

Jye-Chyi Lu

Professor

School of Industrial and Systems Engineering

Georgia Institute of Technology, Atlanta, GA 30332-0205

I. EARNED DEGREES

Ph.D.	1988	University of Wisconsin	Statistics
B.S.	1979	National Chiao-Tung University, Taiwan	Applied Mathematics

II. EMPLOYMENT

09/08-09/09 Deputy Director, Joint MS Degree Program between ISyE and Shanghai Jiao-Tong University (SJTU).

10/07-05/09 Research Director, School of Industrial and Systems Engineering, Georgia Institute of Technology.

8/99-Present, Professor, School of Industrial and Systems Engineering, Georgia Institute of Technology.

7/99-8/99 Professor, Department of Statistics, North Carolina State University (NCSU).

7/94-6/99 Associate Professor, Department of Statistics, NCSU.

8/88-6/94 Assistant Professor, Department of Statistics, NCSU.

8/92-8/99 Faculty member of Operations Research, NCSU.

8/92-8/99 Faculty member of Integrated Manufacturing System Engineering Institute (IMSEI), NCSU.

8/83-7/88 Instructor, Teaching Assistant, Research Assistant, Department of Statistics, University of Wisconsin, Madison.

III. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

Postdoctoral Fellows:

1. Jinho Park (Aug. 1996-July 1997),(Assistant Professor, Statistics at a Korean University).
2. Ming Yin (Aug. 1997-May 1998), (ManTech Consulting company at RTP, NC).
3. Y. Park (Jan. 1998-April 1998), (SAS at RTP, NC).
4. Chin-Shang Li (Aug. 1998-June 1999), (research fellow in the Medical School of the Univ. of Michigan).
5. Di Chen (Aug. 2000-May 2000), (UCB Pharma, Inc.).

Major Thesis Advisor for 24 Students.

Ph.D. Students:

Graduated Students:

1. Ellen, O. McSorley: NCSU student graduated 1993. Thesis title “Comparing Experimental Design Plans for Step-Stress Accelerated Life Tests.” She is at Glaxo-Wellcome in RTP, NC.
2. Peter, G. Mesenbrink: NCSU student graduated 1995. Thesis title “Modeling Multivariate Zero-Inflated Count Data from Electronic Manufacturing Processes.” He is at Ciba-Geigy in New Jersey.
3. Cemal Unal: NCSU student graduated in 1995. Thesis title “Analysis of Highly Fractionated Experiments with Censored Lifetime Data.” He is at PPD in RTP, NC.
4. Cheng Su: NCSU student graduated in 1996. Thesis title “Random Coefficient Models with Random Sample Size.” He is at Roche Inc. in California.
5. Martha Gardner: NCSU student graduated in 1997. Thesis title “Detecting Process Faults with Spatial Signatures.” She is at GE’s research/consulting center, NY.
6. Weixin Zhou: NCSU student graduated in December 1998. Thesis title “Data Compression with A Structured Wavelets Model and Random Scale Generalized Linear Models.” He is at a major bank in the Boston area.
7. Stavros Tourkodimitris: NCSU student graduated in August 1999. Thesis title “Asymptotics of Estimates Based on Maximum Likelihood and Estimating Equations Methods.” He is at Briskol Meyer Squib.
8. Cindy Green: NCSU student graduated in August 1999. Thesis title “Parametric Maximum Likelihood Method for Analyzing Gap Data.” Served as a co-advisor of her thesis research. She is at Duke Hospital.
9. Di Chen: NCSU student graduated in August 1999. Thesis title “Maximum Empirical Likelihood Estimation with Estimating Equations for Censored Survival Data.” He is at Alventive (a B2B company).
10. Nianci Gan: NCSU student, finished his degree in December 1999. Thesis title “Theory and Application of Zero-Inflated Models.” He is in the Data Mining Department of SAS in Cary, NC.
11. Joel Fenner: NCSU student, finished his degree spring 2000. Thesis title “Modeling Information Flows in Multi-Stage and Distributed Manufacturing Systems.” He is now at Intel, Oregon at an R&D job.
12. Eric Grau: NCSU student finished his degree in August 2000. Thesis title “Robust Estimation in the Spatial Time-Series Models.” He currently works at the Research Triangle Institute (RTI) at RTP, NC.
13. Liqiang Yang: NCSU student finished his Ph.D. degree in Fall, 2000. He has accepted an offer from SPSS. His thesis title is “Nonparametric Gap Data Analysis.”

14. Leah Martell: NCSU student finished her Ph.D. degree in Fall, 2000. Currently, she is an instructor in the John Hopkins University. Her thesis title is “Wavelet Model Selection and De-noising for Large Volumes of Data.”
15. M. K. Jeong: ISyE Statistics student finished his Ph.D. degree in Spring 2004. Thesis title is “Wavelet Based Methods for Mining Large Size of Manufacturing Data.” Now is an Assistant Professor in the Department of Information and Industrial Engineering at the University of Tennessee, Knoxville.
16. Chayakrit Charoensiriwath, ISyE Economic Decision Analysis student finished his Ph.D. degree in Spring 2004. He is working in a Thai government’s R&D agency.
17. Hyoungtae Kim, ISyE Statistics student finished his Ph.D. degree in Spring 2004. His thesis co-advisor is Dr. Paul Kvam. He is working for Samsung in summer 2005.
18. Uk Jung, ISyE Statistics student finished his Ph.D. degree in summer 2004. He is working for Samsung.
19. Na An, ISyE Economic Decision Analysis Ph.D. student graduated in Spring 2005. I worked with her as a senior thesis committee member on two thesis chapters. She started her job in a California company on April 1, 2005.
20. Ni Wang, ISyE Statistics Ph.D. student worked on multi-scale spatial modeling for solving large-scale logistics reliability problems; co-advisor with Professor Paul Kvam. He graduated in summer 2006 and found a job in Google.
21. Divya Mangotra, ISyE Manufacturing/Logistics Ph.D. Student worked on multi-scale logistics network design problems. She graduated in Fall 2007 and found a job in the supply-chain management group of Hewlett-Packard’s Supply-Chain Management Group at California.
22. Shu-Chuan Lin, ISyE Statistics Ph.D. student worked on robust estimation in spatial random field models and skilled tests (Fall 2003 – Fall 2009). She has two major thesis advisors, Drs. Paul Kvam and J.-C. Lu. She graduated in fall 2009 and found a job in Oklahoma state health agency.
23. Soyoun Park, ISyE Statistics Ph.D. student worked on data mining thesis research. She has graduated in Fall 2010. She is working full time at a consulting firm associated with CDC.
24. Sungil Kim, ISyE Statistics Ph.D. student worked on experimental designs under tight resource and tolerance requirements (e.g., layers-of-experiments). He is working full time in a company in the New England area.

Current Students:

25. Hinkyool Woo, ISyE Statistics Ph.D. student working on statistical modeling and experimental design issues for nanoparticle manufacturing. She passed her comprehensive exam in 2008 Spring. She plans to take the thesis defense exam in fall 2011.
26. Nagesh Adiga, ISyE Statistics Ph.D. student working on variance modeling for non-replicated computer experiment data for robust parameter design. He plans to take the thesis defense exam in fall 2011.

