**Shiyu Zhou**
Professor
Department of Industrial and Systems Engineering
University of Wisconsin, Madison, WI 53706
Phone: 608-262-9534 Fax: 608-262-8454 Email: szhou@engr.wisc.edu

## I. Education

| | |
|---|---|
| Ph.D. | 2000, Mechanical Engineering, University of Michigan |
| M.S. | 2000, Industrial and Operations Engineering, Univ. of Michigan |
| M.S. | 1996, Mechanical Engineering, University of Science and Technology of China |
| B.S. | 1993, Mechanical Engineering, University of Science and Technology of China |

## II. Appointments

| | |
|---|---|
| 08/2011-present | *Professor*, Department of Industrial and Systems Engineering, University of Wisconsin-Madison |
| 08/2007-08/2011 | *Associate Professor*, Department of Industrial and Systems Engineering, University of Wisconsin-Madison |
| 08/2002-08/2007 | *Assistant Professor*, Department of Industrial and Systems Engineering, University of Wisconsin-Madison |
| 01/2001-08/2002 | *Assistant Research Scientist*, Engineering Research Center for Reconfigurable Manufacturing Systems, University of Michigan |
| 01/2001-08/2002 | *Adjunct Assistant Professor*, Department of Industrial and Operations Engineering, University of Michigan |

## III. TEACHING

### III.1 Courses taught

- ISyE 691, Industrial Data Analytics
- ISyE 612, Information sensing and analysis for manufacturing
- ISyE512, Inspection, Quality control, and Reliability
- ISyE510, Facilities Planning
- ISyE605, Computer-Integrated Manufacturing
- ISyE655, Advanced CAD/CAM

### III.2 Ph.D. Committees Chaired

1. *Nong Jin* (Completed, Defense date: April 18, 2006)
   Thesis topic: *Data-driven self-improving fault detection and diagnosis methodologies in complex manufacturing process*
   Current employment: Senior data analyst, First Horizon National Corporation.
2. *Zhiguo Li* (Completed, Defense date: Nov. 27th, 2007)
   Thesis topic: *Continuous- and Discrete-Signature Driven Fault Management Methodologies for Complex Engineering Systems*
   Current employment: Research Staff, IBM Research Center.
3. *Jean-Philippe Loose* (Completed. Defense date: March 24th, 2008 )
   Thesis topic: Physical and surrogate modeling for complex manufacturing process design and control
   Current employment: Manager, Cisco.
4. *Li Zeng* (Completed. Defended Dec. 2009)

Thesis topic: *On Change Detection in Manufacturing and Service Systems*
Current employment: Assistant Professor, Department of Industrial and Manufacturing Systems Engineering, Texas A&M University

5. *Nan Chen* (Completed. Defended July 2010)

   Thesis topic: *Discrete Event Modeling and Analysis: With Applications in Production and Service Systems*

   Current employment: Assistant Professor, Department of Industrial and Systems Engineering, National University of Singapore

6. *Qiang Zhou* (Completed. Defended April 2011)
   Thesis topic: *Surrogate modeling of complex systems for design and optimization*
   Current employment: Assistant professor, Hong Kong City University.

7. *Yuan Yuan* (Completed. Defended May 2014)

   Thesis topic: *Nonparametric modeling and analysis using B-splines with industrial applications*
   Current employment: IBM R&D Center, Singapore

8. *Devashish Das* (Completed. Defended June 2015)

   Thesis topic*: Statistical Monitoring Methods based on Hierarchical Statistical Models and Information-Theoretic Measures*

   Current employment: Research Associate, Mayo clinic

9. *Jianguo Wu* (Completed. Defended June 2015)

   Thesis Topic*: Statistical Analysis, Monitoring, and Control of the Production of High Performance Lightweight Metal Matrix Nanocomposites*

   Current Employment*:* Assistant Professor, University of Texas at El Paso

10. *Junbo Son* (Completed. Defended June 2016)

    Thesis Topic*: Data-driven Prognosis and Diagnosis of Event Occurrences with Applications in Manufacturing and Healthcare Systems*

