**Christopher J. Nachtsheim, Ph.D.**
*Frank A. Donaldson Chair of Operations Management*
*Chair, Supply Chain and Operations Department*
*Carlson School of Management*
*Full Member, Graduate Faculty, School of Statistics*
*University of Minnesota*

## Contact Information

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## Education

*Ph.D. in Operations Research* **1979**
University of Minnesota, Minneapolis, Minnesota. Minor in Statistics. Thesis title: "Contributions to Optimal Experimental Design." (Thesis advisor: R. Dennis Cook. Topics: robust design, computer construction of designs, mixture designs.)

*M.S. in Operations Research and Statistics* **1974**
Rensselaer Polytechnic Institute, Troy, New York.

*B.A. with majors in Mathematics and Quantitative Methods* **1973**
University of St. Thomas, St. Paul, Minnesota, magna cum laude.

## Professional Experience

*Chair, Supply Chain and Operations Department* **2002−Present**
Carlson School of Management, University of Minnesota.

*Frank A. Donaldson Chair in Operations Management* **2010−Present**
Department of Operations and Management Science, Carlson School of Management, University of Minnesota.

*Curtis L. Carlson Professor of Operations and Management Science* **2004−2010**
Department of Operations and Management Science, Carlson School of Management, University of Minnesota.

*Professor of Operations and Management Science* **1992−2004**
Department of Operations and Management Science, Carlson School of Management, University of Minnesota.

*Associate Dean of Faculty and Research* **1996−2000**
Carlson School of Management, University of Minnesota

*Chair, Operations and Management Science Department* **1993−1996**
Carlson School of Management, University of Minnesota.

*Associate Professor of Management Science* **1984−1992**
Department of Operations and Management Science, University of Minnesota. Tenure granted May, 1988.

*Senior Statistician* **1981–1984**
General Mills, Inc.

*Staff Member* **1979–1981**
Statistics Group, Los Alamos National Laboratory.

## Honors and Awards

*Brumbaugh Award* **2011**
American Society for Quality, for best paper published in the area of quality control.

*Fellow of the American Statistical Association* **2011**

*Lloyd S. Nelson Award* **2010**
Statistics Division of the American Society for Quality, for the published article having the "greatest immediate impact to practitioners" in 2010.

*Brumbaugh Award* **2009**
American Society for Quality, for best paper published in the area of quality control.

*Examiner, Malcolm Baldrige National Quality Award* **1997**
National Institute of Standards and Technology.

*National Best Paper Award in the area of CAE/CAD/CAM* **1992**
American Society of Mechanical Engineers.

*Brumbaugh Award* **1991**
American Society for Quality, for best paper published in the area of quality control.

## Elected Offices

*President, Twin Cities Chapter of the ASA.* **1985–1986**
American Statistical Association. Organized six activities for 1985–1986.

*Chair, Section on Physical and Engineering Sciences* **2001**
American Statistical Association

## Editorial Boards

*American Statistician*, Associate Editor **2011–Present**

*Journal of Quality Technology*, Department Editor, Data Mining **2011–Present**

*Technometrics*, Associate Editor **2000–2003**

*Statistics and Computing*, Associate Editor **1990–1996**

*Journal of the American Statistical Association*, Associate Editor **1989–1991**

*Journal of Quality Technology*, Department Editor **1988–1992**

*Journal of Statistical Computation & Simulation*, Associate Editor **1987–1990**

## Textbooks

1. Kutner, M., Nachtsheim, C., Neter, J., and Li, W. *Applied Linear Statistical Models*, 5th Ed., McGraw-Hill/Irwin, 2005.
2. Kutner, M., Nachtsheim, C., and Neter, J. *Applied Linear Regression Models*, 4th Ed., McGraw-Hill/Irwin, 2004.
3. Nachtsheim, C., and Kutner, M. *Business Statistics for Data-Driven Decision Making*, in progress.

