industries  
McKinsey & Company  
Merrick  
Mobil Oil  
Montgomery Watson  
Multimedia Games  
Neubus Corp  
Parsons Brinckerhoff  
Pavilion Technologies, Inc.  
Phillips Petroleum  
Philips Plastics  
PHS  
Post, Buckley, Schuh & Jernigan  
Research and Planning Consultants  
Resolute Management Services  
Ruark Consulting LLC  
Sallie Mae  
Sheshunoff Management Associates  
Southwestern Bell Telephone  
Sprint Telecommunications  
State Auto  
Tandem Computers  
TaxOps Minimization  
TetraTech  
Texas Disposal Systems  
The Timken Company  
Toyota  
U.S. Filter  
Walmart  
Westfield

Law firms:

Akin Gump  
Baach Robinson & Lewis (Lewis Baach)  
Brown McCarroll  
Butler Rubin  
Byrd, Davis, Furman, LLP  
Clyde & Co  
Day Berry and Howard  
Freeborn Peters  
Fullbright & Jaworski  
Gray & Becker  
Hancock Rothert & Bunshoft  
Hilgers and Watson  
Husch Blackwell  
Hutchison Boyle Brooks & Fisher  
The Kaiser Law Firm (Houston)  
Law Snakard & Gambill  
Lord Bissell & Brook (Locke Lord)  
Lovells  
Martens, Seay and Todd  
Mayer Brown and Platt  
Mendes & Mount  
Philip Maxwell Law Firm  
Podvey Meanor Catenacci et al  
Riker, Danzig  
Rivkin, Radler  
Ross Dixon and Bell  
Simmons Griffin & Lydon  
Smith, Robertson  
Sonnenschein Nath & Rosenthal  
Steve Smith & Associates  
Vinson & Elkins  
Walker Wilcox Matousek  
White & Williams  
Zuckerman Spaeder  
and 7 other local law firms

Government and non-profit:  
Attorney General of Texas  
Baptist Health Systems  
City of Austin  
City of Sequin  
Kirk Mitchell campaign  
National Treasury Employees Union  
Seton Hospital  
State Auditor of Texas  
Texas Civil Liberties Union  
Texas Comptroller of Public Accounts  
Texas Department of Health  
Texas Department of Human Services  
Texas Department of Insurance  
Texas Natural Resource Conservation Commission  
(formerly: Texas Air Control Board)  
Texas Parks and Wildlife Commission  
Texas Worker's Compensation Commission

**CONTRACTS and GRANTS**

DATE	SPONSOR	SUBJECT
2013-2015	Greece (EU)	Risk management of EU banks
2012	TX Dept of Transportation	Time series forecasting
2008-9	UT Center for Energy & Environmental Resources	Methods to adjust for meteorology in trends in Texas air pollution
2008-9	Texas Comptroller	Testing statistical methods for property tax equalization
2003	UT Center for Energy & Environmental Resources	Equivalence of air monitoring methods
2000	LARIAT	Use of Info Tech to leverage MBA Core
Aca. Yr., 1998-9	TNRCC	Air pollution episode selection
Summer, 1996	TDH	Records matching algorithms
Summer, 1994	TNRCC	Univ. Consortium Air Pollution Studies
1993-96	EPA	Environmental Status and Trends
Aca. Yr. 1992	TDI	Survey for Health Insurance Needs
Summer, 1992	CIDC	Forecasting System
1992 – 94	SBI (TDI)	Audit of Auto Insurance Industry
Aca.Yr. 1991	Texas Air Control Board	Data Analysis Support
Summer, 1991	Texas Air Control Board	Data Analysis Support
Summer, 1991	Seton Hospital	Sampling/Information Systems
Summer, 1991	SBI (TDI)	Audit of Auto Insurance Industry
Summer, 1991	State Auditor	Sampling Methodology
Fall, 1990	State Auditor	Forecasting Methodology (DHS)
Fall, 1990	Texas Parks & Wildlife	Trends in Wildlife Populations
Fall, 1990	CIDC	Encumbrance/Projection System
Fall, 1990	State Auditor	Forecasting Methodology (CIDC)
Summer, 1990	Texas Air Control Board	Weather Patterns Analysis
Summer, 1990	CIDC	Encumbrance/Projection System
Spring, 1990	State Auditor	Forecasting Methodology
Spring-Summer, 1990	Texas Air Control Board	Effect of Weather on Air Pollution
Summer, 1982	Office of Naval Research	Non-Gaussian Signal Detection
Summer, 1981	Office of Naval Research	Non-Gaussian Signal Detection
Summer, 1980	SIMS	Environmental Statistics
Summer, 1979	SIMS	Environmental Statistics
Summer, 1978	SIMS	Environmental Statistics
Summer, 1977	SIMS, NSF	Environmental Statistics & Multivariate Statistics
Aca. Yr. 1977		
Summer, 1976	SIMS, NSF	Environmental Statistics & Multivariate Statistics
Aca. Yr. 1976		
Summer, 1975	SIMS, NSF	Environmental Statistics & Multivariate Statistics
Aca. Yr. 1975		
Summer, 1974	NSF	Multivariate Statistics
Summer, 1973	NSF	Robust & Adaptive Statistics

Agency abbreviations:

CIDC = Chronically Ill and Dependent Children

EPA = Environmental Protection Agency

LARIAT = Leadership Alliance for Research, Instruction, and Tech. (Dell)

NSF = National Science Foundation

SBI = State Board of Insurance

SIMS = S.I.A.M. Institute for Mathematics and Society

TDH = Texas Department of Health

TDI = Texas Department of Insurance

TNRCC = Texas Natural Resource Conservation Commission