    Current Employment: Assistant Professor, University of Delaware

## IV. RESEARCH INTERETS

- Modeling and analysis of large complex manufacturing systems: modeling of the variation propagation in large complex manufacturing processes, variation management and tolerance allocation, design for variation reduction.
- Manufacturing process control for productivity and quality improvement: active real-time control of manufacturing processes, integration of statistical process control with automatic process control.
- Information technology for diagnosis and prognosis of manufacturing system: model-based diagnosis, prognostics of complicated manufacturing processes using sensor fusion, feature extraction, and pattern recognition. Optimal maintenance decision making.

## V. Publications

J1. Chirikjian, G. S. and **Zhou, S.**, 1998, "Metrics on Motion and Deformation of Solid Models", *ASME Transactions, Journal of Mechanical Design*, Vol. 120, pp252-261

J2. **Zhou, S.** and Shi, J., 2000, "Supervisory Adaptive Balancing of Rigid Rotors during Acceleration", *Transactions of NAMRI/SME*. Vol. XXVII, pp425-430.

J3. **Zhou, S.** and Shi, J., 2001, "The Analytical Unbalance Response of Jeffcott Rotor during Acceleration", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 123, No. 2, pp299-302.

J4. **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*, 123, pp637-644.

J5. **Zhou, S.** and Shi, J., 2001, "Active Balancing and Vibration Control of Rotating Machinery: A Survey", *The Shock and Vibration Digest*, 33(5), pp361-371.

J6. **Zhou, S.** and Shi, J., 2002, "Optimal One-Plane Active Balancing of Rigid Rotor during Acceleration", *Journal of Sound and Vibration*, 249(1), pp.196-205.

J7. Huang, Q., **Zhou, S.**, Shi, J., 2002, "Diagnosis of Multi-Operational Machining Processes by Using Virtual Machining", *Robotics and Computer Integrated Manufacturing*, 18, pp.233 –239.

J8. **Zhou, S.**, Huang, Q., Shi, J., 2003, "State Space Modeling of Dimensional Variation Propagation in Multistage Machining Process Using Differential Motion Vectors", *IEEE Transactions on Robotics and Automation.* 19(2),pp296-309.

J9. **Zhou, S.**, Ding, Y., Chen, Y., Shi, J., 2003, "Diagnosability study of multistage manufacturing processes based on linear mixed-effects models", *Technometrics*, 45(4), pp312~325.

J10. **Zhou, S.** and Shi, J., 2004, "Identification of Nonlinear Effects in Rotor Systems Using Recursive QR Factorization Method", *Journal of Sound and Vibration*, 270, pp.455 –469.

J11. **Zhou, S.**, Shin, K., Dyer, S., Shi, J., Ni, J., 2004, "Extended Influence Coefficient Method for Rotor Active Balancing during Acceleration", *ASME Transactions, Journal of Dynamic Systems, Measurement and Control*, 126, pp219-223.

J12. **Zhou, S.**, Chen, Y., and Shi, J., 2004, "Root Cause Estimation and Statistical Testing for Quality Improvement of Multistage Manufacturing Processes", *IEEE Transactions on Automation Science and Engineering, 1(1)*, pp73-83.

J13. Jin, N., **Zhou, S.**, and Chang, T., 2004, "Identification of impacting factors of surface defects in hot rolling processes using multi-level regression analysis", *Transactions of NAMRI/SME*, 32, pp.557-564.

J14. Ceglarek, D., Huang, W., **Zhou, S.**, Ding, Y., Kumar, R., and Zhou, Y., 2004, "Time-Based Competition in Multistage Manufacturing, Stream-of-Variation Methodology (SOVA) – A Review", *International Journal of Flexible Manufacturing Systems*, 16, pp11-44.

J15. Ding, Y., **Zhou, S.**, and Chen, Y., 2005, "A Comparison of Process Variation Estimators for In-Process Dimensional Measurements and Control", *ASME Transactions, Journal of Dynamic Systems, Measurement and Control*, 127, pp69-79.