## Publications

1. Starr, P. J., Finn-Carlson, D. W., and Nachtsheim, C. J. "Crop Residues as Energy Sources: Assessing the Cost and Energy Feasibility of Direct Firing," *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, Vol. 3, No. 3, 1978, pp. 353−373.
2. Cook, R. D., and Nachtsheim, C. J., "A Comparison of Algorithms for Constructing Exact D-optimal Designs," Proceedings of the 1979 Joint National Meetings of the American Statistical Association (Physical and Engineering Sciences).
3. Cook, R. D., and Nachtsheim, C. J., "A Comparison of Algorithms for Constructing Exact D-optimal Designs," *Technometrics*, Vol. 22, No. 3, (August, 1980), pp. 315−324.
4. Meier, M. M., Crane, T. W., and Nachtsheim, C. J., "Evaluation of Savannah River Plant Shuffler Calibration Standards," Los Alamos National Laboratory Publication LA-8793-MS, 1981.
5. Cook, R. D., and Nachtsheim, C. J., "Model Robust, Linear-optimal Designs," *Technometrics*, Vol. 24, No. 1 (1982), pp. 49−54.
6. Bruckner, L. A., and Nachtsheim, C. J., "Modeling the Number of Bids Received on Federal Offshore Hydrocarbon Leases with Poisson-type Models," *Journal of Petroleum Technology*, Vol. 35, No. 8 (1982), pp. 1263−1267.
7. Bruckner, L. A., and Nachtsheim, C. J., "Authors'Reply to Discussions of Modeling the Number of Bids Received for Outer Continental Shelf Leases by Poisson-type Models," *Journal of Petroleum Technology*, Vol. 35, No. 9 (1983), pp. 1559−1561.
8. Johnson, M. E., and Nachtsheim, C. J., "Some Guidelines for Constructing Exact D-optimal Designs on Convex Design Spaces,", Technometrics, Vol. 25, No. 3, (1983), pp. 271−277.
9. Bailey, A., Duke, G., Ko, C., and Nachtsheim, C. J., "Model-based Sampling in Accounting: Implications for Auditors," refereed proceedings of the sixth Illinois Auditing Symposium, 1985.
10. Nachtsheim, C. J., "Discussion of 'Assessment of Local Influence' by R. Dennis Cook," *Journal of the Royal Statistical Society*, Series B, 48, pp. 163−164.
11. Nachtsheim, C. J., "Review of Applied Regression Analysis and Experimental Design by Richard J. Brook and Gregory C. Arnold," *Technometrics*, 29, No. 2, (1987), pp. 238−239.
12. Nachtsheim, C. J., "Review of Orthogonal Fractional Factorial Designs by Aloke Dey," *Technometrics*, 29, No. 3, (1987), pp. 387−388.
13. Nachtsheim, C. J., "Tools for Computer Aided Design of Experiments," *Journal of Quality Technology*, Vol. 19, No. 3, (1987) pp. 132−160.
14. Beckman, R. J., Nachtsheim, C. J., and Cook, R. D., "Diagnostics for Mixed Model Analysis of Variance," *Technometrics*, 29, No. 4, (1987) pp. 413−426.
15. Nachtsheim, C. J., Johnson, P., and Zualkernan, I., "Consultant Expertise," *Journal of Expert Systems*, Vol 4, No. 3, (August, 1987) pp. 180−188.