26. Justin Vastola, ISyE Statistics Ph.D. student working on Bayesian modeling of engineering models, expert opinions, past experimental data, and newly collected system observations for building models to guide layers-of-experiments. He plans to take the thesis proposal exam in early Spring 2012.

Ph.D. Students Won International Awards:

- Recommended Gwen Malone (a formal Ph.D. student) for successfully winning ASQC's International Ott Fellowship (industrial statistics) in 2001.
- Recommended M.K. Jeong for winning ASQ's International Freund Fellowship (industrial statistics) in 2002.
- Student M.K. Jeong was one of the four finalists in the best student paper competition of 2003 INFORMS Quality, Statistics and Reliability Section.
- Recommended Ni Wang for winning ASQ's International Freund Fellowship (industrial statistics) in 2004.
- Recommended Ni Wang for being selected as an EMIL Scholar in ISyE, Georgia Tech in summer 2004.
- Recommended Divya Mangotra for being selected as a TLI Logistics Scholar in ISyE, Georgia Tech in Spring 2005.
- Recommended S.-C. Lin for winning Merck Fellowship (industrial statistics) in 2005.
- Recommended Divya Mangotra for winning GM Fellowship in 2006-7.
- Recommended HinKyeol Woo for winning a Spring Research Conference travel award in 2011.

M.S. Student with Thesis Requirement

1. Emily Lada: NCSU student, Operations Research Program, completed M.S. degree spring 2000. Thesis title "Synthesizing Large Volumes of Information with Wavelet Transforms." She continues her Ph.D. study at NCSU (May 2000-present).
2. Jens Irion, German visiting student working with me on his Master thesis in multi-scale retail shelf-space allocation problems (Fall 2003 – present). He will submit two thesis papers for publications in March/April, 2004.
3. KwangSup Shin, visiting IE M.S. student from Seoul University at Korea working on his Master thesis with me (Fall 2004 – summer 2005).

Ph.D. Committee Member (Minor Advisor in Statistics):

1. Joe C. Davis: NCSU student, Electrical and Computer Engineering. Graduated 1996. Thesis title "Multi-Objective Optimization in Semiconductor Manufacturing Processes." He is at PDF in Texas.
2. Gulser Koksal: NCSU student, Industrial Engineering. Graduated 1997. Thesis title "Quality Improvement in Textile Dying Processes." She is an Assistant Professor at a major university in Turkey.

3. Eric Rying: NCSU student, Electrical and Computer Engineering. Expected completion spring 2001. Began 8/15/98. Thesis title “Wavelet Neural Networks in Run-to-Run Control for Semiconductor Manufacturing Processes.”
4. Alisa Kongthon. I served as the chairperson in her comprehensive exam committee focused on the information systems engineering area. She passed the exam in Fall, 2000. She defended her thesis in Spring 2004. I am one of her thesis committee members.
5. Cherie Trumbach. I am one of her thesis committee members. She defended her thesis in Fall 2004.
6. J. Chen. I am one of her thesis committee members. She defended her thesis in Fall 2004.
7. served in Ph.D. thesis committee for four ME and one AE students.

Project Advisor for Undergraduate Students:

1. M. Ellenburg and K. Sheffield, winning undergraduate research awards in two Annual NCSU Undergraduate Research Symposiums.

B. OTHER TEACHING ACTIVITIES

Studied and planned curriculum programs in “Information Engineering and E-Business”, “Data Mining” and related areas.

Submitted certificate program proposals to GE Foundation and NSF CCLI-EMD program.

Developed courses at NCSU:

ST370, Probability and Statistics for Engineers (Web-based) ST536, Off-line Quality Improvement

ST537, Life-Testing and Reliability

ST591C, Special Topic Course: Industrial Statistics Practicum

ST516/ECE592S: Applications of Statistical Methods in Semiconductor Manufacturing Processes

Guest Instructors for teaching design of experiment in many engineer courses

Developing courses at Georgia Tech:

ISyE 4803 (special topics) – Introduction to Information Systems Engineering

ISyE 8803 (special topics) – Data Mining and Data Warehousing (a formal statistics elective course proposal in ISyE has been submitted for review). In Spring 2005 this course has been approved by Georgia Tech’s graduate curriculum committee. Now, it is an official Ph.D. level course.

ISyE 6783 – Statistics in Finance: I spent considerable of time in 2008 to develop proper contents of this class meeting students’ needs in analyzing financial data. For example, the class focuses on nonparametric regression within the additive

modeling framework. State-space and Kalman-Filter's one-step-ahead prediction techniques are introduced. The class emphasizes on getting students hands-on experience with software usage and program coding.

IV. SCHOLARLY ACCOMPLISHMENTS

(underline indicates students and former students)

A. PUBLISHED BOOKS AND PARTS OF BOOKS

1. Davis, J.-C., Gyurcsik, R. S., and Lu, J. C. (1993), "Application of Semi-Empirical Model Building to The RTCVD of Polysilicon," in the first version of SEMATECH's book *on Statistics in the semiconductor industry Case Studies of Process/Equipment Characterization*, vol. 2, Chapter 4, 202-214.
2. Lu, J.-C. (2001), "Methodology of Mining Massive Data Set for Improving Manufacturing Quality/Efficiency," a chapter (pp. 255-288) for the book entitled *Data Mining for Design and Manufacturing: Methods and Applications* edited by D. Braha as a volume in a series of "Massive Computing" that is organized by James Abello (AT&T Labs Research), Panos Pardalos (Univ. of Florida) and Mauricio Resende (AT&T Labs Research, Kluwer Academic Publishers: New York).
3. Lu, J.-C. (2002), "Information Engineering (Industrial)," an invited book chapter (pp. xxx) for *2002 YEARBOOK OF SCIENCE & TECHNOLOGY*.
4. Kvam, P. H. and Lu, J.-C. (2005), "Statistical Reliability with Applications," Chapter to appear in *Springer Handbook of Engineering Statistics*, Editor: Huong Pham. Springer-Verlag London

B. REFEREED PUBLICATIONS

PUBLISHED ARTICLES

5. Lu, J.-C. (1989), "Weibull Extensions of the Freund and Marshall-Olkin Bivariate Exponential," *IEEE Transaction on Reliability*, 38, 5, 615-619.
6. Lu, J.-C. and Bhattacharyya, G. K. (1990), "Some New Constructions of Bivariate Weibull Models," *Annals of the Institute of Statistical Mathematics*, 42, 3, 543-559.
7. Lu, J.-C. (1990), "Least Squares Estimation for the Multivariate Weibull Model of Hougaard Based on Accelerated Life Test of System and Component," *Communication in Statistics*, 19(10), 3725-3739.
8. Lu, J.-C. and Bhattacharyya, G. K. (1991), "Inference Procedures for a Bivariate Exponential Model of Gumbel Based on Life Test of System and Components," *Journal of Statistical Planning and Inference*, 27, 383-396.
9. Lu, J.-C. and Bhattacharyya, G. K. (1991), "Inference Procedures for a Bivariate Exponential Model of Gumbel," *Statistics and Probability Letters*, 12, 37-50.

