

AJIT C. TAMHANE

EDUCATION:

- Ph.D. (1975), M.S. (1973), Cornell University, Ithaca, NY, Major: Statistics and O.R.
- B. Tech. (First Class Honors), (1968), Indian Institute of Technology, Bombay, India, Major: Mechanical Engineering

PROFESSIONAL EXPERIENCE:

- Senior Associate Dean, McCormick School of Engineering & Applied Sciences, Northwestern University (2008 - 2018)
- Assistant Professor (1975–1979), Associate Professor (1979–1987), Professor (1987–Present), Chairman (2001 -2008), Department of Industrial Engineering and Management Sciences, Northwestern University
- Associate Professor (1986–1987), Professor (1987–2008, By courtesy 2008– Present), Department of Statistics, Northwestern University
- Visiting Associate Professor (1982–1983), School of Operations Research and Industrial Engineering, Cornell University
- Design Engineer (1968–1970), Larson and Toubro, Ltd. (Bombay, India)

HONORS AND AWARDS:

- Fellow of the American Statistical Association (1991)
- Fellow of the Institute of Mathematical Statistics (2010)
- Fellow of the American Association for Advancement of Science (2013)
- Elected member (fellow) of the International Statistical Institute (2015)
- Distinguished Alumnus Award, I.I.T. Bombay (2017)
- Winner of the Youden Award for the best expository paper published in *Technometrics* (1985)

RESEARCH INTERESTS:

- Mathematical Statistics: Multiple Comparisons; Design of Experiments; Ranking and Selection Procedures
- Applied Statistics: Multiplicity Problems in Biopharmaceutical Studies; Biomedical Applications; Quality Control; Data Mining

BOOKS AND MONOGRAPHS:

- *Design of Experiments: Ranking and Selection (Essays in Honor of Robert E. Bechhofer)*, co-edited with T. J. Santner, Marcel-Dekker, (1984)
- *Multiple Comparison Procedures*, with Y. Hochberg, John Wiley, (1987)
- *Statistics and Data Analysis: From Elementary to Intermediate*, with D. Dunlop, Prentice Hall (2000)

- *Statistical Analysis of Designed Experiments: Theory and Applications*, John Wiley (2009)
- *Multiple Testing Problems in Pharmaceutical Statistics*, co-edited with A. Dmitrienko and F. Bretz, Taylor & Francis (2009)
- *Predictive Analytics: Parametric Models for Regression and Classification Using R*, to be published by John Wiley (2019)

RESEARCH PAPERS:

Multiple Comparisons (Including Multiple Endpoints, Dose Finding and Design of Experiments)

1. “Multiple comparisons in model I one-way ANOVA with unequal variances,” *Communications in Statistics, Ser. A*, (1977), **6**, 15–32
2. “A comparison of procedures for multiple comparisons of means with unequal variances,” *Journal of the American Statistical Association*, (1979), **74**, 471–480
3. “Incomplete block designs for comparing treatments with a control: General theory,” (with R. E. Bechhofer), *Technometrics*, (1981), **23**, 45–57
4. “Design of experiments for comparing treatments with a control: Tables of optimal allocations of observations,” (with R. E. Bechhofer), *Technometrics*, (1983), **25**, 87–95
5. “Balanced treatment incomplete block (BTIB) designs for comparing treatments with a control: Minimal complete sets of generator designs for $k = 3, p = 3(1)10$,” (with W. I. Notz), *Communications in Statistics, Ser. A*, (1983), **12**, 1391–1412
6. “Incomplete block designs for comparing treatments with a control (II): Optimal designs for $p = 2(1)6, k = 2$ and $p = 3, k = 3$,” (with R. E. Bechhofer), *Sankhyā, Ser. B*, (1983), **45**, 193–224
7. “Multiple comparisons in a mixed model,” (with Y. Hochberg), *The American Statistician*, (1983), **37**, 305–307
8. “Tables of admissible and optimal BTIB designs for comparing treatments with a control,” (with R. E. Bechhofer), *Selected Tables in Mathematical Statistics* (1985), **8**, 41–139
9. “An optimal procedure for partitioning a set of normal populations with respect to a control,” *Sankhyā, Ser. A*, (1987), **49**, 335–346
10. “Discussion of the paper ‘Optimal designs for comparing treatments with controls’ by A. S. Hedayat, M. Jacroux and D. Majumdar,” (with R. E. Bechhofer), *Statistical Science*, (1988), **3**, 477–480
11. “Two-stage procedures for comparing treatments with a control: Elimination at the first stage and estimation at the second stage,” (with R. E. Bechhofer and C. W. Dunnett), *Biometrical Journal*, (1989), **31**, 545–561
12. “Sample size determination for step-down multiple test procedures: Orthogonal contrasts and comparisons with a control,” (with A. J. Hayter), *Journal of Statistical Planning and Inference*, (1990), **27**, 271–290
13. “Step-down multiple tests for comparing treatments with a control in unbalanced one-way layouts,” (with C. W. Dunnett), *Statistics in Medicine*, (1991), **10**, 939–947

