CURRICULUM VITAE

Zhenyu (James) Kong, Ph.D.
Professor
Grado Department of Industrial and Systems Engineering
Virginia Tech, 123 Durham (MC 0118), Blacksburg, VA 24061
Phone: 540-231-9762; Email: zkong@vt.edu

I. Academic Qualifications

• Ph.D.	Industrial and Systems Engineering, Univ. of Wisconsin-Madison	July 2004
• M.S.	Mechanical Engineering, Harbin Institute of Technology, China	March 1995
• B.S.	Mechanical Engineering, Harbin Institute of Technology, China	July 1993

II. Professional Experiences

• Professor	Grado Department of Industrial and Systems Engineering, Virginia Tech	08/2019 - present
• Associate Professor	Grado Department of Industrial and Systems Engineering, Virginia Tech	08/2013 – 08/2019
• Associate Professor	School of Industrial Engineering and Management, Oklahoma State University	07/2012 - 08/2013
• Assistant Professor	School of Industrial Engineering and Management, Oklahoma State University	08/2006 - 07/2012
• Senior Research Engineer	Dimensional Control Systems Inc., Troy, Michigan	07/2004 - 07/2006
• Research Assistant	Department of Industrial and Systems Engineering, University of Wisconsin-Madison	09/2000 - 07/2004
• Research Associate	Department of Mechanical Engineering, University of Michigan-Ann Arbor	10/1998 - 09/2000

III. Research Interests

- Real-time streaming data analytics for smart manufacturing.
- Applications of machine learning for manufacturing and service systems.
- Modeling, synthesis, and diagnosis for large and complex manufacturing systems.

IV. Honors, Awards, and Recognitions

- Dean's Award for Excellence in Research, College of Engineering, Virginia Tech, Spring 2019.
- Best Poster Competition, the 2nd place, *INFORMS Annual Meeting*, Phoenix, AZ, November 4-7, 2018.

- APM Outstanding Faculty Award for 2017-2018, Grado Department of Industrial and Systems Engineering, Virginia Tech, Spring 2018.
- Best Paper Award, *IISE Transactions* (Quality & Reliability Engineering), 2018 (paper J15 in Sec. VII).
- Best Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, Houston, TX, USA, October 22-25, 2017 (paper C2 in Sec. VII).
- Best Paper Award, Division of Quality Control and Reliability Engineering (QCRE), *IISE Annual Research Conference*, Pittsburgh, PA, USA, May 21-23, 2017 (paper C5 in Sec. VII).
- Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Design and Manufacturing), 2017 (paper J16 in Sec. VII).
- Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Quality and Reliability Engineering), 2017 (paper J20 in Sec. VII).
- Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Quality and Reliability Engineering), 2015 (paper J26 in Sec. VII).
- Research featured by *ISE Magazine*, Vol. 51, No. 1, January 2019 (paper J3 in Sec. VII).
- Research featured by *ISE Magazine*, Vol. 48, No. 6, June 2016 (paper J15 in Sec. VII).
- Research featured by *ISE Magazine*, Vol. 47, No. 9, September 2015 (paper J20 in Sec. VII).
- Research featured by *ISE Magazine*, Vol. 46, No. 9, September 2014 (paper J26 in Sec. VII).
- Halliburton Outstanding Faculty Award, College of Engineering, Architecture and Technology, Oklahoma State University, 2013.
- Richard S and Harriet K. Fein Scholarship, the University of Wisconsin-Madison, 2004.
- Outstanding Graduate Student, Harbin Institute of Technology, 1995.

V. Courses Taught

At Virginia Tech

• ISE 3214	Facility Planning and Material Handling	S14, S15
• ISE 6284	Advanced Topics in Mfg. Systems Engineering	F14
• ISE 5984	Sensing and Data Analytics for Complex Systems	F15
• ISE 4984	Data Analytics in Mfg. and Service Systems	S16
• ISE 2214	Manufacturing Process Laboratory	F16, F17, F18
• ISE 4404	Statistical Quality Control	S17
• ISE 4264	Industrial Automation	S18, S19

At Oklahoma State University

• IEM 3703	Manufacturing and Service Systems and Tools II	F06, S09, S10, S11, S12
• IEM 4203	Facility and Material Handling System Design	F07, F08, F09, F10, F11, F12
• IEM 4323	Manufacturing Processes and Systems	F07, F08, F12
• IEM 5103	Breakthrough Quality	S07, S08, S09, S11, S13

- IEM 5143 Reliability and Maintainability S08, S10, S12
- IEM 5990 Advanced Methods for Quality Improvement F11

VI. Funding Received (totally ~$14.71M, personal share ~$3.69M, across 26 projects with 23 external)

At Virginia Tech (total ~$12.56M, personal share ~$2.57M)

1. Office of Naval Research, Manufacturing Engineering Educational Program (MEEP), (sub-award via the University of Texas Rio Grande Valley), (2019-2022), "Innovation Driven Education Pathways for Defense Oriented Advanced Manufacturing Engineering (I-DREAM4D)." Amount: $ 3,958,812 (VT's share: $783,184, personal share: $665,140). Position: PI at VT.
2. Office of Naval Research, Defense University Research Instrumentation Program (DURIP), "Acquisition of a Laser Powder Bed Fusion System to Transform the Additive Manufacturing Value Chain" Amount: $265,000 (personal responsibility: 15%, $39,750). Position: Co-PI (PI: Chris Williams).
3. PCI Daniel P. Jenny Research Fellowship Program, (2019-2020), "3D Scanning for Process Monitoring and Quality Control in Precast/Prestressed Concrete Industry." Amount: $40,000 (personal share: $20,000). Position: Co-PI (PI: Dr. Xiaowei Yue).
4. Department of Education, (2018-2021), "An Interdisciplinary Program in Multifunctional Material Synthesis and Advanced Manufacturing (MM-SAM)." Amount: $746,250 (personal share: $89,550). Position: Co-PI (PI: Dr. Kathy Lu).
5. Office of Naval Research, Multidisciplinary University Research Initiatives (MURI) Program (sub-award via the University of Tennessee-Knoxville), (2018-2021), "Rationalization of Liquid/Solid and Solid/Solid Interphase Instabilities during Thermal-Mechanical Transients of Metal Additive Manufacturing." Amount: $4,500,000 (personal share: $750,000). Position: PI at VT.
6. Office of Naval Research, (2018-2020), "Ensuring Additive Manufacturing Quality and cyber Physical Security via Side Channel Data Fusion and the Cyber Physical Hash." Amount: $249,677 (personal share: $121,274). Position: Co-PI (PI: Dr. Chris Williams).
7. Department of Energy/Clean Energy Smart Manufacturing Innovation Institute, (2018-2020), "Energy-Efficient Material Processing through Automated Process Monitoring and Controls." Amount: $984,312 (VT share: $243,312; personal share: $202,000). Position: Lead PI.
8. Northrop Grumman (sub-award via ISE VT for undergrad research), (2018), "Additive Manufacturing In-Situ Process Monitoring and Post-Processing for Quality Assurance." Amount: $20,000. Position: co-PI.
9. Virginia Tech - The Diversity and Inclusion Seed Grants program, (2018), "Machine Learning-based Data Analytics for Online Quality Control of Additive Manufacturing." Amount: $10,000. Position: PI.
10. National Science Foundation, (2017-2021), "CPS: Medium: Collaborative Research: Cyber-Enabled Online Quality Assurance for Scalable Additive Bio-Manufacturing." Amount: $1,000,000 (VT portion: $800,000, personal share: $320,000). Position: Lead PI.
11. US Economic Development Administration (sub-award via Virginia Tech Office of Economic Development), (2017), "Thermal Gradient Modeling, Monitoring and Control for Additive Friction Stir (AFS) Process." Amount: $30,000 (personal share: $15,000). Position: PI.