16. Nachtsheim, C. J., Johnson, P., and Zualkernan, I., "Strategies in Experimental Design," Proceedings of the Statistical Computing Section, 1987 Joint Meetings of the American Statistical Association, San Francisco, California.
17. Meyer, R. K., and Nachtsheim, C. J., "Constructing Exact D-Optimal Experimental Designs by Simulated Annealing," *American Journal of Mathematical and Management Sciences*, Vol 8, No. 3-4 (1988), pp. 329−360.
18. Bailey, A., Duke, G., and Nachtsheim, C. J., "On the Robustness of Model-Based Sampling in Auditing," *Auditing*, Vol. 7, No. 2, (1988) pp. 119−136.
19. Nachtsheim, C. J., "On the Design of Experiments in the Presence of Fixed Covariates," *Journal of Statistical Planning and Inference*, 22 (1989) pp. 203−212.
20. Johnson, M. E., and Nachtsheim, C. J., "A New Family of Multivariate Distributions, with Applications to Monte Carlo Studies," *Journal of the American Statistical Association*, Vol. 83, No. 404 (December, 1988), pp. 984−989.
21. Cook, R. D., and Nachtsheim, C. J., "Computer-Aided Blocking of Factorial and Response Surface Designs," *Technometrics*, Vol 31. No. 3, (August, 1989), pp. 339−346.
22. Hill. A. V., March, S. T., Nachtsheim, C, J., and Shanker, M. S. "An Approximate M/G/s Model for Estimating Expected Travel Time and Response Time for Field Service Repair Systems," *IIE Transactions*, 24, No.1 (December, 1991), pp. 2−10.
23. Nachtsheim, C. J., Johnson, P. E., Zualkernan, I. A., Kotnour, K. D., and Meyer, R. K., "Expert Systems for the Design of Experiments," In *Design and Analysis of Experiments with Applications to Engineering and Physical Science*, Marcel Dekker, Inc., New York, (1990), pp. 109−129.
24. Fox, G. E., and Nachtsheim, C. J., "An Analysis of Six Greedy Selection Rules for Zero-one Integer Programming," *Naval Research Logistics*, Vol. 37, (1990), pp. 209−307.
25. Easterling, R., Bement, T., Johnson, M.E., and Nachtsheim, C. J., "Statistical Tolerancing Based on Consumer's Risk Considerations," *Journal of Quality Technology*, Vol 23, No. 1 (January, 1991) pp. 1−11.
26. Nachtsheim, C. J., "Review of Theory of Optimal Designs by Kirti R. Shah and Bikas K. Sinha," *Journal of the American Statistical Association*, 86, (June, 1991) p. 553.
27. Kim, Y. and Nachtsheim, C. J., "Transformation-Robust Design with Application to Some Problems in Chemistry," *Journal of Chemometrics and Intelligent Laboratory Systems*, 10 (1991) pp. 261−270.
28. Wickham, M., Nachtsheim, C. J., and Riley, D. R., "The Optimal Design of a Multi-Axis Load Transducer", *Computers in Engineering*, Vol. 1, (1990) pp. 175-180.
29. Cook, R. D., and Nachtsheim, C. J. "Re-weighting to Achieve Elliptically Contoured Covariates in Reg ression", *Journal of the American Statistical Association*, Vol. 89, No. 426 (Jun., 1994), pp. 592−599.
30. Fedorov, V. V. and Nachtsheim, C. J. "Optimal Design for Time-Dependent Responses." in *MODA4 - Advances in Model-Oriented Data Analysis.* Eds. Kitsos, C. and Mller, W.. Springer, New York, 1995.
31. Wickham, M., Riley, R. D.,and Nachtsheim, C. J., "Integrating Optimal Experimental Design into the Design of a Multi-axis Load Transducer," *Journal of Engineering for Industry* Vol. 117, No. 3, (1995) pp. 400−405.
32. Meyer, R. K., and Nachtsheim, C. J., "The Coordinate Exchange Algorithm for Constructing Exact Optimal Experimental Designs," *Technometrics*, Vol. 37, No. 1 (Feb., 1995), pp. 60-69.
33. Fedorov, V. V., Montepiedra, G., and Nachtsheim, C. J., "Optimal Design and the Model Validity Range," *Journal of Statistical Planning and Inference*, 72, (1998)pp. 215−227.
34. Fedorov, V. V., Montepiedra, G., and Nachtsheim, C. J., "Design of experiments for locally weighted regression," *Journal of Statistical Planning and Inference*, 81, (1999), pp. 363−382.

