CURRICULUM VITAE

Zhenyu (James) Kong, Ph.D., Professor
Grado Department of Industrial and Systems Engineering, Virginia Tech
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I. Academic Qualifications

- Ph.D. Industrial & Systems Engineering, University 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

• Ralph H. Bogle Jr. Professor	Grado Department of Industrial & Systems Engineering, Virginia Tech	06/2024 - present
• Professor	Grado Department of Industrial & Systems Engineering, Virginia Tech	08/2019 - present
• Associate Professor	Grado Department of Industrial & Systems Engineering, Virginia Tech	08/2013 - 08/2019
• Associate Professor	School of Industrial Engineering & Management, Oklahoma State University	07/2012 - 08/2013
• Assistant Professor	School of Industrial Engineering & 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 & Systems Engineering, University of Wisconsin-Madison	09/2000 - 07/2004
• Research Fellow	Department of Mechanical Engineering, University of Michigan-Ann Arbor	10/1998 - 09/2000

III. Research Interests

- Machine learning and AI-based cyber-physical manufacturing systems
- Real-time sensing, advanced analytics, and process monitoring/control for smart manufacturing.
- Modeling, synthesis, and diagnosis for large and complex manufacturing systems.

IV. Honors, Awards, & Significant Professional Activities

- Ralph H. Bogle Professorship, Virginia Tech, 2024.
- Outstanding Faculty Mentor, Graduate School, Virginia Tech, 2023.
- Fellow of the American Society of Mechanical Engineers (ASME), 2022.

- One of the 20 Most Influential Academics in Smart Manufacturing honored by SME's Smart Manufacturing magazine, 2021.
- Fellow of the Institute of Industrial and Systems Engineers (IISE), 2020.
- The Harbert S. Gregory Distinguished Lectureship, the University of Florida, 2021.
- IEOM Distinguished Professor Award, IEOM Society International, 2021.
- Editor, *IISE Transactions, Focused Issue on Design and Manufacturing*, 2021-present.
- Associate Editor, *IEEE Transactions on Automation Science and Engineering*, 2019-present.
- Dean's Award for Excellence in Research, College of Engineering, Virginia Tech, 2019.
- APM Outstanding Faculty Award for 2017-2018, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2018.
- President, Division of Quality Control and Reliability Engineering, Institute of Industrial and Systems Engineers (IISE), 2015-2016.
- Conference Co-Chair for *Industrial and System Engineering Research Conference* (*ISERC*), 2016.
- Halliburton Outstanding Faculty Award, College of Engineering, Architecture and Technology, Oklahoma State University, 2013.
- Best Paper and Poster Awards (26, including finalists)
  Best Paper Awards (17):
  (1) First Place Winner, Data Analytics and Information System Track mobile/web app competition, New Orleans, LA, USA, May 27-30, 2023.
  (2) Finalist of Best Track Paper, Quality Control and Reliability Engineering Track, *IISE Annual Conference*, New Orleans, LA, USA, May 27-30, 2023.
  (3) Best Case Study Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, Nov. 23-26, 2022, Indianapolis, IN (Paper C1 in Sec. VII).
  (4) Finalist of the Best Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, Nov. 23-26, 2022, Indianapolis, IN (Paper C2 in Sec. VII).
  (5) PCI's 2022 Robert J. Lyman Best Paper Award (Paper J32 in Sec. VII).
  (6) Best Paper Award, Manufacturing and Design Track, *IISE Annual Conference*, Seattle, WA, USA, May 21-24, 2022 (Paper C6 in Sec. VII).
  (7) Best Paper Award, Data Analytics and Information Systems Track, *IISE Annual Conference*, Seattle, WA, USA, May 21-24, 2022 (Paper C7 in Sec. VII).
  (8) Best Paper Award for Data Challenges, Quality Control and Reliability Engineering Track and ProcessMiner Inc., *IISE Annual Conference*, Seattle, WA, USA, May 21-24, 2022 (Paper C3 in Sec. VII.
  (9) Best Paper Award, Data Mining (DM) Section, *INFORMS Annual Meeting*, Oct. 24-27, 2021 (WOOD: Wasserstein-based Out-of-Distribution Detection).
  (10) The Second Place, Quality Statistics and Reliability (QSR) Section Industry Data Challenge, *INFORMS Annual Meeting*, 2020.
  (11) Finalist of the Best Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, Nov. 8-11, 2020 (paper J33 in Sec. VII).
  (12) Best Paper Award, *IISE Transactions* (Quality & Reliability Engineering), 2018 (paper J47 in Sec. VII).
  (13) Best Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, Houston, TX, USA, October 22-25, 2017 (paper C15 in Sec. VII).

(14) Best Paper Award, Quality Control and Reliability Engineering (QCRE) Track, *IISE Annual Conference*, Pittsburgh, PA, USA, May 21-23, 2017 (paper C17 in Sec. VII).
(15) Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Design and Manufacturing), 2017 (paper J55 in Sec. VII).
(16) Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Quality and Reliability Engineering), 2017 (paper J59 in Sec. VII).
(17) Best Applications Paper Honorable Mention Designation, *IISE Transactions* (Quality and Reliability Engineering), 2015 (paper J65 in Sec. VII).

Best Student Papers of My Graduate Students (7)*:*
(1) Best Student Paper, Manufacturing and Design (MD) Track, *IISE Annual Conference*, 2023
(2) First Place Winner, ProcessMiner Inc. QCRE Data Challenge Competition, *IISE Annual Conference*, 2023
(3) Best Student Paper, Quality Control and Reliability Engineering (QCRE) Track, *IISE Annual Conference*, 2022.
(4) Best Student Paper, Manufacturing and Design (MD) Track, *IISE Annual Conference*, 2022.
(5) Best Student Paper Finalist, Quality Control and Reliability Engineering (QCRE) Track, *IISE Annual Conference*, 2018.
(6) Best Student Paper Finalist, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, 2015.
(7) Best Student Paper Finalist, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, 2009.

Best Poster Awards (2)*:*
(1) Best Poster Award, DMDA Workshop, *INFORMS Annual Meeting*, 2022
(2) Best Poster Competition, the 2nd place, *INFORMS Annual Meeting*, Phoenix, AZ, November 4-7, 2018.

- Research featured by *ISE Magazine*

(1) Research featured by *ISE Magazine*, Vol. 53, No. 10, October 2021 (paper J34 in Sec. VII).
(2) Research featured by *ISE Magazine*, Vol. 51, No. 1, January 2019 (paper J41 in Sec. VII).
(3) Research featured by *ISE Magazine*, Vol. 48, No. 6, June 2016 (paper J53 in Sec. VII).
(4) Research featured by *ISE Magazine*, Vol. 47, No. 9, September 2015 (paper J58 in Sec. VII).
(5) Research featured by *ISE Magazine*, Vol. 46, No. 9, September 2014 (paper J64 in Sec. VII).