12. Center for Commonwealth Advanced Manufacturing, (2016), "Data analytics for advanced manufacturing processes." Amount: $20,000. Position: PI.

13. GenEdge, (2016), "An Online Machine Vision System for Additive Friction Stir Surface Quality Monitoring and Control." Amount: $25,600. Position: PI.

14. NIH-STTR Phase I, (2015), "A Dual-Polarized Doppler Radar System for Fall Detection in an Indoor Environment." Amount: $86,818 (personal share: $2,676), Co-PI (PI: Dr. Maury Nussbaum).

15. Center for Commonwealth Advanced Manufacturing, (2015), "Online Surface Measurement." Amount: $96,446 (VT portion: $50,000). Position: PI.

16. National Science Foundation, (2014-2018), "GOALI: Online Defect Detection and Mitigation Method for Incipient Anomalies in Additive Manufacturing Processes." Amount: $300,000 (personal share: $215,402). Position: PI.

17. Center for Commonwealth Advanced Manufacturing, (2014), "In-Process Surface Finishing Measurement." Amount: $35,000. Position: PI.

At Oklahoma State University (total ~$2.15M, personal share ~$1.13M)

18. National Science Foundation, (2013-2016), "Atomistic Dynamics of AE Generation in Ultra-Precision Machining (UPM) for Incipient Anomaly Detection." Amount: $200,000 (personal share: $40,000). Position: Co-PI (PI: Dr. Satish Bukkapatnam).

19. National Science Foundation, (2011-2016), "A Recurrent Nested Bayesian Non-parametric Model for Real Time Monitoring of Pattern Dependent Surface Topography in Chemical Mechanical Planarization (CMP)." Amount: $355,000 (personal share: $250,000). Position: PI.

20. National Science Foundation, (2009-2014), "GOALI: Collaborative Research: A Mode-Based Simulation Enabling Model and Methodologies for Geometric Variation and Tolerance Control." Amount: $340,000 (OSU portion: $170,000; personal share: $170,000). Position: PI.

21. National Science Foundation, (2010-2013), "Characterization and Real Time Defect Mitigation in Chemical/Mechanical Polishing of Microelectronic Wafers Using Decision Theory and MultiSensor Fusion." Amount: $400,000 (personal share: $100,000). Position: co-PI (PI: Dr. Ranga Komanduri).

22. National Science Foundation, (2008-2009), "Sequential Bayesian Decision Making for End-Point Detection and Control in Chemical Mechanical Planarization (CMP) Processes." Amount: $80,000 (personal share: 20,000). Position: co-PI (PI: Dr. Satish Bukkapatnam).

23. Department of Transportation through Oklahoma Transportation Center, (2009-2012), "Development of a Structural Health Monitoring (SHM) Guidebook for Critical Bridge Structures." Amount: $300,000 (personal share: $250,000). Position: PI.

24. Department of Transportation through Oklahoma Transportation Center, (2010-2011), "Acquisition of a Lidar Laser Scanner for Bridge Inspection." Amount: $200,000. Position: PI.

25. Department of Transportation through Oklahoma Transportation Center, (2009-2011), "Proactive Approach to Transportation Resource Allocation under Severe Weather Emergencies." Amount: $261,194 (personal share: $70,000). Position: co-PI (PI: Dr. Baski Balasundaram).

26. National Institute of Standards and Technology, (Aug. 2006 - Nov. 2006), "Support for Development of Stream-of-Variation Analysis System for Multistage Manufacturing Processes", subcontract from Dimensional Control Systems, Inc., amount: $15,000. Position: PI.

VII. Publications

Journal Publication (*students under my supervision, 51 published/accepted; Google scholar citation: 1,444; H-index: 22; i10-index: 42, as of August 14, 2019):

J1. Liu, C.*, Law, A.*, Roberson, D.*, and Kong, Z.J., 2019, "Image Analysis-based Closed Loop Quality Control for Additive Manufacturing with Fused Filament Fabrication," *Journal of Manufacturing Systems*, Vol. 51, pp. 75-86, DOI: 10.1016/j.jmsy.2019.04.002**.**

J2. Esfahani, M., Nussbaum, M.A., and Kong, Z.J., 2019, "Using a Smart Textile System for Classifying Occupational Manual Material Handling Tasks: Evidence from Lab-based Simulations," Ergonomics, DOI: 10.1080/00140139.2019.1578419.

J3. Liu, J.*, Liu, C.*, Bai, Y., Rao, P., Kong, Z.J., and Williams, C., 2019, "Layer-wise Spatial Modeling of Porosity in Additive Manufacturing," *IISE Transactions*, Vol. 51, No. 2, pp. 109-123, DOI: 10.1080/24725854.2018.1478169**.**

- **Featured by ISE Magazine, Vol. 51, No. 1, January 2019**

J4. Liu, C.*, Kapoor, A., VanOsdol, J., Ektate, K., Kong, Z.J., and Ranjan, A., 2018, "A Spectral Fiedler Field-based Contrast Platform for Imaging of Nanoparticles in Colon Tumor," *Scientific Reports*, Vol. 8, No. 1, 11390. DOI: 10.1038/s41598-018-29675-1**.**

J5. Trivedi, M., Jee, J., Silva, S., Blomgren, C., Pontinha, V.M., Dixon, D.L., Van Tassel, B., Bortner, M.J., Williams, C., Gilmer, E., Haring, A.P., Halper, J., Johnson, B.N., Kong, Z.J., Halquist, M.S., Rocheleau, P.F., Long, T.E., Roper, T., and Wijesinghe, D.S., 2018, "Additive manufacturing of pharmaceuticals for precision medicine applications: A review of the promises and perils in implementation," *Additive Manufacturing*, Vol. 23, pp. 319-328, DOI: 10.1016/j.addma.2018.07.004.

J6. Liu, J.*, Kong, Z.J., and Jin, R., 2018, "Wafer Quality Monitoring using Spatial Dirichlet Process based Mixed-Effect Profile Modeling Scheme," *Journal of Manufacturing Systems*, Vol. 48, pp.21-32. DOI: 10.1016/j.jmsy.2018.05.012.

J7. Sun, H., Rao, P., Kong, Z.J., Deng, X., and Jin, R., 2018, "Functional Quantitative and Qualitative Models for Quality Modeling in a Fused Deposition Modeling Process," *IEEE Transactions Journal of Automation Science and Engineering,* Vol. 15, No. 1, pp. 393-403, DOI: 10.1109/TASE.2017.2763609**.**

J8. Bastani, K.*, Barazandeh, B.*, Kong, Z.J., 2018, "Fault Diagnosis in Multi-Station Assembly Systems using Spatially Correlated Bayesian Learning Algorithm," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 140, No. 3, pp.031003-031003-10, DOI:10.1115/1.4038184.

J9. Barazandeh, B.*, Bastani, K.*, Rafieisakhaei, M., Kim, S., Kong, Z.J., and Nussbaum, M., 2017, "Robust Sparse Representation based Classification using Online Sensor Data for Monitoring Manual Material Handling Tasks," *IEEE Transactions Journal of Automation Science and Engineering* (online), DOI: 10.1109/TASE.2017.2729583.