J16. **Zhou, S.** and Jin, J., 2005, "An Unsupervised Clustering Method For Cycle-Based Waveform Signals In Manufacturing Processes", *IIE Transactions on Quality and Reliability Engineering*, 37, pp.569-584.

J17. **Zhou, S.**, Jin, N., Jin, J., 2005, "A New Directional Variant Multivariate Control Chart System Considering Known Process Faulty Conditions", *IIE Transactions on Quality and Reliability Engineering*, 37, pp971-982.

J18. **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*, 3(1), pp60-72.

J19. Jin, J., Guo, H., and **Zhou, S.**, 2006, "Supervisory Generalized Predictive Control Combining with Statistical Process Control for Thin Film Deposition Processes", *ASME Transactions, Journal of Manufacturing Science and Engineering*, 128(1), pp 315-325.

J20. Li, Z., **Zhou, S.**, 2006, "Robust Method of Multiple Variation Sources Identification in Manufacturing Processes for Quality Improvement", *ASME Transactions, Journal of Manufacturing Science and Engineering*, 128(1), pp 326-336.

J21. Jin, N., **Zhou, S.**, 2006, "Signature Construction and Matching for Fault Diagnosis in Manufacturing Processes through Fault Space Analysis", *IIE Transactions on Quality and Reliability Engineering*, 38, pp.341-354. 2. This paper receives the *IIE Transactions Best Application Paper Award*.

J22. Ding, Y., Zeng, L., and **Zhou, S.**, 2006, "Phase I Analysis for Monitoring Nonlinear Profile Signals in Manufacturing Processes", *Journal of Quality Technology*, 38(3), pp199-216.

J23. Jin, N. and **Zhou, S.**, 2006, "Data-Driven Variation Source Identification of Manufacturing Processes Based on Eigenspace Comparison", *Naval Research Logistics*, 53(5), pp383-396.

J24. Ren Y., Ding, Y., and **Zhou, S.**, 2006, "A Data-mining Approach to Study the Significance of Nonlinearity in Multi-Station Assembly Processes", *IIE Transactions on Quality and Reliability Engineering*, 38, pp.1069-1083.

J25. Li, Z., **Zhou, S.**, Ding, Y., 2007, "Pattern Matching for Root Cause Identification of Manufacturing Processes with Consideration of General Structured Noise", *IIE Transactions on Quality and Reliability Engineering*, 39, 251–263.

J26. Loose, J., **Zhou, S.**, Ceglarek, D., 2007, "Kinematic Analysis of Dimensional Variation Propagation for Multistage Machining Processes with General Fixture Layouts", *IEEE Transactions on Automation Science and Engineering*, 4(2), 141-152.

J27. Li Z., **Zhou S.**, Choubey S., and Sievenpiper C., 2007, "Failure Event Prediction Using Cox Proportional Hazard Model Driven by Frequent Failure Signatures", *IIE Transactions on Quality and Reliability Engineering*, 39, 303–315.

J28. Li, Z., Wu, T., and **Zhou, S.**, 2007, "Statistical Detection of Process and Sensor Faults for Manufacturing Quality Control", *Transactions of the NAMRI/SME*, Volume 35, pp247-254.

J29. Zeng, L. and **Zhou, S.**, 2007, "Building Direct Influence Graph for Manufacturing Processes with Complex Topologies", *Technometrics*, 49(4), pp373-381.

J30. Jin, N., **Zhou, S.**, Chang, and Huang, 2008, "Influential Process Variable Selection for Surface Quality Control in Hot Rolling Processes", *IEEE Transactions on Automation Science and Engineering*, 5(3), pp557-562.

J31. Zeng, L. and **Zhou, S.**, 2008, "Impacts of Measurement Errors and Regressor Selection on Regression Adjustment Monitoring of Multistage Manufacturing Processes", *IIE Transactions*. 40, pp.109-121.