10. Lu, J.-C. (1992), "Effects of Dependence on Modeling System Reliability and Mean Life via a Multivariate Weibull Distribution," *Transactions of the Indian Association for Productivity, Quality & Reliability (JIPQR)*, 17, 1-22.
11. Lu, J.-C. (1992), "Bayes Parameter Estimation for the Bivariate Weibull Model of Marshall-Olkin for Censored Data," *IEEE Transactions on Reliability*, 41, 608-615.
12. Kurker, C. M., Paulos, J. J., Gyurcsik, R. S., and Lu, J.-C. (1993), "Hierarchical Yield Estimation of Large Analog Integrated Circuits." *IEEE Journal of Solid State Circuits*, 28(3), 203-215.
13. Lu, J.-C. and Unal, C. (1993), "Process Characterization and Optimization Based on Censored Data from Highly Fractionated Experiments." *IEEE Transactions on Reliability*, 43(1), 145-155.
14. Overton, M. F., Pratikto, W. A., Lu, J.-C., and Fisher, J. S. (1994), "Laboratory Investigation of Dune Strength as a Function of Sand Grain Size and Dune Density," *Coastal Engineering*, 23, 151-165.
15. Lu, J.-C. (1994), "Using Bayesian Highest Probability Density Intervals To Analyze Censored Data Collected From Screening Experiment," *Transactions of the Indian Association for Productivity, Quality & Reliability*, 19(1), 1-14.
16. Mesenbrink, P., Lu, J.-C., McKenzie, R., and Taheri, J. (1994), "Characterization and Optimization of A Wave Soldering Process," *Journal of the American Statistical Association*, 89, 1209-1217.
17. Liu, S., Lu, J.-C., and Unal C. (1996), "Analysis of Bivariate Censored Low Flows," *Journal of Hydraulic Engineering*, 122(2), 97-103.
18. Brinkley, P. A., Meyer, K., and Lu, J.-C. (1996), "Combined GLIM-Nonlinear Programming Approach to Robust Process Design, a Case Study in Circuit Board Quality Improvement," *Applied Statistics*, 45(1), 99-110.
19. Lu, J.-C., and Su, C. (1996), "Statistical Process Adjustment for Batch Production Systems with Delay," *Industrial Mathematics*, 46(1), 9-31.
20. Lu, J.-C. (1996), "Statistics-Aided Batch Compensators for Systems With Delay," *Journal of the Indian Association for Productivity, Quality & Reliability*, 21(2), 81-107.
21. Davis J. C., Gyurcsik, R. S., Lu, J.-C., and Hughes-Oliver J.M. (1996), "A Robust Metric for Measuring Within-Wafer Uniformity." *IEEE Transactions on Components, Hybrids and Manufacturing Technology - Part C: Manufacturing*, 19(4), 283-289.
22. Lu, J.-C., Park, J. and Yang, Q. (1997), "Statistical Inference of a Time-to-Failure Distribution from Linear Degradation Data," *Technometrics*, 39(4), 391-400.
23. Davis, J. C., Hughes-Oliver J. M., Gyurcsik, R. S., and Lu, J.-C. (1997), "Improved Within-Wafer Uniformity Modeling Through the Use of Maximum Likelihood Estimation of the Mean and Covariance Surfaces," *Journal of the Electrochemical Society*, 143, 3404-3409.
24. Liu, S., and Lu, J.-C., Kolpin, D. W., and Meeker, W. Q. (1997), "Analysis of Environmental Data with Censored Observations," *Environmental Science & Technology*, 31(12), 3358-3362.

25. Gardner, M. M., Lu, J.-C., Gyurcsik, R. S., Wortman, J. J., and Horning, B. E., Heinisch, H. H., Rying, E. A., Rao, S., Davis, J. C., and Mozumder, P. K. (1997), "Equipment Fault Detection Using Spatial Signatures," *IEEE Transactions on Components, Hybrids and Manufacturing Technology, Part C: Manufacturing*, 20(4), 295-304.
26. Lu, J.-C. (1997), "A New Plan for Life-Testing Two-Component Parallel Systems," *Statistics and Probability Letters*, 34(1), 19-32.
27. Hughes-Oliver, J. M., Lu, J.-C., Davis, J. C., and Gyurcsik, R. S. (1998), "Achieving Uniformity in a Semiconductor Fabrication Process Using Spatial Modeling," *Journal of the American Statistical Association*, 93, 36-45.
28. Chen, D., and Lu, J.-C. (1998), "The Asymptotics of Maximum Likelihood Estimates of Parameters Based on a Data Type Where Failure and Censoring Times are Dependent," *Statistics and Probability Letters*, 36, 379-391.
29. Lu, J.-C., Holton, W. C., Fenner, J. S., Williams, S. C., Kim, K. W., Hartford, A. H., Chen, D., Roze, K., and Littlejohn, M. A. (1998), "A New Device Design Methodology," *IEEE Transactions on Electron Devices - Special Issue on Process Integration and Manufacturability*, 45(3), 634-642.
30. Koksal, G., Smith, W. A., Fathi, Y., Lu, J.-C., and McGregor, R. (1998), "A Case Study in Off-Line Quality Control: Characterization and Optimization of Batch Dyeing Process Design," *International Journal of Technology Management, Special Issue on Total Quality Management: Theory and Practice*, Vol. 16, 4/5/6, 358-382.
31. Lu, J.-C. and Unal C. (1998), "Bayesian Analyses of Censored Data from Industrial Experiments, Part II - Process Characterization and Optimization," *Transactions of Indian Association of Productivity, Quality and Reliability*, 23(1), 1-23.
32. Chen, D., Lu, J.-C., Hughes-Oliver, J. M., and Li, C. S. (1998), "The Asymptotics of Maximum Likelihood Estimation for the Bivariate Exponential of Marshall and Olkin Based on Mixed Bivariate Censored Data," *Metrika*, 48(2), 109-125.
33. Hughes-Oliver, J. M., Gonzalez-Farias, G., Lu, J.-C., and Chen, D. (1998), "Parametric Nonstationary Correlation Models," *Statistics and Probability Letters*, 40(3), 267-278.
34. Li, C. S., Lu, J.-C., Park, J., Kim, K. M., Brinkley, P. A., and Peterson, J. (1999), "A Multivariate Zero-Inflated Poisson Distribution and Its Inferences," *Technometrics*, 41(1), 29-38.
35. Lu, J.-C., Liu, S., Yin, M., and Hughes-Oliver, J. M. (1999), "Lowflow Regression Modeling with Bivariate Censored Data," *Environmetrics*, 10, 125-136.
36. Su, C., Lu, J.-C., Chen, D., and Hughes-Oliver, J. M. (1999), "A Linear Random Coefficient Degradation Model with Random Sample Size," *Lifetime Data Analysis*, 5, 173-183.
37. Chen, D., Li, C. S., Lu, J.-C., and Park, J. (2000), "Properties of Parameter Estimation Based on a Nonstandard Data Type from a Nonstandard Distribution," *Australian and New Zealand Journal of Statistics*, 42(3), 323-336.

