

Curriculum Vitae

Ran Jin

Assistant Professor

Director, Data Science and Visualization Lab

Grado Department of Industrial and Systems Engineering

Virginia Tech.

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Education

- Ph.D.** Industrial Engineering, Georgia Institute of Technology, Atlanta, 2011
Ph.D. advisor: Dr. Jianjun Shi
- M.A.** Statistics, University of Michigan, Ann Arbor, 2009
- M.S.** Industrial Engineering, University of Michigan, Ann Arbor, 2007
- B.Eng.** Electronic Information Engineering, Tsinghua University, Beijing, 2005

Working Experience

August, 2011 - present

Assistant Professor, Grado Department of Industrial and Systems Engineering, Virginia Tech

September, 2015 - present

Director, Laboratory of Data Science and Visualization

Research Interests

Data Fusion in Smart Manufacturing and Manufacturing Networks: Integration of different types of data sets (e.g., ensemble models), variables (e.g., quantitative and qualitative models), and information (e.g., product quality and equipment reliability) for synergistically modeling, monitoring and controlling manufacturing processes, systems and networks

Awards and Honors

1. Scholar of Week at Virginia Tech, 2017
2. Best Poster Award, CELDi - Center for Excellence in Logistics and Distribution, 2017
(together with Mr. Yifu Li, Mr. Lening Wang, Dr. Kimberly Ellis and Dr. Jeffrey Arbogast)
3. The Outstanding Faculty Award, Alpha Pi Mu, Virginia Tech Chapter of the Grado Dept. of Industrial and Systems Engineering, 2014-2015
4. IIE Transactions Feature Paper, 2012
5. Best Applied Paper Award in IIE Transactions Quality and Reliability Engineering, 2012
6. Alumni Spotlight, ISyE, Georgia Institute of Technology, 2011
7. QSR Best Student Paper Award Finalist, INFORMS, 2010
8. Runner-up of Best Posters in the Graduate Symposium, College of Engineering, Georgia Institute of Technology, 2008

9. Forging Industry Educational & Research Foundation Scholarship (\$10,000), 2007
10. IOE Ph.D. Fellowship, University of Michigan, 2005

Awards and Honors for My Students/Co-Authored Papers

1. Best Student Paper Award Finalist (by Hongyue Sun), Quality Control and Reliability Engineering Track, Industrial and Systems Engineering Research Conference, 2017
2. Hongyue Sun, PhD Student of the Year, Grado Department of Industrial and Systems Engineering, 2017
3. Best Student Paper Award Finalist (by Hongyue Sun), Data Mining Subdivision, INFORMS Conference, 2016
4. Best Student Paper Award Finalist (by Hongyue Sun), Process Industries Track, Industrial and Systems Engineering Research Conference, 2015
5. Best Student Paper Award Finalist (by Wenmeng Tian), Process Industries Track, Industrial and Systems Engineering Research Conference, 2014
6. Best Student Paper Award Finalist (by Hongyue Sun), Quality Control and Reliability Engineering Track, Industrial and Systems Engineering Research Conference, 2014

Publications

: Student under My Supervision

Refereed Journals and Transactions (Published and Accepted)