J32. Hao, S., **Zhou, S.** and Ding, Y., 2008, "Multivariate Process Variability Monitoring through Projection Based on a Process Model", *Journal of Quality Technology*, 40(2), pp214-226.

J33. Zeng, L., Jin, N. and **Zhou, S.**, 2008, "Multiple Fault Signatures Integration and Enhancing for Variation Source Identification in Manufacturing Processes", *IIE Transactions*, 40, pp. 919–930

J34. Loose, J., **Zhou, S.** and Ceglarek, D., 2008, "Variation Source Identification in Manufacturing Processes Based on Relational Measurements of Key Product Characteristics", *ASME Transactions, Journal of Manufacturing Science and Engineering*, 130, pp031007-1~11.

J35. Chen, N., **Zhou, S.**, Chang, T., and Huang, H., 2008, "Attribute Control Charts Using Generalized Zero-Inflated Poisson Distribution", *Quality Reliability Engineering International*, 24(7), pp.793-806.

J36. Chen, N., **Zhou, S.**, 2009, "Detectability Study for Statistical Monitoring of Multivariate Dynamic Processes", IIE Transactions, 41(7), pp. 593 - 604.

J37. Loose, J., Zhou, Q., **Zhou, S.**, Ceglarek, D., 2009, "Dimensional Variation Modeling for Multistage Machining Processes Incorporating Part GD&T Characteristics", *International Journal of Production Research*, DOI: 10.1080/00207540802691366.

J38. Loose, J., N. Chen, **Zhou, S.**, 2009, "Surrogate Modeling of Dimensional Variation Propagation in Multistage Manufacturing Process", *IIE Transactions*, 41(10), p893-904.

J39. Shi, J. and **Zhou S.**, 2009, Quality control and improvement for multistage systems: A survey, IIE Transactions, 41(9), pp 744 – 753.

J40. Zhou, Q., L. Zeng, and **Zhou, S.**, 2010, "Statistical Detection of Linear Defect Patterns Using Hough Transform", *IEEE Transactions on Semiconductor Manufacturing*. 23(3), pp370-380.

J41. Li, Z. and **Zhou, S.**, Sievenpiper C., and Choubey S., 2010, "On Measuring Differences in Evolving Discrete Event Sequences under the Cox Proportional Hazards Model", *Quality Reliability Engineering International*. 26, pp677-689.

J42. Chen, N. and **Zhou, S**., 2010, "Simulation-Based Cycle Time Quantile Regression on System Throughputs", *IIE Transactions*. 43(3) pg:176-191.

J43. Chen N., Chen Y., Li Z., **Zhou S**., Sievenpiper C., 2011, "Optimal Variability Sensitive Condition-based Maintenance based on System Event Logs", *International Journal of Production Research*. 49(7), DOI: 10.1080/00207541003694811.

J44. Zhou, Q., Qian, ZG, **Zhou, S**., 2011, "A Simple Approach to Emulation for Computer Models with Qualitative and Quantitative Factors", *Technometrics*, 53(3), pp. 266-273.

J45. Yuan, Y., **Zhou, S**., Manar, K., Zheng, Y., Sievenpiper C., 2011, "Event Log Modeling and Analysis for System Failure Prediction", *IIE Transactions*. 43(9), pages 647-660.

J46. Li, Z. and **Zhou, S.**, Sievenpiper C., and Choubey S., 2011, "Statistical Monitoring of Time-to-Failure Data Using Rank Tests", *Quality Reliability Engineering International*, DOI: 10.1002/qre.1248.

J47. Zeng, L. and **Zhou, S.**, 2011, "A Bayesian Approach for Risk-adjusted Outcome Monitoring in Healthcare", *Statistics in Medicine*. DOI: 10.1002/sim.4374.

J48. Chen, N., Yuan, Y., and **Zhou, S.**, 2011, "Performance analysis of the monitoring of the queue length data monitoring in of M/G/1 queues", *Naval Research Logistics*, 58(5), DOI 10.1002/nav.