J10. Tootooni, S., Dsouza, A., Donovan, R., Rao, P., Kong, Z.J., and Borgesen, P., 2017, "Classifying the Dimensional Variation in Additive Manufactured Parts from Laser-Scanned 3D Point Cloud Data using Machine Learning Approaches," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 139, No. 9, pp. 091005-1 – 091005-14, DOI: 10.1115/1.4031574

J11. Liu, J.*, Beyca, O.*, Rao, P., Kong, Z.J., and Bukkapatnam, S., 2017, "A Recurrent Nested Dirichlet Process (RNDP) Model for Evolutionary Clustering Analysis and its Application to Online Monitoring of Ultraprecision Manufacturing Processes," *IEEE Transactions Journal of Automation Science and Engineering,* Vol. 14, No. 1, pp. 208-221.

J12. Tootooni, M., Liu, C.*, Robertson, D.*, Rao, P., and Kong, Z.J., 2016, "Online Non-contact Surface Finish Measurement in Machining using Graph-based Image Analysis," *Journal of Manufacturing Systems*, Vol. 41 pp. 266-276.

J13. Tootooni, M., Rao, P., Chou, C., and Kong, Z.J., 2016, "A Spectral Graph Theoretic Approach for Monitoring Multivariate Time Series Data From Complex Dynamical Processes," *IEEE Transactions Journal of Automation Science and Engineering*, Vol. 15, No. 1, pp. 127-144, DOI: 10.1109/TASE.2016.2598094.

J14. Bastani, K.*, Kim, W., Kong, Z.J., Nussbaum, M., and Huang, W., 2016, "Online Classification and Sensor Selection Optimization with Applications to Human Material Handling Tasks Using Wearable Sensing Technologies," *IEEE Trans Journal of Human-Machine Systems*, Vol. 46, No., 4, pp. 485-497, DOI: 10.1109/THMS.2016.2537747.

J15. Bastani, K.*, Rao, P., and Kong, Z.J., 2016, "An Online Sparse Estimation based Classification Approach for Real-time Monitoring in Advanced Manufacturing Processes from Heterogeneous Sensor Data," *IISE Transactions* Vol. 48, No. 7, pp. 579-598, DOI: 10.1080/0740817X.2015.1122254.

- **Best Paper Award, IISE Transactions (Quality & Reliability Engineering), 2018**
- **Featured by ISE Magazine, Vol. 48, No. 6, June 2016**

J16. Bastani, K.*, Kong, Z.J., Huang, W., and Zhou, Y., 2016, "Compressive Sensing Based Optimal Sensor Placement and Fault Diagnosis for Multi-Station Assembly Processes," *IISE Transactions*, Vol. 48, No., 5, pp. 462-474, DOI: 10.1080/0740817X.2015.1096431.

- **Best Applications Paper Honorable Mention Designation, IISE Transactions (Design and Manufacturing), 2017**

J17. Beyca, O.*, Rao, P.*, Kong, Z, and Bukkpatnam, S., 2016, "Heterogeneous Sensor Data Fusion Approach for Real-time Monitoring in Ultraprecision Machining (UPM) Process using Non-parametric Bayesian Clustering and Evidence Theory," *IEEE Trans Journal of Automation Science and Engineering*, Vol. 13, No. 2, pp. 1033-1044, DOI: 10.1109/TASE.2015.2447454.

J18. Rao, P.*, Kong, Z.J. and Duty, C., Smith, R., Kunc, V., and Love, L., 2015, "Assessment of Dimensional Integrity and Spatial Defect Localization in Additive Manufacturing (AM) using Spectral Graph Theory (SGT)," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 138, No. 5, pp. 051007-1 – 051007-12, DOI: 10.1115/1.4031574.

J19. Rao, P.*, Liu, J.*, Roberson, D.*, Kong, Z.J., and Williams, C., 2015, "Online Real-time Quality Monitoring in Additive Manufacturing Processes using Heterogeneous Sensors," *ASME Trans Journal of Manufacturing Science and Engineering*, Vol. 137, No. 6, pp. 1007-1 - 1007-12. DOI: 10.1115/1.4029823.

J20. Rao, P.*, Beyca, O., Kong, Z.J., Bukkapatnam, S., Case, K., and Komanduri, R., 2015, "A Graph Theoretic Approach for Quantification of Surface Morphology and its Application to Chemical Mechanical Planarization (CMP) Process," *IISE Transactions* Vol. 47. No. 10, pp. 1088-1111. DOI: 10.1080/0740817X.2014.1001927.

- **Best Applications Paper Honorable Mention Designation, IISE Transaction (Quality and Reliability Engineering), 2017**
- **Featured by ISE Magazine, Vol. 47, No. 9, September 2015**

J21. Cheng, C.*, Sa-ngasoongsong, A., Beyca, O.*, Le, T., Yang, H., Kong, Z.J., and Bukkapatnam, S., 2015, "Time Series Forecasting for Nonlinear and Nonstationary Processes: A Review and Comparative Study," *IISE Transactions*, Vol. 47, pp. 1-19, doi: 10.1080/0740817X.2014.999180

J22. Wang, Z., Bukkapatnam, S., Kumara, S., Kong, Z.J., and Katz, Z., 2014, "Change detection in precision manufacturing processes under transient conditions," *CIRP Annals, Manufacturing Technology*, Vol. 63, No. 1, pp. 449-452.

J23. Rao, P.*, Bhushan, M.B., Bukkapatnam, S.T., Kong, Z., Byalal, S., Beyca, O.*, Fields, A., and Komanduri, R., 2014, "Process-Machine Interaction (PMI) Modeling and Monitoring of Chemical Mechanical Planarization (CMP) Process using Wireless Vibration Sensors," *IEEE Transactions Semiconductor Manufacturing*, Vol. 27, No. 1, pp. 1-15.

J24. Rao, P.*, Bukkapatnam, S.T, Beyca, O.*, Kong, Z.J., and Komanduri, R. 2014,"Real-time Identification of Incipient Surface Morphology Variations in ultra-Precision Machining Process," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 136, No. 2, doi:10.1115/1.4026210.

J25. Huang, W., Liu, J., Jalali, N., Ceglarek, D., Kong, Z, and Zhou, Y., 2014, "Statistical Modal Analysis (SMA) for Variation Characterization and Application in Manufacturing Quality Control," *IISE Trans*, Vol. 46, No. 5, pp. 497–511.

J26. Huang, S., Kong, Z.J., and Huang, W., 2014, "High-dimensional Process Monitoring and Change Point Detection using Embedding Distribution in Reproducing Kernel Hilbert Space (RKHS)," *IISE Trans*, Vol. 46, No. 10, pp. 999-1016.

- **Best Applications Paper Honorable Mention Designation, IISE Transactions (Quality and Reliability Engineering), 2015**
- **Featured by ISE Magazine, Vol. 46, No. 9, September 2014**

J27. Li, Z., and Kong, Z.J., 2014 "A Generalized Statistical Procedure for Monitoring Right-Censored Failure Time Data," *Quality and Reliability Engineering International*, DOI:10.1002/qre.1629.

J28. Bastani, K.*, Kong, Z.J., Huang, W., Huo, X., and Zhou, Y., 2013, "Fault Diagnosis Using an Enhanced Relevance Vector Machine (RVM) for Partially Diagnosable Multi-station Assembly Processes," *IEEE Transactions Automation Science and Engineering*, Vol. 10, No. 1, pp. 124-136.

J29. Grout, T., Hong, Y., Basara, J., Balasundaram, B., Kong, Z.J., and Bukkapatnam, T.S., 2012, "Significant Winter Weather Events and Associated Socioeconomic Impacts (Federal Aid Expenditures) across Oklahoma: 2000–10," *Weather, Climate, and Society*, Vol. 4, pp. 48-58.