35. Li, W., and Nachtsheim, C. J., "Model Robust Factorial Designs," *Technometrics*, 42, (2000), pp. 345−352.
36. Nachtsheim, C. J., and Jones, B. "Constructing and Evaluating Response Surface Designs for Prediction," *SPES Q&P Newsletter*, December 2001, 6 pages.
37. Nachtsheim, C. J., and Jones, B., "DOE in Six Sigma: Getting to the Root Cause," *Quality in Manufacturing*, March/April, 2002.
38. Nachtsheim, C. J., and Jones, B. "Design of Experiments: A Powerful Analytical Tool," *Six Sigma Forum Magazine*, Vol., 2, No. 4, August 2003, pp. 30−33.
39. Li, L., and Nachtsheim, C. J., "Discussion of A Goodness of Fit Test for Single-Index Models by Li, Tong, and Zhang," *Statistica Sinica*, 14, 2004, pp. 28−34.
40. Li, L., Cook, R. D., and Nachtsheim, C. J., Cluster-based Estimation for Sufficient Dimension Reduction, *Journal of Computational Statistics and Data Analysis*, 47, (2004), pp. 175−193.
41. Li, L., Cook, R. D., and Nachtsheim, C. J., "Model Free Variable Selection," *Journal of the Royal Statistics Society*, Series B (Statistical Methodology), Volume 67, Number 2, April 2005, pp. 285−299.
42. Jones, B., Li, W., Nachtsheim, C. J., and Ye, K. "Model Discrimination—Another Perspective of Model Robustness," *Journal of Statistical Planning and Inference,* Vol. 137 (May, 2007), pp. 1576−1583.
43. Li, L. and Nachtsheim, C. J., "Sparse Sliced Inverse Regression," *Technometrics*, Vol. 48, No. 4, (November, 2006), pp. 503−510.
44. Jones, B., Lin, D., and Nachtsheim, C. J., "Bayesian D-Optimal Supersaturated Designs," *Journal of Statistical Planning and Inference*, Volume 138, Issue 1, 1 January 2008, pp. 86-92.
45. Li, L. and Nachtsheim, C. J.. "Comment: Fisher Lecture: Dimension Reduction in Regression," *Statistical Science*, Volume 22, Number 1 (2007), pp. 36−39.
46. Jones, B., Li, W., Nachtsheim, C., and Ye, K., "Model-robust Supersaturated and Partially Supersaturated Designs," *Journal of Statistical Planning and Inference*, 139, (January, 2009), pp. 45−53.
47. Jones, B., and Nachtsheim, C. J. "Split-plot designs: What, Why, and How." *Journal of Quality Technology*, Vol. 41, No. 4, (October, 2009), pp. 340−361.
48. Agboto, V., Li, W. and Nachtsheim, C. J. "Screening Designs for Model Discrimination." *Journal of Statistical Planning and Inference*, Vol. 140, No. 3, (March, 2010), pp. 766−780.
49. Stillerman, A., Nachtsheim, C. J., Li, W., Albrecht, M., Waldman, J. "Efficacy of a Novel Air Filtration Pillow for Avoidance of Perennial Allergens in Symptomatic Adults," *Annals of Allergy, Asthma & Immunology*, May, 2010, 104 (5), pp 440−449.
50. Nachtsheim, C. J., and Becker, K. E., "When is $R^2$ Appropriate for Comparing Customer and Supplier Measurement Systems?" *Quality and Reliability Engineering International*, Volume 27, Issue 8, (April, 2011) pp. 1025–1031.
51. Jones, B., and Nachtsheim, C. J. "Efficient Designs with Minimal Aliasing." *Technometrics*, Vol. 53, No. 1, (February 2011), pp. 62−71.
52. Jones, B. and Nachtsheim, C. J. "A Class of Three-Level Designs for Definitive Screening in the Presence of Second-Order Effects." *Journal of Quality Technology*, Vol 43, No. 1, (2011) pp. 2−15.
53. Agboto, V., Li, W., and Nachtsheim, C. J., "A Comparison of Three Approaches for Constructing Robust Experimental Designs," *Journal of Statistical Theory and Practice*, Vol. 5, No. 1, (March 2011), pp.1–11.
54. McGovern, P., Albrecht, M., Belani, K., Nachtsheim, C., Partington, F., Carluke, I., and Reed, M., "Forced-air warming and ultra-clean ventilation do not mix." *Journal of Bone and Joint Surgery*, (November, 2011) Vol. 93-B, No. 11, pp. 1537–1544.

55. Albrecht, M., Nachtsheim, C. J., Albrecht, T., and Cook, R. D., "Experimental Design for Engineering Dimensional Analysis." Tentatively accepted, *Technometrics*
56. Li, W., Nachtsheim, C., Wang, K., Reul, R., and Albrecht, M., "Conjoint Analysis and Discrete Choice Experiments for Quality Improvement." Submitted to *Journal of Quality Technology*
57. Albrecht, M., Li, W., Nachtsheim, C., and Reul, R., "Optimal Design of Discrete Choice Experiments in the Presence of Respondent Fatigue." Submitted to *Technometrics*
58. Belani, K., Albrecht, M., McGovern, P., Reed, M., and Nachtsheim, C. "Patient Warming Excess Heat: Effects on OR Ventilation Performance During Total Knee Replacement." Conditionally accepted, *Anesthesia & Analgesia*.