14. "A step-up multiple test procedure," (with C. W. Dunnett), *Journal of the American Statistical Association*, (1992), **87**, 162–170
15. "A Bayesian approach to comparing treatments with a control," (with G. V. S. Gopal), (1992), *Multiple Comparisons, Selection and Applications to Biometry, A Festschrift in Honor of Charles W. Dunnett*, (Ed. F. Hoppe), Marcel-Dekker, 267–292
16. "Comparisons between a new drug and active and placebo controls in an efficacy clinical trial," (with C. W. Dunnett), *Statistics in Medicine*, (1992), **11**, 1057–1063
17. "Power comparisons of some step-up multiple test procedures," (with C. W. Dunnett), *Statistics and Probability Letters*, (1993), **16**, 55–58
18. "Step-up multiple testing of parameters with unequally correlated estimates," (with C. W. Dunnett), *Biometrics*, (1995), **51**, 217–227
19. "Row column designs for comparing treatments with a control," (with D. Majumdar), *Journal of Statistical Planning and Inference*, (1996), **49**, 387–400
20. "Multiple test procedures for dose finding," (with Y. Hochberg and C. W. Dunnett), *Biometrics*, (1996), **52**, 21–37
21. "Multiple comparisons," Chapter 18 in *Handbook of Statistics*, vol. 13 (Eds. S. Ghosh and C. R. Rao), (1996), Elsevier Science B.V., 587–630
22. "Multiple testing to establish superiority/equivalence of a new treatment with k standard treatments," (with C. W. Dunnett), *Statistics in Medicine*, (1997), **16**, 2489– 2506
23. "A generalized step-up-down multiple test procedure," (with W. Liu and C. W. Dunnett), *Canadian Journal of Statistics*, (1998), **26**, 353–363
24. "Some new multiple test procedures for dose finding," (with C. W. Dunnett), *Journal of Biopharmaceutical Statistics*, (1998), **8**, 353–366
25. "Stepwise multiple test procedures with biometric applications," (with C. W. Dunnett), *Journal of Statistical Planning and Inference*, (1999), **82**, 55–68
26. "Multiple test procedures for identifying the maximum safe dose," (with C. W. Dunnett, J. Green and J. Wetherington), *Journal of the American Statistical Association*, (2001), **96**, 835–843
27. "Combining global and marginal tests to compare two treatments on multiple end-points," (with B. R. Logan), *Biometrical Journal*, (2001), **43**, 591–604
28. "Nonparametric multiple comparisons in repeated measures designs for data with ties," (with U. Munzel), *Biometrical Journal*, (2002), **44**, 762–779
29. "Multiple test procedures for identifying the minimum effective and maximum safe doses of a drug," (with B. R. Logan), *Journal of the American Statistical Association*, (2002), **97**, 293–301
30. "Accurate critical constants for the one-sided approximate likelihood ratio test of a normal mean vector when the covariance matrix is estimated," (with B. R. Logan), *Biometrics*, (2002), **58**, 650–656
31. "On O'Brien's OLS and GLS tests for multiple endpoints," (with B. R. Logan), in "Recent Developments in Multiple Comparison Procedures," IMS Lecture Notes and Monograph Series (Eds.: Y. Benjamini, F. Bretz and S. Sarkar), (2004), 76–88
32. "A superiority-equivalence approach to one-sided tests on multiple endpoints in clinical trials," (with B. R. Logan), *Biometrika*, (2004), **91**, 715–727

33. "Comparing variances of several measurement methods using a randomized block design with repeat measurements: A case study," (with A. J. Hayter), in "Advances in Ranking and Selection, Multiple Comparisons and Reliability (Essays in Honor of S. Panchapakesan)," Birkhäuser/Springer-Verlag, (2005), 165-178
34. "Finding the maximum safe dose for heteroscedastic data," (with B. R. Logan), *Journal of Biopharmaceutical Statistics*, (2004), **14**, 843-856
35. "Discussion of 'False Discovery Rate Adjusted Multiple Confidence Intervals for Selected Parameters' by Y. Benjamini and D. Yekutieli," *Journal of the American Statistical Association*, (2005), **100**, 84-85
36. "Multiple comparison procedures for dose response studies," (with B. R. Logan), *Design and Analysis of Dose Response Clinical Trials*, (Ed. N. Ting), Springer, (2006), 172-183
37. "Power and sample size determination for a multiple test procedure for finding the maximum safe dose," (with K. S. Shi and K. Strassburger), *Journal of Statistical Planning and Inference*, (2006), **136**, 2163-2181
38. "Stepwise gatekeeping procedures in clinical trial applications," (with A. Dmitrienko, X. Wang and X. Chen), *Biometrical Journal*, (2006), **48**, 984-991.
39. "Tree-structured gatekeeping procedures for multiple objectives in clinical trials," (with A. Dmitrienko, B. Wiens and X. Wang), *Statistics in Medicine*, (2007), **26**, 2465-2478.
40. "Gatekeeping procedures with clinical trial applications," (with A. Dmitrienko), *Journal of Pharmaceutical Statistics*, (2007), **6**, 171-180.
41. "On weighted Hochberg procedures," (with L. Liu), *Biometrika*, (2008), **95**, 279-294.
42. "General multistage gatekeeping procedures," (with A. Dmitrienko and B. Wiens), *Biometrical Journal*, (2008), **50**, 667-677.
43. "Superiority inferences on individual endpoints following equivalence testing in clinical trials," (with B. Logan), *Biometrical Journal*, (2008), **50**, 693-703.
44. "A note on tree gatekeeping procedures in clinical trials," (with A. Dmitrienko, L. Liu and B. Wiens), *Statistics in Medicine*, (2008), **27**, 3446-3451.
45. "Parametric mixture models for estimating the proportion of true null hypotheses and adaptive control of FDR," (with J. Shi), (2009), IMS Lecture-Monograph Series, **57**, Optimality: The Third Lehmann Symposium (ed. Javier Rojo), 304-325.
46. "Testing a primary and a secondary endpoint in a group sequential design," (with C. Mehta and L. Liu), *Biometrics*, (2010), **66**, 1174-1184.
47. "Mixtures of multiple testing procedures for gatekeeping applications in clinical trials," (with A. Dmitrienko), *Statistics in Medicine*, (2011), **30**, 1473-1488.
48. "Multistage and mixture gatekeeping procedures in clinical trials," (with A. Dmitrienko and G. Kordzakhia), *Journal of Pharmaceutical Statistics*, (2011), **21**, 726-747.
49. "A mixture gatekeeping procedure based on the Hommel test for clinical trial applications," (with T. Brenchenmacher, J. Xu and A. Dmitrienko), *Journal of Biopharmaceutical Statistics*, (2011), **21**, 748-767.
50. "Adaptive extensions of a two-stage group sequential procedure for testing a primary and a secondary endpoint (I): Unknown correlation between the endpoints," (with Y. Wu and C.R. Mehta), *Statistics in Medicine*, (2012), **31**, 2027-2040.

51. “Adaptive extensions of a two-stage group sequential procedure for testing a primary and a secondary endpoint (II): Sample size re-estimation,” (with Y. Wu and C.R. Mehta), *Statistics in Medicine*, (2012), **31**, 2041-2054.
52. “General theory of mixture procedures for gatekeeping,” (with A. Dmitrienko), *Biometrical Journal*, (2013), **55**, 402-419.
53. “A class of improved hybrid Hochberg-Hommel type step-up multiple test procedures,” (with J. Gou, D. Xi and D. Rom), *Biometrika*, (2014), **101**, 899-911.
54. “A general multistage procedure for k -out-of- n gatekeeping,” (with D. Xi), *Statistics in Medicine*, (2014), **33**, 1321-1335.
55. “On generalized Simes critical constants,” (with J. Gou), *Biometrical Journal*, (2014), **56**, 1035-1054.
56. “Allocating recycled significance levels in group sequential procedures for multiple endpoints,” (with D. Xi), *Biometrical Journal*, (2015), **57**, 90-107.
57. “Hochberg procedure under negative dependence,” (with J. Gou), (2018), *Statistica Sinica*, **28**, 339-362.
58. “A gatekeeping procedure for testing a primary and a secondary endpoint in a group sequential design with multiple interim looks,” (with J. Gou, C. Jennison, C.R. Mehta and T. Curto), (2018), *Biometrics*, **74**. 40-48.
59. “A flexible choice of critical constants for the improved hybrid Hochberg-Hommel type step-up multiple test procedure” (with J. Gou), (2017), *Sankhya, Ser. B*, **80**, 85-97.
60. “Advances in p -value based multiple test procedures,” (with J. Gou), (2018), *J. Biopharmaceutical Statistics*, **28**, 10-27. doi: 10.1080/10543406.2017.1378666.
61. “A group sequential Simes test,” (with J. Gou and A. Dmitrienko), (2018), *Statistics in Biopharmaceutical Research*, submitted for publication.

