

Jianjun (Jan) Shi

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I. EARNED DEGREES

- Ph.D. Mechanical Engineering, University of Michigan, 1992
M.S. Electrical Engineering, Beijing Institute of Technology, 1987
B.S. Electrical Engineering, Beijing Institute of Technology, 1984

II. EMPLOYMENT

- 2008 – present
The Carolyn J. Stewart Chair Professor, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology
Group Leader, Systems Informatics and Control, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology
 - 2007
G. Lawton and Louise G. Johnson Professor of Engineering, University of Michigan
 - 2006 – 2007
Director, Program in Manufacturing, University of Michigan
Co-Director, Master of Engineering in Global Automotive and Manufacturing Engineering, University of Michigan
 - 2003 to 2007
Professor (with Tenure), Department of Industrial and Operations Engineering, U of M
Professor, Department of Mechanical Engineering, U of M
Director, Laboratory for In-Process Quality Improvement Research, U of M
 - 2000 to 2003
Associate Professor (with Tenure) Department of Industrial and Operations Eng., U of M
Associate Professor, Department of Mechanical Engineering, the University of Michigan
Director, Laboratory for In-Process Quality Improvement Research, U of M
 - 1995 to 2000
Assistant Professor, Department of Industrial and Operations Engineering, U of M
Director, Laboratory for In-Process Quality Improvement Research, U of M
 - 1993 - 1995
Assistant Research Scientist, Department of Mechanical Engineering, U of M
 - 1989 - 1992
Graduate Student Research Assistant, Department of Mechanical Engineering, U of M
- Positions at other institutions or organizations (titles, dates).**
- 1995 –2000
Technical Director, “Agile and Precision Stamping Program - Near Zero Stamping (NZS),” Auto Body Consortium; member of Executive Committee.
The NZS program involved 24 member companies, with U of M, Wayne State University, Ohio State University, Sandia National Research Laboratory, and the Industrial Technology Institute participating in the research. As the technical director for the entire program, I was responsible for coordinating the technical activities, including initial proposal writing, setting the research

directions, conducting quarterly progress reviews and reporting to the National Institute of Science and Technology on technical matters.

- 2002 – Present *Guest Professor*, Beijing Science and Technology University
- 2004 – present *Guest Professor*, Tianjin University
- 2004 – present *Guest Professor*, Shanghai Jiaotong University
- 2006 – Present *Guest Professor*, Beijing Chemical Engineering University
- 2008 – present *Guest Professor*, The Chinese Academy of Science
- 2007 – present (*Founding*) *Director*, Center for Quality Science Research, The Chinese Academy of Science : The Center for Quality Science Research is located in the Chinese Academy of Science in Beijing, China. The center aims to be a national and international leading center in the research and development of reliability and quality science for complex systems. Leading research scholars and authorities of various universities and agencies in China and other countries have become active members in the center.

III. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

Ph.D. committees chaired or co-chaired (24 graduated with a Ph.D. degree)

- (1) Darek Ceglarek, 1994, “Knowledge-Based Diagnosis for Automotive Body Assembly: Methodology and Implementation”
Current Position: EPSRC Research Chair Professor, Director of Digital Product Lifecycle Management, University of Warwick, UK
Professor, Dept. of Industrial Engineering, University of Wisconsin-Madison, (*received the NSF CAREER Award in 2003*)
- (2) Chris Koh, 1995, “Tonnage Signature Analysis for Stamping Process Fault Detection and Isolation”
Current Position: Senior Lecturer, Dept. of Industrial and Mechanical Engineering, Nanyang University, Singapore
- (3) Davoud Khorzad, 1996, “Model Based Optimization for Auto Body Dimensional Control in Design and Assembly”
Current Position: Director of Engineering, Pharmaceutical Systems Inc. (PSI)
- (4) Boon W. Shiu, 1996, “Modeling of an Automotive Body Assembly System for Dimensional Control”
Current Position: Assistant Professor, Dept. of Mechanical Engineering, Hongkong Polytech University
- (5) Fu-gee Tsung, 1997, “Run-to-run Proportional-Integrated-Derivative Process Control and Monitoring Schemes”
Current Position: Professor and Department Head, Dept. of Industrial Engineering, Hong Kong Science and Technology University
- (6) Dan Apley, 1997, “Supervisory Adaptive Control: Monitoring, Diagnosis and Uncertainty”
Current Position: Associate Professor, Dept. of Industrial Engineering, Northwestern University (*received the NSF CAREER Award in 2001*)
- (7) Jionghua Jin, 1998, “Feature Extraction of Waveform Signals for Stamping Process Monitoring and Fault Diagnosis”
Current Position: Professor, Dept. of Industrial and Operations Engineering, University of Michigan (*received the NSF CAREER Award in 2002, PECASE Award in 2004*)
- (8) Steve Dyer, 1999, “Real-time In-process Dynamic Balancing for High Speed Rotating Machinery”

- Current Position: *Principal, ATKEARNEY Management Consultants*
- (9) Qiang Rong, 2000, “Modeling and Diagnosis of Assembly Systems with Complaint Structures for Dimensional Control”
Current Position: Senior Vice President of Global Alternative, Morningstar Company
- (10) Baocheng Sun, 2000, “Statistical Process Monitoring for Non-IID Process”
Current Position: Senior Engineer, Ford Company
- (11) Shiyu Zhou, 2000, “Real Time Dynamic Balancing under Abrupt Change Conditions”
Current Position: Professor, Department of Industrial Engineering at the University of Wisconsin – Madison (*received the NSF CAREER Award in 2005*)
- (12) Huifang Li, 2000, “Modeling, Analysis, and Performance Optimization for Material Handling of Compliant Sheet Metal Parts”
Current Position: Senior Engineer, Robert Bosch Corporation
- (13) Yu Ding, 2001, “Modeling and Analysis of Stream of Variation in Multistage Manufacturing Processes”
Current Position: Associate Professor, Dept. of Industrial Engineering, Texas A&M University (*received the NSF CAREER Award in 2004*)
- (14) Sittiporn Pimsakul, 2002, “Reconfigurable Manufacturing systems for Automotive Body Assembly”
Current Position: Associate Professor, Industrial Engineering Department, King Mongkut's Institute of Technology Ladkrabang, Thailand
- (15) Qiang Huang, 2003, “Stream of Variation Modeling and Analysis in Machining Processes”,
Current Position: Assistant Professor, Industrial Engineering Department, University of Southern California, (*received the NSF CAREER Award in 2011*)
- (16) Yong Chen, 2003, “Integrated Design and Analysis of Product Quality and Tooling Reliability”
Current Position: Associate Professor, Department of Mechanical and Industrial Engineering, University of Iowa
- (17) Jihyun Kim, 2004, “In-Process Sensor Fusion and Data Analysis for Forging Process Control and Quality Improvements”
Current Position: Assistant Professor, Industrial Engineering Department, Kwangwoon University Business School, Korea.
- (18) Hongbin Jia, 2005, “Rolling Process Control”
Current Position: Engineer, OG Technology Company
- (19) Pornpen Chaipradubkiat, 2006, “Integration of Part Quality and Tooling Information for Effective Process Control and Maintenance Planning”
Current Position: Assistant Professor, Industrial Engineering Department, Khon Kaen University, Thailand
- (20) Jing Li, 2007, “Causation-based Quality Control Methodologies with Applications”,
Current Position: Assistant Professor, Department of Industrial Engineering, Arizona State University, (*received the NSF CAREER Award in 2011*)
- (21) Eduardo Izquierdo, 2007, “Adaptive Assembly for Variation Reduction with Programmable Tooling”
Current Position: Assistant Professor, University of Warwick, UK
- (22) Jian Liu, 2008, “System-level Quality Planning and Diagnosis for Complex Multistage Manufacturing Processes”
Current Position: Assistant Professor, Department of Industrial Engineering, University of Arizona
- (23) Jing Zhong, 2009, “DOE-based APC: Variation Reduction beyond Robust Design”
Current Position: Research Staff, Microsoft Research, Microsoft Company
- (24) Ran Jin, “Modeling and Analysis for Multistage Wafer Manufacturing Processes”
Current Position: Assistant Professor, Department of Industrial and Systems Engineering,

Virginia Tech

Ph.D. students at GT

- (1) Chia-Jun Chang, “Statistics methods driven by engineering model for quality improvement” (co-chair with Roshan), (started in 2008, expected graduation in 2012)
- (2) Hao Li, “Data fusion for system performance monitoring and evaluation” (co-Chair with Nagi) (started in 2009)
- (3) Kaibo Liu, “Causation-based monitoring, diagnosis, and control for complex systems” (started in 2009)
- (4) Matt Plumlee, “Predictive process control and variability reduction in nanopower scale-up manufacturing” (started in 2010)
- (5) Hao Yan, “Nano Manufacturing Process Control” (started in 2011)

M. S. Theses Chaired

- (1) Matthias Dubiel, 1996, “Stamping Signature Analysis for Sheet Metal Stamping”, Exchange student from University of Chemnitz, Germany
- (2) Emilio Pastor Brahmst³, 1996, “Application and Improvement of a Knowledge Based Method for Variation Reduction in Automobile Body Assembly”, Exchange student from University of Technical Berlin, Germany
- (3) Axel Riched³, 1998, “Vibration Testbed Design and Analysis”, Exchange student from University of Technical Berlin, Germany
- (4) Dongdong Li, 1998, “Tapping Process Monitoring and Diagnosis”, co-chaired with Jun Ni.
- (5) Nairong Zhou, 1999, “Stream of Variation of Multistage Machining Processes”
- (6) Andrew Macedo, 2000, “Degradation Modeling and Monitoring for Die Predictive Maintenance”
- (7) Thorsten Wöhrmann³, 2000, “Panel Fitting System Design and Evaluation”, Exchange student from University of Technical Berlin, Germany
- (8) Charles C. Garnett, 2003, “The General Motors Product Development Process: A Lean “Engineering Factory” Approach”
- (9) ChulHun Park, 2003, “Finding Best-fit Transformation Matrix and its Applications”
- (10) Ryan Arens, Jason Brown, Todd Watson, and Gary Kronenberg, 2004 “Supplemental Basecoat Paint Zone Production Capability: Lansing Grand River (LGR) Assembly Plant – Paint Shop”
- (11) Eric Hunsanger, Rita Kim, Phenella Paras, 2004, “Ford Expedition & Lincoln Navigator A/C Evac and Fill Capability Study”
- (12) Job Eliud Garcia Charles, 2005, “Value Stream Mapping Application in a Manufacturing Process”

Undergraduate special projects directed

Includes project title and brief summary of the work and results. (Does not include independent study courses.)

- (1) Christina Lembong, Fall, 1997, “Tapping Process Monitoring and Diagnosis”. Christina was working with Ms. Dongdong Li (MS student) on the tapping experiments and also did initial data analysis.
- (2) Alexander V. Kotlyar, Winter, 1998, “Implementation of Knowledge Based Diagnosis for Body Assembly Processes”. Alex developed software to implement the knowledge based diagnostic methodologies in a Chrysler Assembly Plant. He performed software design, programming, and testing based on the real production layout.
- (3) Pamela Rayford, Fall, 1998, “Machine Diagnostics Project: Data Collection and Analysis. Student of Center for Advanced Technologies, Focus: Hope. (This is an effort to involve minority student in my NSF research project. She did an independent study under my supervision in my research project)

- (4) John Redmond, Fall, 2001, "Development of Web-Based software for Stream of Variation". John worked with Dr. Zhou on the development of software for the implementation of the stream of variation methodology using Visual InterDev. He participated in the feasibility study, design, and programming.
- (5) Zeamma Walker, Summer, 2001, "Consumer Relationship Management (CRM) in Mobile Telecommunication". Zeamma conducted the development of CRM system infrastructure and design of function module in Mobile Telecommunication. In her study, she focused on the research of one of CRM's key issues, fraud detection. In addition, she did data analysis for calling behavior profiling based on massive CDR (Call Detail Record).