V. Courses Taught

At Virginia Tech (Avg teaching eval by undergrad 4.7/6; grad students 5.5/6)

• 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, S22
• ISE 4984	Data Analytics in Mfg. and Service Systems	S16
• ISE 2214	Manufacturing Process Laboratory	F16, F17, F18, S20, F22, F23
• ISE 4404	Statistical Quality Control	S17, F20
• 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 (total ~$45.8M, personal share ~$5.2M, across 35 projects with 32 external)

At Virginia Tech (total ~$43.7M, personal share ~$4.1M)

1. Department of Energy (sub-award via GenEdge), (2024-2026), "Virginia SMART Manufacturing Accelerator." Amount: $2M (VT share: $300,000, personal share: $150,000), Position: PI at Virginia Tech.
2. Office of Naval Research, (2023-2024), "State-of-the-art additive friction stir deposition for advancing manufacturing research and cultivating next-generation workforce." Amount: $800,000 (personal share: $40,000). Position: Co-PI (PI: Dr. Hang Yu).
3. Department of Commerce, (2022-2023), "Build Back Better: The Future of Transportation and Logistics." Amount: $500,000 (personal share: $45,663). Position: senior personnel (PI: Dr. John Provo).
4. National Institute of Health, (2022-2023), "Development of machine-learning methods to support collaboration in a neurodiverse team at work." Amount: 141,992 (personal share: $5,000). Position: Co-PI (PI: Dr. Sunwook Kim).
5. National Institute of Standards and Technology (sub-award via American Bureau of Shipping), (2021-2023), "Standards/Guidance for Rapid Qualification of Metal-Based Additive Manufacturing." Amount: $993,610 (personal share: $140,000), Position: PI at Virginia Tech.
6. Department of Energy/Clean Energy Smart Manufacturing Innovation Institute (sub-awarded via Honeywell Inc.), (2021-2023), "Smart Thermal Processing." Amount: $20,000, Position: PI.
7. Department of Energy/Cybersecurity Manufacturing Innovation Institute, (2021-2023), "Support for Cybersecurity of Energy Efficient Manufacturing." Amount: $200,000 (personal share: $16,000). Position: Co-PI (PI: Dr. Steve McKnight).
8. Office of Naval Research, (2021-2024), "Intelligent Toolpathing for Part Repair via Hybrid Wire Arc Additive Manufacturing." Amount: $598,903 (personal share: $245,831). Position: Co-PI (PI: Dr. Chris Williams).
9. National Science Foundation, (2020-2025), "MIP: GlycoMIP - Automating the Synthesis of Rationally Designed Glycomaterials." Amount: $23M, personal share: $400,000, Position: Senior personnel.
10. Department of Defense, Manufacturing Engineering Educational Program (MEEP), (sub-award via the University of Texas Rio Grande Valley), (2019-2023), "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.

11. Office of Naval Research, Multidisciplinary University Research Initiatives (MURI) Program (sub-award via the University of Tennessee-Knoxville), (2018-2023), "Rationalization of Liquid/Solid and Solid/Solid Interphase Instabilities during Thermal-Mechanical Transients of Metal Additive Manufacturing." Amount: $7,5M (personal share: $1.25M). Position: PI at VT.
12. Department of Energy/Clean Energy Smart Manufacturing Innovation Institute, (2020-2022), "Energy-Efficient Material Processing through Automated Process Monitoring and Controls." Amount: $984,312 (VT share: $243,312; personal share: $202,000). Position: Lead PI.
13. National Science Foundation, (2017-2022), "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.
14. Department of Education, (2018-2022), "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).
15. Office of Naval Research, Defense University Research Instrumentation Program (DURIP), (2019-2020), "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).
16. 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).
17. 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).
18. 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.
19. 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.
20. 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.
21. Center for Commonwealth Advanced Manufacturing, (2016), "Data analytics for advanced manufacturing processes." Amount: $20,000. Position: PI.
22. GenEdge, (2016), "An Online Machine Vision System for Additive Friction Stir Surface Quality Monitoring and Control." Amount: $25,600. Position: PI.
23. 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).
24. Center for Commonwealth Advanced Manufacturing, (2015), "Online Surface Measurement." Amount: $96,446 (VT portion: $50,000). Position: PI.
25. 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.

26. 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)

27. 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).
28. 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.
29. 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.
30. 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).
31. 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).
32. 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.
33. Department of Transportation through Oklahoma Transportation Center, (2010-2011), "Acquisition of a Lidar Laser Scanner for Bridge Inspection." Amount: $200,000. Position: PI.
34. 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).
35. 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 and Patents (Google Scholar citation: 3,972; H-index: 36; i10-index: 74, as of May 23, 2024 ; *students under my supervision)

Book Chapters

B1. Dou, C.*, Liu, C.*, Elkins, D.*, Kong, Z.J., 2023. Online Monitoring and Control of Polymer Additive Manufacturing Processes. *ASM Handbook Vol. 24A: Additive Manufacturing Design and Applications*. DOI: 10.31399/asm.hb.v24A.a0006968.

Journal Publication (90 published/accepted)

J1. Chung, J.*, Zhang, J., Saimon, A.I.*, Liu, Y., Johnson, B.N. and Kong, Z., 2024. Imbalanced spectral data analysis using data augmentation based on the generative adversarial network. *Scientific Reports*, *14*(1), p.13230.

J2. Chung, J.* and Kong, Z.J., 2024. A Sparse Bayesian Learning for Diagnosis of Nonstationary and Spatially Correlated Faults with Application to Multistation Assembly Systems. *IEEE Transactions on Automation Science and Engineering* (conditionally accepted).

J3. Wang, R.*, Wang, R., Dou, C.*, Yang, S., Gnanasambandam, R.*, Wang, A., Kong, Z.J., 2024. Sub-surface thermal measurement in additive manufacturing via machine learning-enabled high-resolution fiber optic sensing. *Nature Communications* (accepted).

J4. Chung, J.*, Li, J., Saimon, A., Hong, P., and Kong, Z.J., 2024. Predicting the Stereoselectivity of Chemical Reactions by Composite Machine Learning Method. *Scientific Reports*, 14(1), p.12131.