### Research Articles in Progress

59. Cook, R. D., Li, L., Li, W., and Nachtsheim, C. J., "Design and Analysis of Supersaturated Designs." Target journal: *Technometrics*.
60. Gauthier, R., Reed, M., McGovern, P.,Albrecht, M., and Nachtsheim, C. "Forced Air Warming versus Conductive Fabric Warming—An Evaluation of Laminar Operating Room Ventilation Disruption." Target journal: *Am J Infect Control*. Manuscript is complete and being readied for submission.
61. Hu, Xue, Kim, Youngil, and Nachtsheim, C. J., "Cluster-based diagnostics for predictive modeling." Target journal: *Journal of Computational Statistics and Data Analysis*.
62. Gotwalt, C., Jones. B., Kim, Y., and Nachtsheim, C. J., "Optimal Design of Experiments for Pure Error Analysis." Target journal: *Technometrics*.
63. Jones, B., and Nachtsheim, C. J., "Cyclic Coordinate Descent in Statistical Design and Analysis." Target journal: *Annals of Applied Statistics*.
64. Jones, B. and Nachtsheim, C. J., "Maximizing the Yield in a Smokestack Scrubbing Process: An Application of Definitive Screening." Target journal: *Journal of Quality Technology*.
65. Jones, B., and Nachtsheim, C. J., "Design of Experiments: Is the Future Optimal?" This paper was invited by the editor of the *Journal of Quality Technology*

### Conference Presentations and Invited Talks

1. "A Comparison of Algorithms for the Construction of Exact D-Optimal Designs," at the 1979 Joint National Meetings of the American Statistical Association.
2. "Modeling Hydrocarbon Reservoirs: Parameterization, Validation and Prediction," Department of Statistics, Princeton University, February, 1980 (invited).
3. "Combining Evidence with Dependent Tests," New Mexico Chapter of the American Statistical Association, April, 1980.
4. "Modeling Hydrocarbon Reservoirs: Parameterization, Validation and Prediction," 1980 ORSA-TIMS Conference, Colorado Springs.
5. "Model Robust, Linear Optimal Designs," 1981 Joint National Meetings of the American Statistical Association.
6. "An Analysis of the k-exchange Algorithm" 1982 Joint National Meetings of the American Statistical Association (invited).
7. "The Use of Optimal Experimental Designs in Practice," Twin Cities Chapter of the American Statistical Association, March, 1982 (invited).
8. "Automated Design of Experiments: The State of the Art," 1985 Fall Technical Conference of the American Statistical Association and the American Society for Quality Control (invited).

9. "Automated Design of Experiments: The State of the Art," 1985 Fall Technical Conference of the American Statistical Association and the American Society for Quality Control (invited).
10. "Tools for Computer Aided Design of Experiments: Review and Comment," Department of Applied Statistics, E. I. DuPont de Nemours & Co. Wilmington, 3/20/86, (invited - expenses reimbursed)
11. "Computer Aided Design of Experiments," 1986 Annual Meeting of the Delaware ASQC, 3/21/86, (invited).
12. "On Diagnostics for Mixed Model Analysis of Variance," 1986 Joint National Meetings of the American Statistical Association, Chicago, Illinois (invited).
13. "Tools for Computer-Aided Design of Experiments," 1987 Joint Meetings of the American Statistical Association, San Francisco, California (invited).
14. "Optimal Design in the Presence of Irregularly Constrained Design Spaces," (given by R. Meyer), 1987 Joint Meetings of the American Statistical Association, San Francisco, California (invited).
15. "Recent Results in Optimal Design" 120 minute presentation to the NSF-sponsored Workshop on Design for Computational Experiments, Santa Fe, New Mexico, September 21-22, 1987 (invited, expenses reimbursed).
16. "D-optimal Blocking of Response Surface Designs," Department of Statistics, Iowa State University, 2/22/88 (invited).
17. "On the Development of an Expert System for the Design of Experiments," School of Statistics, University of Minnesota, 5/5/88 (invited).
18. "Expert and Nonexpert Systems for the Design of Experiments," Chicago Chapter of the American Statistical Association, Chicago, Illinois, 6/14/88 (invited, expenses reimbursed).
19. "Computational Models of Strategies for the Design of Experiments," Design, Quality and Reliability Research Conference, AT&T Bell Laboratories, Murray Hill, New Jersey, October 6, 1988.
20. "Expert Systems for Experimental Design," Statistical Consulting and Artificial Intelligence Groups, 3M Corporation, St. Paul, Minnesota, October 31, 1988.
21. "Expert Systems for Experimental Design," Twin Cities Chapter of the American Statistical Association, Minneapolis, Minnesota, November 18, 1988.
22. "Experimental Design and the Taguchi Methods: New Developments in Product and Process Design," Mars, Inc. Technical Directors, 12/12/88 and 2/28/89 (keynote).
23. "Achieving Higher Levels of Quality and Industrial Productivity with Experimental Design," Conferences sponsored by BBN Software Products Corporation in Dallas, January 11, 1989 and Houston, January 12, 1989 (keynote).
24. "Computer-Aided Construction of Mixture Designs for Constrained Regions of Higher Dimensions," (with R. Meyer), 21st Symposium on the Interface: Computing Science and Statistics, April 10, 1989, Orlando, Florida.
25. "Computer-Aided Blocking of Factorial and Response Surface Designs," Gordon Research Conference on Statistics and Chemistry, July 31-August 4, 1989, New Hampton, New Hampshire.
26. "Error-Robust Design of Experiments, with Application to Problems in Chemistry and Chemical Engineering," Chemometrics Conference, Texas A&M University, College Station, November 10, 1989.
27. "Tools for Computer-Aided Design and Analysis of Taguchi Experiments," (with W. Morris) Winter Meetings of the American Statistical Association, January 1990, Orlando, Florida.
28. "Computer Based Tools for Robust Product Design," 1990 Delaware Chapter Meeting of the American Statistical Association, April 30, 1990, Newark, Delaware.