B. OTHER TEACHING ACTIVITIES

List all other significant teaching activities such as continuing education, new courses developed, laboratory experiments and instructional materials developed, etc.

Graduate Courses

<i>Qtr/Sem. Taught</i>	<i>Course No. Course Name</i>	<i>No. Enrolled</i>	<i>No. Respond.</i>	<i>Median Score for "The Instructor is an Effective Teacher."</i>
Fall/2008	ISyE6405	16	10	4.9
Fall/2009	ISyE6405	13	10	4.9
SPR/2010	ISyE7204	7	7	4.6
Fall/2010	ISyE6405	21	12	4.8
Fall/2010	ISyE3039	112	27	3.6
Fall/2010	VIP course	12 (no evaluation, co-teaching, not counted as the teaching load in ISyE)		

Course Name:

ISyE 6405 Statistical Methods for Manufacturing Systems Design/Improvement
ISYE 7204 A - Info Prod & Ser Sys

IV. SCHOLARLY ACCOMPLISHMENTS

JIANJUN SHI'S GOOGLE SCHOLAR PROFILE:

[HTTP://SCHOLAR.GOOGLE.COM/CITATIONS?USER=WR2M2CQAAAAJ&HL=EN](http://scholar.google.com/citations?user=WR2M2CQAAAAJ&hl=en)

A. PUBLISHED BOOKS AND PARTS OF Books

Jianjun Shi, "*Stream of Variation Modeling and Analysis for Multistage Manufacturing Processes*", ISBN: 0-8493-2151-4, CRC Press, Taylor & Francis Group, 2006. 469pp.

B. REFEREED PUBLICATIONS

(Papers listed below have received 1900+ citations as of September, 2009)

- P1. Zhang, Y. and Shi, J., 1988, "Optimal Predictive Control Based on the State Equation", *Journal of Control Theory and Application (in Chinese)*, Vol.5, No.4, p55-63.
- P2. Zhang, Y. and Shi, J., 1989, "A New Flight Control Scheme and Its Control Law ", *Journal of ACTA ARMAMENTARII (in Chinese)*, No.3.
- P3. Ceglarek, D., Shi, J. and Wu, S. M., 1994 "A Knowledge-Based Diagnostic Approach for the Launch of the Auto-Body Assembly Process", *ASME Transactions, Journal of Engineering for Industry*, Vol. 116, pp 491-499.

- P4. *Ceglarek, D.* and Shi, J., 1996, "Fixture Failure Diagnosis for Auto Body Assembly Using Pattern Recognition", ASME Transactions, Journal of Engineering for Industry, Vol. 118, pp55-65.
- P5. Shi, J. and Ni, J., 1996, "Supervisory Adaptive Control for the Structural Vibration of a Coordinate-Measuring Machine", International Journal of Advanced Manufacturing Technology, Vol. 11, pp240-248.
- P6. *Koh, C.*, Shi, J. and Williams, W., 1995, "Tonnage Signature Analysis Using the Orthogonal (Harr) Transforms", NAMRI/SME Transactions, Vol. 23, pp229-234 .
- P7. *Khorzad, D.*, Shi, J., Hu, S. J., Ni, J., Zussman, E., and Seliger, G., 1995, "Optimization of Multiple Panel Fitting in Automobile Assembly", NAMRI/SME Transactions, Vol. 23, pp241-246.
- P8. *Ceglarek, D.* and Shi, J., 1995, "Dimensional Variation Reduction for Automotive Body Assembly", Journal of Manufacturing Review, Vol. 8, pp139-154.
- P9. *Shiu, B.*, *Ceglarek, D.*, and Shi, J., 1996, "Multi-stations Sheet Metal Assembly Modeling and Diagnostics", NAMRI/SME Transactions, Vol. 23, pp199-204.
- P10. *Koh, C.*, Shi, J., and Black, J., 1996, "Tonnage Signature Attribute Analysis for Stamping Process", NAMRI/SME Transactions, Vol. 23, pp193-198.
- P11. *Ceglarek, D.* and Shi, J., 1998, "Design Evaluation of Sheet Metal Joints for Dimensional Integrity", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol.120, pp452-460.
- P12. *Shiu, B.*, *Ceglarek, D.*, and Shi, J., 1997, "Flexible Beam-based Modeling of Sheet Metal Assembly for Dimensional Control", NAMRI/SME Transactions, Vol. 24, pp 49-54.
- P13. *Apley, D.* and Shi, J., 1998, "Diagnosis of Multiple Fixture Faults in Panel Assembly", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol.120, pp793-801. (Also Proceedings of the 95' ASME Winter Annual Meeting, ASME MED-Vol. 4, Nov., 1996, pp575 - 581.).
- P14. Khan, A., *Ceglarek, D.*, Shi, J. and Ni, J., 1999, "Sensor Optimization for Fault Diagnosis in Single Fixture System: A Methodology", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol.121, pp109-117. (Also in 1995 ASME International Mechanical Engineering Congress and Exposition MED-vol. 2-2, pp. 1165-1176, San Francisco, CA.).
- P15. *Apley, D.* and Shi, J., 1998, "Diagnostics in Disassembly Unscrewing Operations", International Journal of Flexible Manufacturing. Vol. 10, No.2, , pp111-128.
- P16. *Apley, D.* and Shi, J., 1999, "A GLRT for Statistical Process Control of Autocorrelated Processes", IIE Transactions. Vol. 31, pp 1123-1134.
- P17. *Tsung, F.*, Shi, J. and Wu, J., 1999, "Joint monitoring of PID Controlled Processes", Journal of Quality Technology, Vol. 31, No. 3, pp275-285.
- P18. Shi, J. and *Apley, D.*, 1998, "A Suboptimal N-Step-Ahead Cautious Controller for Adaptive Control Applications", ASME Transactions, Journal of Dynamic Systems, Measurement and Control, Vol. 120, pp419-423.
- P19. *Koh, C.*, Shi, J., Williams, W., Ni, J., 1999, "Multiple Fault Detection and Isolation Using the Haar Transform - Part 1: Theory", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 121, No.2, pp290-294.
- P20. *Koh, C.* , Shi, J., Williams, W., Ni, J., 1999, "Multiple Fault Detection and Isolation Using the Haar Transform - Part 2: Application to the Stamping Process", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 121, No.2, pp295-299.
- P21. *Tsung, F.* and Shi, J., 1999, "Integrated Design of run-to-run PID Controller and SPC Monitoring for Process Disturbance Rejection", IIE Transactions, Vol. 31, pp517-527.
- P22. *Ceglarek, D.* and Shi, J., 1999, "Fixture Failure Diagnosis for Sheet Metal Assembly with Consideration of Measurement Noise", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 121, Nov. 1999, pp771-777.

- P23. Jin, J. and Shi, J., 1999, "State Space Modeling of Sheet Metal Assembly for Dimensional Control", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 121, Nov. 1999, pp756-762.
- P24. Jin, J. and Shi, J., 1999 "Feature-Preserving Data Compression of Stamping Tonnage Information Using Wavelets", Technometrics, Nov. 1999, Vol. 41, No.4, pp 327-339.
- P25. Apley, D. and Shi, J., 1999, "An Order Dnwdating Algorithm for Tracking System Order and Parameters in Recursive Least Squares Identification", IEEE Transactions on Signal Processing, Vol. 47, No. 11, pp3134-3137.
- P26. Jin, J., and Shi, J., 2000, "Diagnostic Feature Extraction from Stamping Tonnage Signals Based on Design of Experiment", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 122, No. 2, pp.360-369.
- P27. Rong, Q., Ceglarek, D., Shi, J., 2000 "Dimensional Fault Diagnosis for Compliant Beam Structure Assemblies", Trans. of ASME, Journal of Manufacturing Science and Engineering, Vol. 122, No. 4, pp. 773-780 (simultaneously in 1998 ASME International Mechanical Engineering Congress and Exposition, MED-Vol. 8, pp. 93-102, Anaheim, CA.).
- P28. Zhou, S. and Shi, J., 2000, "Supervisory Adaptive Balancing of Rigid Rotors During acceleration", Transactions of NAMRI/SME, Vol. 28, pp 425-430.
- P29. Jin, J. and Shi, J., 2001, "Automatic Feature Extraction of Waveform Signals for In-process Diagnostic Performance Improvement", Journal of Intelligent Manufacturing, Vol. 12, pp267-268.
- P30. Rong, Q., Shi, J. and Ceglarek, D., 2001, "Adjusted Least Squares Approach for Diagnosis of III-Conditioned Compliant Assemblies", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 123, No. 3., August, pp453-461.
- P31. Shiu, B., Shi, J., and Tse, K. H., 2000, "The Dimensional Quality of Sheet Metal Assembly with Welding-induced Internal Stress", Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, v 214 No. 7. p 693-704.
- P32. Zhou, S. and Shi, J., 2001, "The Analytical Imbalance Response of Jeffcott Rotor During Acceleration", ASME Transactions, Journal of Manufacturing Science and Engineering. Vol. 123, No.1, Feb, 2001.
- P33. Dyer, S., Zhuang, Z., Ni, J. and Shi, J. (2000), "Auto-tuning Adaptive Supervisory Control of Single-plane Active Balancing Systems", Transactions of NAMRI/SME, Vol. 28.
- P34. Nair, V., Hansen, M., and Shi, J. (2000), "Statistics in Advanced Manufacturing", Journal of the American Statistical Association, Vol. 95, pp1002-1005.
- P35. Shiu, B., Apley, D., Ceglarek, D., Shi, J., 2003, "Tolerance allocation for compliant beam structure assemblies," *Trans. of IIE*, Design and Manufacturing, Vol. 35, No. 4, pp. 329-342.
- P36. Apley, D. and Shi, J., 2001, "A Factor-Analysis Method for Diagnosing Variability in Multivariate Manufacturing Processes", Technometrics, Vol. 43, No.1 pp84 – 95.
- P37. Zhou, S. and Shi, J., 2001, "Imbalance Estimation for Speed-Varying Rigid Rotors Using Time-varying Observer", ASME Transactions, Journal of Dynamic Systems, Measurement and Control, Vol. 123, No. 4, Dec. 2001, pp637-644.
- P38. Zhou, S., and Shi, J., 2002, "Optimal One-Plane Active balancing of Rigid Rotor During Acceleration", Journal of Sound and Vibration, Volume 249(1), pp196-205.
- P39. Li, H., Ceglarek, D., and Shi, J., 2002, "A Dexterous Part-Holding Model for Handling Compliant Sheet Metal Parts" ASME Transactions, Journal of Manufacturing Science and Engineering. Vol. 124, No. 1, pp. 109-118.
- P40. Ding, Y., Ceglarek, D., Shi, J., 2002, "Fault Diagnosis of Multistage Manufacturing Processes by Using State Space Approach", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol.124, No. 2, pp. 313-322.
- P41. Zhou, S. and Shi, J., 2001, "Active Balancing and Vibration Control of Rotating Machinery: A Survey", The Shock and Vibration Digest, Vol. 33, No. 5, pp361-371.