Ranking and Selection Procedures

62. “An iterated integral representation for a multivariate normal integral having block covariance structure,” (with R. E. Bechhofer), *Biometrika*, (1974), **61**, 615–619
63. “A three-stage elimination type procedure for selecting the largest normal mean (common unknown variance),” *Sankhyā, Ser. B*, (1976), **38**, 339–349
64. “Ranking and selection problems for normal populations with common known coefficient of variation,” *Sankhyā, Ser. B*, (1978), **39**, 344–361
65. “A two-stage minimax procedure with screening for selecting the largest normal mean,” (with R. E. Bechhofer), *Communications in Statistics, Ser. A*, (1977), **6**, 1003–1033
66. “A two-stage minimax procedure with screening for selecting the largest normal mean (II): An improved PCS lower bound and associated tables,” (with R. E. Bechhofer), *Communications in Statistics, Ser. A*, (1979), **8**, 337–358
67. “Selecting the better Bernoulli treatment using a matched samples design,” *Journal of the Royal Statistical Society, Ser. B*, (1980), **42**, 26–30
68. “On a class of multistage selection procedures with screening for the normal means problem,” *Sankhyā, Ser. B*, (1980), **42**, 197–216

69. "Designing experiments for selecting a normal population with a large mean and a small variance," (with T. J. Santner), *Design of Experiments: Ranking and Selection* (Eds. T. J. Santner and A. C. Tamhane), Marcel-Dekker, (1984), 179–198
70. "Some sequential procedures for selecting the better Bernoulli treatment by using a matched samples design," *Journal of the American Statistical Association*, (1985), **80**, 455–460
71. "A survey of literature on quantal response curves with a view toward application to the problem of selecting the curve with the smallest q-quantile (ED100q)," *Communications in Statistics, Ser. A*, (1986), **15**, 2679–2718
72. "Designing experiments for selecting the largest normal mean when the variances are known and unequal: Optimal sample size allocation," (with R. E. Bechhofer and A. J. Hayter), *Journal of Statistical Planning and Inference*, (1991), **28**, 271–289
73. "Selecting the normal population with the smallest coefficient of variation," (with A. J. Hayter), *American Journal of Mathematical and Management Sciences*, (2009), **29**, 31–50

Chemical Engineering Applications, Quality Control and Data Mining

74. "Detection of gross errors in process data," (with R. S. H. Mah), *AIChE Journal*, (1982), **28**, 828–830
75. "Performance studies of the measurement test for detection of gross errors in process data," (with C. Iordache and R. S. H. Mah), *AIChE Journal*, (1985), **27**, 1187–1201
76. "Data reconciliation and gross error detection in chemical process networks," (with R. S. H. Mah), *Technometrics*, (1985), **27**, 409–422
77. "A composite statistical test for detecting changes of steady states," (with S. Narasimhan, R. S. H. Mah, J. W. Woodward and J. C. Hale), *AIChE Journal*, (1986), **32**, 1409–1418
78. "A Bayesian approach to gross error detection in chemical process data (I): Model development," (with C. Iordache and R. S. H. Mah), *Chemometrics and Intelligent Laboratory Systems*, (1988), **4**, 33–45
79. "A Bayesian approach to gross error detection in chemical process data (II): Simulation results," (with C. Iordache and R. S. H. Mah), *Chemometrics and Intelligent Laboratory Systems*, (1988), **4**, 131–146
80. "Gross error detection in serially correlated process data," (with C. J. Kao and R. S. H. Mah), *Industrial and Engineering Chemistry Research*, (1990), **29**, 1004–1012
81. "Gross error detection in serially correlated process data (II): Dynamic systems," (with C. J. Kao and R. S. H. Mah), *Industrial and Engineering Chemistry Research*, (1992), **31**, 254–262
82. "A general prewhitening procedure for process and measurement noises," (with C. J. Kao and R. S. H. Mah), *Chemical Engineering Communications*, (1992), **118**, 49–57
83. "Process trending with piecewise linear smoothing," (with R. S. H. Mah, A. Patel and S. H. Tung), *Computers and Chemical Engineering*, (1995), **19**, 127–136
84. "Nonlinear partial least squares," (with E. Malthouse and R. S. H. Mah), *Computers and Chemical Engineering*, (1997), **21**, 875–890

85. "Control charts for autocorrelated process data," (with E. Malthouse), (1997), Chapter 24 in *Advances in Statistical Decision Theory and Applications* (eds. S. Panchapakesan and N. Balakrishnan), Amsterdam: North Holland, 371–385.
86. "The beta distribution as a latent response model for ordinal data (I): Estimation of location and dispersion parameters," (with B. A. Ankenman and Y. Yang), *Journal of Statistical Computing and Simulation*, (2002), **72**, 473 - 494.
87. "A comparative study of the K -means algorithm and the normal mixture model for clustering: Univariate case," (with D. Qiu), *Journal of Statistical Planning and Inference*, (2007), **137**, 3722-3740.
88. "A parametric mixture model for clustering multivariate correlated Bernoulli data," (with B. A. Ankenman and D. Qiu), *Statistical Analysis and Data Mining*, (2010), **3** 1–17.