J49. Zhou, Q., Qiang, Z.G.P., and **Zhou, S.**, 2012, "Surrogate Modeling of Multistage Assembly Processes Using Integrated Emulation", *ASME Transactions, Journal of Mechanical Design*. 134(1), doi:10.1115/1.4005440

J50. Zeng L., Zhou Q., De Cicco M., Li X., and **Zhou, S**., 2012, "Quantifying Boundary Effect of Nanoparticles in Metal Matrix Nanocomposite Fabrication Processes", *IIE Transactions*. 44(7), DOI:10.1080/0740817X.2011.635180.

J51. Yuan, Y. and **Zhou, S.**, 2012, Sequential B-spline Surface Construction Using Multi-Resolution Data Cloud, *ASME Transaction, Journal of Computing and Information Science in Engineering*. 12, 021008 (2012).

J52. Devashish Das, **Shiyu Zhou**, John Lee, 2012, Differentiating Alcohol Induced Driving Behavior Using Steering Wheel Signals, *IEEE Transactions on Intelligent Transportation Systems*, vol.13, no.3, pp.1355-1368.

J53. Q. Zhou, L. Zeng, M. DeCicco, X. Li, **S. Zhou**, 2012, "A Comparative Study on Clustering Indices for Distribution Uniformity of Nanoparticles in Metal Matrix Nanocomposites", CIRP Journal of Manufacturing Science and Technology, Volume 5, Issue 4, 2012, Pages 348–356.

J54. Yuan, Y., Nan Chen, and **Zhou, S**., 2013, "Adaptive Knot Selection for B-spline Curve Fitting Using Multi-Resolution Basis Set", *IIE Transactions*, 45(12), pages 1263-1277.

J55. Heping Liu, **Shiyu Zhou**, Xiaochun Li, 2013, "Inferring the Size Distribution of 3D Particle Clusters in Metal Matrix Nanocomposites", *ASME Transactions, Journal of Manufacturing Science and Engineering*, 135(1), 011013.1-9.

J56. Qiang Zhou, Junyi Zhou, Michael Cicco, **Shiyu Zhou**, Xiaochun Li, 2013, Detecting Particle-Clustering in Nanocomposites Using Microscopic Image Samples, *Technometrics*, DOI:10.1080/00401706.2013.804440.

J57. Junbo Son, Qiang Zhou, **Shiyu Zhou**, Xiaofeng Mao, Mutasim Salman, 2013, Evaluation and Comparison of Failure Prediction Performance of Prognostic Models Based on Degradation Signals and Time-to-failure Data, *IEEE Transactions on Reliability*, 62(2), pp. 379-394.

J58. Jianguo Wu, **Shiyu Zhou**, Xiaochun Li, 2013, Acoustic Emission Monitoring for Ultrasonic Cavitation Based Dispersion and Homogenization Process, *ASME Transactions, Journal of Manufacturing Science and Engineering*, 135(3), 031015.1-12.

J59. Chen, N., and **Zhou, S.**, 2014, "CUSUM Statistical Monitoring of M/M/1 Queues and Extensions", *Technometrics*, DOI:10.1080/00401706.2014.923787.

J60. Qiang Zhou, Son, J., **Shiyu Zhou**, Xiaofeng Mao, Mutasim Salman, 2014, Remaining Useful Life Prediction of Individual Units Subject to Hard Failure, *IIE Transactions*, 46(10). DOI: 10.1080/0740817X.2013.876126, pages 1017-1030

J61. Qingbo He and **Shiyu Zhou**, 2014, Discriminant Locality Preserving Projection Chart for Multivariate Statistical Process Control, *International Journal of Production Research*, DOI:10.1080/00207543.2014.894260. 52(18), pages 5286-5300.

J62. Devashish Das, **Shiyu Zhou**, 2015, "Statistical Process Monitoring Based on Maximum Entropy Density Approximation and Level Set Principle", IIE Transactions, 47(3), pages 215-229

J63. Junbo Son , Yilu Zhang , Chaitanya Sankavaram, **Shiyu Zhou**, 2015, "RUL Prediction for Individual Units Based on Condition Monitoring Signals with a Change Point", IEEE Transactions on reliability, 64(1), pp 182-196, 10.1109/TR.2014.2355531.