- P42. Ding, Y., Shi, J. and Ceglarek, D., 2002, "Diagnosability Analysis of Multi-station Manufacturing Processes", ASME Transactions, Journal of Dynamics Systems, Measurement, and Control, Vol. 124, pp1-13.
- P43. Huang, Q., Zhou, S. and Shi, J., 2002, "Diagnosis of Multi-Operational Machining Processes through Variation Propagation Analysis", Robotics and CIM Journal, Vol. 18, 233-239.
- P44. Ding, Y., Ceglarek, D. and Shi, J., 2002, "Design Evaluation of Multi-station Assembly Processes by Using State Space Approach", ASME Transactions, Journal of Mechanical Design, Vol. 124, No 2, pp408-418.
- P45. Dyer, S., Shi, J., Ni, J. and Shin, K., 2002, "Robust Optimal Influence-Coefficient Control of Multiple-Plane Active Rotor Balancing Systems", ASME Transactions, Journal of Dynamic Systems, Measurement and Control. Volume 124, No. 1, pp. 41-46.
- P46. Zhou, S., Huang, Q. and Shi, J., 2003, "State Space Modeling for Dimensional Monitoring of Multistage Machining Process Using Differential Motion Vector", IEEE Transactions on Robotics and Automation, April 2003, Vol. 19, No.2, pp296-309.
- P47. Huang, Q., Shi, J. and Yuan, J., 2003, "Part Dimensional Error and Its Propagation Modeling in Multi-Operational Machining Processes", ASME Transactions, Journal of Manufacturing Science and Engineering. Vol. 125, pp. 255-262.
- P48. Zhou, S., Ding, Y., Chen, Y., Shi, J., 2003, "Diagnosability Study of Multistage Manufacturing Processes Based on Linear Mixed-effects Models", Technometrics. Nov., 2003. Vol. 45, No.4, pp 312-325.
- P49. Ding, Y., Jin, J., Ceglarek, D., Shi, J., 2005, "Process-oriented Tolerancing for Multi-station Assembly Systems," IIE Transactions, Vol. 37(6), pp. 493-508.
- P50. Huang, Q. and Shi, J., 2003, "Simultaneous Tolerance Synthesis through Variation Propagation Modeling of Multistage Manufacturing Processes", NAMRI/SME Transactions, Vol. 31, pp. 515-522.
- P51. Zhou, S. and Shi, J. 2004, "Identification of nonlinear effects in rotor systems using recursive QR factorization method", *Journal of Sound and Vibration*, Vol. 270, 6 February 2004, pp 455-469.
- P52. Zhou, S., Chen, Y., and Shi, J., 2004, " Statistical estimation and testing for variation root-cause identification of multistage manufacturing Processes ", *IEEE transactions on Robotics and Automation*, 1(1), pp73-83
- P53. Zhou, S., Shin, K., Dyer, S., Shi, J. and Ni, J., 2004, "Extended Influence Coefficient Method for Rotor Active Balancing during Acceleration", *ASME Transactions, Journal of Dynamic Systems, Measurement and Control*, Vol. 126, No. 1, pp219-223.
- P54. Chen, Y., Jin, J. and Shi, J., 2004, "Integration of dimensional quality and locator reliability in design and evaluation of multi-station body-in-white assembly processes", *IIE Transaction*, Vol. 36(9), pp 827-839.
- P55. Huang, Q. and Shi, J., 2004, "Variation Transmission Analysis and Diagnosis of Multi-Operational Machining Processes", *IIE Transaction*, Vol. 36, pp. 807-815.
- P56. Jin, J., and Shi, J., 2005, "Press Tonnage Signal Decomposition and Validation Analysis For Transfer or Progressive Die Processes", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 127(1), pp. 231-235.
- P57. Huang, Q. and Shi, J., 2004, "Stream of Variation Modeling and Analysis of Serial-Parallel Multistage Manufacturing Systems", ASME Transactions, Journal of Manufacturing Science and Engineering, Vol. 126 pp. 611-618.
- P58. Liu, J., Li, J. and Shi, J. 2005, "Engineering Knowledge Driven Cause-Effect Modeling and Statistical Analysis for Multi-Operational Machining Process Diagnosis," Transactions of NAMRI/SME, Vol. 33, 65-72.
- P59. Zhou, S., Sun, B., Shi, J., 2006, "An SPC Monitoring System for Cycle-Based Waveform Signals Using Haar Transform", *IEEE Transactions on Automation Science and Engineering*, Vol. 3(1), pp. 60-72.

- P60. Kim, J., Huang, Q., Shi, J., and Chang, T.-S., 2006, "Online Multi-Channel Forging Tonnage Monitoring and Fault Pattern Discrimination Using Principal Curve," *Transactions of the ASME, Journal of Manufacturing Science and Engineering*, Vol. 128, pp944-950, 2006.
- P61. Ding, Y., Elsayed, E.A., Kumara, S., Lu, J.C., Niu, F., and Shi, J., 2006 "Distributed Sensing for Quality and Productivity Improvements," *IEEE Transactions on Automation Science and Engineering*, Vol. 3, No. 4. pp 344- 359.
- P62. Li, J., and Shi, J., 2007, "Knowledge Discovery from Observational Data for Process Control through Causal Bayesian Networks", *IIE Transactions*, Vol. 39, pp681-690.
- P63. Li, J., Shi, J., and Chang, T., 2007, "On-Line Seam Detection in Rolling Processes using Snake Projection and Discrete Wavelet Transform", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Volume 129, Issue 5, pp. 926-933.
- P64. Luis E. Izquierdo, Jianjun Shi, S. Jack Hu and Charles W. Wampler, 2007, "Feedforward Control of Multistage Assembly Processes Using Programmable Tooling", *Transactions of NAMRI/SME*. Vol. 35.
- P65. Luis E. Izquierdo, S. Jack Hu, Hao Du, Ran Jin, Haeseong Jee and Jianjun Shi, 2008, "Robust Fixture Layout Design for a Product Family Assembled in a Multistage Reconfigurable Line", Accepted by *ASME Transactions, Journal of Manufacturing Sciences and Engineering*.
- P66. Jin, R., Li, J., and Shi, J., 2007, "Quality Prediction and Control in Rolling Processes Using Logistic Regression", *Transactions of NAMRI/SME*, Vol. 35.
- P67. Li, J., Jin, J., and Shi, J., 2008, "Causation-based T² Decomposition for Multivariate Process Monitoring and Diagnosis," *Journal of Quality Technology*, Vol. 40, No. 1, pp. 46-58
- P68. Li, J., Shi, J., and Satz, D., 2008, "Modeling and Analysis of Disease and Risk Factors through Learning Bayesian Network from Observational Data," *Quality and Reliability Engineering International*, Volume 24, Issue 3, pp 291-302.
- P69. Kim, J., Huang, Q., and Shi, J., 2008, "Latent Variable-based Key Process Variable Identification and Process Monitoring for Forging", *SME Transactions Journal of Manufacturing Systems*. Vol. 26, No. 1, pp53- 61.
- P70. Li, J., Huang, K., Jin, J., and Shi, J., 2008, "A Survey on Statistical Methods for Health Care Fraud Detection", *Health Care Management Science*. Vol. 11, No. 3, pp 275-287.
- P71. Liu, J., Shi, J., and Hu, S.J., 2008, "Engineering-Driven Factor Analysis for Variation Sources Identification in Multistage Manufacturing Processes," *ASME Transactions, Journal of Manufacturing Science and Engineering*, **130** (4), p. 10091- 100910.
- P72. Liu, J., Shi, J., and Hu, S.J., 2009, "Quality Assured Setup Planning Based on the Stream Of Variation Model for Multi-Stage Machining Processes," *IIE Transactions on Quality and Reliability Engineering*, IIE Transactions, Volume 41, Issue 4 , pages 323 – 334.
- P73. Liu, J., Jin, J. and Shi, J. 2010 "State Space Modeling for 3-Dimensional Variation Propagation in Rigid-Body Multistage Assembly Processes", *IEEE Transactions on Automation Science and Engineering*, Volume: 7 Issue: 2 On page(s): 274 - 290
- P74. Zhong, J., Shi, J. and J. Wu, 2010, "Design of Experiment-based Automatic Process Controller with Consideration of Model and Observation" *IEEE Transactions on Automation Science and Engineering*, Volume: 7 Issue:2 On page(s): 266 – 273
- P75. Ye, L., Pan, E., and Shi, J., 2009, "Design of regression model based automatic process control with reduced adjustment frequency", *Quality and Reliability Engineering International*. Volume 25, Issue 8, pages 997–1013.
- P76. Chaipradabgiat, T., Jin, J., and Shi, J., 2009, "Optimal Fixture Locator Adjustment Strategies for Multistage Assembly Processes", *IIE Transactions on Quality and Reliability Engineering*, Vol. 41, pp843-852.

- P77. Shi, J. and Zhou, S., 2009, "Quality Control and Improvement for Multistage Systems: A Survey", *IIE Transactions on Quality and Reliability Engineering*, Vol. 41, pp744-753.
- P78. Ershun Pan, Liang Ye, Jianjun Shi, Tzzy-Shuh Chang, 2009, "On-line bleeds detection in continuous casting processes using engineering-driven rule-based algorithm", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Volume 131, Issue 6,.
- P79. Zhong, J., Liu, J. and Shi, J., 2010, "Predictive Control Considering Model Uncertainty for Variation Reduction in Multistage Assembly Processes" *IEEE Transactions on Automation Science and Engineering*. Issue Date: Volume: 7 Issue: 4, pp.724 – 735
- P80. Jin, R., Chang, C.J. and Shi, J., 2011, "Sequential Sensing Strategy of Wafer Profiles Using Gaussian Process Model". *IIE Transactions*, Accepted.
- P81. Hongxu Zhao, Ran Jin, Su Wu, and Jianjun Shi, 2011, "PDE-constrained Gaussian Process Model on Material Removal Rate of Wiresaw Slicing Process", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Volume 133, Issue 2.
- P82. Jin, R. and Shi, J., 2011, "Reconfigured Piecewise Linear Regression Tree for Multistage Manufacturing Process Control". *IIE Transactions*, (in-press).
- P83. Xiaoming Huo, Heeyoung Kim, and Jianjun Shi, 2011, "A Single Interval Based Classifier", *Annals of Operations Research*, (in-press).
- P84. Chia-Jung Chang, Lijuan Xu, Qiang Huang, Jianjun Shi, 2011 "Quantitative Characterization and Modeling Strategy of Nanoparticle Dispersion in Polymer Composites" *IIE Transactions* (in-press).
- P85. Qingyu Yang, Yili Hong, Yong Chen and Jianjun Shi, 2011, "Failure Profile Analysis of Complex Repairable Systems with Multiple Failure Modes", *IEEE Transactions on Reliability*, (in-press).
- P86. Jose V. Abellan-Nebot, Jian Liu, F. Romero Subiron, Jianjun Shi, 2011, "State Space Modeling of Variation Propagation in Multistage Machining Processes Considering Operation-Induced Variations" *ASME Transactions, J of Sci and Eng.* (accepted)

Papers under review

1. Chao-hsi Tsai, Chia-jung Chang, Chuck Zhang, Jianjun Shi, Ben Wong, 2010, "Surrogate model for carbon nanotube-reinforced nanocomposite tensile modulus prediction driven by micromechanical modeling and physical experiments", *IIE Transactions*
2. Matthias Tan and Jianjun Shi, 2011, "A Bayesian Approach for Interpreting Mean Shifts in Multivariate Quality Control" submitted to *Technometrics*.
3. Kaibo Liu and Jianjun Shi, "Objectives-Oriented Optimal Sensor Allocation Strategy for Process Monitoring and Diagnosis by Multivariate Analysis in a Bayesian Network"
4. Ran Jin, Kaibo Liu and Jianjun Shi "Multistage Multimode Process Monitoring Based on a Piecewise Linear Regression Tree Considering Modeling Uncertainty", submitted to *Journal of Quality Technology*, May 10, 2011.