1. **Jin, R.**, Li, J. and Shi, J., 2007, "Quality Prediction and Control in Rolling Processes using Logistic Regression," *NAMRI/SME Transactions*, No.35, pp. 113-120.
2. Izquierdo, L., Hu, J., Du, H., **Jin, R.**, Jee, H. and Shi, J., 2009, "Robust Fixture Layout Design for a Product Family Assembled in a Multistage Reconfigurable Line," *ASME Transactions, Journal of Manufacturing Sciences and Engineering*, Vol. 131, pp. 041008.
3. Zhao, H., **Jin, R.**, Wu, S. and Shi, J., 2011, "PDE-constrained Gaussian Process Model on Material Removal Rate of Wire Saw Slicing Process," *ASME Transactions, Journal of Manufacturing Sciences and Engineering*, Vol. 133, 2, pp. 021012.
4. **Jin, R.** and Shi, J., 2012, "Reconfigured Piecewise Linear Regression Tree for Multistage Manufacturing Process Control," *IIE Transactions*, Vol. 44, 4, pp. 249-261.
5. **Jin, R.**, Chang, C.J. and Shi, J., 2012, "Sequential Sensing Strategy of Wafer Profiles Using Gaussian Process Model," *IIE Transactions*, Vol. 44, 1, pp. 1-12. (**Best Applied Paper Award in IIE Transactions Quality and Reliability Engineering 2012**)
6. **Jin, R.** and Liu, K., 2013, "Multimode Variation Modeling and Process Monitoring for Serial-Parallel Multistage Manufacturing Processes," *IIE Transactions, Special Issue on Integration of Manufacturing System Design and Quality Management*, Vol. 45, pp. 617-629.
7. Plumlee, M., **Jin, R.**, Joseph, R.V. and Shi, J., 2013, "Gaussian Process Modeling for Engineered Surfaces with Applications to Si Wafer Production," *Stat*, Vol. 2, pp. 159-170.

8. Bao, L., Wang, K. and **Jin, R.**, 2014, "A Hierarchical Model for Characterizing Spatial Wafer Variations," *International Journal of Production Research*, Vol. 52 (6), pp. 1827-1842.
9. Zhang, J., Li, W., Wang, K., and **Jin, R.**, 2014, "Process Adjustment with an Asymmetric Quality Loss Function," *Journal of Manufacturing Systems*, Vol. 33(1), pp. 159-165.
10. Dai, C., Wang, K. and **Jin, R.**, 2014, "Monitoring Profile Trajectories with Dynamic Time Warping Alignment," *Quality and Reliability Engineering International*, Vol. 30(6), pp. 815-827.
11. **Jin, R.** and Deng, X., 2015, "Ensemble Modeling for Data Fusion in Manufacturing Process Scale-up," *IIE Transactions*, Vol. 47 (3), pp. 203-214.
12. Deng, X. and **Jin, R.**, 2015, "QQ Models: Joint Modeling for Quantitative and Qualitative Quality Responses in Manufacturing Systems," *Technometrics*, Vol. 57 (3), pp. 320-331.
13. Xu, Z., Hong, Y. and **Jin, R.**, 2015, "Nonlinear General Path Models for Degradation Data with Dynamic Covariates," *Applied Stochastic Models in Business and Industry*, Vol. 32 (2), pp. 153-167.
14. Sun, H., Luo, S., **Jin, R.** and He, Z., 2015, "A Multi-Task Lasso Model for Investigating Multi-module Design Factors, Operational Factors and Covariates in Tubular Microbial Fuel Cells," *ACS Sustainable Chemistry and Engineering*, Vol. 3 (12), pp. 3231-3238.
15. Luo, S., Sun, H., Ping, Q., **Jin, R.** and He, Z., 2016, "A Review of Modeling Bioelectrochemical System: Engineering and Statistical Aspects," *Energies*, Vol. 9 (2), pp. 111.
16. Sun, H., Deng, X., Wang, K., and **Jin, R.**, 2016, "Logistic Regression for Crystal Growth Process Modeling through Hierarchical Nonnegative Garrote based Variable Selection," *IIE Transactions*, Vol. 48 (8), pp. 787-796. (**Best Student Paper Award Finalist, Quality Control and Reliability Engineering Track, Industrial and Systems Engineering Research Conference 2014**)
17. Zang, Y., Wang, K. and **Jin, R.**, 2016, "Unaligned Profile Monitoring using Penalized Methods," *Quality and Reliability Engineering International*, Vol. 32 (8), pp. 2761-2776.
18. Tian, W., **Jin, R.**, Huang, T., and Camelio, J., 2017, "Statistical Process Control for Multistage Processes with Non-repeating Cyclic Profiles," *IIE Transactions*, Vol. 49 (3), pp. 320-331. (**Best Student Paper Award Finalist, Process Industries Track, Industrial and Systems Engineering Research Conference 2015**)
19. Chen, X. and **Jin, R.**, "Statistical Modeling for Visualization Evaluation through Data Fusion," *Applied Ergonomics, Special Issues on New Technologies in Human Factors and Ergonomics Research and Practice*, Accepted.
20. Sun, H., Wang, K., Li, Y., Zhang, C. and **Jin, R.**, "Quality Modeling of Printed Electronics in Aerosol Jet Printing based on Microscopic Images," *ASME Transactions, Journal of Manufacturing Sciences and Engineering*, Vol. 139(7), 071012.
21. Sun, H., Luo, S., **Jin, R.**, and He, Z., "Ensemble Engineering and Statistical Modeling for Parameter Calibration towards Optimal Design of Microbial Fuel Cells," *Journal of Power*