J30. Kong, Z.J., Beyca, O.*, Bukkapatnam, S., and Komanduri, R., 2011, "Nonlinear Sequential Bayesian Analysis-Based Decision Making for End-Point Detection of Chemical Mechanical Planarization (CMP) Processes," *IEEE Transactions Semiconductor Manufacturing*, Vol. 4, No. 24, pp. 523-532.

J31. Oztekin, A.*, Kong, Z.J., and Delen, D., 2011, "Development of a Structural Equation Modeling-based Decision Tree Methodology for the Analysis of Lung Transplantations," *Decision Support Systems*, Vol. 51, No. 1, pp. 155-166.

J32. Kong, Z.J., Oztekin, A.*, Beyca, O.*, Phatak, U., Bukkapatnam, S.T., and Komanduri, R., 2010, "Performance Prediction for Chemical Mechanical Planarization (CMP) by Integration of Nonlinear Bayesian Analysis and Statistical Modeling," *IEEE Transactions Semiconductor Manufacturing*, Vol. 23, No. 2, pp. 316-327.

J33. Huang, W., and Kong, Z.J., 2010, "Process Capability Sensitivity Analysis for Design Evaluation of Multi-Station Assembly Systems," *IEEE Transactions Automation Science and Engineering*, Vol. 7, No. 4, pp. 736-745.

J34. Delen, D., Oztekin, A.*, and Kong, Z.J., 2010, "A Machine Learning-based Approach to Prognostic Analysis of Thoracic Transplantations," *Artificial Intelligence in Medicine*, Vol. 49, No. 1, pp. 33-42.

J35. Oztekin, A.*, Kong, Z.J., and Uysal, O., 2010, "UseLearn: A Novel Checklist and Usability Evaluation Method for eLearning Systems by Criticality Metric Analysis," *International Journal of Industrial Ergonomics*, Vol. 40, No.4, pp. 455-469.

J36. Huang, W., Konda, B. R., and Kong, Z.J., 2010, "Geometric Tolerance Simulation Model for Rectangular and Circular Planar Features", *Transactions NAMRI/SME*, Vol. 38, pp. 363-370.

J37. Oztekin, A.*, Pajouh, F.M., Erande, K.*, Kong, Z.J., Bukkapatnam S.T., and Swim, L.K., 2010, "Criticality Index Analysis based Optimal RFID Reader Placement Models for Asset Tracking," *International Journal of Production Research*, Vol. 48, No. 9, pp. 2679 – 2698.

J38. Huang, W., Kong, Z.J., and Chennamaraju, A., 2010, "Robust Design for Fixture Layout in Multi-Station Assembly Systems using Sequential Space Filling Method," *ASME Transactions Journal of Computing and Information Science in Engineering*, Vol. 10, No. 4, 041001.

J39. Kong, Z.J., Huang, W., and Oztekin, A.*, 2009, "Variation Propagation Analysis for Multi-Station Assembly Process with Consideration of GD&T Factors," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 131, No. 5, p. 051010.

J40. Oztekin, A.*, Delen, D., and Kong, Z.J., 2009, "Predicting the Graft Survivability for Thoracic Transplantation Patients: An Integrated Data Mining Methodology," *International Journal of Medical Informatics*, Vol. 78, No. 12, pp. 84-96.

J41. Phatak, U.*, Bukkapatnam, S., Kong, Z.J., Chandrasekaran, N., Varghese, S. and Komanduri, R., 2009, "Sensor based Modeling of Slurry Chemistry Effects on MRR in Copper CMP," *International Journal of Machine Tools and Manufacture*, Vol. 49, No. 2, pp. 171-181.

J42. Huang, W., and Kong, Z.J., 2008, "Model Simplification in Compliant Part Assembly Analysis," *Transactions of NAMRI/SME*, Vol. 36, pp. 549-556.

J43. Kong, Z.J., Ceglarek, D., and Huang, W., 2008, "Multiple Fault Diagnosis Method in Multi-Station Assembly Processes using State Space Model and Orthogonal Diagonalization analysis," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 130, No. 1, p.011014.

J44. Huang, W., and Kong, Z.J., 2008, "Simulation and Integration of Geometric and Rigid Body Kinematics Errors for Assembly Variation Analysis," *Journal of Manufacturing Systems*, Vol. 27, No. 1, pp. 36-44.

J45. Huang,W., Lin, J., Bezdecny, M, Kong, Z.J., and Ceglarek, D., 2007, "Stream-of-Variation Modeling I: A Generic 3D Variation Model for Rigid Body Assembly in Single Station Assembly Processes," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 129, No. 4, pp. 821-831.

J46. Huang,W., Lin, J., Kong, Z.J., and Ceglarek, D., 2007, "Stream-of-Variation Modeling II: A Generic 3D Variation Model for Rigid Body Assembly in Multi Station Assembly Processes," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol., 129, No. 4., pp. 832-842.

J47. Kong, Z.J. and Ceglarek, D., 2006, "Fixture Configuration Synthesis for Reconfigurable Assembly Using Procrustes-based Pairwise Optimization," *Journal of Manufacturing Systems*, Vol. 25, No. 1, pp. 25-38.

J48. Kong, Z.J., and Ceglarek, D., 2006, "Stream of Variation Analysis for Multiple Station Assembly with Various Tolerance Modes", *Transactions of NAMRI/SME*, Vol. 34, pp. 469-476.

J49. Kong, Z.J., Huang, W., and Ceglarek, D., 2005, "Visibility Analysis for Assembly Fixture Calibration Using Screen Space Transformation," *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 126, No.3. pp. 622-634.

J50. Huang, W., Kong, Z.J., Ceglarek, D., and Brahmst, E., 2004, "The Analysis of Feature-based Measurement Error in Coordinate Metrology," *IISE Transactions*, Vol. 36, No. 3, pp. 237-251.

J51. Kong, Z.J. and Ceglarek, D., 2003, "Rapid Deployment of Reconfigurable Assembly Fixtures using Workspace Synthesis and Visibility Analysis," *Annals of the CIRP*, Vol. 52/1, pp. 13-16.

Journal Publication (under review):

J1. Cantin-Garside, K.D., Kong, Z.J., White, W.S., Antezana, L., Kim, S., Nussbaum, M.A., 2019 "Detecting and Classifying Self-Injurious Behavior in Autism Spectrum Disorder using Machine Learning Techniques," *IEEE Journal of Biomedical and Health Informatics*.

J2. Liu, C.*, and Kong, Z.J., 2019, "A Bilateral Time Series Modeling Approach for Online Quality Prediction in Additive Manufacturing", to be submitted to *IEEE Trans J. of Automation Science and Engineering*.

Journal Publication (under preparations):

J3. Liu, C.*, and Kong, Z, 2019, "Graph Theory based Statistical Quality Control for Processes with Non-Gaussian Data" to be submitted to *IISE Trans*.

J4. Liu, C.*, and Kong, Z.J., 2019, "Manifold Learning based Classification Analysis", to be submitted to *IEEE Trans J. of Automation Science and Engineering*.

J5. Shen. B.*, Kong, Z.J. 2019, "CCA-based classification method for high dimensional data," to be submitted to *IISE Transactions*.

J6. Shen. B.*, Kong, Z.J. 2019, "A new feature extraction method using tensor analysis," to be submitted to *IISE Transactions*

<u>Conference Papers (21 published)</u>

C1. Rao, P., Kong, ZJ., Johnson, B., "In Situ Monitoring and Printability Analysis of Hybrid Hydrogels for Tissue Engineering," *The Proceedings of the Annual International Solid Freeform Fabrication Symposium*, Austin, TX, August 13-15, 2018.