38. Chen, D., Lu, J.-C., X. Huo, and Ming, Y. (2001), "Robust Estimation with Estimating Equations for Nonlinear Random Coefficients Model," *Journal of Statistical Planning and Inference*, 37, 275-292.
39. Lada, E. K., Lu, J.-C., and Wilson, J. R. (2002), "A Wavelet Based Procedure for Process Fault Detection," *IEEE Trans. on Semiconductor Manufacturing*, 15(1), 79-90.
40. Lu, J.-C., Chen, D., and Gan, N. (2002), "Semiparametric Modeling and Estimation with Empirical Likelihood and Estimating Equation," *Australian and New Zealand Journal of Statistics (Theory and Methods)*, 44(2), 193-212.
41. McSorley, E., Lu, J.-C., and Li, C. S. (2002), "Performance of Parameter Estimates in Step-Stress Accelerated Life Tests with Different Sample Sizes," *IEEE Transactions on Reliability*, 51(3), 271-277.
42. Porter, A. L., Kongthon, A., and Lu, J.-C. (2002), "Research Profiling – Improving the Literature Review: Illustrated for the Case of Data Mining of Large Datasets," *Scientometrics*, 53(3), 351-370.
43. Lu, J.-C., and Peng, L. (2003) (author names are in an alphabetical order), "Empirical Likelihood Based Confidence Interval for the Tail Index," *Extremes*, 5(4), 337-352.
44. Rying, E. A., Bilbro, G. L., and Lu, J.-C. (2003), "Focused Local Learning with Wavelet Neural Networks," *IEEE Trans. on Neural Network*, 13(2), 304-319.
45. Jeong, M. K., Lu, J.-C., and Chen, D. (2003), "Thresholded Scalogram and Its Application in Process Fault Detection," *Applied Stochastic Models in Business and Industry*, 19(3), 231-244.
46. Huo, X., and Lu, J.-C. (2003), "A Network Flow Approach in Finding Maximum Likelihood Estimate of High Concentration Regions." *Computational Statistics and Data Analysis*.
47. Fenner, J. S., Jeong, M. K., and Lu, J.-C. (2005) (author names are in an alphabetical order), "Optimal Automatic Control of Multi-Stage Production Processes," *IEEE Trans. on Semiconductor Manufacturing*, 18(1), 94-103.
48. Rying, E. A., Bilbro, G. L., Ozturk, M. C., and Lu, J.-C. (2005), "Wavelet-based Selectivity and Thickness Monitoring During Selective Silicon Epitaxy Using Quadrupole Mass Spectrometry," *IEEE Trans. on Semiconductor Manufacturing*, 18(1), 112-121.
49. Chen, D., Lu, J.-C. and Lin, S. C. (2005), "Asymptotic Distributions of the Semiparametric Maximum Likelihood Estimates with Estimating Equations for Group Censored Data," *Australian and New Zealand Journal of Statistics (Theory and Methods)*, 47(2), 173-192.
50. Lu, J.-C., Chen, D., and Zhou, W. (2006), "Generalized Linear Models with Random Scales and Integrated Extended Quasi-Likelihood Estimates," *Journal of Statistical Planning and Inference*, 136(2), 401-429.
51. Ghosh, S. K., Mukhopadhyay, P., and Lu, J.-C. (2006), "Bayesian Analysis of Zero-Inflated Regression Models," *Journal of Statistical Planning and Inference*, 136(4), 1360-1375.

52. Jeong, M. K., Lu, J.-C., Huo, X., Vidakovic, B., and Chen, D. (2006), "Wavelet-based Data Reduction Techniques for Process Fault Detection," *Technometrics*, 48(1), 26-40.
53. Wang, N., Lu, J.-C., and Kvam, P. (2006), "A Multi-level Spatial Model for Logistics Reliability Assessment," *IEEE Trans. on Reliability*, 55(3), 525-534.
54. Ding, Y., Elsayed, E. A., Kumara, S., Lu, J.-C., Niu, F., and Shi, J. (2006) (author names are in an alphabetical order), "Distributed Sensing for Quality and Productivity Improvement," *IEEE Trans. on Automatics Science and Engineering*, 3(4), 344-359.
55. Jung, U., Jeong, M. K., and Lu, J.-C. (2006), "Manufacturing Informatics: A Vertical-Energy-Thresholding Procedure for Data Reduction with Multiple Complex Curves," *IEEE Trans. on Systems, Man, Cybernetics, Part B*, 36(5), 1128-1138.
56. Jung, Uk, Jeong, M. K., and Lu, J.-C. (2006), "Data reduction for multiple functional data with class information," *International Journal of Production Research*, (the leading article of Special Issue of Data Mining), 44, 2695-2710.
57. M. K. Jeong, J.-C. Lu, W. Zhou, and S. K. Ghosh (2007), "Data Reduction Method Using a Structured Wavelet Model," *International Journal of Production Research – Special Issue on Data Mining for Productions*, 45, 2295-2311.
58. Jeong, M. K., Lu, J.-C., and Wang, N. (2007), "Wavelet-Based SPC Procedures for Complicated Functional Data," *International Journal of Production Research*, 44(14), 729-744.
59. An, N., Lu, J.-C., Rosen, D., and Ruan, L. (2007), "Supply-Chain Oriented Robust Parameter Design," paper submitted to *International Journal of Production Research – Special Issue on Advances on Quality Engineering*, 45(23), 5465-5484.
60. Jeng, S.-L., Lu, J.-C., and Wang, K. (2007), "A Review of Reliability Research on Nanotechnology," in a special issue of *Reliability Studies in Nanotechnology* in *IEEE Trans. on Reliability*, 56(3), 401-410.
61. Wang, N. Kvam, P., and Lu, J.-C. (2007), "Detection and Estimation of A Mixture in A Power Law Process for A Repairable System," *Journal of Quality Technology*, 39(2), 140-150.
62. Lin, S.-C., Kvam, P., and Lu, J.-C. (2009), "Extending the Skill Test for Disease Diagnosis," *Statistics in Medicine*, 28(5), 798-813.
63. Fenner, J.S., Jeong, Y.-S., Jeong, M.K., and Lu, J.-C. (2009), "Bayesian Parallel Site Model with An Application to Uniformity Monitoring in the Semiconductor Manufacturing," *IIE Transactions*, 41(9), 754-763 (a special issue on "Quality Control and Improvement for Multistage Systems"). This paper is selected as one of the two feature papers in 2009 August issue of *Industrial Engineer Magazine* given to all IIE members.
64. Lu, J.-C., Jeng, S.-L., and Wang, K. (2009), "A Review of Statistical Methods for Quality Improvement and Control in Nanotechnology," *Journal of Quality Technology*, 41(2), 148-164. This paper is also invited as one of the three representative papers to be presented in INFORMS 2009 at San Diego, CA.