J5. Raeker-Jordan, N., Chung, J.*, Kong, Z.J. and Williams, C., 2024. Ensuring additive manufacturing quality and cyber–physical security via side-channel measurements and transmissions. *Journal of Manufacturing Systems*, *73*, pp.275-286. DOI: 10.1016/j.jmsy.2024.02.005.

J6. Gnanasambandam, R.*, Shen, B.*, Law, A.C.C.*, Dou, C.*, and Kong, Z., 2024. Deep Gaussian Process for Enhanced Bayesian Optimization and its Application in Additive Manufacturing. *IISE Transactions*, (accepted), pp.1-21. DOI: 10.1080/24725854.2024.2312905.

J7. Zhang, J., Srivatsa, P., Ahmadzai, F.H., Liu, Y., Song, X., Karpatne, A., Kong, Z.J. and Johnson, B.N., 2024. Improving Biosensor Accuracy and Speed using Dynamic Signal Change and Theory-Guided Deep Learning. *Biosensors and Bioelectronics*, Vol. 246, p.115829. DOI: 10.1016/j.bios.2023.115829.

J8. Zhang, J., Srivatsa, P., Ahmadzai, F.H., Liu, Y., Song, X., Karpatne, A., Kong, Z. and Johnson, B.N., 2023. Reduction of Biosensor False Responses and Time Delay Using Dynamic Response and Theory-Guided Machine Learning. *ACS Sensors*, Vol. 8, No. 11, pp. 4079-4090. DOI: 10.1021/acssensors.3c01258.

J9. Wang, Y., Sun, W., Jin, J., Kong, Z. and Yue, X., 2023. Wood: Wasserstein-based out-of-distribution detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, accepted.

- Best Paper Award, Data Mining (DM) Section, *INFORMS Annual Meeting*, 2023

J10. Ha, C., Yao, D., Xu, Z., Liu, C.*, Liu, H., Elkins, D.*, Kile, M., Deshpande, V., Kong, Z.J., Bauchy, Mathieu, Zheng, X., 2023. Rapid Inverse Design of Metamaterials based on Prescribed Mechanical Behavior through Machine Learning. *Nature Communications*, Vol. 14, No. 1, pp. 5765. DOI: 10.1038/s41467-023-40854-1.

J11. Gnanasambandam, R.*, Shen, B.*, Chung, J.*, Yue, X., Kong, Z.J., 2023. Self-scalable Tanh (Stan): Multi-Scale Solutions for Physics-Informed Neural Networks. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 45, No. 12, pp. 15588-15603. DOI: 10.1109/TPAMI.2023.3307688.

J12. Chung, J.*, Shen, B.*, and Kong, Z.J., 2023. Anomaly Detection in Additive Manufacturing Processes using Supervised Classification with Imbalanced Sensor Data based on Generative Adversarial Network. *Journal of Intelligent Manufacturing*, accepted. DOI: 10.1007/s10845-023-02163-8.

J13. Shen, B.*, and Kong, Z.J., 2023. Active Defect Discovery: A Human-in-the-Loop Learning Method. *IISE Transactions*, accepted. DOI: 10.1080/24725854.2023.2224854.

J14. Law, A.*, Wang, R.*, Chung, J.*, Kucukdeger, E., Liu, Y., Barron, T., Johnson, B.N., and Kong, Z.J., 2023. Process Parameter Optimization for Reproducible Fabrication of 3D-printed Tissue Scaffold Porosity and Mechanical Properties. *Journal of Intelligent Manufacturing*, accepted. DOI: 10.1007/s10845-023-02141-0

J15. Chung, J.*, Shen, B.* and Kong, Z.J., 2023. A Novel Sparse Bayesian Learning and Its Application to Fault Diagnosis for Multistation Assembly Systems. *IISE Transactions*, accepted. DOI: 10.1080/24725854.2023.2199813

J16. Wang, R.*, Standfield, B.*, Dou, C.*, Law, A.C.*, and Kong, Z.J., 2023. Real-time Process Monitoring and Closed-loop Control on Laser Power via a Customized Laser Powder Bed Fusion Platform. *Additive Manufacturing*, p.103449, DOI: 10.1016/j.addma.2023.103449.

J17. Wang, Y., Sun, W., Jin, J., Kong, Z.J., and Yue, X., 2023. MVGCN: Multi-view Graph Convolutional Neural Network for Surface Defect Identification using 3D Point Cloud. *ASME Transactions Journal of Manufacturing Science and Engineering*, Vol. 145, No. 3, p.031004, DOI: 10.1115/1.4056005.

J18. Zhang, J., Kucukdeger, E., Yoon, H., ChandraSekhar, P., Liu, Y., Tong, Y., Haring, A., Singh, M., Roman, M., Johnson, B., Kong, Z.J., 2023. Rapid, Autonomous High-throughput Characterization of Hydrogel Rheological Properties via Automated Sensing and Physics-guided Machine Learning. *Applied Materials Today*, Vol. 30, pp.101720, DOI: 10.1016/j.apmt.2022.101720.

J19. Chung, J.*, Shen, B.* and Law, A.*, and Kong, Z.J., 2022. Reinforcement Learning-based Defect Mitigation for Quality Assurance of Additive Manufacturing. *Journal of Manufacturing Systems*, Vol. 65, pp. 822-835, DOI: 10.1016/j.jmsy.2022.11.008.

J20. Maftouni, M.*, Shen, B.*, Law, A.*, Yazdib, N., Hadavandc, F., Ghiasvandb, F, and Kong, Z.J., 2022. A Mask-guided Attention Deep Learning Model for COVID-19 Diagnosis based on an Integrated CT Scan Images Database. *IISE Transactions on Healthcare Systems Engineering*, DOI: 10.1080/24725579.2022.2142866.

J21. Wang, R.*, Garcia1, D.*, Kamath, R.R., Dou, C.*, Ma, X.*, Shen, B.*, Choo, H., Fezzaa, K., Yu, H.Z., Kong, Z.J., 2022. In Situ Melt Pool Measurements for Laser Powder Bed Fusion using Multi Sensing and Correlation Analysis. *Scientific Reports*, Vol. 12, No. 1, pp. 1-17, DOI: 10.1038/s41598-022-18096-w.

J22. Shen, B.*, Xie, W., and Kong, Z.J., 2022. Smooth Robust Tensor Completion for Background/Foreground Separation with Missing Pixels: Novel Algorithm with Convergence Guarantee. *Journal of Machine Learning Research*, Vol. 23, No. 217, pp. 1-40.