Sources, Accepted.

22. Sun, H., Huang, S. and **Jin, R.**, 2017 “Functional Graphical Models for Manufacturing Process Modeling,” *IEEE Transactions on Automation Science and Engineering*, Vol. PP(99), pp.1-10.
23. Li, Y., Mohan, K., Sun, H., and **Jin, R.**, 2017, “Ensemble Modelling of *in situ* Feature Variables for Printed Electronics Manufacturing with *in situ* Process Control Potential,” *IEEE Robotics and Automation Letters* (joint reviewed by IEEE-CASE), Accepted.

Peer Reviewed Conference Proceedings

1. Izquierdo, L., Du, H., Hu, J., **Jin, R.**, Shi, J. and Jee, H., 2006, “Robust Fixture Layout Design for a Product Family Assembled in a Multistage Reconfigurable Line,” ASME International Conference on Manufacturing Sciences and Engineering, October 8-11, 2006, Ypsilanti, Michigan, MSEC2006-21082, pp. 693-702.
2. Zhu, L., Dai, C., Sun, H., Li, W., **Jin, R.**, and Wang, K., 2014. “Curve Monitoring for a Single-crystal Ingot Growth Process,” in *Proceedings of the 5th International Asia Conference on Industrial Engineering and Management Innovation (IEMI2014)*, pp. 227-232. Atlantis Press.
3. Lan, Q., **Jin, R.** and Robertson, J., 2015, “Quantitative and Qualitative Evaluation for Organ Preservation in Transplant,” in *Proceedings of Industrial and Systems Engineering Research Conference 2015*.
4. Sun, H., **Jin, R.** and Zimmerman, B., 2015, “Process Modeling and Mapping for a Plasma Spray Coating Process,” in *Proceedings of Industrial and Systems Engineering Research Conference 2015. (Best Student Paper Award Finalist, Process Industries Track, Industrial and Systems Engineering Research Conference 2015)*
5. Chen, X., Sun, H. and **Jin, R.**, 2016, “Variation Analysis and Visualization of Manufacturing Processes via Augmented Reality,” in *Proceedings of Industrial and Systems Engineering Research Conference 2016*.
6. Li, Y., Mohan, K., Sun, H., and **Jin, R.**, 2017, “Ensemble Modelling of *in situ* Feature Variables for Printed Electronics Manufacturing with *in situ* Process Control Potential,” IEEE CASE 2017.

Papers Submitted

1. Kang, L., Deng, X. and **Jin, R.**, “Bayesian D-Optimal Design of Experiments with Quantitative and Qualitative Responses,” submitted to *Journal of Statistical Science and Application*, December, 2015.
2. **Jin, R.**, Deng, X., Zhu, L. and Zhang, J., “Dynamic Model for Quality-Process Relationship Considering Equipment Degradation,” submitted to *Journal of Quality Technology*, December, 2015.
3. Kang L., Kang X., Deng X. and Jin, R., “Bayesian Hierarchical Models for Quantitative and Qualitative Responses,” submitted to *Journal of Quality Technology*, May, 2016.