29. "Statistical Techniques for Traffic Volume Estimation," Transportation Research Conference, Sponsored by the U.S. Department of Transportation and the Center for Transportation Research, May 7, 1990, St. Paul, Minnesota.
30. "Design of Experiments: Power Tools for Continuous Improvement," Exxon Corporation Quality Conference, March 7, 1990, Houston, Texas (keynote).
31. "New Developments in Computer-Aided Design of Experiments," Technical Track, Exxon Corporation Quality Conference, March 7, 1990, Houston, Texas.
32. "Design of Experiments for Product and Process Development," Exxon Engineering Research Conference, Florham Park, New Jersey, August 21, 1990 (keynote).
33. "The Bounded Fedorov Exchange Algorithm," Workshop on the Design of Experiments for Quality and Productivity Improvement, University of Waterloo, Waterloo, Ontario, July 16, 1990.
34. "Design of Experiments for Product and Process Development," Exxon Engineering Research Conference, Florham Park, New Jersey, August 21, 1990 (keynote).
35. "Design of Experiments for Product and Process Development," Exxon Engineering Research Conference, Florham Park, New Jersey, August 21, 1990 (keynote).
36. Session Discussant: "University Programs in Chemometrics," Joint National Meetings of the American Statistical Association, Anaheim, California, August 8, 1990.
37. "The Coordinate Exchange Algorithm," (with R. Meyer) Joint National Meetings of the American Statistical Association, Anaheim, California, August 8, 1990.
38. "Statistical Techniques for Traffic Volume Estimation," Transportation Research Conference, Sponsored by the U.S. Department of Transportation and the Center for Transportation Research, November 29, 1990, Provo, Utah.
39. "Integrated Methods for Total Quality Improvement," Conferences sponsored by BBN Software Products Corporation in Toronto, Canada, December 5, 1990 and Raleigh-Durham, North Carolina, December 6, 1990 (keynote).
40. "Optimizing Cement Waste Immobilization: A Case Study in Experimental Planning," (with L. M. Moore). 1991 IMS Meetings, Philadelphia, PA, June 1991
41. "Computer Software for the Design of Experiments," 1992 Fall Technical Conference of the ASA and ASQC, Philadelphia, PA, October, 1992
42. "What Do You Do When Standard Designs Don't Fit? An Introduction to Computer-Aided Design of Experiments," Short Course sponsored by the Cleveland Chapter of the American Statistical Association, May 10, 1993, Cleveland, Ohio.
43. "Teaching Design of Experiments Using Statistical Software," a pre-conference short course. C. J. Nachtsheim and M. E. Johnson, Quality and Productivity Research Conference, May, 2004.
44. "Custom DOE Using JMP," a pre-conference short course. C. J. Nachtsheim and B. Jones, Quality and Productivity Research Conference, June, 2005.
45. "The Synergistic Roles of Optimal and Classical Designs for Quality Improvement," Quality and Productivity Research Conference, June, 2006.
46. "Custom Design of Experiments Using JMP software: No Pain, Just Gain." Keynote presentation, SAS Institute sponsored workshop, Minneapolis, MN, June 2006.
47. "Custom Designing with JMP: A New Paradigm for DOE," (Invited.) JMP Innovators Summit, Traverse City Michigan. Keynote on the use of optimal design for industrial product and process improvement. October, 2007
48. "Custom Designing with JMP: A New Paradigm for DOE," Keynote for one-day conference on the use of optimal design for product and process development, sponsored by SAS Institute. June, 2007.