J23. Ebrahimvandi, A., Hosseinichimeh, N., Kong, Z.J., 2022. Identifying the early signs of a preterm birth from U.S. birth records using machine learning techniques. *Information*, Vol. 13, No. 7, pp. 310, DOI: 10.3390/info13070310.

J24. Shen, B.*, Kamath, R.R., Choo, H. and Kong, Z.J., 2022. Robust tensor decomposition based background/foreground separation in noisy videos and its applications in additive manufacturing. *IEEE Transactions on Automation Science and Engineering*, Vol. 20, No. 1, pp.583-596, DOI: 10.1109/TASE.2022.3163674.

J25. Liu, C.*, Wang, R, Ho, I., Kong, Z.J., Williams, C.B., Babu, S., and Joslin, C., 2022. Toward Online Layer-wise Surface Morphology Measurement in Additive Manufacturing Using a Deep Learning-based Approach. *Journal of Intelligent Manufacturing,* DOI: 10.1007/s10845-022-01933-0.

J26. Lu, Y., Maftouni, M.*, Yang, T., Zheng, P., Young, D., Kong, Z.J., and Li, Z., 2022. A novel disassembly process of end-of-life lithium-ion batteries enhanced by online sensing and machine learning techniques. *Journal of Intelligent Manufacturing*, DOI: 10.1007/s10845-022-01936-x.

J27. Shen, B.*, Gnannasambandam, R.*, Wang, R.*, Kong, Z.J., 2022. Multi-Task Gaussian Process Upper Confidence Bound for Hyperparameter Tuning and its Application for Simulation Studies of Additive Manufacturing. *IISE Transactions,* DOI: 10.1080/24725854.2022.2039813.

J28. Vijayan, S., Wang, R.*, Kong, Z.J., & Jinschek, J. R., 2021. Quantification of Extreme Thermal Gradients during *In Situ* Transmission Electron Microscope Heating Experiments. *Microscopy research and technique*, Vol. 85, No. 4, pp. 1527-1537, DOI: 10.1002/jemt.24015.

J29. Li, Y., Shi, Z., Liu, C., Tian, W., Kong, Z.J., and Williams, C.B., 2022. Augmented Time Regularized Generative Adversarial Network (ATR-GAN) for Data Augmentation in Online Process Anomaly Detection. *IEEE Transactions on Automation Science and Engineering*, Vol. 19, No. 4, pp. 3338-3355, DOI: 10.1109/TASE.2021.3118635.

J30. Singh, M., Zhang, J., Bethel, K., Liu, Y., Davis, E., Zeng, H., Kong, Z.J., Johnson, B., 2021. Closed-loop Controlled Photopolymerization of Hydrogels. *ACS Applied Materials & Interfaces*, Vol, 13, No. 34, pp. 40365-40378, DOI: 10.1021/acsami.1c11779

J31. Wang, R.*, Garcia, D., Law, A.*, and Kong, Z.J., 2021. Development of Structured Light 3D-Scanner with High Spatial Resolution and its Applications for Additive Manufacturing Quality Assurance. *International Journal of Advanced Manufacturing Technology*. Vol. 117, No. 3, pp. 845-862, DOI: 10.1007/s00170-021-07780-2.

J32. Wang, Y., Wang, R.*, Yue, X., Kong, Z.J., 2021. Structured Light Scanning Based 3D Scanning for Process Monitoring and Quality Control in Precast/Prestressed Concrete Production. *PCI Journal*, Vol. 66, No. 6, pp. 17-32.

- **PCI's 2022 Robert J. Lyman Award**

J33. Shen, B.*, Wang, R.*, Law, A.*, Kamath, R., Choo, H. and Kong, Z.J., 2021. Super Resolution for Multi-Sources Image Stream Data using Smooth and Sparse Tensor Completion and its Applications in Data Acquisition of Additive Manufacturing. *Technometrics*, Vol, 64, No. 1, pp. 2-17, DOI: 10.1080/00401706.2021.1905074.

- **Finalist of the Best Paper Award, Quality Statistics and Reliability (QSR) Section, *INFORMS Annual Meeting*, 2020**

J34. Shen, B*., Xie, W., and Kong, Z.J., 2021. Clustered Discriminant Regression for High Dimensional Data Feature Extraction and its Application in Additive Manufacturing. *IEEE Transactions on Automation Science and Engineering*, Vol. 18, No. 4, pp. 1998-2010, DOI: 10.1109/TASE.2020.3029028.

J35. Liu, C.*, Kong, Z.J., Babu, B., Joslin, C., and Ferguson, J., 2021. An Integrated Manifold Learning Approach and its Application for Online Process Monitoring of Additive Manufacturing. *IISE Transactions*, Vol. 53, No. 11, pp.1215-1230, DOI: 10.1080/24725854.2020.1849876.

- **Featured by ISE Magazine, Vol. 52, No. 10, October 2022**

J36. Liu, J.P., Zheng, J., Rao, P. and Kong, Z.J., 2020. Machine learning–driven in situ process monitoring with vibration frequency spectra for chemical mechanical planarization. *International Journal of Advanced Manufacturing Technology*, Vol. 111, No. 7, pp.1873-1888, DOI:10.1007/s00170-020-06165-1.

J37. David Garcia, D., Hartley, W.D., Hunter A.R., Griffiths, R.J., Wang, R., Kong, Z.J., Zhu, Y., and Yu, H., 2020, In situ investigation into temperature evolution and heat generation during additive friction stir deposition: A comparative study of Cu and Al-Mg-Si. *Additive Manufacturing*. Vol. 34, p.101386, DOI: 10.1016/j.addma.2020.101386.

J38. Haring, P. A., Singh, M., Koh, M., Cesewski, E., Dillard, D. A., Kong, Z. J., and Johnson, B. N., 2020. Real-time characterization of hydrogel viscoelastic properties and solgel phase transitions using cantilever sensors. *Journal of Rheology*, Vol. 6, No. 4, pp. 837-850.

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Conference Papers:

C1. Maftouni, M., Shen, B., Law, A., Yazdi, N.A., Ghiasvand, F., Hadavand, F. "A Mask-Guided Attention Deep Learning Model for COVID-19 Diagnosis based on an Integrated CT Scan Images Database." *INFORMS Annual Meeting*, Nov. 23-26, 2022, Indianapolis, IN.

C2. Shen, B. and Kong, Z.J., "A Novel Active Anomaly Discovery Method and its Applications in Additive Manufacturing." *INFORMS Annual Meeting*, Nov. 23-26, 2022, Indianapolis, IN.