Biomedical/Biological Applications

89. "Comparison of the hamster sperm motility assay to the mouse one-cell and two-cell embryo bioassays as quality control tests for in vitro fertilization," (with M. J. Gorrill, J. S. Rinehart and M. Gerrity), *Fertility and Sterility*, (1991), **55**, 345–354
90. "Clinical assessment of venous thromboembolic risk in surgical patients," (with J. A. Caprini, J. I. Arcelus, J. H. Hasty and F. Fabrega), *Seminars in Thrombosis and Hemostasis*, (1991), **17(3)**, 304–312
91. "A model-based approach for estimating the AIDS-free time distribution using longitudinal data," (with D. D. Dunlop, J. Chmiel and J. P. Phair), *Journal of Biopharmaceutical Statistics*, (1994), **4**, 129–146
92. "Risk factor assessment in the management of patients with suspected deep venous thrombosis," (with Motkyie, G. D. et al.), *International Angiology*, (2000), **19**, 47-51.
93. "Dry pea (*Pisum sativum* L) response to low rates of selected foliar- and soil-applied sulfonyleurea and growth regulator herbicides," (with K. Al-Khatib), *Weed Technology*, (1999), **13**, 753758

Statistical Inference and Other Topics

94. "Inference based on regression estimator in double sampling," *Biometrika*, (1978), **65**, 419–427
95. "Randomized response techniques for multiple sensitive attributes," *Journal of the American Statistical Association*, (1981), **76**, 916–923
96. "A note on the use of residuals for detecting an outlier in linear regression," *Biometrika*, (1982), **69**, 488–489
97. "Exact repeated confidence intervals for Bernoulli parameters in a group sequential clinical trial," (with P. R. Coe), *Controlled Clinical Trials*, (1993), **14**, 19–29
98. "Small sample confidence intervals for the difference, ratio and odds ratio of two success probabilities," (with P. R. Coe), *Communications in Statistics, Series B (Comp. and Simula.)*, (1993), **22**, 925–938

99. "Comparisons of confidence intervals for the difference of two independent binomial proportions," (with T. J. Santner, V. Pradhan, P. Senchaudhari and C. R. Mehta), *Computational Statistics and Data Analysis* (2007), **51**, 5791-5799.
100. "The effects of media context experiences on advertising effectiveness," (with E. C. Malthouse and B. J. Calder), *Journal of Advertising*, (2007), **36**, 7-18.
101. "Estimation of a parametric function associated with the lognormal distribution," (with J. Gou), (2017), *Communications in Statistics-Theory and Methods* 46 (16), 8134-8154.

Technical Reports and Other Publications

102. "On minimax multistage screening type rules for selecting the largest normal mean," Ph.D. Dissertation (1975), Cornell University
103. "A minimax two-stage permanent elimination type procedure for selecting the smallest normal variance," Tech. Report No. 260 (1975), Dept. of Operations Research, Cornell University
104. "A randomized response technique for investigating several sensitive attributes," *ASA Proceedings of Social Statistics* (1977), 273-278
105. "Conflicting birthweight and infant mortality trends in a high-risk urban neighborhood," (with J. Reis and S. R. Pliska), Center for Health Services and Policy Research Tech. Report (1985), Northwestern University
106. "A simplified approach to the maximum likelihood estimation of the covariance matrix," Letter to the Editor, *The American Statistician* (1979), **33**, 92-93
107. Review of the book "*Design and Analysis of Experiments for Statistical Selection, Screening and Multiple Comparisons*" by R. E. Bechhofer, T. J. Santner and D. M. Goldsman, *Technometrics* (1996), **38**, 289-290
108. "A multiple comparison procedure for three- and four- armed controlled clinical trials," (with L. A. Hothorn), Letter to the Editor, *Statistics in Medicine*, (2001), **20**, 317-318
109. "Obituary: Charles W. Dunnett (1921-2007)," (with P. Macdonald), *IMS Bulletin*, (2007), **36** (7), 6.
110. "Eulogy to Charles Dunnett (1921-2007)," *Biometrical Journal*, (2007), **50**, 636-637.

SPONSORED RESEARCH:

1. ProSoft, Inc. "Improved Hochberg-Hommel Hybrid Procedures," 2/1/2012-8/31/2012
2. National Security Agency, "A Statistical Modeling Approach to Some Problems in Data Mining for Multivariate Binary Data" 2/1/2007-1/31/2010
3. National Heart, Lung and Blood Institute, "Decision Rules for Multiple Endpoints in Clinical Trials," 9/1/2006-10/31/2009
4. DuPont, "Finding the maximum safe dose levels for heteroscedastic or ordinal data," 7/1/2000 - 6/30/2003.
5. NSF (Div. of Undergraduate Education), "Quality Engineering Laboratory," (with B. Ankenman), 9/1/97-8/31/00
6. DuPont, "Multiple test procedures for dose finding in safety assessments of crop protection compounds," 8/1/96- 7/31/97

7. NSF (Mathematical Sciences), "Mathematical Sciences Computing Research Environments," (with M. Tanner, S. Haberman and T. Severini), 8/1/95–7/31/97
8. Northrop Corporation, "Statistical analysis of MANTECH data," 2-93 to 3-94
9. British Science and Engineering Research Council: Visiting research fellowship, School of Mathematics, University of Bath, 6–88 to 9–88
10. NSF, "Development of computing aids and techniques for process analysis," 2–86 to 1–89. (co-P.I. with R. S. H. Mah)
11. Ford Foundation, "City of Chicago's demonstration/evaluation initiative under the maternal and child health block grant program," Faculty Participant, Center for Health Services and Policy Research, 10–83 to 7–87
12. NSF, "Statistical multiple comparisons of several competing treatments," 4–77 to 8–79
13. Office of Research and Sponsored Programs, Northwestern University, Faculty research grants in Summer 1975 and academic years 1976–77, 1980–82

GRADUATE STUDENT SUPERVISION:

- **Ph.D. Students Supervised or Under Supervision**

1. C. Iordache, "A Bayesian Approach to Gross Error Detection in Process Data," (co-advisor with R. S. H. Mah), Chem. Engg., March 1987
2. De Juran Richardson, "A Parametric Group Sequential Procedure for Comparing Survival Distributions of Two Treatments," Mathematics, May 1987
3. Paul Coe, "Exact Repeated Confidence Intervals for Binomial Parameters in Group Sequential Experiments," Statistics, October 1988
4. Dorothy Dunlop, "Developing Risk Factor and Disease Progression Marker Models for Longitudinal Cohort Data with Survival Endpoint," IE/MS, November 1990
5. C. J. Kao, "Gross Error Detection in Serially Correlated Process Data for Static and Dynamic Processes," (co-advisor with R. S. H. Mah), Chem. Engg., February 1991
6. G. V. S. Gopal, "A Bayesian Approach to Comparing Treatments with a Control," IE/MS, December 1991
7. Edward Malthouse, "Nonlinear Partial Least Squares Using Neural Networks," (co-advisor with R. S. H. Mah), Statistics, August 1995
8. Brent Logan, "Contributions to Multiple Endpoints and Dose Finding," Statistics, June 2001
9. Ying Yang, "Identifying Location and Dispersion Effects for Ordinal Data from Industrial Experiments," IE/MS (co-advisor with B. Ankenman), December 2002
10. Cindy Wang, "Gatekeeping Procedures for Multiple Endpoints," Statistics, June 2006
11. Jiaxiao Shi, "Improved Estimation of the Proportion of True Null Hypotheses with Applications to Adaptive Control of FDR and Drug Screening," Statistics, September 2006
12. Dingxi Qiu, "Cluster Analysis for Multivariate Normal and Bernoulli Data," (co-advisor with B. Ankenman), IE/MS, June 2007
13. Lingyun Liu, "Topics in Multiple Comparisons: Weighted Hochberg and Gatekeeping Procedures," Statistics, December 2009