4. Sun, H., Jin, R., and Luo, Y., “Modeling and Interpretation of Manufacturing Time Series Data via a Natural Language Processing Perspective,” submitted to *IEEE Transactions on Knowledge and Data Engineering*, August, 2016.
5. Sun, H., Rao, P., Kong, Z., Deng, X., and Jin, R., “Modeling Quantitative and Qualitative Quality Responses in Additive Manufacturing with Offline Setting and *In Situ* Process Variables,” submitted to *IEEE Transactions on Automation Science and Engineering*, October, 2016.
6. Li, Y., Jin, R., Sun, H., Deng, X., and Zhang, C., “Manufacturing Quality Modeling with Smooth Variable Selection based on Spatial Predictors,” submitted to *Journal of Quality Technology*, December, 2016.
7. Wang, L., Jin, R., Henkel, D., Bourne, K., and Burdick, J., “Data Fusion for *in situ* Layer-wise Modeling and Feedforward Control of Selective Laser Melting Processes,” submitted to *ASME Transactions, Journal of Manufacturing Science and Engineering, Special Issue on Data Science-Enhanced Manufacturing*, January, 2017.
8. Lan, Q., Sun, H., Robertson, J., Deng, X., and **Jin, R.,** “Non-invasive Assessment of Liver Quality in Transplantation based on Thermal Imaging Analysis,” submitted to *Computer Methods and Programs in Biomedicine*, February, 2017.
9. Li, J., Jin, R., Yu, H., “Integration of Physically-based and Data-driven Approaches for Thermal Field Prediction in Additive Manufacturing,” submitted to *Materials and Design*, August, 2017.

Papers in Preparation

1. Liu, T., Zhang, X. and **Jin, R.,** “Tree Model based Multistage Manufacturing Processes Control Considering Modeling Uncertainty. ”
2. Sun, H., Rao, P., Deng, X., Kong, Z. and Jin, R., “Geometric Variation Modeling with *in situ* Process Measurement in Additive Manufacturing. ”

Invention Disclosures

1. VTIP 17-017, “Statistical Modeling for Visualization Evaluation Through Data Fusion,” confirmed on August, 2016, Inventors: Ran Jin and Xiaoyu Chen. <http://vtip.technologypublisher.com/technology/22767>

External Funding

Total Funding: **\$1.75 Million**; Served as principal investigator (PI) on 7 external research projects with a total external funding of **\$1.25 Million**, and co-PI on 3 external research projects with a total external funding of **\$500,000**; personal share about **\$900,000** excluding cost share:

1. PI (100%), “Crystal Growing Furnace Process Monitoring and Root Cause Diagnosis,” Sponsor: JSME Co. Ltd., Amount: \$179,927, Date: 5/1/2012 – 8/31/2013
2. Co-PI (20%), “Lightweight Heavy Truck Chassis Redesign,” Sponsor: Transportation Equipment Manufacturing Competitiveness Initiative / Metalsa, Amount: \$77,159, Date: 7/1/2012 – 6/30/2013 (PI: Jaime Camelio, 50%, Co-PI: Chris Williams, 30%)

3. PI (70%), Modeling and Control in Advanced Manufacturing Processes (Seven Research Topics in Thermal Spray Coating, Additive Manufacturing and Machining), Sponsor: Commonwealth Center for Advanced Manufacturing, Amount: \$290,780, Date: 2/4/2013-3/31/2017 (Co-PI: Xinwei Deng, 30%)
4. PI (84%), Fiber Manufacturing Modeling, Control and Visualization (Two Phases), Sponsor: Jiye Technology Co. Ltd., Amount: \$156,000, Date: 7/10/2013-12/31/2016 (Co-PI: Xinwei Deng, 16%)
5. PI (50%), “Collaborative Research: Experimental Design and Analysis of Quantitative-Qualitative Responses in Manufacturing and Biomedical Systems,” Sponsor: **National Science Foundation**, CMMI-1435996, Amount: \$330,000, Date: 9/1/2014-8/31/2018 (Co-PI: Xinwei Deng, 50%, Collaborative project with Illinois Institute of Technology, budget for IIT: \$117,888)
6. Co-PI (30%), “GOALI: Real-Time Detection and Mitigation of Incipient Anomalies in Additive Manufacturing Processes Using Online *in situ* Sensing and Multi-Sensor Fusion,” Sponsor: **National Science Foundation**, CMMI-1436592, Amount: \$300,000, Date: 9/1/2014-8/31/2018 (PI: Zhenyu Kong, 40%, Co-PIs: Jaime Camelio, 15%, Chris Williams, 15%)
7. PI (100%), “Parker Hannifin Image Processing,” Sponsor: Parker Hannifin Co., Amount: \$12,000, Date: 6/16/2015-12/31/2015
8. PI (50%), “Modeling and Quality Control for Manufacturing Big Data System,” Sponsor: Procter and Gamble Company, Amount: \$50,000, Date: 7/15/2015-12/24/2016
9. Co-PI (50%), “Enterprise Prognostic Health Management: Past, Present, and Future,” Sponsor: American Air Liquide, Inc. / Center for Excellence in Logistics and Distribution, Amount: \$62,772, Date: 4/15/2016-6/30/2017 (PI: Kimberly Ellis, 50%)
10. PI (25%), “Data-driven Modeling and Optimization for Energy-Smart Manufacturing,” Sponsor: **National Science Foundation**, CMMI-1634867, Amount: \$300,000, Date: 9/1/2016-8/31/2019 (Co-PIs: Yili Hong, 25%, Xinwei Deng, 25%, and Sam Davanloo Tajbakhsh, 25%)