C3. Gnanasambandam, R., Shen, B., Chung, J., Yue, X., Kong, Z.J., "Self-scalable Tanh (Stan): Faster convergence and better generalization in physics-informed neural networks." *IISE Annual Conference*, May 21-24, 2022, Seattle, WA.

C4. Chung, J., Shen, Bo., Law, A., and Kong, Z.J., "Reinforcement Learning-based Defect Mitigation for Quality Assurance of Additive Manufacturing." *IISE Annual Conference*, May 21-24, 2022, Seattle, WA.

C5. Maftouni, M., Shen, B., Law, A., Wang, Y., and Kong, Z.J., "Automatic Melt Pool Segmentation and Tracking in the X-ray Image Sequence." *IISE Annual Conference*, May 21-24, 2022, Seattle, WA.

C6. Wang, R., Garcia, D., Shen, B., Ma, X., and Kong, Z.J., "In-process Multi-physical Melt Pool Characteristics Sensing and Data Correlation in Laser Powder Bed Fusion." *IISE Annual Conference*, May 21-24, 2022, Seattle, WA.

C7. Wang, Y., Sun, W., Jin, J., Kong, Z.J., and Yue, X., "Wasserstein-based Out-of-Distribution Detection," *IISE Annual Conference*, May 21-24, 2022, Seattle, WA.

C8. Maftouni, M.*, Law, A.*, Shen, B.*, Zhou, Y., Yazdi, N., and Kong, Z.J. "A Robust Ensemble-Deep Learning Model for COVID-19 Diagnosis based on an Integrated CT Scan Images Database," *Proceedings of the 2021 Industrial and Systems Engineering Conference*, Virtual Conference, May 22-25, 2021.

C9. Shen, B*., Gnannasambandam, R.", Wang, R.*, and Kong, Z.J. "Multi-Task Gaussian Process Upper Confidence Bound for Hyperparameter Tuning," *Proceedings of the 2021 Industrial and Systems Engineering Conference*, Virtual Conference, May 22-25, 2021.

C10. Shen, B.*, Wang, R.*, Law, A.*, Kamath, R., Choo, H. and Kong, Z.J., "Super Resolution for Multi-Sources Image Stream Data using Smooth and Sparse Tensor Completion and its Applications in Data Acquisition of Additive Manufacturing," *INFORMS Annual Meeting*, Virtual Conference, Nov. 8-11, 2020

C11. Liu, C.*, Wang, R.*, Kong, Z.J., "Real-time 3D Surface Measurement in Additive Manufacturing Using Deep Learning," *The Proceedings of the Annual International Solid Freeform Fabrication Symposium*, Austin, TX, August 12-14, 2019.

C12. Rao, P., Kong, Z.J., 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.

C13. 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.

C14. 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**

C15. 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**

C16. 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.

C17. 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**

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C19. 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.

C20. 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.

C21. 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.

C22. 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.

C23. 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.

C24. 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.

C25. 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.

C26. 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.

C27. 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.

C28. 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.

C29. 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.

C30. 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.

C31. 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.

C32. 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.

Patents:

A1. Pending patent, "Ultra-high Spatial Resolution Structured Light 3D Scanner," 2023 (U.S. Patent No: 63/329,500).

Invited Onsite Visits with Seminars by

S1. Wayne State University, September 2019
S2. The University of Florida, November 2021
S3. The University of Michigan, March 2022
S4. The University of Houston, May 2022
S5. Arizona State University, November 2022
S6. Clemson University, March 2023
S7. The University of Iowa, September 2023
S8. Texas A&M University, December 2023
S9. The University of Illinois – Chicago, Scheduled on Feb. 2024
S10. North Carolina State University, Scheduled on March 2024

Conference Presentations

P1. Standfield, B., & Kong, Z. (2023a, May). A 3d Convolutional Neural Networks Based Model for High-Resolution Prediction and Compensation of Geometrical Errors of Fused Filament Fabricated Parts. *IISE Annual Conference*, New Orleans, Louisiana.
P2. Standfield, B., & Kong, Z. (2023b, June). A 3d Convolutional Neural Networks Based Model for High-Resolution Prediction and Compensation of Geometrical Errors of Additive Manufactured Parts. *Proceedings of the ASME 2023 18th International. Manufacturing Science and Engineering Conference*, New Brunswick, New Jersey.
P3. Standfield, B., Wang, R., Gracanin, D., & Zhenyu, K. (2022). High-Resolution Shape Deformation Prediction in Additive Manufacturing using 3D CNN. *Proceedings of the 2022 Winter Simulation Conference*, 641–652.
P4. Shen, Bo, Kong, Z.J., Tensor Data Analytics in Laser Powder Bed Fusion, *INFORMS Conference on Quality, Statistics, and Reliability* (ICQSR) 2023
P5. Shen, Bo, Maftouni, M., Automatic Melt Pool Segmentation and Tracking in the X-ray Image Sequence, *The Minerals, Metals & Materials Society (TMS) Annual Meeting & Exhibition*, San Diego, CA, 2023
P6. Shen, B., Kong, Z.J., A Novel Active Anomaly Discovery Method and Its Applications in Additive Manufacturing, *INFORMS Annual Meeting*, Indianapolis, IN, 2022
P7. Shen, B., Kong, Z.J., Multi-Task Gaussian Process Upper Confidence Bound for Hyperparameter Tuning, *INFORMS Annual Meeting*, Anaheim, CA, 2021

P8. Shen, B., Kong, Z.J., Robust Tensor Decomposition-based Background/Foreground Separation in Noisy Videos and Its Applications in Additive Manufacturing, *INFORMS Annual Meeting*, Anaheim, CA, 2021

P9. Shen, B., Kong, Z.J., Super Resolution for Multi-Sources Image Stream Data using Smooth and Sparse Tensor Completion and its Applications in Data Acquisition of Additive Manufacturing, *INFORMS Annual Meeting*, 2020 (Virtual)

P10. Shen, B., Kong, Z.J., Robust Tensor Principal Component Analysis: Formulation, Algorithm, and Applications, *INFORMS Annual Conference* 2020 (Virtual)

P11. Wang, R., Kong, Z.J., "Integration of Feedback and Feedforward Control in Laser Powder Bed Fusion," *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 15-18, 2023

P12. Wang, R., Kong, Z.J., "High-resolution Sub-surface Thermal Measurement in Laser Powder Bed Fusion (L-PBF) Using Novel Fiber Optics and Machine Learning," *IISE Annual Conference and Expo*, New Orleans, LA, May 20-23, 2023

P13. Wang, R., Kong, Z.J., "In Situ Melt Pool Measurements for Laser Powder Bed Fusion using Multi Sensing and Correlation Analysis," *TMS Annual Meeting & Exhibition*, San Diego, CA, Mar. 19-23, 2023.