14. Kunyang Shi, "Power and Sample Size Determination for Dose Finding and Multiple Endpoints," *Statistics*, June 2010
15. Yi Wu, "Adaptive Group Sequential Procedures for Multiple Endpoints with Gatekeeping Restrictions," *Statistics*, December 2011
16. Dong Xi, "Topics in Gatekeeping and Group Sequential Procedures for Multiple Endpoints," *Statistics*, August 2013
17. Jiangtao Gou, "Topics in Step-Up Multiple Test Procedures Based on p -Values," *Statistics*, June 2014

• **M.S. Thesis Committees Served On**

Barbara Grabowski (IE/MS), Byung Ho Kim (IE/MS), C. Iordache (Chem. Engg.), S. Narasimhan (Chem. Engg.), A. Kretsovalis (Chem. Engg.), J. Rosenberg (Chem. Engg.), D. Brickman (Mech. Engg.)

• **Ph.D. Thesis Committees Served On**

Bryan Deurmeyer (IE/MS), Kathleen Flaherty (IE/MS), Hernando Gomez (Psychology), George Knafl (Mathematics), Dorothy Karlsen (Education), S. Narasimhan (Chem. Engg.), A. Kretsovalis (Chem. Engg.), Molly Walsh (Statistics), Daniel Hall (Statistics), Jun Ku Park (Chem. Engg.), Kris Hoyer (IE/MS), Jill Glassman (Statistics), S. H. Tung (Chem. Engg.), Justin Boesel (IE/MS), William McDaniel (IE/MS), Ana Ivelisse Aviles (IE/MS), Hui Liu (IE/MS), Seong-Hee Kim (IE/MS), Bahar Deler (IE/MS), C. W. Shen (IE/MS), Hong Wan (IE/MS), Jeff Hong (IE/MS), Xuemei Shan (IE/MS), Weitao Duan (IE/MS)

TEACHING AWARDS

- Voted as one of the outstanding professors at Northwestern in 1983–84 by a survey of undergraduates and listed in the Associated Student Government Faculty Honor Roll
- The first Graduate Teaching Award in 1987–88 sponsored by the ORSA Student Chapter at Northwestern

SEMINARS AND TALKS:

1. *Multistage Elimination Type Procedures for Selecting the Largest Normal Mean*
 - Ohio State University (Statistics Dept.), March 1974
 - Northwestern University (IE/MS Dept.), April 1974
 - Johns Hopkins University (Math. Sciences Dept.), April 1974
 - IMS Annual Meeting (Contributed Talk), Atlanta, August 1975
2. *Multiple Comparisons in Model I One-Way ANOVA with Unequal Variances*
 - IMS Annual Meeting (Contributed Talk), New Haven, August 1976
 - Northwestern University (Statistics Seminar), November 1976
3. *Randomized Response and Weighing Design Techniques for Multiple Sensitive Attributes*
 - ASA Annual Meeting (Contributed Talk), Chicago, August 1976
 - Northwestern University (Statistics Seminar), March 1977
4. *Inference Based on Regression Estimator in Double Sampling*
 - Northwestern University (Statistics Seminar), October 1977

5. *Multiple Comparisons of Regression Models Based on Integrated Mean Square Prediction Error Criterion*
 - University of Kentucky (Statistics Dept.), November 1977
6. *A Comparison of Procedures for Multiple Comparisons of Means with Unequal Variances*
 - Western Regional Meeting of IMS and WNAR (*Invited Talk*), Los Angeles, June 1979
7. *Incomplete Block Designs for Comparing Treatments with a Control*
 - Northwestern University (Statistics Seminar), February 1979
 - Northwestern University (ORSA Brown Bag Seminar), April 1979
 - University of Bombay (Statistics Dept.), April 1979
 - I. I. T., Bombay (Mathematics Dept.), India, April 1979
 - Renssalaer Polytechnic Institute (Statistics and OR Dept.), March 1984
8. *Designing Experiments for Selecting the Best of Several Normal Populations with Known Unequal Variances: Optimal Sample Size Allocation*
 - Joint Annual Statistical Meetings (*Invited Talk*), Houston, August 1980
 - Cornell University (Statistics Seminar), November 1982
 - University of Rochester (Statistics Dept.), November 1982
 - Syracuse University (Mathematics Dept.), January 1983
 - McMaster University (Math. Sciences Dept.), March 1983
 - University of Bombay (Statistics Dept.), India, April 1984
 - I. I. T., Bombay (Mathematics Dept.), India, April 1984
 - University of South Carolina (Statistics Dept.), November 1984
 - University of Bath (School of Mathematics), U.K., July 1988
 - Northwestern University (Statistics Seminar), November 1988
9. *Multiple Comparisons: When and Why?*
 - Chicago ASA Chapter (Biostatistics Interest Group), November 1980
 - N. E. Illinois ASA Chapter, October 1984
 - ENAR Spring Meeting (*Invited Talk*), Raleigh, March 1985
 - 42nd Annual Applied Statistics Conference (*Three Hour Invited Tutorial*), Atlantic City, December 1986
10. *Teaching Careers in Statistics*
 - ASA Chicago Chapter Careers Forum, November 1981
11. *Selecting the Better Bernoulli Treatment Using a Matched Samples Design*
 - University of Illinois at Chicago (Mathematics, Statistics and Computer Science Dept.), May 1982
12. *Selecting a Normal Population with a Large Mean and a Small Variance*
 - University of Chicago (Statistics Dept.), February 1984
13. *Data Reconciliation and Gross Error Detection in Chemical Process Networks*
 - Northwestern University (ORSA Brown Bag Seminar), April 1984
14. *Some Problems in Probability Inequalities Arising in Multiple Comparisons of Means in Unbalanced Designs*