Refereed conference or symposium proceedings

(excluding papers revised for journals / transactions publications)

- C1. Zhang, Y. and Shi, J., 1988, "A Multiple Objective Optimal Method of Reducing the Sensitivity of Nonlinear Optimal Control Law to Initial State and Its Application". *Proceedings of Chinese Automatic Association 1988' Academic Conference*, Zheng-zhou, P.R.China, pp1108-1114.
- C2. Shi, J., 1989, "Real time expert control of a flight vehicle control system", *International Conference '89 on Expert Systems in Engineering Applications*, Wuhan, P.R.China.
- C3. Shi, J. and Zhang, Z., 1989, "Human Operator Optimal Predictive Control Model and Simulation", *Proceedings of theory and application of automatic control 1989 academic conference*, Xian, P.R. China, Oct., 1989.

- C4. Shi, J., Tang, T. and Zhang, Z., 1990, "Adaptive Predictive Control and Its Application in Missile Interception Problem", AMST 90 4th international symposium on application of multivariable system technique, Bradford, UK., pp171-178.
- C5. Shi, J. and Zhang, Y., 1990, "The Application of Hierarchical Filter in the Flight Vehicle Control System", AMST 90 4th international symposium on application of multivariable system technique, Bradford, UK., pp248-255.
- C6. Shi, J., Ni, J. and Wu, S. M., 1991, "A Generalized Forecasting Compensatory Control Strategy and Its Application in Vibration Control", Proceedings of the 1991 American Control Conference, Boston, pp1414-1415.
- C7. Shi, J. and Ni, J., 1993, "A Supervisory Adaptive Control approach for a Dynamic System with Time Varying Model Order and Parameters", PED-Vol. 64, Manufacturing Science and Engineering, pp173- 180.
- C8. Ceglarek, D., Shi, J., Wu, S. M., 1993, "Auto-Body Assembly Diagnostic: A Knowledge-based Approach", PED-Vol. 64, Manufacturing Science and Engineering, pp401- 412 (cited by 1 publication).
- C9. Shi, J., Apley, D., 1994, "An Adaptive Cautious Predictive Controller for Real-Time Implementation", DSC-Vol.55-1, Dynamic Systems and Control, Vol.1, ASME, pp167-174
- C10. Shi, J., Huang, Z., Ni, J., 1994, "On-line Dynamic Data System Modeling for a Piecewise Stationary Process", Proceedings of the First Wu, S. M. Symposium on Manufacturing Science, pp281 - 288.
- C11. Shi, J., Hu, S. J. and Ceglarek, D., 1994, "Process Navigator for Automotive Body Assembly Process", Proceedings of the First Wu, S. M. Symposium on Manufacturing Science, pp325 - 332.
- C12. Apley, D. and Shi, J., 1994, "A Statistical Process Control Method for Autocorrelated Data Using a GLRT", Proceedings of the International Symposium on Manufacturing Science and Engineering for the 21st Century, Beijing, P.R. China, pp165 -170 (cited by 1 publication).
- C13. Apley, D. and Shi, J., 1994, "A Fault Detection, Isolation, and Identification Technique for Complex MISO Linear Systems", Proceedings of the American Control Conference, Baltimore, MD, pp 2633 – 2637 (cited by 2 publications).
- C14. Jin, J., Shi, J. and Ni, J., 1994, "An On-line Automatic Modeling System with Implementation", Proceedings of Intelligent, Knowledge and Integration for Manufacturing.
- C15. Shi, J. and Apley, D., 1994, "Real-Time Adaptive Cautious Control Algorithm and Implementation", Dynamic Systems and Control, Edited by C. J. Radcliffe, DSC-Vol.55.1, pp167-174, 1994.)
- C16. Ceglarek, D. and Shi, J., 1995, "Model-Based Control of Dimensional Variability for Automatic Fixturing of Sheet Metal Assemblies," IV International Conference on Monitoring and Automatic Supervision in Manufacturing - AC'95 sponsored by International Institution for Production Engineering Research (CIRP) and Polish Academy of Sciences, Warsaw, August 28-29, pp. 191- 202.
- C17. Ceglarek, D., Shi, J., 1995 "Design Evaluation of Part-to-Part Joints for Dimensional Integrity of Body-in-white," Proceedings of International Body Engineering Conference and Exposition - IBEC, Body Design and Engineering Symposium, vol. 13, pp. 11- 19, Detroit, MI, October 31 - November 2.
- C18. Koh, C., Shi, J., William, W., and Ni, J., 1996, "Detection and Isolation of Faults in Stamping Process Using Haar Transform", MED-Vol.4 Manufacturing Science and Engineering.
- C19. Apley, D. and Shi, J., 1995, "The Inverse QR Decomposition in Order Recursive Calculation of Least Squares Coefficients", Proceedings of the American Control Conference, Seattle, Washington, pp544 – 548 (cited by 1 publication).

- C20. Koh, C., Shi, J., Ni, J. and Williams, W., 1996, "Detection and Isolation of Faults in the stamping Processes", ASME MED-Vol. 4, Nov., 1996, pp605 - 610.
- C21. Shi, J. and Wu, X., 1996, "Agile and Precision Stamping for Auto Industry: Current Practice and R&D Activities in US", invited paper, Proceedings of International Automotive Manufacturing Conference, Shanghai. pp1-10 (cited by 2 publications).
- C22. Shi, J. and Jin, J., 1997, "Modeling and Diagnosis for Automotive Body Assembly Process Using State Space Models", Proceedings of International Intelligent Manufacturing System'97, Seoul, Korea. pp189-196.
- C23. Shi, J., Ni, J. and Lee, J., 1997, "Research Challenges and Opportunities in Remote Diagnosis and Reliability Study", Proceedings of International Intelligent Manufacturing System '97, Seoul, Korea. pp213-218. Grant No:15
- C24. Ceglarek, D., Shi, J., 1997 "Tolerance analysis for sheet metal assembly using a beam-based model," 1997 ASME International Mechanical Engineering Congress and Exposition, DE-Vol. 94, pp.153-159.
- C25. Rong, Q., Ceglarek, D. and Shi, J., 1998, "Modeling and Diagnostics of Assembly Systems with Complaint Structures", Proceedings ASME Annual Conference, Nov.15-19,. Log Angeles, CA.
- C26. Jin, J. and Shi, J., 1998, "Automatic Feature Extraction of Waveform Signals for In-Process Diagnostic Performance Improvement", Proceedings of 1998 IEEE International Conference on Systems, Man and Cybernetics, San Diego, pp4716-4721.
- C27. Jin, J., Chen, Y., and Shi, J., 1999, "Quality and Reliability Information Integration for Fixture Design Evaluations", Proceedings of the INFORS'99, Beijing, China.
- C28. Dyer, S., Ni, J., Shi, J. and Zhuang, Z., 1999, "Auto-tuning Adaptive Supervisory Control of Single-Plane Active Balancing Systems", Proceedings ASME Annual Conference, Nov.
- C29. Li, H., Ceglarek, D. and Shi, J., "A Dexterous Part Holding Model for Handling Compliant Sheet Metal Parts", 2000 Japan-USA Symposium on Flexible Automation.
- C30. Zhou, S. and Shi, J., 2000, "On-Line Estimation of Nonlinear and Time Varying Effects in Rotor System Using QR Orderly Recursive Method", 2000 Japan-USA Symposium on Flexible Automation. Paper Number: 13132. (One of the three finalists of best paper award)
- C31. Zhou, S. and Shi, J., 2000, "Unbalance Estimation for Speed-Varying Rigid Rotors Using Time-Varying Observer", 2000 Japan-USA Symposium on Flexible Automation.
- C32. Ding, Y., Jin, J., Ceglarek, D., and Shi, J., 2000, "Process-oriented Tolerance Synthesis for Multistage Manufacturing Systems", Proceedings of IMECE 2000, Nov. 5-10, 2000, Orlando, FL. (RECEIVED BEST PAPER AWARD FROM ASME Manufacturing Engineering Division) (cited by 5 publications).
- C33. Dyer, S., Ni, J., Shi, J., 2001, "Real-Time Analysis of Nonstationary Vibration Signals for Control of Rotating Machine Unbalance During Angular Acceleration". MARCON 2001, May 6-9, 2001, Gatlinburg, Tennessee.
- C34. Ding, Y., Ceglarek, D., and Shi, J., 2000: Modeling and Diagnosis of Multistage Manufacturing Processes: Part I State Space Model, presented at 2000 Japan/USA Symposium on Flexible Automation, July 23-26, Ann Arbor, MI, cited by 34 publications (cited by 43 publications).
- C35. Ding, Y., Ceglarek, D., and Shi, J., 2000: Modeling and Diagnosis of Multistage Manufacturing Processes: Part II Fault Diagnosis, 2000 Japan/USA Symposium on Flexible Automation, July 23-26, Ann Arbor, MI (cited by 6 publications).
- C36. Huang, Q., Zhou, N. and Shi, J., 2000, "Stream of Variation Modeling and Diagnosis of Multi-station Machining Processes." Proc. 2000 ASME Int. Mech. Eng. Congress & Exposition, MED-Vol. 11, pp.81-88, November 5-10, Orlando, FL (cited by 21 publications).

- C37. Huang, Q., Zhou, S. and Shi, J., 2001, "Diagnosis of Multi-operation Machining Process by Using Virtual Machining", Int. Conf. on Flexible Automation and Intelligent Manufacturing, pp. 804-813, July 16th - 18th, Dublin, IRELAND.
- C38. Chen, Y., Jin, J. and Shi, J., 2002, "Integration of Quality and Reliability for Design and Evaluation of Multistation BIW Assembly Processes", the International Manufacturing Research Conference, Dalan, P. R. China.
- C39. Huang, Q. and Shi, J., 2002, "Variation Transmission Modeling and Diagnosis of Multi-Operational Machining Processes", 2002 Japan/USA Symposium on Flexible Automation, Japan.
- C40. Shi, J. and Zhou, S. "Stream of Variation Modeling and Analysis Research and Development: A Survey", 2002 Global Powertrain Conference, Ann Arbor, MI.
- C41. Ding, Y., Ceglarek, D., Shi, J., 2001, "Multistage Manufacturing Processes: Modeling, and Design Evaluation," *Advances in Production Engineering (APE '01)*, 7-9 June 2001, Warsaw.
- C42. Huiyong Zheng, Xiaodong Yang, Jan Shi and Jeff Wu, "Design of DOE-based Automatic Process Controller for Complex Manufacturing Processes", NSF Grantee conf. (cited by 1 publications).
- C43. Hongbin Jia, Y. L. Murphy, Jianjun Shi, Tzyy Shuh Chang, "An intelligent real-time vision system for surface defect detection" Volume: 3, On page(s): 239- 242 Vol.3, Pattern Recognition, 2004. ICPR 2004. Proceedings of the 17th International Conference on Pattern Recognition.
- C44. Luis E. Izquierdo, Hao Du, S. Jack Hu, Ran Jin, Jianjun Shi and Haeseong Jee 2006, "Robust Fixture Layout Design for a Product Family Assembled in a Multistages Reconfigurable Line", ASME International Conference on Manufacturing Sciences and Engineering, October 8-11, 2006, Ypsilanti, Michigan, MSEC2006-21082.
- C45. Li, Jing, Jin, J., Shi, J.. Integration of Causal Models and Statistical Process Control (SPC) for Process Monitoring and Diagnosis. Industrial Engineering Research Conference (IERC), Orlando, FL (2006).
- C46. Li, Jing, Shi, J., Chang, T. S.. On-line Seam Detection in Rolling Processes using Snake Projection and Discrete Wavelet Transform. the International Conference on Manufacturing Science and Engineering, Ypsilanti, MI (2006).