P14. Wang, R., Kong, Z.J., "Real-time Process Monitoring and Closed-loop Laser Power Control in Powder Bed Fusion," *INFORMS Annual Meeting*, Indianapolis, IN, Oct. 16-19, 2022.

P15. Wang, R., Kong, Z.J., "In-process Multi-physical Melt Pool Characteristics Sensing and Data Correlation in Laser Powder Bed Fusion," *SFF 33rd Annual Meeting*, Austin, TX, Jul. 25-27, 2022

P16. Wang, R., Kong, Z.J., "Real-time Process Monitoring and Closed-loop Laser Power Control in Powder Bed Fusion," *SFF 33rd Annual Meeting*, Austin, TX, Jul. 25-27, 2022

P17. Wang, R., Kong, Z.J., "In-process Multi-physical Melt Pool Characteristics Sensing and Data Correlation in Laser Powder Bed Fusion," *IISE Annual Conference and Expo*, Seattle, WA, May 22-25, 2022

P18. Wang, R., Kong, Z.J., "Real-time Process Monitoring and Closed-loop Laser Power Control in Powder Bed Fusion," *IISE Annual Conference and Expo*, Seattle, WA, May 22-25, 2022

P19. R. Gnanasambandam, C.Dou, and Z.J. Kong. " Inverse Design of Process Parameters with Physics-informed Machine Learning." *INFORMS Annual Meeting*, 2023 (Phoenix, AZ).

P20. R. Gnanasambandam, B. Shen, J. Chung, X. Yue, and Z.J. Kong. "Thermal Modeling with Physics-Informed Machine Learning." *INFORMS Annual Meeting*, 2022 (Indianapolis, IN).

P21. R. Gnanasambandam, B. Shen, J. Chung, X. Yue, and Z.J. Kong. "Thermal Modeling with Physics-Informed Machine Learning." *IISE Annual Conference & Expo*, 2023 (New Orleans, LA).

P22. R. Gnanasambandam, B. Shen, J. Chung, X. Yue, and Z.J. Kong. "Thermal Modeling with Physics-Informed Machine Learning." *ICQSR*, 2023 (Raleigh, NC).

P23. R. Gnanasambandam, B. Shen, J. Chung, X. Yue, and Z.J. Kong. " Self-scalable Tanh (Stan) for Multi-scale Solutions in Physics-Informed Neural Networks," *INFORMS Annual Meeting*, 2022 (Indianapolis, IN).

P24. R. Gnanasambandam, B. Shen, A.C.C. Law, C. Dou, and Z.J. Kong. Bayesian Optimization with Stochastic Imputation of Deep Gaussian Process. *INFORMS Annual Meeting* 2021 (Anaheim, CA).

P25. R. Gnanasambandam, B. Shen, A.C.C. Law, C. Dou, and Z.J. Kong. Bayesian Optimization with Stochastic Imputation of Deep Gaussian Process. *INFORMS Annual Meeting* 2021 (Indianapolis, IN).

P26. R. Gnanasambandam, B. Shen, A.C.C. Law, C. Dou, and Z.J. Kong. Bayesian Optimization with Stochastic Imputation of Deep Gaussian Process. *IISE Annual Conference & Expo*, 2023 (New Orleans, LA).

P27. Chung, J., Kong, Z.J., "Imbalanced Data Analysis from Advanced Manufacturing Process using Data Augmentation based on Generative Adversarial Network," *INFORMS Annual Meeting*, Phoenix, Arizona, Oct. 15-18, 2023.

P28. Chung, J., Kong, Z.J., "Automatic Thresholding by Reconstruction Error in Unsupervised Anomaly Detection," *IISE Annual Conference*, New Orleans, Louisiana, May 20-23, 2023.

P29. Chung, J., Kong, Z.J., "Grouping and Spatially Correlated Sparse Bayesian Learning with Application to Multistage Assembly Systems," *INFORMS Annual Meeting*, Indianapolis, Indiana, Oct. 16-19, 2022.

P30. Chung, J., Kong, Z.J., "Imbalanced Data Classification via Generative Adversarial Network with Application to Anomaly Detection in Additive Manufacturing Process," *INFORMS* Annual Meeting, Indianapolis, Indiana, Oct. 16-19, 2022.

P31. Chung, J., Kong, Z.J., "Grouping and Spatially Correlated Sparse Bayesian Learning with Application to Multistage Assembly Systems," *IISE Annual Conference*, Seattle, Washington, May 21-24, 2022.

P32. Chung, J., Kong, Z.J., "Anomaly Detection based on Generative Adversarial Network with Application to Additive Manufacturing Process," *INFORMS* Annual Meeting, Virtual Meeting, Oct. 24-27, 2021.

P33. Chung, J., Kong, Z.J., "Sparse Bayesian Learning with Temporally Correlated Source Vectors with Application to Fault Diagnosis in Multistation Assembly Systems," *INFORMS Annual Meeting*, Virtual Meeting, Oct. 24-27, 2021.

P34. Chung, J., Kong, Z.J., "Reinforcement Learning with Knowledge Transfer based Closed Loop Decision Making In Quality for Additive Manufacturing," *INFORMS Annual Meeting*, Virtual Meeting, Nov. 7-13, 2020.

P35. Chung, J., Kong, Z.J., "Additive Manufacturing Process Monitoring and Control Using Enhanced Reinforcement Learning," *IISE Annual Conference*, Virtual Meeting, Nov. 1-3, 2020.

P36. "Robust Tensor PCA With a Novel Subspace Regularization Algorithm," *INFORMS Annual Meeting*, Seattle, WA, Oct. 20-23, 2019.

P37. "A Globally Convergent Algorithm for Tensor PCA," *INFORMS Annual Meeting*, Seattle, WA, Oct. 20-23, 2019.

P38. "Online Optimal Parameter Settings for Additive Manufacturing Processes by Reinforcement Learning with Knowledge Transfer," *INFORMS Annual Meeting*, Seattle, WA, Oct. 20-23, 2019.

P39. "Sensing and Data Analytics for Additive Manufacturing," Invited Talk by the Department of Industrial and Systems Engineering at Wayne State University, August, 29, 2019.

P40. "Real-time 3D Surface Measurement in Additive Manufacturing Using Deep Learning," *Industrial and Systems Engineering Research Conference*, Orlando, Florida, May 18-21, 2019.