J64. Jianguo Wu, **Shiyu Zhou** , Xiaochun Li, 2015, "Ultrasonic Attenuation Based Inspection Method for Scale-up Production of A206-Al2O3 Metal Matrix Nanocomposites", ASME Transactions, Journal of Manufacturing Science and Engineering. Vol. 137(1):011013-011013-10. doi:10.1115/1.4028128.

J65. Son, J., Zhou, Q., **Zhou, S.**, and Salman, M., 2015, "Prediction of the failure interval with maximum power based on remaining useful life distribution," IIE Transactions, Vol. 47(10), pages 1072-1087.

J66. Yuhang Liu, **Shiyu Zhou**, 2015, "Detecting Point Pattern of Multiple Line Segments Using Hough Transformation", *IEEE Transactions on Semiconductor Manufacturing*, vol.28, no.1, pp.13-24. doi: 10.1109/TSM.2014.2385600.

J67. Yuhang Liu , Jianguo Wu, **Shiyu Zhou**, Xiaochun Li, 2015, "Microstructure Modeling and Ultrasonic Wave Propagation Simulation of A206–Al2O3 Metal Matrix Nanocomposites for Quality

Inspection." ASME Transactions, Journal of Manufacturing Science and Engineering, 138(3):031008-031008-11. doi:10.1115/1.4030981

J68. Jianguo Wu, Yong Chen, **Shiyu Zhou**, Xiaochun Li, 2016, "Online Steady-State Detection for Process Control Using Multiple Change-Point Models and Particle Filters", IEEE Transactions on Automation Science and Engineering, 13(2), pp688-700. doi: 10.1109/TASE.2014.2378150.

J69. Das, D., Chen, Y., **Zhou, S.**, and Sievenpiper, C., 2016, Monitoring of Multiple Binary Data Streams using a Hierarchical Model Structure. Quality Reliability Engineering International, 32(4), pp 1307–1319. doi: 10.1002/qre.1831.

J70. Qiang Zhou, Tian Jin, Peter Z.G. Qian and **Shiyu Zhou**, 2016， "Bi-diresctional Sliced Latin Hypercube Designs", Statistica Sinica, Vol. 26, pp 653-674. DOI:10.5705/ss.2014.246.

J71. Son, J., Patricia Brennan, **Zhou, S.**, 2016, "Rescue Inhaler Usage Prediction in Smart Asthma Management Systems using Joint Mixed Effects Logistic Regression Model" IIE Transactions, 48(4), pp 333-346. DOI:10.1080/0740817X.2015.1078014.

J72. Jianguo Wu , Yong Chen , **Shiyu Zhou**, Xiaochun Li, 2016, "On-line Steady-state Detection Using Multiple Change-point Models and Exact Bayesian Inference", IIE Transactions, 48(7), pp599-613. doi:10.1080/0740817X.2015.1110268

J73. Devashish Das, **Shiyu Zhou**, Yong Chen, and John Horst, 2016, Statistical monitoring of over-dispersed multivariate count data using approximate likelihood ratio tests, International Journal of Production Research. 54(21), pp 6579-6593, doi:10.1080/00207543.2015.1126373.

J74. Junbo Son , **Shiyu Zhou**, Chaitanya Sankavaram, Xinyu Du, Yilu Zhang, 2016, Remaining Useful Life Prediction based on Noisy Condition Monitoring Signals using Constrained Kalman Filter, Reliability Engineering and System Safety. 152 August 2016, Pages 38–50.

J75. Jianguo Wu, Yuhang Liu, Shiyu Zhou, 2016, Bayesian Hierarchical Linear Modeling of Profile Data with Applications to Quality Control of Nanomanufacturing, IEEE Transactions on Automation Science and Engineering, vol. 13, no. 3, pp. 1355-1366, doi: 10.1109/TASE.2016.2566579.