- Miniconference on Multiple Comparisons (*Invited Talk*), Urbana-Champaign, August 1984
- 15. *Conflicting Birthweight and Infant Mortality Trends in a High-Risk Urban Neighborhood*
 - Northwestern University (Center for Health Services and Policy Research Seminar), November 1984.
- 16. *Modern Methods for Quality Control and Improvement*
 - Illinois Technology Networking Quality Control Clinic, July 1986, March 1987
 - Chicago Society for Coatings Technology, November 1987
- 17. *A Bayesian Approach to Gross Error Detection in Chemical Process Data*
 - Northwestern University (Statistics Seminar), May 1987
- 18. *Multiplicity Problems in Biostatistics*
 - 44th Annual Applied Statistics Conference (*Three Hour Invited Tutorial*), Atlantic City, December 1988
 - Northwestern University (ORSA Brown Bag Seminar), February 1990
- 19. *Designing Experiments for Step-Down Multiple Testing Procedures*
 - University of Michigan (Biostatistics Dept.), February 1989
 - Cornell University (Statistics Seminar), March 1989
 - University of Poona (Statistics Dept.), India, September 1989
 - Ohio State University (Statistics Dept.), November 1989
 - Northwestern University (Statistics Seminar), November 1989
- 20. *A Step-Up Multiple Test Procedure*
 - North Carolina State University (Statistics Dept.), June 1990
 - Northern Illinois University (Div. of Statistics), April 1991
 - Northwestern Univ. (Dept. of Statistics and Dept. of Community Health and Preventive Medicine Joint Seminar), November 1991
- 21. *A Bayesian Approach to Comparing Treatments with a Control*
 - Symposium in Honor of C. W. Dunnett (*Invited Talk*), McMaster University, May 1991
- 22. *Some Recent Developments in Multiple Comparisons*
 - Northern N. J. Chapter of the American Statistical Association (*3 Hour Invited Tutorial*), Rahway, N. J., June 1993
- 23. *Stepwise Multiple Test Procedures and Their Applications*
 - 49th Annual Applied Statistics Conference (*Three Hour Invited Tutorial (with C. W. Dunnett)*), Atlantic City, N. J., December 1993
 - Dept. of Mathematics & Statistics, Univ. of South Alabama, Mobile, AL (*A Series of 3 Invited Seminars*), July 1995
 - Univ. of Hannover and Solvay Pharmaceuticals, Hannover (Germany), November 1995
 - The First NIU Symposium on Statistical Sciences (*Invited Talk*), N. Illinois University (Div. of Statistics), September 1996
 - Dept. of Biostatistics, School of Public Health, University of Illinois at Chicago, September 1997

24. *Multiple Test Procedures for Dose Finding*
 - Northern N. J. Chapter of the American Statistical Association (*Invited Talk*), Rahway, NJ, March 1995
 - Multiple Decision Theory & Related Topics – A Conference in Honor of Shanti S. Gupta, (*Invited Talk*), Purdue University, June 1995
 - Swiss and German Biopharmaceutical Meeting, Basle (Switzerland), November 1995
 - The First International Conference on Multiple Comparisons, Univ. of Tel Aviv, Israel, June 1996
25. *Multiple Test Procedures for Identifying the Maximum Safe Dose*
 - Stine-Haskell Research Center, DuPont, Newark, NJ, February 1997
 - Dept. of Statistics, Northwestern University, February 1998
 - IMS Annual Statistical Meeting, (*Invited Talk*), Dallas, TX, August 1998
26. *Multiple Test Procedures for Identifying the Minimum Effective and Maximum Safe Doses of a Drug*
 - 10th European Workshop on Statistical Methodology in Clinical R & D, Drug Information Association, Prague (Czech Republic), April 1999
 - International Conference on Applied Statistics, Rider University, Lawrenceville, NJ, May 1999
 - 2nd International Conference on Multiple Comparisons, Berlin, Germany, June 2000
 - N. E. Illinois ASA Chapter Meeting, October 2000
 - International Conference on Statistics, Combinatorics and Related Topics, I.I.T. Bombay, India, December 2000
 - Department of Statistics, University of Poona, Pune, India, December 2000
27. *Accurate Critical Constants for the One-Sided Approximate Likelihood Ratio Test of a Normal Mean Vector when the Covariance Matrix is Estimated*
 - Department of Statistics, Northwestern University, February 2001
 - IISA Fourth Biennial International Conference on Statistics, Probability and Related Areas, (*Invited Talk*), Northern Illinois University, DeKalb, IL, June, 2002
28. *Multiple Endpoints: Review and New Developments*
 - Invited talk at the NSF-CBMS Regional Conference on “New Developments in Multiple Comparison Procedures” at Temple University, Philadelphia, PA, August 2001
29. *A Superiority-Equivalence Approach to One-Sided Tests on Multiple Endpoints*
 - The Third International Conference on Multiple Comparisons, Bethesda, MD, August 2002
 - Department of Mathematics & Statistics, McMaster University, Hamilton, Ontario, CANADA, November 2002
 - Division of Biostatistics, Medical College of Wisconsin, Milwaukee, WI, March 2003
30. *Multiple Comparisons*
 - Invited talk at SUMSRI, Miami University, Oxford, OH, July 2003
 - Invited talk, Department of Mathematics, Statistics & Computer Science, U. of Illinois at Chicago, April 2004.
31. *Multiple Comparison Procedures for Dose Response Studies*