65. Wang, N., Lu, J.-C., Kvam, P., and Chen, D. (2010), “Adjusted Empirical Likelihood Models with Estimating Equations for Accelerated Life Tests,” *Journal of Statistical Planning and Inference*, 141(1), 140-155.
66. Jens, I., Lu, J.-C., Al-Khayyal, F. A., and Tsao, Y.-C. (2010), “A Hierarchical Decomposition Approach to Retail Shelf Space Management and Assortment Decisions,” *Journal of Operations Research Society*, 62, 1861-1870.
67. Charoensiriwath, C., Lu, J.-C., and Tsao, C.-Y. (2011), “Competition Under Retail Price and Manufacturer Service,” *Economic Modeling*, 28(3), 1256-1264.
68. Kim, H., Lu, J.-C., Kvam, P. H., and Tsao, Y.-H. (in press), “Ordering Quantity Decisions Considering Uncertainty in Supply-Chain Logistics Operations”, *International Journal of Production Economics*.
69. Tsao, Y.-C., and Lu, J.-C. (in press), “Supply Network Design Considering Transportation Cost Discounts,” *Transportation Research – Part E*.

PUBLISHED PROCEEDINGS

1. Davis, J.C., Gyurcsik, R. S., Lu, J.-C. and Perkins, R. H. (1991), “Applications of Modern Quality Improvement Techniques to Rapid Thermal Processing,” *Proceedings of the International Society for Optical Engineering (SPIE)*, Vol. 1595, pp. 39-51.
2. Rying, E. A., Gyurcsik, R. S., Lu, J.-C., Bilbro, G., Parsons, G., and Sorrell, F. Y. (1997), “Wavelet Analysis of Mass Spectrometry Signals for Transient Event Detection and Run-to-Run Process Control,” in *Proceedings of the Second International Symposium on Process Control, Diagnostics, and Modeling in Semiconductor Manufacturing*, editors: Meyyappan, M., Economou D., J., Bulter, S. W., pp. 37-44.
3. Rying, E. A., Bilbro, G. L., Ozturk, M. C., Lu, J.-C. (2000), “In Situ Selectivity and Thickness Monitoring Based on Quadrupole Mass Spectroscopy During Selective Silicon Epitaxy”, in the *Proceedings of the 197th Meeting of the Electrochemical Society, Session I1: Rapid Thermal and Other Short-Time Processing Technologies I*, Editors: F. Roozeboom, M. C. Ozturk, J.C. Gelpey, K. G., Reid, and D.-L. Kwong, 383-392.
4. Rying, E. A., Bilbro, G. L., Ozturk, M. C., Lu, J.-C. (2001), “In Situ Fault Detection and Thickness Monitoring Using Quadrupole Mass Spectroscopy”, in the *Proceedings of the 199th Meeting of the Electrochemical Society, Session S111: Fundamental Gas-Phase and Surface Chemistry of Vapor Deposition II and Process Control*.

b. Revised Manuscripts Under Review

Jens, I., Lu, J.-C., Al-Khayyal, F. A., and Tsao, Y.-C. (2010), "A Piecewise Linearization Framework for Retail Shelf Management Models," paper revised for *European Journal of Operations Research*.

c. Manuscripts Invited for Revision

Mangotra, D., Lu, J.-C., and Tsao, Y.-C. (2010), "A Continuous Approximation Approach for the Integrated Facility Location-Inventory Allocation Problem," paper invited for revision by *European Journal of Operational Research*.

Lin, S.-C., Lu, J.-C., and Kvam, P. (2010), "Robust Estimation for Spatial Markov Random Field Models," paper invited for revision by *Journal of Quality Technology*.

Ruan, L., Lu, J.-C., and Chen, D. (2010), "Robust Parameter Design for Quality Variables and Reliability Measures," paper in revision for *IEEE Transactions on Reliability*.

Jeong, M. K., Lu, J.-C., Jeong, Y., and Yuan, M. (2010), "A Wavelet-based Mean and Variance Thresholding Procedure for Multiple Sets of Complicated Functional Data," paper in revision for *Technometrics*.

d. Manuscripts Submitted in Review:

D. PRESENTATIONS

Here are a few examples of recent presentations.

1. Desai, N. N., and Lu, J. C. (1994), "Statistics-Aided Batch-Compensators on Systems with Possible Non-Instantaneous Responses," student presentation in a *National Undergraduate Research Symposium*. Paper is published in the conference proceedings.
2. Ellenburg, M. and Lu, J. C. (1997), "Quality Improvement in Printed Circuit Board Manufacturing Processes," student presentation in a Quality and Productivity Conference at Orlando, Florida.
3. Rying, E. A., Gyurcsik, R. S., Lu, J. C., Bilbro, G., Parsons, G., and Sorrell, F. Y. (1997), "Wavelet Analysis of Mass Spectrometry Signals for Transient Event Detection and Run-to-Run Process Control," presentation in a special contributed session of the Joint Meetings of the American Statistical Association.
4. Park, J., Lu, J. C., Chen D., Ghosh, S., Brinkley, P. A., and Peterson, J. (1997), "Multivariate Zero-Inflated Poisson Regression and Its Applications to Equipment Fault Detection," presentation in a special contributed session of the Joint Meetings of the American Statistical Association.
5. Gardner, M. M., Lu, J. C., Davis, J. C., Wu, C. T., Chen, D., Gyurcsik, R. S., and Wortman, J. J. (1997), "Statistical Procedures for Detecting Semiconductor Equipment Problems," presentation in a special contributed session of the Joint

Meetings of the American Statistical Association. *Several project review reports in this project were presented in Texas Instrument, Inc.*