J76. Liu Y, **Zhou S**, Tang J. 2016, Identifiability Analysis of Finite Element Models for Vibration Response-Based Structural Damage Detection in Elastic Beams. ASME. J. Dyn. Sys., Meas., Control. 2016;138(12):121006-121006-12. doi:10.1115/1.4034155.

J77. Yuan Yuan, Nan Chen, and **Shiyu Zhou**, 2016, Modelling Regression Quantile Process using Monotone B-splines, Technometrics. doi:10.1080/00401706.2016.1211553.

J78. Raed Kontar, **Shiyu Zhou**, and John Horst, 2016, Estimation and Monitoring of Key Performance Indicators of Manufacturing Systems Using the Multi-Output Gaussian Process, International Journal of Production Research. In press.

## VI. Grants and Contracts

- ***Extramural projects***

| | Title | PI(s) | Sponsor | Amount | Duration |
|---|---|---|---|---|---|
| *P1* | *Modeling, Analysis, and Control of Variation Propagation in Manufacturing Processes* | S. Zhou | | $183,110 | 09/2003 – 08/2007 |
| *P2* | *Sensors and Sensor Networks: Design, Fabrication and Application of Distributed Micro Sensors Embedded in Metal Tooling* | X. Li<br>S. Zhou<br>H. Jiang | | $590,038 | 08/2003 – 07/2006 |
| *P3* | *SST/GOALI/Collaborative Research: Multi-Sensor Planning, Integration, and Analysis for Dimensional Quality Control of Complex Manufacturing Processes* | D. Ceglarek<br>S. Zhou | | $452,846 | 05/2006-05/2009 |

| | | | | | |
|---|---|---|---|---|---|
| *P4* | *CAREER: Multilevel Self-Improving Variation Modeling and Diagnosis for Complex Manufacturing Processes* | S. Zhou | NSF | $400,000 | 05/2006-05/2011 |
| *P5* | *GOALI/Collaborative Research: Event-Log-Based Failure Prediction and Maintenance Service for After-Sales Engineering Systems* | S. Zhou | | $173,279 | 08/2008-08/2011 |
| *P6* | *GOALI/Collaborative Research: Understanding and Controlling Variation Propagation in Periodic Structures: From Geometry to Dynamic Response* | S. Zhou | | $143,333 | 06/2009-06/2012 |
| *P7* | *Statistical Analysis and Control of Ultrasonic-based Aluminum Nano-composite Fabrication Processes* | S. Zhou<br>X. Li | | $352,147 | 09/2009-08/2012 |
| *P8* | *GOALI/Collaborative Research: Modeling, Monitoring, and Analysis of Spatial Point Patterns for Manufacturing Quality Control* | S. Zhou | | $202,387 | 7/1/2012-6/30/2015 |
| *P9* | *SCH: EXP: Collaborative Research: Smart Asthma Management: Statistical modeling, prognostics, and intervention decision making* | S. Zhou<br>P. Brennan | | $475,264 | 1/1/2014-12/31/2016 |
| *P10* | *GOALI/Collaborative Research: Data-driven Statistical Prognosis and Service Decision Making for Teleservice Systems* | S. Zhou | | $200,000 | 9/1/2013-8/31/2016 |
| *P11* | *Towards Smart Cloud-Based Quality Data Management: Modeling, Monitoring, and Repair Decision Making* | S. Zhou<br>J. Zhu | | $299,498 | 7/1/2016-6/30/2019 |
| *P12* | *SOVA: Stream-of-Variation Analysis System for Multistage Assembly Processes* | D. Ceglarek<br>S. Zhou | NIST | $822,933 | 07/01/2004-09/31/2006 |
| *P13* | *Transformational Casting Technology for Fabrication of Ultra-High Performance Lightweight Aluminum and Magnesium Nanocomposites* | X. Li<br>S. Zhou<br>T. Osswald | NIST | $10.1M | 2/1/2010-1/31/2014 |
| *P14* | *Modeling, Sensing, and Real-Time Control of Key Performance Indicators in Smart Manufacturing* | J. Li<br>S. Zhou | NIST | $500K | 9/1/2014-8/31/2018 |
| *P15* | *In-Process HotEye-Based Monitoring and Root Cause Identification of Surface Defects in Multistage Hot Rolling Processes* | S. Zhou | DOE | $165,364 | 06/2004-12/2008 |
| *P16* | *Progressive Fault Identification and Prognosis in Aircraft Structure Based on Dynamic Data Driven Adaptive Sensing and Simulation* | S. Zhou | Air Force | $650K | 9/30/2014-3/31/2018 |
| *P17* | *Monitoring and Diagnosis of Surface Defects of Hot Rolling Processes* | S. Zhou | SME | $14,981 | 06/2003-07/2004 |
| *P18* | *Condition Monitoring and Prediction for Medical Diagnostic Imaging Devices through Data Mining* | S. Zhou | GE | $202,500 | 08/2004-12/2011 |
| *P19* | *Exploratory Investigation of Failure Prognosis of Vehicle Systems Using Survival Regression Models* | S. Zhou | GM | $34,817 | 1/1/2012-9/30/2012 |