C2. Law, A., Southon, Ni., Senin N., Stavroulakis, P., Leach, R., Goodridge, R.D., Kong, Z.J., "Curvature-based segmentation of powder bed point clouds for in-process monitoring," *The Proceedings of the Annual International Solid Freeform Fabrication Symposium*, Austin, TX, August 13-15, 2018.

C3. Liu, C.*, and Kong, Z.J. "A bilateral time series modeling approach for online quality prediction in additive manufacturing," *Proceedings of the 2018 Industrial and Systems Engineering Conference*, Orlando, FL, May 19-22, 2018.

- **Best Student Paper Award Finalist (Liu, C.), Division of Quality Control and Reliability Engineering (QCRE), IISE Annual Research Conference, 2018**

C4. Liu, C., and Kong, Z.J., "An Integrated Manifold Learning Approach for Online Process Monitoring of Additive Manufacturing Processes**,"** *INFORMS Annual Meeting*, Houston, TX, Oct. 22-25, 2017.

- **Best Paper Award, Quality Statistics and Reliability (QSR) Section, INFORMS, 2017**

C5. Tootooni, S., Dsouza, A., Donovan, R., Rao, P., Kong, Z.J., and Borgesen, P., "Assessing the Geometric Integrity of Additive manufactured Parts from Point Cloud Data using Spectral Graph Theoretic Sparse Representation-based classification," *Proceedings of the ASME 2017 12th International Manufacturing Science and Engineering Conference*, Los Angeles, CA, June 4-8, 2017.

C6. Liu, C.*, Roberson, D.*, and Kong, Z.J. "Textural Analysis-based Online Closed-Loop Quality Control for Additive Manufacturing Processes," *Proceedings of the 2017 Industrial and Systems Engineering Conference*, Pittsburgh, PA, May 20-23, 2017.

- **Best Paper Award, Division of Quality Control and Reliability Engineering (QCRE), IISE Annual Research Conference, 2017**

C7. Rao, P., Kong, Z.J., Duty, C., and Smith, R. "Three Dimensional Point Cloud Measurement Based Dimensional Integrity Assessment for Additive Manufactured Parts Using Spectral Graph Theory," *Proceedings of the ASME 2017 11th International Manufacturing Science and Engineering Conference*, Blacksburg, VA, June 27-July 1, 2016.

C8. Rao, P., Bukkapatnam, S., Kong, Z.J., Beyca, O. *, and Case, K., "Quantification of Ultraprecision Surface Morphology using an Algebraic Graph Theoretic Approach," *The 43th SME North American Manufacturing Research Conference*, Charlotte, NC, June 8-12, 2015.

C9. Rao, P., Liu, J. *, Roberson, D. *, Kong, Z.J., and Williams, C., "Sensor-based Online Process Fault Detection in Additive Manufacturing, " *Proceedings of the ASME 2015 10th International Manufacturing Science and Engineering Conference*, Charlotte, NC, June 8-12, 2015.

C10. Pahwa, A., Huang, W., and Kong, Z.J., "Kernel Density Estimation and Metropolis-Hastings Sampling in Process Capability Analysis of Unknown Distributions," *ASME 2012 International Manufacturing Science and Engineering Conf.*, University of Notre Dame, IN, USA, June 4-8, 2012.

C11. Mistarihi, M.*, Kong, Z.J., Bukkapatnam, S.B., Ley, T., and Liu, T., "A Quasi-Recursive Correlation Dimension Analysis for Online Structural Health Monitoring (SHM)," *IISE Annual Conference. Proceedings*, Orlando, FL, USA, May 19-23, 2012.

C12. Bukkapatnam, S., Rao, P. *, Beyca, O.*, Kong, Z.J., and Komanduri, R., "Towards Real-time Detection of Incipient Surface Variations in Ultra-Precision Machining Process," *44th CIRP Conference on Manufacturing Systems*, Madison, WI, USA, May 31-June 3, 2011.

C13. Oztekin, A.*, Pajouh, F.M., Kong, Z.J., and Bukkapatnam, S.T., "Determining the Optimum Number of RFID Readers for Efficient Asset Tracking," *Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, San Diego, CA, August 30-September 2, 2009.

C14. Huang, W., and Kong, Z.J., "Process Capability Sensitivity Analysis for Design Evaluation of Multi-Station Assembly Systems," *The 4th annual IEEE Conference on Automation Science and Engineering* (*CASE*), Washington D.C., August 23-26, 2008.

C15. Qian, L., and Kong, Z.J., "Supply Chain Performance with Various Price-dependent Demand Functions and Component Commonality in One Product family," *The 4th annual IEEE Conference on Automation Science and Engineering* (*CASE*), Washington D.C., August 23-26, 2008.

C16. Huang, W., Kong, Z.J., and Ceglarek, D., "Stream-Of-Variation Modeling I: A Generic 3D Variation Model for Rigid Body Assembly in Single Station Assembly Processes," *ASME International Manufacturing Science and Engineering Conference* (*MSEC*), Ypsilanti, Michigan, Oct. 8-11, 2006.

C17. Kong, Z.J., Ceglarek, D., and Huang, W., "Multiple Fault Diagnosis Method in Multi-Station Assembly Processes Using State Space Model and Orthogonal Diagonalization Analysis (ODA)," *International Mechanical Engineering Congress and Exposition* (*IMECE*), Orlando, Florida, Nov 5-11, 2005.

C18. Kong, Z.J., and Ceglarek, D., "Fixture Workspace Synthesis for Hybrid Assembly Systems," *The 3rd International Conference on Reconfigurable Manufacturing*, Ann Arbor, MI, May 9-12, 2005.

C19. Kong, Z, Ceglarek, D., and Huang, W., "Visibility Analysis for Assembly Fixture Calibration Using Screen Space Transformation," *ASME 2003 Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Chicago, Illinois, September 2-6, 2003.

C20. Kong, Z.J. and Ceglarek, D., "Fixture configuration synthesis for reconfigurable assembly using procrustes-based pairwise optimization," *31st North American Manufacturing Research Conference* (*NAMRC*), McMaster University, Hamilton, Ontario, Canada, May 2003.

C21. Smithson, A, Kong, Z.J., and Ceglarek, D., "Fixture Reusability Index for Automotive Assembly Systems," *International Mechanical Engineering Congress & Exposition* (*IMECE*), Orlando, Florida, Nov. 5-10, 2000.

Conference Presentations and Invited Talks

P1. "A Bilateral Time Series Model for Additive Manufacturing Process Monitoring," *Industrial and Systems Engineering Research Conference,* Orlando, Florida, May 18-21, 2018.

P2. "An Integrated Manifold Learning for Online Monitoring of Additive Manufacturing Processes," *INFORMS Annual Meeting*, Houston, TX, Oct. 22-25, 2017.

P3. "Spatiotemporal Modeling and Layer-wise Prediction of Porosity in Additive Manufacturing," *INFORMS Annual Meeting*, Houston, TX, Oct. 22-25, 2017.

P4. "Textural Analysis-based Online Closed-Loop Quality Control for Additive Manufacturing Processes," *Industrial and Systems Engineering Research Conference*, Pittsburgh, PA, May 20-23, 2017.

P5. "Layer-wise Porosity Modeling and Forecasting for Additive Manufacturing with Spatiotemporal Log-Gaussian Cox Process Analysis," *Industrial and Systems Engineering Research Conference, Pittsburgh*, PA, May 20-23, 2017.

P6. "Smart Additive Manufacturing," *Invited Seminar* by the Department of Industrial and Systems Engineering, The University of Arkansas, March 9, 2017.

P7. "Detection for Cyber-physical Attacked Additive Manufactured Parts by Real-time Sensing and Analysis," *INFORMS Annual Meeting*, Nashville, TN, Nov. 13-16, 2016.