6. Lu, J. C. (1997), "Projects Applying Continuous Quality Improvement Techniques to (Semiconductor Manufacturing) Research Process," invited presentation in the SRC sponsored "The Best Practices Workshop", Duquesne University, Pittsburgh.
7. Grau, E. A. and Lu, J. C. (1998), "Robust Estimation and Outlier Detection in the AR(1)*AR(1) Bilateral Spatial Model," presentation in a special contributed session of the Joint Meetings of the American Statistical Association.
8. Lu, J. C. and his VIGORE Group (1998), "VIGORE - Vertical Integration of Outreach, Research and Education Program," Statistics Departmental Seminar, NCSU.
9. Chen, D. and Lu, J. C. (1998), "Statistical Inference of a Time-to-Failure Distribution from Linear Degradation Data," invited presentation in the International Conference in Reliability and Survival Analysis, IL.
10. Lu, J. C. (1998), "Quality Improvement in Multi-Product Electronics Manufacturing," invited plenary presentation in Quality and Productivity Conference, CA (sponsored by University of Berkeley (Departments of Statistics and Industrial Engineering) and HP.
11. Lu, J. C. (1998), "Data Fusion and Corporate Manufacturing," invited plenary presentation in the International Nortel Dependability Conference, Ottawa, Canada.
12. Lu, J. C. (1999), "My Past, Current and Future Research Activities," interview presentation in the School of Industrial and Systems Engineering, Georgia Tech.
13. Martell, L. and Lu, J. C. (1999), "Wavelet Model Selection and De-Noising for Handling Large Volumes of Data," presentation in a contributed session of the Joint Meetings of the American Statistical Association.
14. Martell, L. and Lu, J. C. (1999), "Wavelet Model Selection and De-Noising for Handling Large Volumes of Data," Seminar presentation in the Department of Statistics, NCSU (presented by my student L. Martell).
15. Lu, J. C. (2000), "Ideas of Constructing an Intelligent Manufacturing System," invited short presentation to JDS Uniphase managers at Bloomfield, CT.
16. Rying, E. A., Bilbro, G. L., Ozturk, M. C., Lu, J. C. (2000), "In Situ Selectivity and Thickness Monitoring Based on Quadrupole Mass Spectroscopy During Selective Silicon Epitaxy," contributed paper presented in 197th Meeting of the Electrochemical Society, Session I.1: Rapid Thermal and Other Short-Time Processing Technologies 1, May 14-18, 2000 in Toronto, Canada.
17. Lu, J. C. (2001), "Logistics Data Warehousing and Mining," one-hour lecture presented in the Logistics Short Course sponsored by The Logistics Institute (TLI).
18. Lu, J. C. (2001), "Gap Data Analysis and Degradation Modeling for Supply Chain Management," invited presentation in the Spring Research Conference on Statistics in Industry and Technology held on June 18-20, Roanoke, VA.
19. Lu, J. C. (2002), "A Journey of Learning from Statistics to Manufacturing, Logistics, Engineering Design and to Information Technology," Seminar presentation at the Department of Industrial Engineering and Operations Research, University of Michigan, Ann Arbor on April 3, 2002.

20. Jeong, M. K., and Lu, J. C. (2002), "Data Mining with Wavelet-based Reduce-size Data," *C. Warren Neel Conference on Statistical Data Mining and Knowledge Discovery*, June 22-25, Knoxville, Tennessee.
21. Jeong, M. K., and Lu, J. C. (2002), "Wavelet-Based Methods for Mining Large Nonstationary Data," *2002 INFORMS Annual conference*, Nov. 17-20, San Jose, CA.
22. Lu, J. C., Jung UK, and Jeong, M. K. (2002), "Wavelet-Based Data Reduction for Detecting and Classifying Process Faults," *2002 INFORMS Annual conference*, Nov. 17-20, San Jose, CA.
23. Kim, Hyoungtae, Lu, J. C., and Kvam, Paul (2003), "Product-order Decisions Considering Uncertainty in Logistics Operations." *2003 INFORMS Annual conference*, November, Atlanta, GA.
24. Dandamudi, S., and Lu, J. C. (2003), "Continuum Approximation of Logistics Operations for Supply-Chain Contract Decisions." *2003 INFORMS Annual conference*, November, Atlanta, GA.
25. Jung, UK, and Lu, J. C. (2003), "Wavelet-based Random-effect Models for Multiple Sets of Complicated Functional Curves." *2003 INFORMS Annual conference*, November, Atlanta, GA.
26. Charoensiriwath, C., and Lu, J. C. (2003), "A Learning Model from Repeated Transactions in Supply-Chain Contract Decisions." *2003 INFORMS Annual conference*, November, Atlanta, GA.
27. Jeong, M. K., and Lu, J. C. (2003), "Wavelet-based Statistical Process Control for Complicated Functional Data," best student paper presentation at *2003 INFORMS Annual conference (QSR Section)*, November, Atlanta, GA.
28. Wang, N., Lu, J. C., and Kvam, P. (2004), Multi-scale Spatial Analysis of Logistics System Reliability, invited presentation in the *Annual Spring Research Conference on Statistics in Industry and Technology*, May 2004 at NIST, DC.
29. Wang, N., Lu, J. C., and Kvam, P. (2004), "Multi-Scale Spatial Modeling for Logistics System Evaluations," invited presentation in the *INFORMS Annual Meeting*, October 2004 at Denver, Co.
30. Jeong, M. K., and Lu, J. C. (2004), "Optimal Automatic Control Incorporating Sensor Data of Multi-Stage Manufacturing Processes," invited presentation in the *INFORMS Annual Meeting*, October 2004 at Denver, Co.
31. Na, A., Lu, J. C., Jeong, M. K., and Wang, N. (2004), "Supply-Chain Oriented Robust Parameter Design," presentation in the *INFORMS Annual Meeting*, October 2004 at Denver, Co.
32. Kim, H. T., and Lu, J. C. (2004), "Opportunities of Systems Engineering in Bioinformatics," presentation in the *INFORMS Annual Meeting*, October 2004 at Denver, Co.
33. **Two presentations** with students in 2005 (October) American Statistical Association Annual Meetings.
34. Our group has scheduled **10 presentations** in the 2005 INFORMS conference at San Francisco, CA. Topics include wavelets, statistical modeling and inference,

reliability, and statistics and quality in supply-chain management and in nanotechnology.

35. Seminar in Industrial and Systems Engineering Department at Texas A&M University, “Research Entrepreneurship – from statistics, to semiconductor manufacturing, to supply-chain logistics, to data mining in security and to nanotechnology,” January, 2006.
36. Seminar in Industrial Engineering and Management Science at Northwestern University, “Research Entrepreneurship – from statistics, to semiconductor manufacturing, to supply-chain logistics, to data mining in security and to nanotechnology,” March, 2006.
37. Served as panelists in *two panel discussions* in the QSR Cluster of the 2007 INFORMS conference. Topics include Future Perspectives of Nanotechnology and Education Perspectives in the Reliability Field.
38. Invited Presentation in the NSF Workshop for Nano-Manufacturing, February 10-12, 2008 at the National Science Foundation, DC.
39. Three invited presentations in the QSR-INFORMS conference, San Diego, California, Oct. 11-14, 2009. Details: [1] “A Systematic Methodology for Robust Optimization of Nano-Manufacturing Processes by Jye-Chyi Lu, Martha Grover, Hinkyol Woo and Justin Vastola; [2] “Uncertainty Modeling and Model Validation for a Nanoparticle Synthesis Process” by Hinkyol Woo, Jye-Chyi Lu, Martha Grover and Andres Hernandez; [3] “A Review of Statistical Methods for Quality Improvement and Control in Nanotechnology” by Lu, J.-C., Jeng, S.-L., and Wang, K. This presentation is one of the two journal invitation presentation papers for the *Journal of Quality Technology*.
40. Three invited presentations in the QSR-INFORMS conference, Austin, Texas, November, 2010. Topics are related to nano-manufacturing.

E. OTHER SCHOLARLY ACCOMPLISHMENTS

Software programs (1999): Automatic Data Validation and SPC Charting (came from project sponsored by Bayer).