- Invited talk at “Dose Response Clinical Trials Conference,” organized by Barnett Educational Services, Philadelphia, PA, November 2004
32. *Clustering for Multivariate Correlated Bernoulli Data*
- Invited talk at the Bechhofer-Gupta-Sobel Symposium, Auburn, AL, December 2005
 - Department of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH, June 2006
 - Contributed talk at JSM, Denver, CO, August 2008
 - Contributed talk at JSM, Denver, August 2008
33. *Gatekeeping Procedures for Multiple Endpoints in Multiple Dose Finding Studies*
- Invited talk at the 5th Annual Connecticut ASA Chapter Mini-conference on Multiple Comparisons in the Pharmaceutical Industry, Meriden, CT, March 2006
 - Invited talk at the Midwest Biopharmaceutical Statistics Workshop, Muncie, IN, May 2006
 - Department of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH, June 2006
 - Contributed talk at the International Biometrics Society Biennial Meeting, Montreal, July 2006
34. *A Mixture Model Approach to Estimating the Number of True Null Hypotheses and Adaptive Control of FDR*
- Department of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH, June 2006
 - Invited talk at the IMS Annual Meeting, Rio de Janeiro, August 2006
 - Invited talk, 3rd Erich L. Lehmann Symposium, Rice University, Houston, May 2007
 - Contributed talk at JSM, Salt Lake City, August 2007
35. *Tree-Structured Gatekeeping Procedures for Multiple Endpoints*
- Invited talk, Department of Statistics, Temple University, Philadelphia, PA, November 2006
 - Contributed talk at the ENAR Spring Meeting, Atlanta, March 2007
 - Invited talk, Department of Mathematics, Statistics & Computer Science, U. of Illinois at Chicago, April 2007
36. *On Weighted Hochberg Procedures*
- Contributed talk, Vth International Multiple Comparison Procedures Conference, Vienna, July 2007
37. *General Stepwise Gatekeeping Procedures*
- Contributed talk, ENAR Spring Meeting, Washington DC, March 2008
 - Invited talk, FDA/DIA Workshop, Bethesda, MD, April 2008
 - Invited talk, 44th DIA Annual Meeting, Boston, MA, June 2008
38. *Testing a Primary and a Secondary Endpoint in a Group Sequential Design*
- Contributed talk, VIth International Multiple Comparison Procedures Conference, Tokyo, Japan, March 2009
 - Invited talk, Department of Biostatistics, Columbia University, New York, NY, September 2009

- Invited talk, ASA Chapter, Milwaukee, WI, October 2009
39. *Gatekeeping Procedures*
 - Invited talk, Multiple Comparisons in Clinical Trials Conference, ExL Pharma, Rockville, MD, January 2010
 - Invited talk, NIC/ASA Chapter Spring Workshop, Northbrook, IL, March 2010
 - Invited talk, Department of Statistics, Northern Illinois University, DeKalb, IL, November 2010
 40. *Mixture Gatekeeping Procedures with Clinical Trial Applications*
 - Invited talk, ENAR Spring Meeting, Miami, FL, March 2011
 - Invited talk, International Indian Statistical Association Conference on Probability and Statistics, Raleigh, NC, April 2011
 - Invited talk, International Chinese Statistical Association Conference, New York, NY, June 2011
 41. *Testing a Primary and a Secondary Endpoint Using a Two-Stage Group Sequential Procedure: An Adaptive Extension for Unknown Correlation*
 - Contributed talk, VIIth International Multiple Comparison Conference, Rockville, MD, August 2011
 42. *Multiple Comparisons for Multiple Endpoints and Multiple Doses*
 - Invited talk, American Course on Drug Development and Regulatory Sciences (ACDRS), Frontiers in Drug Development and Regulatory Sciences, University of California at San Francisco, CA, October 2011
 - Invited talk, Workshop on the Design and Analysis of Clinical Trials, Institute of Mathematical Sciences, National University of Singapore, October 2011
 - Invited talk, Department of Mathematics, Statistics and Computer Science, University of Illinois, Chicago, March 2012
 - Invited talk, 2012 ASA Connecticut Chapter Mini-Conference, New Haven, CT, March 2012
 43. *Multiplicity Problems for Composite Endpoints*
 - Invited talk, 5th Annual FDA/MTLI Medical Device and IVD Statistical Issues Workshop, Washington, DC, May 2012
 44. *A Class of Improved Hybrid Hochberg-Hommel (HH) Procedures*
 - Contributed talk, Adaptive Designs and Multiple Testing Procedures Workshop, Heidelberg, Germany, July 2012
 - Invited talk, Department of Mathematics and Statistics, University of South Alabama, Mobile, AL, March 2014
 45. *A General Multistage Procedure for k -out-of- n Gatekeeping*
 - Invited talk, International Indian Statistical Association (IISA) Meeting, Chennai, India, January 2013
 - Invited talk, Department of Statistics, University of Poona, Pune, India, January 2013
 46. *Allocating Recycled Significance Levels in Group Sequential Procedures for Multiple Endpoints*

- Invited talk, VIIIth International Multiple Comparison Procedures Conference, University of Southampton, UK, July 2013
 - Invited talk, NIC/ASA Fall Workshop, Glenview, IL, October 2013
47. *False Findings in Scientific Research*
- Invited Public Lecture, University of South Alabama, Mobile, AL, March 2014
48. *Hochberg Multiple Test Procedure Under Negative Dependence*
- Invited talk, International Indian Statistical Association (IISA) Meeting, Riverside, CA, July 2014
 - Keynote talk, IMPACT Symposium organized by University of North Carolina at Chapel Hill, Cary, NC, November 2014
 - IXth International MCP Conference, Hyderabad, India, September 2015
49. *Multiple Testing Procedures with Gatekeeping and Graphical Applications*
- Abbvie, North Chicago, IL, April 2015
50. *Advances in p-Value Based Multiple Testing*
- Keynote Talk, IISA Annual Conference. Oregon State University, Corvallis, OR, August 2016
51. *A Gatekeeping Procedure for Testing a Primary and a Secondary Endpoint in a Group Sequential Design with Multiple Interim Looks*
- Xth International MCP Conference, University of California at Riverside, June 2017
52. *A group sequential Simes test*
- Invited Talk, Symposium in Honor of Prof. Yoav Benjamini's 70th Birthday, December 2018

SHORT COURSES:

1. *Multiple Comparisons, One-Day Course*
 - Schering-Plough Corporation, Kenilworth, NJ, November 1987
 - Ciba-Geigy Corporation, Summit, NJ, November 1983, December 1993
 - Spring Biometrics Society (ENAR) Meeting, Cleveland, OH, April 1994
2. *Multiple Comparisons (with Y. Hochberg), Two-Day Course*
 - Groupe Biopharmacie-ASU, Paris, France, June 1993
3. *Multiplicity Problems in Pharmaceutical Studies (with B. W. Turnbull), Two-Day Short Course*
 - FDA, Rockville, MD, December 1988
 - Abbott Laboratories (together with G. D. Searle Co.), North Chicago, IL, June 1989
 - Sterling Drug Inc., Rensselaer, NY, June 1989
 - Merrell Dow Research Institute, Cincinnati, OH, June 1990
 - Bristol-Myers-Squibb, Hartford, CT, September 1990
4. *Design of Industrial Experiments*
 - Northrop Corporation (Defense Systems Division), Rolling Meadows, IL, December 1990 – February 1991, October 1992–December 1992