C. OTHER PUBLICATIONS

Refereed conference summaries or abstracts

- A1. J. Shi, 1996, "CAREER: In-Process Quality Improvement Methodologies and Implementation -- Progress Report'96," *Proceedings of The 1996 NSF Design and Manufacturing Grantees Conference.*
- A2. J. Shi, 1997, "CAREER: In-Process Quality Improvement Methodologies and Implementation -- Progress Report'97," *Proceedings of The 1997 NSF Design and Manufacturing Grantees Conference.*
- A3. Shi, S. Pollock and V. Nair, 1997, "Proactive Maintenance: Integration of Engineering, Statistics and Operations Research towards a General Framework and Methodology," *Proceedings of The 1997 NSF Design and Manufacturing Grantees Conference.*
- A4. J. Shi, 1998, "CAREER: In-Process Quality Improvement Methodologies and Implementation -- Progress Report'98," *Proceedings of The 1998 NSF Design and Manufacturing Grantees Conference.*
- A5. Shi, S. Pollock and V. Nair, 1998, "Proactive Maintenance: Integration of Engineering, Statistics and Operations Research towards a General Framework and Methodology," *Proceedings of The 1998 NSF Design and Manufacturing Grantees Conference.*

Abstracts in non-refereed conference proceedings

More than 30 abstracts in various conferences, such as INFORMS, IERC, Fall Technical Research Conferences, Spring Research Conferences.

Book reviews

- “An Introduction to Quality, Management and Engineering” by Victor E. Sower, Michael J. Savoie, and Stephen Renick. Prentice Hall, Upper Saddle River, NJ 07458. IIE Transactions 32(6): 571~572.

Government, university, or industrial reports (non-refereed)

- R1. "Process Variation Reduction for Body-in-white of Minivan", Final Report for the Minivan Dimensional "2 mm" Program for Chrysler Corp., University of Michigan, Ann Arbor, 1992.
- R2. "Variation Reduction for Body Assembly: Methodologies and Case Studies Analysis", Final Report for the Jeep Grand Cherokee Dimensional "2 mm" Program for Chrysler Corp., University of Michigan, Ann Arbor, 1993.
- R3. "Sliding Door Process Variation Study", Technical Report for Chrysler Corp., University of Michigan, Ann Arbor, 1993.
- R4. "Variation Reduction for Panel Closure Fitting: Methodologies and Case Studies Analysis", Final Report for the Jeep Grand Cherokee Dimensional "2 mm" Program for Chrysler Corp., University of Michigan, Ann Arbor, 1995.
- R5. "A Final Report for GMT-600 Program - Variation Reduction for Body Assembly", General Motors Corp., University of Michigan, Ann Arbor, 1997.
- R6. "Process Capability Studies for Dimensional Control of Critical Assembly and Stamping Processes. Final Report for Chrysler Corporation, University of Michigan, Ann Arbor, 1998.
- R7. "Variation Reduction, 2mm Program," Final report to Chrysler Corporation, 1993
- R8. "Agile and Precision Sheet Metal Stamping – Near Zero Stamping Program”, 14 Quarterly Progress Reports to NIST, Jan, 1996 to Oct. 1999,
- R9. “Multiple Tooling and Variability Study”, Technical Report to General Motors, Dec. 1997.
- R10. “Process Capability Study for NS Body Manufacturing Processes”, Technical Report to Chrysler Corp. (w/ Ceglarek, et al), Jan. 1997.
- R11. “Real-Time Active Balancing for High Speed Machining”, Quarterly Progress Reports to NIST, 12 reports starting from January 1998 to December 2000.
- R12. “An-Image-based high Temperature Deformation Process Control Systems: Samrtsmith Predictive Control Systems”, Quarterly Progress Reports to NIST, 7 reports starting from January 2001 to July 2002

D. PRESENTATIONS (*List all conference presentations, keynote addresses, testimony before legislative committees, invited seminars, etc.. Do not list a presentation here if it is listed elsewhere.*)

Invited Keynote and Significant Presentations

- “System Informatics and Control for Multistage Systems”, a keynote talk at the International Conference on the Interface of Statistics and Engineering, Beijing, 2009.
- “Causation-based quality control and applications”, a keynote talk at the Applied Statistics Conference, Shanghai, 2009
- “Stream of Variation theory and applications”, a keynote talk at 7th International Conference on Manufacturing Research (ICMR’2009) in United Kingdom.
- “System Informatics and Control: research and education review”, International Education Forum on Reliability and Systems Engineering, Beijing, China, October, 2010.
- “Data Fusion for System Performance Improvements”, Industrial Engineering Workshop, Taiwan, June, 2010.

- “Statistics Methods Driven by Engineering Model for System Performance Improvements”, Chinese Academy of Science, March 2011
- “System Informatics and Control Research through Developing Statistics Methods Driven by Engineering Model”, a keynote talk at the The 1st International Conference on System Informatics and Engineering, Qiangdao, China, July 2011.
- “Statistics Methods Driven by Engineering Model for System Performance Improvements”, a keynote talk at the Spring Research Confernece, Chicago, June 2011

INVITED Publications and Presentations

(INVITED journal/conference articles, keynote conference or symposium presentations, and invited talks to prestigious colloquia or seminar series)

(Note: This list excludes the papers listed as conference papers in Section E.4. All those conference papers in Section E.4 have been presented in the corresponding conferences.)

1. “Variation Reduction for Automotive Assembly Process”, Management Colloquia of Mr. Bob Eaton (Chairman and CEO of Chrysler) and his top 40 Executives, Chrysler Corporation, January 1994.
2. “Next Generation Sheet Metal Stamping: Agility and Precision”, National Institute of Standards and Technology, Washington D.C., 1995
3. “An Optimal Sensor Location Methodology for Fixture Fault Diagnosis,” Second Spring Research Conference on Statistics in Industry and Technology, University of Waterloo, June 12-14, Waterloo, Canada. 1995
4. "Stamping signature analysis using Haar transform", Second Spring Research Conference on Statistics in Industry and Technology, University of Waterloo, June 12-14, Waterloo, Canada. 1995
5. “Modeling of Automotive Body Structure for Dimensional Variation Analysis,” Third Annual Conference on Stamping and Body in White Assembly, Novi, Michigan, May 16-17, 1996.
6. “Signature Analysis for Stamping Process Monitoring and Fault Diagnosis”, the NSF Industrial/University Cooperative Research Center, July, 1996.
7. “Data Compression Using Wavelets for the Stamping Tonnage Signal”, the Auto Body Consortium, Ann Arbor, Michigan, November, 1997.
8. “Multiple fixture faults diagnosis for assembly fixtures”, The 5th Industrial Engineering Research Conference, Miami, 1997.
9. “IPQI: Integration of Engineering and Advanced Statistics”, The 5th Industrial Engineering Research Conference, Miami, 1997.
10. “Sensor Placement Optimization for In-Process Quality Improvement in Multi-Fixture Assembly Systems,” INFORMS Spring 1998 Conference, Canada, April 26-29, 1998.
11. “In-Process Quality Improvement Research - an Overview and New Progress”, INFORMS’98 Spring Conference, Montreal, Canada, 1998.
12. “DOE-Based Feature Extraction and Classification of Waveform Signals for Process Monitoring and Fault Diagnosis”, The 6th Industrial Engineering Research Conference, Banff, Canada, 1998.
13. “Feature-Preserving Data Compression Using Wavelets for the Stamping Tonnage Signal”, INFORMS’98, Montréal, Canada, April, 1998.
14. “Assembly Fixture Failure Diagnosis Using Principal Component Analysis and Pattern Recognition”, The 6th Industrial Engineering Research Conference, Banff, Canada, 1998
15. “In-Process Quality Improvement Methodologies and Implementations in Automotive Manufacturing”, The 5th Regional Applied Statistics Conference, Kalamazoo, MI. Oct. 22, 1998.
16. “Proactive Maintenance: Integration of Advanced Statistics, Engineering and Operations Research”, The 6th Industrial Engineering Research Conference, Banff, Canada, 1998.
17. "Model-Based Diagnostics for Compliant Beam Structure Assemblies," INFORMS Spring 1999 Conference, Cincinnati, OH, May 2-5, 1999.
18. “SPC for Stamping Processes Based on Feature-Preserving Data Compression of Tonnage Signals”, the Spring Research Conference on Statistics in Industry and Technology (SRC’99),

- Minneapolis, June, 1999. Hierarchical Diagnostic Feature Extraction from a Stamping Tonnage Signal Using Principal Component Analysis”, The 7th Industrial Engineering Research Conference, Phoenix, May, 1999.
20. “Waveform Signal Decomposition Using a Process-Oriented Basis for Multiple Die Condition Monitoring and Fault Diagnosis”, INFORMS’99, Cincinnati, May, 1999.
 21. “In-Process Quality Improvements (IPQI) Methodologies and Implementations”, the International Symposium on Quality Improvement, Kumi, Korea, August 1999.
 22. “Modeling and Diagnosis of Multi-station Manufacturing Processes: Part II – Fault Diagnosis,” Japan/USA Symposium on Flexible Automation, July 23-26, Ann Arbor, MI, 2000.
 23. “Diagnosability Analysis of Stream-of-Variation in Multistage Manufacturing Processes”, INFORMS’00, San Antonio, TX, November 5-8, 2000.
 24. “Quality and Reliability Integration for Single Station Manufacturing System”, INFORMS’00, San Antonio, TX, November 5-8, 2000.
 25. “Modeling of a Multistage Process for SPC and APC Integration”, INFORMS, Salt Lake City, May 5-8, 2000. (Jointly with Y. Ding)
 26. “Quality and Reliability Information Integration in Multistage Manufacturing Processes”, the 9th Annual Industrial Engineering Research Conference, Cleveland, May 2000. (Jointly with Y. Chen)
 27. “Stream-of-Variation Modeling and Analysis of Multistage Manufacturing Processes”, Annual IIE Research Conference, Cleveland, May 23-26, 2000.
 28. “Modeling and Diagnosis of Multi-station Manufacturing Processes: Part I – State Space Model,” Japan/USA Symposium on Flexible Automation, July 23-26, Ann Arbor, MI, 2000.
 29. “Quality and Reliability Chain (QR-Chain) Modeling for System Reliability Analysis of Multistage Manufacturing Processes”, The 10th Industrial Engineering Research Conference, May, 2000.
 30. “Proactive Maintenance Methodology Through Integration of Statistics, Engineering Model, and Operations Research”, INFORM’2000, San Antonio, November, 2000
 31. “Imbalance Estimation for Speed-Varying Rigid Rotors Using Time-Varying Observer”, Japan-USA Symposium on Flexible Manufacturing, 2000, Ann Arbor, Michigan, 2000.
 32. “Supervisory Adaptive Balancing of Rigid Rotors During Acceleration”, NAMRC XXVII, July, 2000, Lexington, Kentucky. 2000. ((jointly with S. Zhou)
 33. "Quality and Reliability Chain Modeling for System Reliability Analysis in Multi-station Manufacturing Processes", INFORMS, Miami, November 2001.
 34. “Automatic Feature Extraction and In-Process Diagnostic Performance Improvement”, INFORMS, 2001.
 35. “Integration of Quality and Reliability for Design Evaluation and Optimization of Multi-station Body-In-White Assembly Processes”, INFORMS’2001, November, Miami. 2001.
 36. “Quality Oriented Maintenance for Manufacturing Processes”, Fall Technical Conference, Oct. Canada. 2001.
 37. “Tonnage Signature Decomposition for Multiple Operation Stamping Processes”, INFORMS’2001, June, Hawaii, 2001.
 38. “Variation Propagation Modeling and Analysis for Multistage Manufacturing Systems”, IEEE SMC Conference, 2001.
 39. "Research Challenges in Fault Diagnosis of Multi-station Manufacturing Processes", INFORMS, Miami, FL, November 4-7, 2001.
 40. “In-Process Quality Improvement Methodologies and Applications”, National Science Foundation of China. June, 2001.
 41. “Real-Time Active Balancing for High-Speed Machining”, IMEC, Nov., 2001, New York. (jointly with S. Zhou)
 42. “Sensor Distribution Strategy in Automotive Body Assembly,” NSF I/U CRC, Plymouth, MI, August 1, 2001.
 43. “Integration of Tolerance and Maintenance Design for Multi-station Manufacturing Processes,” IIE Annual Conference, Orland, FL, May 19-22, 2002. (jointly with Q. Huang)