P8. "Spatiotemporal Modeling and Analysis with Dirichlet Process Mixing for Non-Gaussian and Nonstationary Data," *INFORMS Annual Meeting*, Nashville, TN, Nov. 13-16, 2016.

P9. "Sparse Representation based Classification using Hybrid Norm," *Industrial and Systems Engineering Research Conference*, Anaheim, CA, May 21-24, 2016.

P10. "Porosity detection based on layer-wise images for additive manufacturing processes," *Industrial and Systems Engineering Research Conference, Nashville*, TN, May 30-June 2, 2015.

P11. "Sensor Selection Optimization for Classification of manual material handling tasks," *Industrial and Systems Engineering Research Conference*, Nashville, TN, May 30-June 2, 2015.

P12. "Graphical Models with Mixed Types of Variables for Additive Manufacturing Process Modeling," *Industrial and Systems Engineering Research Conference*, Nashville, TN, May 30-June 2, 2015.

P13. "Online Real-time Quality Monitoring in Additive Manufacturing Processes using Heterogeneous Sensors," *Industrial and Systems Engineering Research Conference*, Nashville, TN, May 30-June 2, 2015.

P14. "Heterogeneous Sensor Data Fusion for Real-time Monitoring in Additive Manufacturing (AM) Process," *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P15. "Joint Modeling of Quantitative and Qualitative Responses in Additive Manufacturing," *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P16. "Recursive Reconstruction Method for Time Varying Sparse Signal from Noisy Undersampled Measurements," *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P17. "Sensor Data Fusion for Real-time Monitoring in Ultraprecision Machining (UPM) Process," Industrial and Systems Engineering Research Conference, Montreal, Canada, May 31-June 3, 2014.

P18. "A Greedy Bayesian Compressive Sensing Method for Fault Diagnosis of Multi-Station Assembly Processes: A Novel Algorithm with Performance Guarantee," *INFORMS Annual Meeting*, Minneapolis, MN, Oct. 6-9, 2013.

P19. "An Evidence Theoretic Heterogeneous Sensor Data Fusion Approach for Real-time Monitoring in Ultraprecision Machining (UPM) Process," *INFORMS Annual Meeting*, Minneapolis, MN, Oct. 6-9, 2013.

P20. "Chemical Mechanical Planarization (CMP) Process Monitoring by Using Evolutionary Clustering Analysis," *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 14-17, 2012.

P21. "Optimal Sensor Placement for Multi-station Assembly Processes Based on Compressive Sensing," *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 14-17, 2012.

P22. "Quasi-Recursive Correlation Dimensional Analysis for Structural Health Monitoring," Industrial and Systems Engineering Research Conference, Orlando, FL, May 20-22 , 2012

P23. "Fault Diagnosis for Partially Diagnosable Systems using an Enhanced Relevance Vector Machine," *INFORMS Annual Meeting*, Charlotte, NC, Nov. 13-16, 2011.

P24. "Process Monitoring for Chemical and Mechanical Planarization Processes using Evolutionary Analysis," *INFORMS Annual Meeting*, Charlotte, NC, Nov. 13-16, 2011.

P25. "A Data Mining Approach to Prognostic Analysis of Thoracic Transplantations," *INFORMS Annual Meeting*, Austin, TX, Nov. 7-10, 2010.

P26. "Real-time Prediction of Incipient Surface Variations in Ultraprecision Machining," *INFORMS Annual Meeting*, Austin, TX, Nov. 7-10, 2010.

P27. "Sequential Bayesian Decision Making for End-Point Detection of Chemical Mechanical Planarization (CMP) Processes," *INFORMS Annual Meeting*, San Diego, CA, Oct. 9-12, 2009.

P28. "Process Performance Prediction for Chemical Mechanical Planarization (CMP) by Integration of Statistical Modeling and Process Dynamic Modeling using Particle Filtering," *INFORMS Annual Meeting*, Washington D.C., Oct. 12-15, 2008.

P29. "Fault Diagnosis for Partially Diagnosable Assembly Processes," *INFORMS Annual Meeting*, Washington D.C., Oct. 12-15, 2008.

P30. "Multivariate Process Capability Analysis with Non-Parametric Bootstrap Method," *INFORMS Annual Meeting*, Washington D.C., Oct. 12-15, 2008.

P31. "Process Capability Sensitivity Analysis for Design Evaluation of Multi-Station Assembly Systems," *The 4th annual IEEE Conference on Automation Science and Engineering (CASE)*, Washington D.C., August 23-26, 2008.

P32. "Supply Chain Performance with Various Price-dependent Demand Functions and Component Commonality in One Product family," *The 4th annual IEEE Conference on Automation Science and Engineering (CASE)*, Washington D.C., August 23-26, 2008.

P33. "Incorporation of Some GD&T Aspects into Stream of Variation Analysis for Multistage Assembly Processes," *INFORMS Annual Meeting*, Seattle, Washington, Nov. 4-7, 2007.

P34. "Stream of Variation Analysis in Assembly Systems: Modeling and Its Applications," *INFORMS Annual Meeting*, Seattle, Washington, Nov. 4-7, 2007.

P35. "Stream of Variation Analysis for Multi-Station Assembly Systems," Mercury Marine, Inc., Stillwater, Oklahoma, Jan. 28, 2008.

P36. "Stream of Variation Analysis for Multi-Station Assembly Systems," Spirit AeroSystems, Inc., Tulsa, Oklahoma, May. 19, 2007.

P37. "Stream-Of-Variation Modeling I: A Generic 3D Variation Model for Rigid Body Assembly in Single Station Assembly Processes," *ASME International Manufacturing Science and Engineering Conference (MSEC)*, Ypsilanti, Michigan, Oct. 8-11, 2006.

P38. "Mode-Based Tolerance Analysis in Multi-Station Assembly using Stream of Variation Model," *The 34th North American Manufacturing Research Conference (NAMRC)*, Milwaukee, Wisconsin, May 23-26, 2006.

P39. "Fixture Workspace Synthesis for Hybrid Assembly Systems," *The 3rd International Conference on Reconfigurable Manufacturing*, Ann Arbor, MI, May 9-12, 2005.

P40. "Multiple Fault Diagnosis Method in Multi-Station Assembly Processes Using State Space Model and Orthogonal Diagonalization Analysis (ODA)," *The International Mechanical Engineering Congress and Exposition (IMECE)*, Orlando, Florida, Nov 5-11, 2005.

P41. "Stream-of-Variation Analysis System for Multistage Assembly Processes," Guest lecture to IOE 566 Advanced Quality Control, University of Michigan-Ann Arbor, Nov. 22, 2005.

P42. "Stream-of-Variation Analysis System for Multistage Assembly Processes," The United States Council for Automotive Research (USCAR), Southfield, Michigan, Oct. 4, 2005.

P43. "Stream-of-Variation Analysis System for Multistage Assembly Processes," General Motor's Technical Center, Warren, Michigan, April 25, 2005.

P44. "Visibility Analysis for Assembly Fixture Calibration Using Screen Space Transformation," *ASME 2003 Design Engineering Technical Conferences and Computers and Information in Engineering Conference Chicago*, Illinois USA, September 2-6, 2003.

P45. "Hybrid Automotive Body Assembly Systems Paradigms," Ford's Science Research Lab, Dearborn, Michigan, June 16, 2003.

P46. "Analysis of Assembly System Reconfigurability," NSF-Site Visit of NSF-Engineering Research Center at University of Michigan, May 12, 2003.

P47. "Investigation of Reusable/Reconfigurable Fixture System for Auto Body Assembly," Center for Quality and Productivity Improvement at University of Wisconsin-Madison, March 15, 2002.