P41. "Reinforcement Learning based Online Quality Assurance for Additive Manufacturing Process," *Industrial and Systems Engineering Research Conference*, Orlando, Florida, May 18-21, 2019.

P42. "A Clustering-Guided Canonical Correlation Analysis for Supervised Feature Learning," *Industrial and Systems Engineering Research Conference*, Orlando, Florida, May 18-21, 2019.

P43. "A Multiplex Network Modeling Approach for Online Process Monitoring", *INFORMS Annual Meeting*, Phoenix, AZ, Nov 4-7, 2018.

P44. "Image-based Online Defect Detection and Closed-loop Quality Control for Additive Manufacturing Processes", *INFORMS Annual Meeting*, Phoenix, AZ, Nov 4-7, 2018.

P45. "A Bilateral Time Series Model for Additive Manufacturing Process Monitoring," *Industrial and Systems Engineering Research Conference,* Orlando, Florida, May 19-22, 2018.

P46. "An Adaptive Spectral Feature Selection Approach for Change Detection in Advanced Manufacturing", *Industrial and Systems Engineering Research Conference*, Orlando, FL, May 19-22, 2018.

P47. "An Integrated Manifold Learning for Online Monitoring of Additive Manufacturing Processes," *INFORMS Annual Meeting*, Houston, TX, Oct. 22-25, 2017.

P48. "Spatiotemporal Modeling and Layer-wise Prediction of Porosity in Additive Manufacturing," *INFORMS Annual Meeting*, Houston, TX, Oct. 22-25, 2017.

P49. "Textural Analysis-based Online Closed-Loop Quality Control for Additive Manufacturing Processes," *Industrial and Systems Engineering Research Conference*, Pittsburgh, PA, May 20-23, 2017.

P50. "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.

P51. "Smart Additive Manufacturing," *Invited Seminar* by the Department of Industrial and Systems Engineering, The University of Arkansas, March 9, 2017.

P52. "Detection for Cyber-physical Attacked Additive Manufactured Parts by Real-time Sensing and Analysis," *INFORMS Annual Meeting*, Nashville, TN, Nov. 13-16, 2016.

P53. "Spatiotemporal Modeling and Analysis with Dirichlet Process Mixing for Non-Gaussian and Nonstationary Data," *INFORMS Annual Meeting*, Nashville, TN, Nov. 13-16, 2016.

P54. "Sparse Representation based Classification using Hybrid Norm," *Industrial and Systems Engineering Research Conference*, Anaheim, CA, May 21-24, 2016.

P55. "Porosity detection based on layer-wise images for additive manufacturing processes," *Industrial and Systems Engineering Research Conference, Nashville*, TN, May 30-June 2, 2015.

P56. "Sensor Selection Optimization for Classification of manual material handling tasks," *Industrial and Systems Engineering Research Conference*, Nashville, TN, May 30-June 2, 2015.

P57. "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.

P58. "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.

P59. “Heterogeneous Sensor Data Fusion for Real-time Monitoring in Additive Manufacturing (AM) Process,” *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P60. “Joint Modeling of Quantitative and Qualitative Responses in Additive Manufacturing,” *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P61. “Recursive Reconstruction Method for Time Varying Sparse Signal from Noisy Undersampled Measurements,” *INFORMS Annual Meeting*, San Francisco, CA, Nov. 9-12, 2014.

P62. “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.

P63. "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.

P64. "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.

P65. "Chemical Mechanical Planarization (CMP) Process Monitoring by Using Evolutionary Clustering Analysis," *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 14-17, 2012.

P66. "Optimal Sensor Placement for Multi-station Assembly Processes Based on Compressive Sensing," *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 14-17, 2012.

P67. “Quasi-Recursive Correlation Dimensional Analysis for Structural Health Monitoring,” Industrial and Systems Engineering Research Conference, Orlando, FL, May 20-22 , 2012

P68. "Fault Diagnosis for Partially Diagnosable Systems using an Enhanced Relevance Vector Machine," *INFORMS Annual Meeting*, Charlotte, NC, Nov. 13-16, 2011.

P69. "Process Monitoring for Chemical and Mechanical Planarization Processes using Evolutionary Analysis," *INFORMS Annual Meeting*, Charlotte, NC, Nov. 13-16, 2011.

P70. "A Data Mining Approach to Prognostic Analysis of Thoracic Transplantations," *INFORMS Annual Meeting*, Austin, TX, Nov. 7-10, 2010.

P71. "Real-time Prediction of Incipient Surface Variations in Ultraprecision Machining," *INFORMS Annual Meeting*, Austin, TX, Nov. 7-10, 2010.

P72. "Sequential Bayesian Decision Making for End-Point Detection of Chemical Mechanical Planarization (CMP) Processes," *INFORMS Annual Meeting*, San Diego, CA, Oct. 9-12, 2009.

P73. "Process Performance Prediction for Chemical Mechanical Planarization (CMP) by Integration of Statistical Modeling and Process Dynamic Modeling using Particle Filtering," *INFORMS Annual Meeting*, Washington DC, Oct. 12-15, 2008.

P74. "Fault Diagnosis for Partially Diagnosable Assembly Processes," *INFORMS Annual Meeting*, Washington DC, Oct. 12-15, 2008.

P75. "Multivariate Process Capability Analysis with Non-Parametric Bootstrap Method," *INFORMS Annual Meeting*, Washington DC, Oct. 12-15, 2008.

P76. "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.

P77. "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.

P78. "Incorporation of Some GD&T Aspects into Stream of Variation Analysis for Multistage Assembly Processes," *INFORMS Annual Meeting*, Seattle, Washington, Nov. 4-7, 2007.

P79. "Stream of Variation Analysis in Assembly Systems: Modeling and Its Applications," *INFORMS Annual Meeting*, Seattle, Washington, Nov. 4-7, 2007.

P80. "Stream of Variation Analysis for Multi-Station Assembly Systems," Mercury Marine, Inc., Stillwater, Oklahoma, January 28, 2008.

P81. "Stream of Variation Analysis for Multi-Station Assembly Systems," Spirit AeroSystems, Inc., Tulsa, Oklahoma, May. 19, 2007.

P82. "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.

P83. "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.

P84. "Fixture Workspace Synthesis for Hybrid Assembly Systems," *The 3rd International Conference on Reconfigurable Manufacturing*, Ann Arbor, MI, May 9-12, 2005.

P85. "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.

P86. "Stream-of-Variation Analysis System for Multistage Assembly Processes," Guest lecture to IOE 566 Advanced Quality Control, University of Michigan-Ann Arbor, November 22, 2005.