44. "Variance Components Analysis Method for Diagnosability Study of Multi-station Manufacturing Processes," ASA/ASQ Spring Technical Conference, Ann Arbor, MI, May 20-23, 2002. (jointly with S. Zhou)
45. Ding, J and J. Shi, "Variation Modeling and Analysis for Multistage Manufacturing Processes", e-Manufacturing Review, 2001.
46. "Variance Components Analysis Method for Diagnosability Study of Multistage Manufacturing Processes", Spring Research Conference on Statistics in Industry and Technology, May, 2002, Ann Arbor, Michigan. (jointly with S. Zhou)
47. "An Overview of Stream of Variation Methodology and Its Applications", Spring Research Conference on Statistics in Industry and Technology, May, 2002, Ann Arbor, Michigan.
48. "Diagnosability Study of Multistage Manufacturing Processes Based on Linear Mixed-effects Models", INFORMS Nov. 2002, San Jose. (jointly with Y. Chen)
49. "Data Mining of CDR for Customer Relationship Management in Telecom Applications", INFORMS Nov. 2002, San Jose.

At U.S. Institutions (Partial List)

1. "In-Process Quality Improvement Research for AutoBody Assembly Processes", Department of Industrial Engineering, Rutgers University. Nov. 4, 1997
2. "Current Research on Fault Detection and Diagnosis in Manufacturing Processes", Department of Statistics, The University of Michigan, March 9, 1998.
3. "In-Process Quality Improvement Methodologies and Implementation" , Department of Industrial Engineering, University of Illinois at Urbana-Champaign, Feb. 10, 1998.
4. "Statistical Methods Driven by Engineering Models for In-Process Quality Improvement (IPQI)", Department of Industrial and Systems Engineering, Georgia Institute of Technology, Nov. 6, 1998
5. "Stream of Variation Methodologies in Manufacturing Processes", College of Engineering Manufacturing Series, The University of Michigan, April 8, 1999.
6. "Variation Propagation Modeling and Analysis for Multistage Machining Processes", Department of Industrial and Systems Engineering, The University of Arizona, Dec., 2001.
7. "In-Process Quality Improvement Methodologies: Theory and Applications", Department of Industrial Engineering, Northwestern University, March, 2002.
8. "Stream of Variation Theory for Multistage Manufacturing Processes", Distinguished Seminar Series, Penn State University, Oct. 2, 2003.
9. "Variation modeling, analysis and control for complex systems", Department of Industrial Engineering, Northwestern University, 2006.
10. "Data Fusion for Quality and Productivity Improvement", Department of Industrial Engineering, Texas A&M University, 2006.
11. "Stream of Variation Theory and Applications", Department of Industrial Engineering, Iowa State University, 2007.
12. "Data Fusion Concepts and Applications", Department of Industrial Engineering, South Florida University, 2008.

At International Institutions (Partial List)

13. "CMM throughput improvement through active structural vibration control", Fraunhofer - Production Technology, Aachen, Germany, Nov. 1994.
14. "On-line dynamic data system modeling and implementation", Institute of Technical University, Berlin, Dec., 1994, Germany.
15. "Signature analysis for sheet metal stamping process monitoring and diagnosis", The University of Waterloo, Canada, 1995.
16. "On-line Time Series Modeling for CMM Vibration Control", Southeast University, China, 1996.

17. "Stamping Process Control Using In-Process Sensing Signals", Shanghai Jiaotong University, 1997.
18. "In-Process Quality Improvement Methodologies in Manufacturing Processes", Beijing Institute of Technology, August, 1999.
19. "Information fusion for process control in hot deformation processes", Beijing Science and Technology University, March, 2001.
20. "Dimensional Control in Automotive Body Design and Manufacturing", Shanghai Jiaotong University, July, 2002.
21. "Stream of Variation Modeling and Analysis for Multistage Manufacturing Processes", Hong Kong Science and Technology University, August, 2002.
22. "Multivariate process monitoring and diagnosis in a complex system", Shanghai Jiantong University, 2005.
23. "Quality Control in a Distributed Sensing and Seing Network Environment", Tianjin University, 2006.
24. "Data Fusion for Quality and Productivity Improvement", Chinese Academy of Science, 2006.
25. "Causation-based Quality Control for MMP", Department of Electrical Engineering, Hong Kong Chinese University, 2008.
26. "Stream of Variation Theory and Applications: An Overview", Chinese Academy of Science, 2008.

At industrial laboratories (Partial List)

26. "Chrysler/U-M Cooperative Activities on Variation Reduction for Automotive Manufacturing," Presentation given to Chrysler Executives (D. Pawley and his staff members), Ann Arbor, 1997
27. "Speed-Varying Transient Rotor Dynamics Modeling and Simulation", Presented at BalaDyne Corporation, Nov. 1998.
28. "Linear Diagnostic Modeling Based on Product Quality Information for Multistage Machining Processes", Lamb Tech., Aug., 1999.
29. "An overview of Information Technology (IT) applications in manufacturing", Ford Science Research Lab, Feb., 2001.
30. "Defect Prevention for Catalytic Converter through Innovation in both Design and Manufacturing", September, 2002, Tenneco Corporation, 2002.
31. "Stream of Variation Methodologies in Machining Processes", GM Tech Center, 2002.
32. "Causal discovery and modeling for complex systems", GM R&D, 2004.

E. OTHER SCHOLARLY ACCOMPLISHMENTS

List all other scholarly accomplishments such as software, patents, invention disclosures, etc.

1. "Body-in-white Conference", workshop organized by the University of Michigan, April, 1994. I was the co-organizer and lectured in the workshop on the topic of "Measurement Strategies for Automotive Sheet Metal Manufacturing." About 130 industrial engineers participated in the workshop.
2. "Process Control for Automotive Body Assembly Processes," short course offered at General Motors Lansing Assembly Plant, May, 1995, 20 students. Lectured two out of three days.
3. "Near Zero Stamping (NZS) Technology Transfer Workshop", June, 1999. As the Technical Director of the NZS program, I am the co-organizer of the workshop, which intends to present the technologies developed in the NZS program to the industrial members. About 116 people from GM, Ford, DaimlerChrysler, and more than 30 supplier companies have participated in this two-day workshop.

4. "Stamping Signature Analysis and Process Control for Sheet Metal Stamping", short course offered in Chrysler Training Center, 1994. 20 students.
5. "Introductions of Data Mining and Business Intelligence", Beijing, China, Feb., 2001. About 80 people attended the workshop.
6. "Introductions of Data Mining and Consumer Relationship Management (CRM)", Hangzhou, China, April, 2001. About 60 people attend the workshop.
7. "Critical Issues and Challenges on the Dimensional Control of Automotive Body Manufacturing", Automotive Body Research Center, Shanghai, China, June, 2002. About 30 research stuff and engineers attended the workshop.
8. "A Six Sigma Workshop", Shanghai Automotive Company, July, 2002. About 130 engineers attended the workshop.

V. SERVICE

A. PROFESSIONAL CONTRIBUTIONS (*List all national and international contributions of service and positions of leadership in the profession.*)

Service to Professional Organizations

(1) **Founder and Chairperson:** Quality, Statistics and Reliability Section of INFORMS

Since Fall 1997, I have played a leading role in establishing a new "Quality, Statistics and Reliability Section" in the Institute for Operations Research and the Management Science (INFORMS). The section was officially approved by the INFORMS board in August 1998. I have initiated and organized a cluster of sessions in a series of INFORMS conferences in Montreal (April, 1998), Seattle (Oct., 1998) and Cincinnati (May, 1999). I also wrote the by-laws and guidelines, created a Web site, and invited a group of potential subdivision members and advisory board members for the new section. This initiative has generated great responses and interests from both academia and industry. In the past six INFORMS annual conference, the QSR Section has organized the cluster featured the most number of sessions among all subdivisions/sections. I served as the first chairperson from in 1998 and 1999.

(2) **Editorial Functions**

- Focus Issue Editor, *IIE Transactions on Quality and Reliability Engineering*, January 1, 2009 to present
- (Interim) Focus Issue Editor, *IIE Transactions on Quality and Reliability Engineering*, 2007-2008.
- Department Editor, *IIE Transactions on Quality and Reliability Engineering*, 2001 to 2008.
- Associate Editor, *International Journal of Flexible Manufacturing Systems*, 2004 to present.
- Senior Editor, *Chinese Journal of Institute of Industrial Engineering*, 2007 to present.
- Co-guest editor, *IIE Transactions on Quality and Reliability Engineering*, Special Issues on "Quality Control and Improvement for Multistage Systems", 2007-2009
- Co-guest editor, *IEEE Transactions on Automation Science and Engineering*, special issues on distributed sensing, 2005-2006.
- Editorial Board Member, *IIE Transactions on Quality and Reliability*, May, 1998 to 2001.
- Member, Scientific Committee, "1997 NAMRI/SME Twenty-Fifth North American Manufacturing Research Conference," 1997
- Member, Scientific Committee, "1996 NAMRI/SME Twenty-Fourth North American Manufacturing Research Conference," 1996
- Member, Scientific Committee, "1995 NAMRI/SME twenty-third North American Manufacturing Research Conference," 1995
- Reviewer for various technical journals and conferences including
 - ASME Journal of Dynamic Systems, Measurement, and Control
 - IIE Transactions

- ASME Journal of Engineering for Industry
- ASME Journal of Manufacturing Science and Engineering
- Journal of Manufacturing Systems
- ASME Winter Annual Meetings
- American Control Conference
- Transaction of North American Manufacturing Research Institution
- USA-Japan Symposium on Flexible Automation
- International Mechanical Engineering Congress

(3) Conference Organization

- Member of International Advisory Committee, The International Conference on Quality, Reliability, Maintainability and Safety (QR2MSE2012)
- Member, Advisory committee, 2010 INFORMS International Conf. on Service Science.
- Member, Advisory committee, 2009 INFORMS International Conf. on Service Science.
- Tutorials Chair, The fifth annual IEEE Conference on Automation Science and Engineering (IEEE CASE 2009), August 22 to 25, 2009, Bangalore, India
- Member, Scientific Committee, 7th International Conference on Manufacturing Research (ICMR 2009), September 08 - 10, 2009, United Kingdom
- Member, management committee of the Spring Research Conference on Statistics in Industry (SRC). 2006-2009.
- Member, Program Committee, “7th IFIP International Conference on Information Technology for BALANCED AUTOMATION SYSTEMS in Manufacturing and Services”, 2006, Canada.
- Member, Organizing Committee, “North American Manufacturing Research Conference,” 2005, 2006, 2007
- Member, Program Committee, Fourth International Symposium on Business and Industrial Statistics (ISBIS4), 2005.
- Co-organizer, An invited cluster on “Data Mining and Business Intelligence”, INFORMS’22 in San Jose.
- Organizer, A session on “Modeling, Monitoring and Diagnostics of Multistage Manufacturing Processes”, Spring Research Conference, Ann Arbor, 2002.
- Organizer, An invited panel on “Emerging Issues and Directions in Quality, Statistics and Reliability (QSR)- Editor's Point of View”, INFORMS’99 in Philadelphia
- Co-Organizer, A Quality, Statistics and Reliability Track with 10 Sessions on “Quality, Statistics and Reliability”, INFORMS’99 in Cincinnati.
- Organizer, A Quality and Statistics Track with Six Sessions on “Quality and Statistics”, INFORMS’98 in Seattle.
- Organizer, an invited panel on “Emerging field and Research Directions in Quality Engineering”, INFORMS’98 in Seattle.
- Co-Organizer, A Quality Track with three sessions on “In-Process Quality Improvement Methodologies and Implementations”, INFORMS’97 in Montreal.
- Co-Organizer, Symposium on Advanced Maintenance Methodologies and Technologies (IMEC), Anaheim, California, Nov. 15-20, 1998.
- Member, Program Committee, “USA-Japan Flexible Manufacturing Conference” Japan, 1997.
- Member, Program Committee, “Chinese NSF Grantee Conference and the 3rd Wu Symposium” Wuhan, China, 1997.
- Organizer, Invited Session on “In-Process Quality Improvement Methodologies and Implementations,” The 6th Industrial Engineering Research Conference, Miami, May, 1997