Software programs (1999): 9-Up Decision Charts: Connecting Material, Manufacturing Operation and Customer Service Databases (came from project sponsored by Nortel).

Worked with CoCreate for their donation of \$900,000 software packages on Collaborative E-design to ISyE.

Patent Pending (2006): data mining for detecting potential health insurance frauds

V. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

MANUSCRIPT REVIEW:

1. Associate Editor for *IEEE Transactions on Reliability* (10/1999 – present). I have handled the review about 30 papers this year.
2. Associate Editor for *Journal of Quality Technology* (07/2005 – present). I have reviewed about four papers this year.
3. Editorial board member for *International Journal of Knowledge Engineering and Data Mining* (2009- present).
4. Editor-in-Chief for the International Journal of Quality, Statistics and Reliability (2007- 2010). I have gone through 10 papers this year for assigning associate editors to review manuscripts and approving the accepted articles.
5. Referee for *Annals of Statistics, Technometrics, IEEE Transactions on Semiconductor Manufacturing; Annals of the Institute of Statistical Mathematics; Statistics and Probability Letters; International Statistical Review; IEEE Transactions on Reliability; IEEE Transactions on Components; Hybrids and Manufacturing Technology and Lifetime Data Analysis, IIE Transactions; Computers and Industrial Engineering, Transportation Research – Part E, Journal of Manufacturing Science and Engineering, Naval Research Logistics, ASME Journal of Manufacturing Science and Engineering, International Journal of Products Research, International Journal of Information Technology & Decision Making, European Journal of Operations Research.*

PROPOSAL REVIEW:

1. CIES Fulbright Specialist Review Panelist for Statistics (1999).
2. NSF ENG-MES Spring 2002 and 2004 Proposal Review Panelist.
3. Served as a panelist (representing the statistics program) for reviewing NSF proposals in Domestic Nuclear Detection Office/National Science Foundation Academic Research Initiative (ARI) in Fall 2007.
4. Reviewed a research proposal for the Louisiana Pilot Funding for New Research (Pfund) Program in Spring 2008.
5. Served as panelist in the NSF-MES program for reviewing proposals in Fall 2009.
6. Invited for serving as an NSF CAREER proposal review panelist in fall 2010.

CONFERENCE SESSION ORGANIZER AND/OR CHAIR:

1. Organizer of a special contributed session in 1997 Joint Meetings of the American Statistical Association.
2. Organizer and Session Chair for the IMS/ENAR Spring 2001 meeting at Charlotte, NC. The title of our session is “Multiscale Methods in Biometry”.
3. Organizer and Session Chair for a Reliability Session in the 2001 SPRING RESEARCH CONFERENCE ON STATISTICS IN INDUSTRY AND TECHNOLOGY, June 18-20, 2001 Roanoke, VA, USA.

4. Organizer and Session Chair for an invited Reliability Session in the 2004 SPRING RESEARCH CONFERENCE ON STATISTICS IN INDUSTRY AND TECHNOLOGY, May 2004 at NIST, DC.
5. Organizer and Session Chair for an invited session on “Opportunities in Bioinformatics, Drug Development and Logistics” session in the 2004 INFORMS CONFERENCE, Denver Co.
6. Organizer and Session Chair for a session on “System Engineering in Nonstandard Applications” session in the 2004 INFORMS CONFERENCE, Denver Co.
7. Organizer and Session Chair for three sessions in the 2005 (October) INFORMS Conference.
8. 2007 Chair of the Quality, Statistics and Reliability Cluster for the INFORMS organization.
9. Chair/co-chair of the 2008 Spring Research Conference (a major conference in the Industrial Statistics area) hosted by the ISyE in May 19-21, 2008.

B. CAMPUS CONTRIBUTIONS

- Serving as ISyE representative in the CoE promotion committee (2006-present).
- Served in four internal review committees for promotion and tenure.
- Served in the statistics Ph.D. comprehensive exam committee.
- ISyE Undergraduate Curriculum Committee – Surveys and Class-size Data Analyses.
- Core team member in iTimes (Information Technology Integrated Manufacturing Enterprise Systems) – working with other team members to develop center’s business plans and writing research and education proposals.
- Drafted and submitted the data mining course proposal for getting it approved by ISyE and Georgia Tech curriculum review committees.
- Hosted a few statistics faculty interviewees and organized meeting schedules with about 22 faculty members.
- Serving as one of the 2005-6 internal review committee members for a statistics faculty promotion case.
- Serving as one of the 2005-7 ISyE’s representatives in college level reappointment, promotion and tenure committee.
- Committee member for the statistics comprehensive exam committee (2008-9).
- Deputy Director for the dual M.S. degree with SJTU University at Shanghai, China (2008 Fall to present).** My responsibility covers the detailed daily operations. For example, I have prepared presentation materials for information sessions, worked with SJTU coordinators to increase number of applicants to 25 students, organized SJTU study groups for TOFEL and GRE exams, placed an internship at Menlo Logistics, Inc., and helped five students to find jobs and apply graduate programs at US. Taught the ISyE 6414, Applied Statistical Modeling, and ISyE 3770, Statistical Applications in Engineering, in summer 2008.
- Serving as one of the 2008-2010 ISyE’s representatives in the Academic Senate and General Faculty Assembly.

C. OTHER CONTRIBUTIONS

1. Provided consulting services to companies such as Bayer, Nortel and Wake Medical Hospital at Raleigh, NC (1999).
2. Worked with 30 undergraduate and graduate students in several projects sponsored by Home Depot and Olin (without financial support in this moment; studies are tied with our NSF proposals). Serving as the technical advisor for a senior design project team in 2007.
3. Worked with companies such as Enraf Fluid Technology, Vericonsolutions and Cingular (via Imaging Technologies) on various projects. Supporting two ISyE graduate student research assistants in 2007.
4. Worked with about 10 M.S. and two undergraduate students in several projects with companies and our research teams through special topics studies in 2008.

VI. GRANTS AND CONTRACTS

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

FUNDED PROJECTS:

- Year 1995 and before: received several funds from various private companies, Federal and State agencies.
2. Received SRC-AEMP (with Dr. Holton) support \$7,118 for 1996 summer salary.
 3. Received NSF-AEMP (Center for Advanced Electronic Materials Processing/Dr. Wortman) \$23,000 for supporting a student research assistant from 1/1/96 To 12/31/96.
 4. Texas Instruments, \$25,000 from 3/16/96 to 3/15/96 on "Fault Detection with Spatial Uniformity Signature," co-PI.
 5. GE gift donation, \$12,000 from 1/1/96 to 5/15/96, sole PI responsible for the donation.
 6. Nortel GIT (Switching Division), \$55,000 from 1/1/96 to 6/30/96, sole PI.
 7. Nortel GIT (Wireless Division), \$10,700 from 6/1/96 to 8/15/96, sole PI.
 8. Nortel GIT (Switching Division), \$40,000 from 7/1/96 to 12/31/96, sole PI.
 9. Nortel GIT (Wireless Division), \$11,803 from 8/16/96 to 12/31/96, sole PI.
 10. Nortel gift donation \$6,400 from 7/1/96 to 8/15/96; sole PI.
 11. NSF Mathematical Sciences Division (University-Industry Cooperative Research), \$64,640 from NSF and \$52,000 matching funds from Nortel Wireless Division from 9/16/96 to 9/15/98, "Across-Stage Supervisory Process Control System," PI.
 12. GE gift donation \$6,000 from 5/16/96 to 9/30/96; Sole PI responsible for this donation.