P48. "Reusability of Auto Body Assembly System Tooling," NSF-Industry/University Cooperative Research Center at University of Michigan, July 12, 2000.

VIII. Student Advising (Postdoc, Ph.D., and MS Theses, and Undergrad)

- Postdoctoral Researchers (1 finished at Virginia Tech):
  - Prahalad Rao (August 2013 - August 2014)
    - Research topic: Quality control for Additive Manufacturing Processes
    - Current position: Assistant Professor in the Department of Mechanical and Materials Engineering, University of Nebraska – Lincoln
    - NSF CAREER Award, 2018
- Ph.D. Students (7 graduated, 8 in process):

  At Oklahoma State University (4 graduated)
  - Asil Oztekin (graduated in Dec. 2010)
    - Dissertation title: Data mining-based survival analysis and simulation modeling for lung transplant
    - Current position: Associate Professor in Department of Operations and Information Systems at University of Massachusetts - Lowell
  - Omer Beyca (graduated in July 2013)
    - Dissertation title: Sensor based real-time process monitoring for ultra-precision manufacturing processes with non-linearity and non-stationarity
    - Current position: Assistant Professor in the Department of Industrial Engineering at Fatih University, Turkey
  - Mahmoud Mistarihi (graduated in July 2013)
    - Dissertation title: Sensor-based nonlinear and nonstationary dynamic analysis of online Structural Health Monitoring
    - Current position: Assistant Professor in the Department of Industrial Engineering at Yarmouk University, Jordan.
  - Prahalad Rao (co-advised with Dr. Bukkapatnam, graduated in July 2013)

- Dissertation title: Sensor-based monitoring and inspection of surface morphology in ultraprecision manufacturing processes
- Current position: Assistant Professor in the Department of Mechanical and Materials Engineering, University of Nebraska – Lincoln

At Virginia Tech (3 graduated, 8 in process)

- Kaveh Bastani (graduated in Feb. 2016)
  - Dissertation title: Compressive sensing approaches for sensor-based predictive analytics in manufacturing and service systems
  - Current position: Senior Analytics Engineer at UniFund, Inc.
- Jia (Peter) Liu (graduated in July 2017)
  - Dissertation title: Heterogeneous Sensor Data based Online Quality Assurance for Advanced Manufacturing using Spatiotemporal Modeling
  - Current position: Assistant Professor, the Department of Industrial and Systems Engineering, Auburn University.
- Chen-ang Liu (graduated in June 2019)
  - Dissertation title: Smart Additive Manufacturing Using Advanced Data Analytics and Closed Loop Control
  - Current position: Assistant Professor, the School of Industrial Engineering and Management, Oklahoma State University.
- Bo Shen (expected to graduate in May 2022)
  - Dissertation topic: Transfer learning for process monitoring
- Jihoon Chung (expected to graduate in May 2022)
  - Dissertation topic: Deep reinforcement learning for process control
- Maede Maftouni (expected to graduate in May 2022)
  - Dissertation topic: Deep learning for energy system modeling and control
- Andrew Law (expected to graduate in May 2023)
  - Dissertation topic: Development of additive manufacturing metrology systems
- Rongxuan (Rafael) Wang (expected to graduate in August 2023)
  - Dissertation topic: Experiment, sensing, and analysis for advanced manufacturing processes.
- Benjamin Standfield (expected to graduate in August 2024)
  - Dissertation topic: Communication and analytics for distributed smart manufacturing systems.
- Raghav Gnanasambandam (expected to graduate in August 2024)
  - Dissertation topic: Applications of machine learning for advanced manufacturing data analytics

- Daniel Elkins (expected to graduate in August 2023)
  - Dissertation topic: Applications of machine learning for optimal material design

- M.S. Students with Thesis (4 graduated):
  - Kaustubh Erande (graduated in Dec. 2008)
    - Thesis title: Design of user driven real time asset tracking system using RFID in a healthcare environment
    - Current position: Senior Manager Strategy at Walmart.
  - Ermias Biru (graduated in Dec. 2010)
    - Thesis title: Statistical analysis for structural health monitoring of Critical Bridges
    - Current position: Analyst at Johns Hopkins HealthCare
  - Banafsheh Aven Samareh (graduated in Dec. 2013)
    - Thesis title: Non-parametric Bayesian pattern recognition for biological analysis
    - Current position: Assistant Professor, the Department of Systems Science and Industrial Engineering (Ph.D. from the University of Washington-Seattle in 2019 under the supervision of Dr. Shuai Huang).
  - David Roberson (graduated in August 2016)
    - Thesis title: Sensor-based Online Process Monitoring in Additive Manufacturing

- Undergrad Research via ISE 4994 (15 students):
  - Brian Umberger (Fall 2015)
    - Project: Investigation of Magnetic Field-Assisted Finishing
  - Manisha Iruvanti (Fall 2015)
    - Project: Investigation of Magnetic Field-Assisted Finishing
  - Yuzhe Zhu (Fall 2015)
    - Project: Real Time Process Monitoring for 3D Printing Process
  - Taha Ashayer-Soltani (Spring 2017)
    - Project: Maintenance of Fused Deposition Modeling Machine
  - Dylan Rice (Spring 2017)
    - Project: Magnetic Field-Assisted Finishing on Additive Manufactured Parts
  - Ana Paula Clares (Fall 2017, Summer 2018, Fall 2018)
    - Project: Sensor Mounting and Testing for 3D Printer
    - Project: Robot based 3D printer
  - Junru Zhang (Fall 2017)
    - Project: Sensor Mounting and Testing for 3D Printer
  - Yuyang Zhou (Fall 2017, Spring 2018)
    - Project: Magnetic Abrasive Finishing for Additive Manufactured Parts
  - Jong Pil Yun (Fall 2017)
    - Project: Magnetic Abrasive Finishing for Additive Manufactured Parts
  - Adarsh Ramesh (Fall 2017)

        - Project: Magnetic Abrasive Finishing for Additive Manufactured Parts
    - Dan O'Lear (Spring 2018)
        - Project: Magnetic Abrasive Finishing for Additive Manufactured Parts
    - Peter Shaw (Fall 2018)
        - Integration of 3D printer with robotics
    - Gordon Quach (Spring 2018, Fall 2018, Spring 2019)
        - Project: Real Time Process Monitoring for 3D Printing Process
    - Tyler Entner (Spring 2018, Fall 2018)
        - Project: Real Time Process Monitoring for 3D Printing Process
    - Nicholas Utech (Fall 2018, Spring 2019)
        - Project: 3D printing quality control using 3D scanner
- Senior Design (11 teams with 43 students):
    - Team: Nick Bambino; David Roberson; Jake Snyder; Diego Valdez; Wade Anderson (2013-2014)
        - Project: Defect Analysis in Fused Deposition Modeling Using a Real-time Sensing System
    - Team: Coleman Hostvedt; Nick Martin; Austin Pritchett; Mark Snider (2014-2015)
        - Project: Process Monitoring for Additive Manufacturing
    - Team: Karim Aoun, Lizabeth Butterfield, Kara Chill, Mary-Gallagher Hunter (2014-2015)
        - Project: A New Beginning for the LCI Line
    - Team: Lance Altizer Jr.; Leighton Bennett; Andrew McCann; Ellen Wengert (2015-2016)
        - Project: Abbott Laboratories
    - Team: Osama Riyad Alshaer; Ousmane Gassama Diaby; Jack Foster Sistare; Joe Walton (2015-2016)
        - Project: Optimization of Hardware Types Used on the Assembly Floor
    - Team: Benton Stickley; Carla Downs; Qiuyi Wang; Nabil Shakib (2016-2017)
        - Project: Product Mix Impact on Operating Availability
    - Team: Justin Halper; Abigail Smith; Andrew Schoka; Mary Pat Colandro (2016-2017)
        - Project: Mine Reclamation Analysis
    - Team: Dylan Burnette; Rachel Rahmes; Joe McDonald; Liza Salhoub (2017-2018)
        - Project: New Warehouse Forklift Utilization
    - Team: Madison Dagley; Corey Miodus-Santini (2017-2018)
        - Project: Additive Manufacturing for High Usage Parts
    - Team: Deborah Asabere, Rebecca Gullickson, Yangyi Li, Chuyue Liang, Alex Pfost, Runping Yu (2018-2019)
        - Project: VT Athletics: Game Day Traffic Flow
    - Team: Alayna Francis, Jamie Gentile, Caroline Jablonski, Azmayeen Rahman (2018-2019)
        - Process Control to Reduce Bit Defects