- Member, Program Committee, joint “International Workshop on Automotive Manufacturing Science and Technology” and “The Second S. M. Wu Symposium on Manufacturing Science: Far East Program”, Shanghai, China June 1996
- Member, Organizing Committee, The Second S. M. Wu Symposium on Manufacturing Science: U.S. Program, Ann Arbor, MI, May 1996
- Co-Organizer, Session on “Dimensional Control of Sheet Metal Stamping and Assembly,” International Mechanical Engineer Congress (IMEC), 1995.
- Member, International Program Committee, "1996 USA-Japan Symposium on Flexible Automation", Sponsored by ASME, MED, 1996

(4) Service to the Professional Organization:

Member, Advisory committee, INFORMS Service Section, 2008-present.

Member, Pritsker Doctoral Dissertation Award Committee/a CIEADH Committee, Institute of Industrial Engineering, 2003-2007.

Member, The ASQ Award and Medal Committee, American Society for Quality, 2006-2007

B. CAMPUS CONTRIBUTIONS

Administrative duties at U of M

- Director, Program in Manufacturing, 2006 - 2007

As director, I was responsible for all academic and administrative matters related to the Master of Engineering in Manufacturing (MEM) and Doctor of Engineering in Manufacturing, two interdisciplinary programs at the University of Michigan. I also served as the chairperson of the Manufacturing Council of the College of Engineering. The PIM is a multidisciplinary program with active participation from multiple departments of the College of Engineering and the Ross Business School at UM. The program offers both Master of Engineering and Doctor of Engineering degrees. The program produced 333 graduates since it was established, and about 100 registered students when I served as the Director.

- Co-Director, Global Automotive and Manufacturing Engineering, 2006 - 2007

As co-director, I was responsible for all academic and administrative matters related to the Master of Engineering in Global Automotive and Manufacturing Engineering (GAME) at the University of Michigan. The Masters of Engineering in GAME is a graduate professional degree in engineering for students who have already earned a B.S.E. degree in any field of engineering (e.g., aerospace, mechanical, electrical, civil, industrial, naval, chemical, material science) and who already have industrial work experience. The degree offers global contents, integrates automotive design and manufacturing, and provides students with extended exposure to an engineering specialty as well as breadth in engineering and business integration. The program has strong international components in its curriculum, course offering, and students body. The program has grown from 60 registered students to about 250 registered students during my term as the director.

- S. M. Wu Manufacturing Research Center

Associate Director, January 1993 - 2007

(The Wu Manufacturing Research Center had over 70 research staff and graduate students, and it maintains an annual research budget of approximately \$4 million dollars.)

- National Science Foundation - Industry/University Cooperative Research Center for Dimensional Measurement and Control in Manufacturing

Associate Director, July, 1998 – August 2002.

(The NSF-IUCRC has 7 industrial members and has annual industrial membership fees of \$300,000 to \$500,000. Faculty members from four different departments in the College of Engineering participate in the Center.)

- Director, Thrust Area: System and Operations, NSF Engineering Research Center for Reconfigurable Manufacturing Systems. (Sept. 1999 – 2007)

(I was responsible for various research projects in the thrust area with about six faculty members and a dozen graduate students. Funding totals approximately \$800,000 each year in the past 8 years.)

Committee assignments at the Georgia Tech

- Chair, Coca-Cola Junior Chair Selection Committee, ISyE, Georgia Tech. 2008.
- Group Leader, System Informatics and Control Group
- Member, School Review, Promotion and Tenure Committee, ISyE, Georgia Tech, 2009-2012
- Member, Review, Promotion and Tenure Committee, College of Engineering, Georgia Tech, 2009-2010

Committee assignments at the University of Michigan

- Member, International Program Planning Task Force, College of Engineering, 2007.
- Member, Strategic Planning Committee for Research, College of Engineering, 2007.
- Chair, IOE Honor and Award Committee, 2005- present
- Chair, IOE Publication and Newsletter Committee, 2004 – 2007
- Member, COE International Committee. 2004 – 2007
- Member, COE Strategic Planning Committee, 2005
- Member, CAEN Advisory Committee, May, 2003 – 2007
- Member, IOE Department Committee, Sept. 2004 – August, 2006
- IOE and Collage Development Liaison, January, 2003 - 2007
- Chair, Reappointment Committee for Prof. Mark Lwies, 2002
- Member, IOE Department Committee, Sept. 2001 – August, 2002
- Member, the Program in Manufacturing (PIM) Council, Sept. 1999 – 2007
- Member, IOE Department Honors and Awards Committee, Sept. 2001 – August, 2002
- Coordinator, Ph.D. Prelim Exam in Quality Engineering Area, 1997 - August, 2002
- Member, IOE Department Safety Committee, Sept. 1996 - August, 2002
- Member, IOE Graduate Student Program Committee, Sept. 1995- August, 2002
- Member, PIM/TMI Evaluation Committee at COE, Fall, 2001
- Member, Promotion Committee for Dr. Z. Pasek, 2001
- Chair, IOE Department Honors and Awards Committee, 1999 – 2001
- Member, IOE Department Chairperson Search Committee, Sept. 1999 –March, 2000
- Member, the College of Engineering Honors and Award Committee, Sept. 1999 – August, 2002
- Member, IOE Department Committee, 1997-1998

C. OTHER SERVICE

External Academic Advisor (EAA), Department of Manufacturing Engineering & Engineering Management (MEEM), 2001-2014.

Founding Director, Quality Science Center at Chinese Academy of Science

Founding co-Director, Nano-Statistics Research Laboratory, Chinese Academy of Science

VI. GRANTS AND CONTRACTS

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

List all funded grants and contracts as principal and co-principal investigator. Proposals pending may be included, but do not include grants and contracts not funded.

(J. Shi has served as the PI for more than 8.0 million grants/contracts, and a co-PI of additional 9.0 million grants/contracts since joined faculty at UM in 1995.)

1. Multi-axes active vibration control of a CMM, Source: Giddings & Lewis - Sheffield Measurement Inc., PI/PD: Shi, Amount: \$ 50,000, Date: 5/94 – 4/95
2. Development of advanced systems and technologies for the panel fitting, Source: Chrysler Corp, PI/PD:Shi, Amount: \$150,000 May, Date: 3/1993 – 4/1995
3. 2mm program - Variation Reduction for T300, Source: Chrysler Corp, PI/PD:J. Ni, Co-PIs: Shi and Hu, Amount: \$340,000, Date: 1/93 – 12/94
4. On-line intelligent modeling, monitoring and control workstation, Source: NSF Industry/University Cooperative Research Center (I/UCRC), PI/PD: Shi, Amount: \$100,000, Date: 1/94 – 12/95
5. Signature analysis for sheet metal stamping, Source: NSF Industry/University Cooperative Research Center (I/UCRC) and Chrysler Corp, PI/PD:Shi, Amount: \$100,000, Date: 1/94-8/96
6. Multivariate data analysis-Technical Assistance Program for Perceptron, Source: Perceptron Inc., PI/PD: Shi, Amount: \$50,000, Date: 12/95 - 12/97
7. Process Capability Study for Chrysler NS Program, Source: Chrysler Corp, PI/PD: J. Ni, Co-PIs: J. Shi, D. Ceglarek, G. Herrin, X. Wu, Amount: \$300,000, Date: 9/96 - 8/97
8. Process Navigator Validation and Process Variation Reduction, Source: General Motors Corp., PI/PD: Shi, Amount: \$300,000, Date: 5/95 - 6/97
9. Remote Diagnosis and System Reliability Evaluation, Source: NSF Engineering Research Center at the University of Michigan, PI/PD: Ni, Co-PIs: Shi, Amount: ERC supports two 50 % GSRA. Date: 9/96-8/98
10. Integrated Dimensional Design Evaluation and Process Control for Automotive Door Manufacturing, Source: General Motors Corp, PI/PD: Ceglarek, Co-PIs: Shi, Amount: \$140,000, Date: 10/95 - 12/98
11. A Testbed for Proactive Maintenance Policy Evaluation in Dimensional Control, Source: NSF Industry/University Cooperative Research Center, PI/PD:Shi, Amount: \$25,000, Date: 9/1/97 - 8/31/98
12. Intelligent on-line Modeling and Control Modules, Source: IMT, PI/PD:Shi, Amount: \$40,000, Date: 1/1/97 - 12/31/98
13. Hemming Research, Source: Forming Technology Institute, PI/PD:Shi, Amount: \$12,000, Date: 8/1/98 – 10/1/98
14. D-Ring Seal Gap Dimensional Variation Reduction and System Analysis, Source: General Motors, PI/PD: D. Ceglarek, Co-PIs: : Shi, Hu, Amount: \$125,000, Date: 11/1/98 - 10/31/00
15. Distributed Sensing and Data Analysis for Auto Body Assembly, Source: NSF Industry/University Cooperative Research Center, PI/PD: Shi, Amount: \$50,000, Date: 9/1/99 – 8/31/00 (renewable for one more year)
16. Dimensional Control for WJ program using Multiple in-line Sensing Stations, Source: Chrysler Corp, PI/PD: D. Ceglarek, Co-PIs: : Shi, Amount: \$150,000, Date: 3/1/98 - 2/28/00.
17. Multivariate SPC and Variation Reduction for DN Body Assembly, Source: IMT and Chrysler, PI/PD: Shi, Amount: \$110,000, Date: 1/1/98 - 12/31/00
18. Panel Fitting Process Evaluation and Optimization, Source: NSF Industry/University Cooperative Research Center, PI/PD: D. Ceglarek, Co-PIs: Shi, Amount: \$50,000, Date: 1/1/99 - 12/31/99
19. Variation and Reliability Modeling and Analysis for Assembly Fixtures, Source: General Motors, PI/PD: D. Ceglarek, Co-PIs: Shi, Amount: \$100,000, Date: 1/1/98 - 12/31/01