- McCormick School of Engg. & Applied Sciences Continuing Education Program (with J. Mellon), October 1994
- 5. *Design of Experiments Workshop for High School AP Stats Teachers*
 - Council of AP Stats Teachers and N. E. Illinois ASA Chapter, October 2000
- 6. *Multiple Endpoints and Gatekeeping Procedures (with A. Dmitrienko)*
 - FDA, Silver Spring, MD, October 2008
 - VIth International Multiple Comparison Procedures Conference, Tokyo, Japan, March 2009
- 7. *Multiple Comparisons for Multiple Endpoints and Multiple Doses*
 - Design and Analysis of Clinical Trials Workshop, Institute of Mathematical Sciences, National University of Singapore, October 2011
- 8. *Multiple Test Procedures for Gatekeeping*
 - Amgen, Thousand Oaks, CA, August 2011
 - VIIth International Multiple Comparison Procedures Conference, Rockville, MD, August 2011 (with A. Dmitrienko)
 - Indian Association for Statistics in Clinical Trials (IASCT), Pune, India, January 2013
- 9. *Multiple Testing Procedures with Gatekeeping and Graphical Applications*
 - FDA-Industry Statistics Workshop, Washington, DC, September 2014 (with Dong Xi)
 - CDHR, FDA, Silver Spring, MD, August 2015 (with Dong Xi)
 - IISA Conference, Oregon State University, Corvallis, OR, August 2016
 - Seattle Genetics, Bothell, WA, August 2016
- 10. *Trial Designs with Multiple Treatments and Multiple Endpoints Using East (with Lingyun Liu and Vidyadhar Phadke)*
 - IXth International MCP Conference, Hyderabad, India, September 2015

CONSULTING:

1. Eli Lilly, Indianapolis, IN, Member of two Data Monitoring Committees, (2018-Present)
2. Seattle Genetics, Bothell, WA (2016-2018)
3. Allergen, Irvine, CA (2013-2013)
4. Amgen, Thousand Oaks, CA (2011-2016), Member of Data Monitoring Committee (2014-2016)
5. Cytel International, Boston, MA (2007-2015)
6. Boehringer Ingelheim, Ridgefield, CT (2006-2007)
7. Novartis Pharma, East Hanover, NJ (2005)
8. Johnson & Johnson Pharmaceutical Research & Development, Raritan, N.J. (1998-2004)
9. Harza Engineering, Chicago, IL (2001 -2002)
10. Medical Research Laboratories, Buffalo Grove, IL (2000 - 2002)
11. Technology Management Group, Des Plaines, IL (1998 -2000)

12. Haemoscope Corporation, Skokie, IL (1997 -1998)
13. NCM Publishers Inc., New York, NY (1995)
14. RCT, Wheeling, IL (1994 -1995)
15. Venatech Inc., Evanston, IL (1993 -1997)
16. American College of Pathologists, Northfield, IL (1992)
17. Northrop Corporation (Defense Systems Division), Rolling Meadows, IL (1990–1994)
18. National Cement and Ceramics Laboratory, Evanston, IL (1990–1991)
19. Glenbrook Hospital Human IVF Laboratory, Glenview, IL (1989–1990)
20. Vascular Care Technology Inc., Glenview, IL (1989–1993)
21. Northwestern University Medical School (1988–1990)
22. United Refining and Smelting, Franklin Park, IL (1988)
23. Kendall Research Center, Barrington, IL (1981–1986)
24. Engineered Coated Products, Northbrook, IL (1986)
25. Mark Control Inc., Evanston, IL (1981)
26. Bell and Howell Educational Group Inc., Evanston, IL (1981)
27. Educational Testing Service, Evanston, IL (1980)
28. Northwestern Illinois Planning Commission, Chicago, IL (1980)
29. Shure Brothers Inc., Evanston, IL (1979)

PROFESSIONAL ACTIVITIES:

- Member:
 - Institute of Mathematical Statistics (Fellow)
 - American Statistical Association (Fellow)
 - International Biometrics Society (ENAR)
 - American Society for Quality
 - INFORMS
 - American Association for Advancement of Science (AAAS) (Fellow)
- Associate Editor:
 - *Communications in Statistics* (1993–2007)
 - *Naval Research Logistics* (2003–2006)
 - *Biometrical Journal* (2003–Present)
- Guest Editor:
 - *Journal of Biopharmaceutical Statistics*, Special Issue of Papers Presented at MCP2002 (with Peter H. Westfall)
 - *Journal of Statistical Planning and Inference*, Special Issue of Papers Presented at MCP2002 (with Peter H. Westfall)
- Reviewer:
 - Refereed more than 200 manuscripts
 - Refereed proposals for NSF, NSA and AFOSR

- Referee for several promotion and tenure decisions
- Judge for the Wilcoxon and Youden Awards, 1976-1982
- Other:
 - Assistant Program Secretary, IMS Annual Meeting, Chicago, IL, August 1986
 - Program Committee, N. E. Illinois ASA Chapter, 1989–1992
 - President, N. E. Illinois ASA Chapter, 1993
 - Member, Organizing Committee, 1st International Conference on Multiple Comparisons, Tel-Aviv, Israel, June 1996; 2nd International Conference on Multiple Comparisons, Berlin, Germany, June 2000; 5th International Conference on Multiple Comparisons, Vienna, August 2007; 6th International Conference on Multiple Comparisons, Tokyo, March 2009; 7th International Conference on Multiple Comparisons, Washington, DC, October 2011
 - Co-chair, 3rd International Conference on Multiple Comparisons, Bethesda, MD, August 2002; 4th International Conference on Multiple Comparisons, Shanghai, August 2005; 9th International Conference on Multiple Comparisons, Hyderabad, India, January 2015; 10th International Conference on Multiple Comparisons, Riverside, CA, June 2017
 - Advisory Board Member, Quality and Reliability Section of INFORMS
 - Advisory Committee Member, First International Symposium on Biopharmaceutical Statistics, Beijing, July 2008

UNIVERSITY ADMINISTRATION:

1. Senior Associate Dean for Planning and Graduate Studies, McCormick School of Engineering and Applied Science (2008-2018)
2. Chairman, IE/MS Department (2001 -2008)
3. Chair, The Graduate School Dean Search Committee (2010)
4. Associate Director, Center for Statistics and Probability (1979–1982)
5. Chair, IE/MS Undergraduate Program (1980–1988, 1994 - 2000), Member of numerous other committees
6. Member, McCormick School Promotion and Tenure Committee (1989–1995, 1996-1999), Provost’s Undergraduate Task Force on Quantitative Analysis (1988–1989), CTEC Review Advisory Committee (1991–1994)
7. In-Charge of Consulting, Department of Statistics (1988–1989)
8. Graduate Admissions Officer, Department of Statistics (1989 -2001)

CONTACT INFORMATION:

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