13. Semiconductor Research Corporation Research Grant, \$16,000 from 1/1/97 to 12/31/97, PI.
14. Nortel GIT (Wireless Division), \$44,000 from 1/1/97 to 12/31/97, sole PI.
15. Nortel Graduate Industrial Traineeship (GIT) (Switching Division), \$103,200 from 1/1/97 to 12/31/97, sole PI.
16. Nortel gift fund donation (1997) \$9,480 to NCSU's industrial statistics program; sole PI responsible for this gift.
17. Received a \$3,000 grant from NCSU (1997) outreach and extension program for developing an industrial statistics outreach program for North Carolina; co-PI.
18. Received a grant with \$10,200 (one and half summer salary with benefit) from NCSU (1997) for developing on-line ST370 course; sole PI.
19. Received matching funds \$26,000 (1/1/97 to 12/31/97) from Nortel Wireless, RTP for the two-year NSF-Nortel University-Industrial Cooperative Research (postdoctoral fellow support); sole PI.
20. Semiconductor Research Corporation (SRC) (1997), "Research and Student Training in Semiconductor Manufacturing Research," (\$45,000 from 5/16/97 to 8/15/97), PI.
21. Nortel Industrial Traineeship (Engineering Division) (1997), "9-Up Decision Charts Automation," (\$65,650 From 5/16/97 to 12/31/97), sole PI.
22. NSF DMS (University-Industry Cooperative Research Program) (1997), "Process Design, Modeling, and Optimization in Electronics and Health Care Products," (\$70,800 from 6/1/97 to 5/31/98), co-PI.
23. Bayer (1998), "Automation in Data Validation and SPC Charting," (\$3,250 from 6/98 – 12/98), sole PI.
24. Nortel Industrial Traineeship (Operation Division) (1998), "Reliability Testing Automation," (\$48,000 from 1/1/98 to 6/30/98), sole PI.
25. Nortel Industrial Traineeship (Operation Division) (1998), "Automation in Factory Maintenance Department," (\$44,000 from 1/1/98 to 12/31/98), sole PI.
26. Nortel Industrial Traineeship (Engineering Division) (1998), "Quality Improvement in Process and Product Development," (\$75,000 from 1/1/98 to 12/31/98), sole PI.
27. Nortel Industrial Traineeship (Engineering Division)(1998), "Factory Automation," \$61,000 from 5/1/98 to 12/31/98, sole PI.
28. NSF DMS (University-Industry Cooperative Research Program) (1998), " Statistics in Semiconductor and Electronics Manufacturing Applications," (\$69,700 from 6/1/98 to 5/31/99), PI.
29. NSF Division of Mathematical Sciences (DMS) (VIGRE Program Competition) (1999), "A Research Community for Training the Next Generation of Problem Solvers," (\$2,746,310 for 5 years), main co-PI.

Note: When I moved to Georgia Tech in August 1999, colleagues and I have received a total of \$1,634,220 grant support from 1999 to 2005, where \$1,313,619 is to ISyE and \$320,601 is to Georgia Tech and NCSU.

30. Mathematical Sciences Division in the National Security Agency (NSA) (1999), "Robust Estimation and Outlier Detection for Spatial Lattice Models," (\$14,000 for one year), sole PI.
31. JDS Uniphase supports our research and education program on synthesizing large volumes of information from fiber optics manufacturing processes (\$41,500 in year 2000).
32. NSF DMS (University-Industry Cooperative Research Program) (1999-2000), "Statistics in Drug Discovery," \$38,000 for one year, co-PI, Glaxo-Wellcome provides \$40,000 matching fund.
33. NSF Mathematical Sciences (DMS)(University-Industry Cooperative Research Program) (1999-2000), "Modeling Data from Electronics Manufacturing Processes," \$52,765 for one year, PI; Simens provides \$35,000 matching funds (Dr. Zhou is the co-PI).
33. NSF ENG (2001), "Internet Based Curriculum Innovation in Information Engineering and E-Business," \$499,994 for three years, main co-PI (Dr. Pritchett in ISyE is the PI).
34. JDS Uniphase supports our research and education program on eDesign (\$9,800 in year 2001).
35. Center of Paper Business and Industry Studies, "Price Behavior (and Forecasting and Elasticities) in the Pulp and Paper Industry," \$237,601 (2001-2003), co-PI (Dr. H. Li in Economics Dept. served as the PI).
36. NSF DMII-ORPS Program, "Modeling Accelerated Degradation Data for Product Reliability Improvement and Warranty Analysis," \$275,450 (2001-2004), co-PI (Dr. P. Kvam served as PI).
37. Center of Paper Business and Industry Studies and Center for Trucking Transportation, "Profiling Best Practices of Trucking-Logistics in the Pulp and Paper Industry," about \$80,000 for year 2002-2003 (PI with Dr. P. McCarthy in Economics Dept. at Georgia Tech as a co-PI).
38. NSF DMII Manufacturing Enterprise Systems Program (MES), "Signal Processing, System Modeling and Process Control for Complicated Functional Data," \$235,110 from 07/01/04 to 06/30/08 (PI with Dr. P. Kvam as co-PI).
39. NSF DMS-Statistics and ENG-SEE, "SGER: Multi-scale Modeling for Homeland Security and Supply-chain Logistics Reliability," \$75,000 from 01/01/05 to 12/31/05 (PI with Drs. J. Wu and P. Kvam, C. White, E. Erera and X. Huo as co-PIs).
40. Enraf Fluid Technology provided research funds \$18,000 for studies in "An Intelligent Material Management System Handling Exponential Growth Demands with Sharp Jumps." This project was finished in 2008.
41. NSF CBET, "Robust optimization of nanoparticle synthesis in a supercritical CO₂ process for energy applications," \$400,000 from 09/01/2009 to 08/31/2012 (co-PI). Dr. M. Grover in the Chemical Engineering School at Georgia Tech is the PI.

VII. HONORS AND AWARDS

1. Received 1996 David D. Mason Outstanding Faculty Award in the Department of Statistics, NCSU.
2. Received 1996-97 NCSU PAMS College Outstanding Faculty Outreach Award.
3. Received 1997-98 North Carolina State University Outstanding Extension Service Award.
4. *IEEE Senior Member* (2003).
5. *INFORMS QSR (Quality, Statistics and Reliability)* 2006 Program-Chair.
6. *INFORMS QSR (Quality, Statistics and Reliability)* 2007 Cluster-Chair.
7. Fellow ASA, 2007 August.
8. Voted as one of the most popular professors by ISyE undergraduate students in 2004 and 2005, 2006.