20. Title: Agile and Precision Stamping Lab Equipment Fund, Source: Auto Body Consortium, PI/PD:Shi, Amount: \$140,000, Date: 6/1/96 - 12/31/99
21. Real-Time Active Balancing for High Speed Machining, Source: Advanced Technology Program, National Institute of Standards and Technology (NIST) and Balance Dynamics Corp, PI/PD:Ni, Co-PIs: Shi, Amount: \$800,000, Date: 1/98 - 12/00
22. Proactive Maintenance: Integration of Engineering, Statistics, and Operations Research towards a General Framework and Methodology, Source: National Science Foundation, PI/PD: Shi, Co-PIs: Pollock and Nair., Amount: \$285,000, Date: 9/97 - 8/02
23. Agile and Precision Sheet Metal Stamping - Near Zero Stamping program, Source: Advanced Technology Program, National Institute of Standards and Technology (NIST) and Near Zero Stamping Inc., PI/PD: Shi, Co-PIs: Ni, Hu, Ghosh, Jeff Wu, Amount: \$2,880,000, Date: 1/95 – 06/00
24. CAREER: The In-Process Quality Improvement Methodologies for Manufacturing, Source: National Science Foundation (NSF) CAREER Award, PI/PD: Shi, Amounts: \$315,000 (plus additional \$200,000: \$100,000 from industry and \$100,000 from NSF match), Date: 9/96 - 8/02
25. Quality Control for a Multistage Process Combining SPC and APC, Source: Hong Kong NSF (RGC), PI/PD: Tsung, Co-PI: Shi and Tsui, Amounts: \$437,817 (HK\$), Date: 1/2000 – 12/2001
26. Stream of Variation for Multistage Manufacturing Processes, Source: NSF ERC on RMS at U of M, PI/PD: Shi, Co-PI: Ni, Amounts: (estimated \$240,000 per year, sub account from ERC) , Date: 9/98 – 8/04 (renewable up to NSF ERC managements)
27. Concurrent Design of Next-Generation Power trains, Manufacturing Processes and Materials, Source: U.S. DOD-Army/TACOM, PI/PD: P. Papalambros, Co-PIs: J. Hu, J. Shi, D. Assanis, .Z. Filipi, K. Nagarathnam, N. Michelena, K. Saitou, Amount: \$3,000,000, Date: 5/1/01 – 4/30/03
28. Incremental Machine Learning in Vehicle Diagnosis, Source: Ford, PI/PD: Shi, Amounts: \$14,220, Date: 1/1/2002 – 8/31/2004
29. Variation Reduction for Multistage Manufacturing Processes, Source: DaimlerChrysler and IMT, PI/PD: Shi, Amounts: \$101,407, Date: 9/1/2000 – 8/31/2002
30. An-Image-based high Temperature Deformation Process Control Systems: Samrsmith Predictive Control Systems, Source: NIST-ATP and OG Technology Inc., PI/PD: Shi, Co-PI: Hu, Amounts: \$388,450, Date: 1/1/01-12/31/03
31. Throughput improvement and waste reduction in the HTS processes in Pfizer, Source: Pfizer, Co-PI/PD: Shi, Amounts: \$50,000
32. Variation Management for Aircraft Structures, Source: TMI and Lockheed Martin, PI/PD: Shi, Co-PI/PD: Hu, Ivy, Amounts: \$140,000, Date: 5/1/01-5/31/04
33. Consumer Relationship Management and Business Intelligence Research, Source: Powerise, PI/PD: Shi, Amounts: \$80,000
34. Adaptive Assembly for Automotive Body Manufacturing Systems, Source: General Motors Satellite Lab at University of Michigan, PI/PD: Shi, Amounts: \$300,000, Date: 1/1/2003 – 12/31/2005
35. DOE Based APC: A Methodology for Process Variation Reduction Beyond Robust Parameter Design, Source: National Science Foundation, PI/PD: Shi, Co-PI: Wu, Amounts: \$295,500, Date: 9/1/2002-8/31/2006
36. Maintenance models involving minor and major maintenance, Source: RESEARCH GRANTS COUNCIL, PI/PD: P. Chan, Co-PIs: Tsung and Shi, Amount requested: HK \$576,000, Date: 10/1/03-9/30/06.
37. Causal Network Modeling and Analysis for Health Care Data, Source: Synchronous Knowledge

- Inc, PI/PD: Shi, Amount requested: \$40,000
38. A Unified Methodology for Service Quality Improvement through Integration of QFD and SEM, Source: RESEARCH GRANTS COUNCIL, PI/PD: Tsung, Co-PI: Shi, Amount requested: HK \$630,000, Date: 10/1/03-9/30/06.
 39. Active Control of C-flex for Variation Reduction of Automotive Body Assembly, Source: General Motors Collaborative Research Lab at UM, PI/PD: Shi, Co-PI: Hu, Amounts: \$150,000, Date: 1/1/2006 – 8/31/2007
 40. Data Mining and Decision Making for Proactive Maintenance of RMS, Source: NSF ERC on RMS, PI/PD: Shi, Amounts: \$140,000, Date: 5/1/2003-8/31/2005
 41. Future Combat Systems (FCS): Phase II Production Planning Study for the Manned Ground Vehicle (MGV)”, PI/PD: Hu, Co-PI: John Cristiano, Steve Skerlos, Albert Shih, J. Shi, Galip Ulsoy, Amounts: \$599,000, Date: Jan. 2005 – March 2006.
 42. A New Venture to Expand Response Surface Methodology for Engineering Process Control, Source: RESEARCH GRANTS COUNCIL, PI/PD: Tsung, Co-PI: Shi, Jin, Amount requested: HK \$558,000, Date: 10/1/05-9/30/08.
 43. Forging Process Control through Signature Analysis, Source: Forging Industry Educational and Research Foundation, PI/PD: Shi, Amounts: \$10,000, Date: open
 44. Quality-Ensured Maintenance Strategy for Complex Manufacturing Systems, Source: NSF ERC on RMS, PI/PD: Shi, Amounts: \$200,000, Date: 9/1/2005 – 8/31/2007
 45. Data Mining and Causal Discovery for Predictive Process Control in Data Rich Environments, Source: Department of Energy, PI/PD: Shi, Amounts: \$564,000, Date: 1/1/2004-12/31/2008
 46. Development of a CAE Design Tool for Minimizing Door Seal Gap Variation by Optimizing Component and Sub-Assembly Locator Position & Orientation, Source: Ford Company, PI/PD: Shi, Co-PI: Jin, Amounts: \$99,864, Date: 8/1/2006 – 12/31/2007
 47. Sensor-based Prognostics and Predictive Process Control for Hot Deformation Processes, Source: Michigan 21st Century Job Fund, PI/PD: Shi, Co-PI: Jin, Amounts: \$1,742,500 (\$895,000 from the MEDC - 21st Century Job fund, \$30,000 from UM contribution, \$817,500 from industrial cash/in-kind contribution), Date: 1/1/2007 – 6/30/2010
 48. ARI-MA: Development of Integrated Real-Time Imaging and Isotope Detection Algorithms for 3-D Position-Sensitive Semiconductor Gamma-Ray Imaging Spectrometers and Sensor Networks, Source: National Science Foundation, CEBT-0736091, PI/PD: Zhong He, Co-PI: J. Shi and J. Fessler, Amounts: \$1,993,290, Date: 7/30/2007 – 12/31/2011
 49. Advanced Tonnage Signal Analysis for Forging Processes, Source: NSF SBIR and OG Technologies, PI/PD: Shi, Co-PI: Jin, Amounts: \$200,000, Date: 9/1/2006 – 8/31/2009
 50. Bayesian process control for nanomanufacturing with mixed-resolution information, Source: Hong Kong RGC, PI/PD: Tsung, Co-PI: Huang, Shi, Amounts: HK\$279,610, Date: 01/01/2009 – 12/31/2011
 51. Causation-based monitoring, diagnosis and control for complex systems, Source: NSF, PI/PD: SHI, Amounts: \$389,500, Date: 9/01/2009 – 8/31/2012.
 52. Metamodel-Based Measurement, Control, and Optimization of Engineered Surfaces, Source: NSF, PI/PD: Vengazhiyil; co-PI: SHI, Amounts: \$380,000, Date: 9/01/2010 – 8/31/2013.
 53. SICS: A Sensor-based in-line control system for the surfaces of continuously cast slabs, Source: Department of Energy/OG Technologies, PI/PD: SHI, Amounts: \$215,000, Date: 9/01/2010 – 8/31/2012.
 54. In-situ Process Control and Variability Reduction for Nanopowder Production Scale-up Source: Department of Energy/nGimat Company, PI/PD: SHI, Amounts: \$197,712, Date: 9/01/2010 –

8/31/2012.

55. Imaging-based Optical Caliper for Objects in Hot Manufacturing Processes, Source: Department of Energy/OG Technologies, PI/PD: SHI. Amounts: \$315,000, Date: 9/01/2010 – 8/31/2012.

B. AS INVESTIGATOR

List all funded grants and contracts as investigator. Proposals pending may be included, but do not include grants and contracts not funded.

VII. HONORS AND AWARDS

- 2011, the IIE Albert G. Holzman Distinguished Educator Award
- 2011, Thanks for Being A Great Teacher, The Center for the Enhancement of Teaching and Learning, Georgia Institute of Technology
- 2008, Fellow of Institute of Operations Research and the Management Science (INFORMS)
- 2008, Endowed Professorship, The Carolyn J. Stewart Chair Professor, Georgia Institute of Technology
- 2007, Endowed Professorship, G. Lawton and Louise G. Johnson Professor of Engineering, The University of Michigan
- 2007, Fellow of American Society of Mechanical Engineering (ASME)
- 2007, Fellow of the Institute of Industrial Engineers (IIE).
- 2007, FIERF Forging Achievement Award, Forging Industry Educational and Research Foundation.
- NUTN, 2007 Distance Education Innovation Team Award (this is a team award for “University of Michigan College of Engineering and GM Technical Education Program -Master of Engineering in Global Automotive and Manufacturing Engineering (GAME)”, Dr. Shi serves as the co-Director of the GAME program at U of M)
- 2007 Monroe-Brown Foundation Research Excellence Award, College of Engineering, The University of Michigan
- Sloan-C 2006 Program Profile Team Award (this is a team award for “University of Michigan College of Engineering and GM Technical Education Program -Master of Engineering in Global Automotive and Manufacturing Engineering (GAME)”, Dr. Shi serves as the co-Director of the GAME program at U of M.)
- 2006 Best Paper Award, Industrial Engineering Research Conference, 2006.
- 2004 Excellence in Service Awards, IIE Transactions
- 2003 Faculty Achievement Award, Department of Industrial and Operations Engineering, University of Michigan
- 2003 Excellence in Service Award, IIE Transactions
- 2002 Excellence in Service Award, IIE Transactions
- Tauber Manufacturing Institute Fellow, 2001.
- Robert M. Caddell Memorial Award, Department of Mech Engineering, The University of Michigan, 2001.
- The Best Paper Award, ASME International Mechanical Engineering Congress and Exposition, Nov. 2000.
- NAMRC Best Paper Award Finalist, North America Manufacturing Research Conference, May, 2000.
- 1999 Faculty Achievement Award, Department of Industrial and Operations Engineering, University of Michigan
- 1998 Faculty Achievement Award, Department of Industrial and Operations Engineering, University of Michigan

- 1998 “1938E AWARD”, College of Engineering, the University of Michigan.
- 1998 Dean’s Honor in Teaching. For the 1997-1998 academic year, the student teaching rankings given to the course IOE 591-042 (Fall, 1997) were among the top in the College of Engineering (Dean Stephen W. Director’s letter dated August 3, 1998).
- 1997 Excellence in Research Award, Department of Industrial and Operations Engineering, University of Michigan
- 1996 CAREER Award by the National Science Foundation
- 2002 Guest Professor, Beijing Science and Technology University, 2002
- 2004 Guest Professor, Shanghai Jiaotong University, 2004
- 2004 Guest Professor, Tianjin University, 2004
- 2006 Guest Professor, Beijing Chemical Engineering University, 2006
- 2008 Guest Professor, Chinese Academy of Science, 2008.
- 2009 Guest Professor, National Material Science and Safety Center, P. R. Center