IX. Honors and Awards Received by Students under My Supervision

- Asil Oztekin (Ph.D. student)
    - Outstanding Research Assistant Award by School of Industrial Engineering and Management, Oklahoma State University, 2009

- The Hanel Storage Systems Honor Scholarship by the Material Handling Education Foundation Inc., 2010

- Omer Beyca (Ph.D. student)
  - Best Student Paper Competition Finalist, QSR Section, INFORMS, 2009
- Kaveh Bastani (Ph.D. student)
  - Best Student Paper Competition Finalist, QSR Section, INFORMS, 2015
  - Best Paper Award, *IISE Transactions* (Quality & Reliability Engineering), 2018
- Chenang Liu (Ph.D. student)
  - Best Paper Award, QSR Section, INFORMS, 2017
  - Best Paper Award, QCRE Division, IISE Annual Conference, 2017
  - Best Student Paper Finalist, QCRE Division, IISE Annual Conference, 2018
  - APM Outstanding Graduate Teaching Assistant award, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2018
  - IISE Gilbreth Memorial Fellowship, 2018
  - Best Poster Competition, the 2nd place, *INFORMS Annual Meeting*, Phoenix, AZ, November 4-7, 2018.
  - Best Student Poster Competition, the 1st place, Cluster of Quality Reliability and Statistics, *INFORMS Annual Meeting*, Phoenix, AZ, November 4-7, 2018.
- Andrew Law (Master's student)
  - Outstanding Master's Student of the College of Engineering at Virginia Tech, 2018
  - Grado Department of Industrial and Systems Engineering, M.S. Student of the Year Award, 2018
  - APM Outstanding Graduate Teaching Assistant award, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2019
- Rongxuan Wang (Master's student)
  - Poster Competition of Torgersen Graduate Research Awards (Master's category) of College of Engineering at Virginia Tech, the 2nd place, 2018
  - ISE Master student of the year, Spring 2019
- Tyler Entner and Gordon Quach (Undergraduate Students)
  - ISE Undergraduate Research Symposium, Poster Competition, 2nd place, Spring 2018
- Gordon Quach (Undergraduate Student)
  - ISE Undergraduate Research Symposium, Poster Competition, 1st place, Spring 2019
- Nicholas Utech (Undergraduate Student)
  - ISE Undergraduate Research Symposium, Poster Competition, 2nd place, Spring 2019
- Senior design: Alayna Francis, Jamie Gentile, Caroline Jablonski, Azmayeen Rahman.
  - Applications of ISE Methods & Tools award, Spring 2019

X. Professional Activities

- Co-Chair for 2016 *Industrial and System Engineering Research Conference* (*ISERC*)
- President of *IISE Division of Quality Control and Reliability Engineering* (*QCRE*) (2015-2016)
- President-elect of *IISE Division of Quality Control and Reliability Engineering* (*QCRE*) (2014-2015)
- Board member of *IISE Division of Quality Control and Reliability Engineering* (*QCRE*) (2012-2014)
- Council member for *INFORMS Cluster of Quality Statistics and Reliability* (*QSR*) (2010-2012)
- Associate Editor for *IISE Transaction* (Quality and Reliability Engineering) (2017-present)
- Associate Editor for *IISE Transaction* (Design and Manufacturing) (2017-2018)
- Department Editor for *IISE Transaction* (Design and Manufacturing) (2018-present)
- Associate Editor for *Journal of Manufacturing Systems* (2011-2017)
- Guest Editor for *IISE Transaction* on Additive Manufacturing 2017
- Guest Editor for *Journal of Manufacturing Systems* special issue for International Conference on Frontiers of Design and Manufacturing (ICFDM) 2016
- Member of *North American Manufacturing Research Institute* (NAMRI) Scientific Committee, 2016-2020
- Associate Chair of *North American Manufacturing Research Institute* (NAMRI) Scientific Committee, 2014-2016
- National Science Foundation Panel Review, 2010, 2011, 2012
- National Academies Panel on Review of the Engineering Laboratory at NIST, 2017
- External reviewer for tenure and promotion, Shanghai Jiaotong University (China), 2016
- External proposal reviewer for Advanced Manufacturing and Engineering (AME) program of Singapore, 2017
- External proposal reviewer for Research Grants Council (RGC) of Hong Kong, 2018
- Associate Editor for 2008 *IEEE Conference for Automation Science and Engineering*
- Session Chair for *INFORMS Annual Meeting, QSR cluster* (2007-2015, 2018)
- Symposium Organizer for 2006 *ASME International Conf. on Manufacturing Science and Engineering*
- Session Chair for 2006 *ASME International Conference on Manufacturing Science and Engineering.*
- Member of Scientific Committee, *The First International Symposium on Computing in Science and Engineering*, June 3-5, 2010, Kusadasi, Aydin, Turkey
- Member of the host committee, *North American Manufacturing Science and Engineering*, June 27-July 1, 2016.
- Reviewer for:
    - *Additive Manufacturing*
    - *Applied Mathematical Modeling*
    - *ASME Transactions on Manufacturing Sciences and Engineering*

- *ASME Transactions on Computing and Information Science in Engineering*
- *IEEE Transactions on Automation Science and Engineering*
- *IISE Transactions*
- *International Journal of Advanced Manufacturing Technology*
- *International Journal of Flexible Manufacturing Systems*
- *International Journal of Machining Science and Technology*
- *International Journal of Manufacturing Research*
- *International Journal of Production Research*
- *Journal of Computers and Industrial Engineering*
- *Journal of Computer Methods and Programs in Biomedicine*
- *Journal of Construction Engineering and Management*
- *Journal of Manufacturing Processes*
- *Journal of Manufacturing Systems*
- *Journal of Reinforced Plastics and Composites*
- *Naval Research Logistics*

- Faculty advisor for ASQ student chapter at Oklahoma State University, 2006 - 2013
- OSU ENSC 2213 oversight committee, 2007 - 2013
- Faculty member of interview committee for OSU CEAT Scholar Day, 2009
- IE&M ABET evaluation committee, 2007 - 2013
- ISE Undergraduate Program Committee at Virginia Tech, 2013-2014
- ISE Graduate Program Committee at Virginia Tech, 2014-2018
- ISE Faculty Search Committee Chair at Virginia Tech, 2015, 2018, 2019
- ISE Faculty Search Committee at Virginia Tech, 2017
- ISE Seminar Committee Chair at Virginia Tech, 2015

XI. Professional Society Memberships

- Member of Institute of Industrial and Systems Engineers (IISE)
- Member of Institute for Operation Research and the Management Sciences (INFORMS)
- Member of Institute of Electrical and Electronics Engineers (IEEE)
- Member of American Society of Mechanical Engineers (ASME)