- ***Intramural***

| | *Title* | PI(s) | Sponsor | Amount | Duration |
|---|---|---|---|---|---|
| *P20* | *Online Monitoring and Diagnosis of Surface Defects in Hot Rolling Processes* | S. Zhou | I&EDR | $20,180 | 07/2003–06/2004 |
| *P21* | *Spatial and Temporal Analysis of Defects Distribution for Quality Improvement of PCB Assembly Processes* | S. Zhou | | $19,680 | 07/2006–06/2007 |
| *P22* | *Monitoring and Diagnosis of Operational Logic Errors of Manufacturing Facilities Controlled by programmable Logic Controllers (PLC)* | S. Zhou | Graduate school fall competition | $17,048 | 07/2004–06/2005 |
| *P23* | *Functional tolerance analysis for periodic structures* | S. Zhou | | $15,735 | 07/2007–06/2008 |
| *P24* | *Multiple phases of manufacturing lab infrastructure innovation* | Team | DIN | $265,040 | 2004-2011 |

| | | | | | |
|---|---|---|---|---|---|
| *P25* | *Ultrasonic Composite Material Analyzer* | S. Zhou | Capital Exercise | $20,000 | 01/2011~ 06/2011 |
| *P26* | *Battery Manufacturing, Service, and Management Systems* | Jingshan Li S. Zhou Yehui Han | RIC | $78,880 | 01/2014~ 12/2014 |

## VII Selected Services

1. Professional Office
   - Faculty advisor for SME student chapter 133, 2005~present
   - Chair-elect and Chair, Quality, Statistic, and Reliability Section of INFORMS, Oct. 2008~2010
   - President-elect and President, Quality Control & Reliability Engineering Division of Institute of Industrial Engineers, May 2007~2009
   - Elected Council Member, Quality, Statistics and Reliability (QSR) Division of INFORMS, 2005-2007
   - Elected Board Member, Quality Control & Reliability Engineering Division of IIE, 2005-2007
2. Editorship
   - Editor, IIE Transactions, focused issue on Design and Manufacturing, 02/2011~present
   - Department Editor, IIE Transactions, focus issue on Design and Manufacturing, 01/2009~02/2011
   - Co-Guest Editor, IIE Transactions, special issue on Quality Control and Improvement for Multistage Systems, 2005~2007.
   - Associate Editor, Journal of Quality Technology, January, 2009~2011
   - Associate Editor, IEEE Transactions on Automation Science and Engineering, 07/2009~present

## VIII. Honors & Awards

1. ASME Fellow, 2015
2. IIE Transactions Best Application Paper Award
3. NSF CAREER Award, 2006
4. SME Education Foundation Research Initiation Award, 2003
5. College of Engineering (CoE) Distinguished Achievement Award, University of Michigan, 2000.
6. Abel Wolman Graduate Fellowship, the Johns Hopkins University, 1996.