49. "The Role of Classical and Optimal Designs for Quality Improvement," (invited). University of Antwerp, Antwerp, Belgium. January, 2008.
50. "Split-Plot Designs: What? Why? How?" 2008 Joint Statistics Meetings of the American Statistical Association. August, 2008.
51. "Screening Designs for Model Discrimination," (invited), University of Central Florida, Department of Statistics. February, 2008.
52. "Is there a new paradigm for industrial experimental design?" (Invited) Joint National Meetings of the American Statistical Association, August 2009.
53. "Split-Plot Designs: What? Why? How?" (Invited) Co-presented with Bradley Jones, SAS Institute. Fall Technical Conference of the ASA/ASQ, Indianapolis, IN. This was one of two papers published in 2009 in the Journal of Quality Technology that were chosen for presentation in the JQT session. November, 2009.
54. "Design and Analysis of Supersaturated Experiments." (Invited.) School of Statistics, University of Minnesota, November, 2009.
55. "Design and Analysis of Supersaturated Experiments." (Invited.) Fall Technical Conference of the ASA/ASQ, Indianapolis, IN, November, 2009.
56. "Minimal Aliasing Designs, with Application to Factor Screening in the Presence of Second-Order Effects," (Invited), Department of Statistics, Penn State University, November 18, 2010.
57. "Minimal Aliasing Designs, with Application to Factor Screening in the Presence of Second-Order Effects," (Invited), Department of Statistics, Fudan University, December 12, 2010.
58. "Minimal Aliasing Designs, with Application to Factor Screening in the Presence of Second-Order Effects," (Invited), ASFM 2010: International Conference on Applied Statistics and Financial Mathematics, Hong Kong Polytechnic University, December 14, 2010.
59. "Efficient Designs with Minimal Aliasing." Invited *Technometrics* session presentation, Spring Research Conference of the ASA, Northwestern University, Chicago, Il, June 22, 2011.
60. "Definitive Screening Designs," JMP Discovery Summit, Denver, CO, September 14, 2011.
61. "A Class of Three-Level Designs for Definitive Screening In the Presence of Second-Order Effects." Invited *Journal of Quality Technology* session presentation, Fall Technical Conference of the ASA and ASQ, Kansas City, MO, October 13, 2011.

## Funded Research

3M McKnight Foundation Grant, 1987, $15,000, "Methods for Constructing Optimal Experimental Designs on Convex Design Spaces".

U. S. Department of Transportation and the Center for Transportation Studies, 1989, $51,000, to develop statistical methods for estimating traffic volume estimation.

U. S. Department of Transportation and the Center for Transportation Studies, 1990, $29,000, to develop statistical methods for estimating traffic volume estimation.

Operations Management Center, Curtis L. Carlson School of Management, 1991-1992. "Design of Experiments for Durability Testing: Reducing Cycle Times in Product Development," $9,027.

### Undergraduate Courses Taught

"Introduction to Computers in Business," University of St. Thomas.

"Introduction to Engineering Statistics," University of Minnesota.

"Advanced Managerial Statistics," University of Minnesota.

### Graduate Courses Taught

"Statistics for Decision Making," University of St. Thomas, Graduate Program in Management.

"Introduction to Business Statistics: Sources, Presentation and Analysis," University of Minnesota, Carlson School of Management.

"Applied Statistical Methods I: Regression Analysis," University of Minnesota, Carlson School of Management.