P87. "Stream-of-Variation Analysis System for Multistage Assembly Processes," The United States Council for Automotive Research (USCAR), Southfield, Michigan, October 4, 2005.

P88. "Stream-of-Variation Analysis System for Multistage Assembly Processes," General Motor's Technical Center, Warren, Michigan, April 25, 2005.

P89. "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.

P90. "Hybrid Automotive Body Assembly Systems Paradigms," Ford's Science Research Lab, Dearborn, Michigan, June 16, 2003.

P91. "Analysis of Assembly System Reconfigurability," NSF-Site Visit of NSF-Engineering Research Center at University of Michigan, May 12, 2003.

P92. "Investigation of Reusable/Reconfigurable Fixture System for Auto Body Assembly," Center for Quality and Productivity Improvement at University of Wisconsin-Madison, March 15, 2002.

P93. "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
  - David Garcia (Jan. 2021 - April 2021)
    - Research topic: Measurement, modeling, and analysis for metal additive manufacturing processes
    - Current position: Postdoctoral Researcher at Pacific Northwest National Lab
- Ph.D. Students (12 graduated, 5 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 the Department of Operations and Information Systems at the 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: Associate Professor in the Department of Industrial and Systems Engineering, Virginia Tech

  At Virginia Tech (8 graduated, 5 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.

o Chenang 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.

o Bo Shen (graduated in May 2022)
- Dissertation title: Advanced Data Analytics for Quality Assurance of Smart Additive Manufacturing.
- Current position: Assistant Professor, the Department of Mechanical and Industrial Engineering, New Jersey Institute of Technology.

o Andrew Law (graduated in June 2022)
- Dissertation topic: Smart Quality Assurance System for Additive Manufacturing using Data Driven based Parameter-Signature-Quality Framework.
- Current position: Research Scientist at IoTeX

o Jihoon Chung (graduated in May 2023)
- Dissertation topic: Process Monitoring and Control of Advanced Manufacturing based on Physics-Assisted Machine Learning
- Current position: Assistant Professor, the Department of Industrial and Systems Engineering, Pusan National University, Korea.

o Maede Maftouni (graduated in May 2023)
- Dissertation topic: Development of Novel Attention-Aware Deep Learning Models and Their Applications in Computer Vision and Dynamical System Calibration
- Current position: Senior Data Scientist at Quantum-Si,

o Rongxuan (Rafael) Wang (graduated in May 2023)
- Dissertation topic: Multi-Physics Sensing and Real-time Quality Control in Metal Additive Manufacturing
- Current position: Assistant Professor, the Department of Industrial and Systems Engineering, Auburn University

o Benjamin Standfield (expected to graduate in Dec. 2023)
- Dissertation topic: Communication and analytics for distributed smart manufacturing systems

o Raghav Gnanasambandam (expected to graduate in May 2024)
- Dissertation topic: Applications of machine learning for advanced manufacturing data analytics

o Chaoran Dou (expected to graduate in May 2025)
- Dissertation topic: Uncertainty quantification of additive manufacturing processes

o Amirul Islam Saimon (expected to graduate in May 2026)

        - Dissertation topic: Physics-informed pointnet model for advanced manufacturing
    - Ruiyuan Zhang (expected to graduate in May 2027)
        - Dissertation topic: Physics-informed neural networks for advanced manufacturing

- MS 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 (23 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
- Ana Paula Clares (Spring 2018, Fall 2018)
  - Project: Bio-AM experiments
- Xiaohan Ma (Fall 2019, Spring 2021)
  - Project: Data analysis for additive manufacturing
- Zhaomeng Zhang (Summer 2021)
  - Project: Machine learning for image classification
- Lingze Zeng (Summer 2021)
  - Project: Machine learning for image classification
- Jerry Zhou (Fall 2021)
  - Project: Flexible assembly system simulation
- Santiago Sun (Fall 2022, Spring 2023)
  - Project: Digital twin for learning factory
- Antonio Carrington (Summer 2022)
  - Project: Digital thread for learning factory
- Dev Patel (Summer 2022)
  - Project: Digital thread for learning factory

- Senior Design (14 teams with 52 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)
        - Project: Process Control to Reduce Bit Defects
    - Team: Jenna Supplee, Abdul Malik, Bijan Geramand Geramand, Lilly Coleman (2020-2021)
        - Project: AMT digital manufacturing
    - Team: Matthew Lewandowski, Conor Schauer, Aaron Hanny, Jake Mamros (2020-2021)
        - Project: eCylinder assembly pptimization
    - Team: Michael DiGiacomo, Yipin Zhou, Nicholas Chechak, Rachel Reed (2021-2022)
        - Project: Virtual factory modeling
    - Team: Jared Kern, Andy Waldo, Kojo Akrong, Colin Adams (2022-2023)
        - Project: Virtual factory model with Northrop Grumma

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.
- Bo Shen (Ph.D. student)

- VT ISE Outstanding Ph.D. student, 2022
- Finalist of the Best Paper Award, QSR Section, *INFORMS Annual Meeting*, 2020

- Jihoon Chung (Ph.D. student)
  - Best Student Paper Award, QCRE Division, *IISE Annual Conference*, 2022
- Maede (Ph.D. student)
  - Best Student Paper Award, MD Division, *IISE Annual Conference*, 2022
- Andrew Law (Ph.D. student)
  - Outstanding Master's Student of the College of Engineering at Virginia Tech, 2018
  - Grado Department of Industrial and Systems Engineering, MS Student of the Year Award, 2018
  - APM Outstanding Graduate Teaching Assistant award, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2019
- Rongxuan Wang (Ph.D. 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
  - Best Paper Award, MD Division, IISE Annual Conference, 2022
- Raghav Gnanasambandam (Ph.D. student)
  - Best Paper Award for Data Challenges, Quality Control and Reliability Engineering Track and ProcessMiner Inc., *IISE Annual Conference*, 2022.
- 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

- External reviewer for 23 universities for tenure and promotion assessment
- Conference 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 Transactions* (Quality and Reliability Engineering) (2017-present)
- Associate Editor for *IISE Transactions* (Design and Manufacturing) (2017-2018)

- Focused Issue Editor for *IISE Transactions* (Design and Manufacturing) (2021-present)
- Department Editor for *IISE Transactions* (Design and Manufacturing) (2018-2021)
- Associate Editor for *Journal of Manufacturing Systems* (2011-2017)
- Guest Editor for *IISE Transactions* 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, 2019, 2020, 2021, 2022, 2023
- 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
- ISE Promotion & Tenure Committee Chair at Virginia Tech, 2013-2014
- 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

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