"Applied Statistical Methods II: Multivariate Methods," University of Minnesota, Carlson School of Management.

"Applied Statistical Methods III: Analysis of Variance and Experimental Design," University of Minnesota, Carlson School of Management.

"Research Foundations in Applied Statistics," University of Minnesota, Carlson School of Management.

"Statistics for Decision Making," Warsaw School of Economics, Joint Warsaw School/Carlson School Executive MBA Program.

"Statistics for Decision Making," Vienna University of Economics and Business, Joint Vienna University/Carlson School Executive MBA Program.

"Statistics for Decision Making," Lingnan College of Sun-Yet Sen University, Joint Lingnan/Carlson School Executive MBA Program.

### Industrial Courses and Workshops

"Introduction to SAS," General Mills, Inc.

"Introduction to Computing and CMS," General Mills, Inc.

"Introduction to Statistics for Product Developers." General Mills, Inc.

"Design of Experiments," General Mills, Inc.

"Statistical Experimental Design: Two-level Factorial and Response Surface Experiments," Los Alamos National Laboratory.

"2-level Factorial Experiments in Food Product Development (16 hours)," M&M Mars, Inc.

"Response Surface and Taguchi Experiments in Food Product Development (16 hours)," M&M Mars, Inc.

"2-level Factorial Experiments in Food Product Development (16 hours)," Uncle Ben's, Inc.

"Response Surface and Taguchi Experiments in Food Product Development (16 hours)," Uncle Ben's, Inc.

"Design and Analysis of Experiments (32 hours)," Guidant Corporation.

"Design and Analysis of Experiments (32 hours)," Boston Scientific, Inc.

"Logistic Regression Modeling" (with Dr. Michael Kutner). This was the featured two-day short course at the Joint Statistical Meeting in Indianapolis in 2000.

## Doctoral Thesis Supervision

Chen-en Ko, Accounting, (co-supervision, with A. Bailey, G. Duke), 1986. Placement: University of California, Riverside.

Young-Il Kim, Management Sciences, 1987. Placement: ChungAng University

Ruth Meyer, Management Sciences 1989. Placement: St. Cloud State University

Richard Cheng, Operations and Management Science, 1991. Placement: Ohio State University

Lexin Li, School of Statistics, 2003. Placement: North Carolina State University

Vincent Agboto, School of Statistics, 2007. Placement: Battelle Memorial Institute

## Professional Memberships

American Statistical Association

American Society for Quality

The Institute for Mathematical Statistics

## Professional Activities

Served as Conference Program Chair and General Chair for the 2006 Quality and Productivity Research Conference, held at the Carlson School of Management, University of Minnesota

Served as referee/reviewer for: *Technometrics*, *Journal of the American Statistical Association*, *Journal of Statistical Computation and Simulation*, *Management Science*, *Auditing*, *The American Statistician*, *The Annals of Statistics*, *Journal of Marketing Research*, *Journal of Statistical Planning and Inference*, *Communications in Statistics*, *Quality and Reliability International*, and others.

Organized invited session, Diagnostics and Estimation in Mixed Model Analysis of Variance, 1986 Joint National Meetings of the American Statistical Association.

Organized invited sessions: Computer-Aided Design of Experiments, and Design of Experiments, 1987 Joint Meetings of the American Statistical Association.

Session Chair: Experimental Design Issues in Computer Simulation, 1989 Joint Meetings of the American Statistical Association, Section on Physical and Engineering Science and the Section on Quality and

Productivity, Washington, D.C., August 7, 1989.

Conference Program Chair: 1993 Fall Technical Conference of the American Statistical Association and the American Society for Quality Control: Developing Continuous Improvement Through Statistics, October, 1993, Rochester, New York.

## Selected Recent Consulting Activities

Served as expert statistical witness in highway workers cancer/workers compensation suit against the State of Minnesota.

SAS Institute, design of statistical software and training programs

Delta Dental, Analysis of dentist scoring model, and related expert witnessing

Guidant Corporation—Training and consulting in the design of experiments

TENA Companies—Product development consultant

Cummins, Inc.—Data mining for product pricing

Anoka County—Expert witness in gender discrimination suit

Australian Health Management Group—Evaluation of dentist performance scoring model

Kech, Mahin & Cate—Expert witness in software copyright suit

The Proctor & Gamble Company—Workshops in statistical model selection and model validation