Teaching Certificates

- New Faculty/Early Career Teaching Certificate, Awarded in 2013, Virginia Tech
- Mastery of Online Learning, Awarded in 2016, Virginia Tech

Teaching Experiences

At Virginia Tech:

- Course Instructor, ISE 4404 Statistical Quality Control, Spring 2015, Spring 2016
 - Teaching Innovation: Added New Course Modules and Contents on Design of Experiments based on Department Needs; Created On-class Case Study Discussion Modules for Students to Comprehend and Apply Statistical Methodology in ISE Domain
 - Elected as Outstanding Faculty Award for Alpha Pi Mu in 2015

- Course Instructor, ISE 5984 Data Analytics for Manufacturing and Biomedical Systems, Spring 2014
 - Teaching Innovation: Integrated Latest Data Analytics Research Results and Spatial Data Analysis Methodology in this *New Course Development*
- Course Instructor, ISE 5204 Manufacturing Systems Engineering, Fall 2013, Fall 2015, Fall 2016
 - Teaching Innovation: Integrated Literature Review Methods and Methodology Tree in Team Projects for Graduate Students
- Course Instructor, ISE 4414 Industrial Quality Control, Spring 2013, Spring 2014
 - Teaching Innovations: Created Real Case Studies and Lab Sessions in Organ Transplant; Extend Traditional ISE Methodology Case Studies to Medical Processes
- Course Instructor, ISE 6284 Advanced Topics in Manufacturing Systems Engineering, Fall 2012
 - Teaching Innovation: Integrated Latest Manufacturing Research Results and Signal Processing Methodology in this *New Course Development*
- Course Instructor, ISE 3214 Facilities Planning and Material Handling, Spring 2012
 - Teaching Innovation: Created Conference Experiences for ISE Undergraduate Students on Classroom Day at MODEX 2012 Conference

Current and Former Students

Ph.D. Students

1. Hongyue Sun, Manufacturing Process Modeling with Functional Variables, 2017 (Defended in March 2017). Current Position: Assistant Professor, ISE, SUNY Buffalo.
2. Lening Wang, Data Fusion in Smart Manufacturing, 2018 (Expected)
3. Brian Mayer, Spatio-Temporal Modeling and Analysis for Public Transportation Forecasting, 2019 (Expected)
4. Qing Lan, Organ Health Prognosis and Diagnosis with Infrared Images, 2019 (Expected)
5. Xiaoyu Chen, Manufacturing System Analytics, 2020 (Expected)
6. Jingran Li, Additive Manufacturing Modeling and Control, 2020 (Expected)
7. Yifu Li, Manufacturing Process Modeling with Spatial Predictors, 2021 (Expected)

M.S. Students with Thesis Option

1. Karuniya Mohan, Ensemble Modelling of *in situ* Feature Variables for Printed Electronics Manufacturing with *in situ* Process Control Potential, 2017 (Defended in February, 2017)
2. Anqi Wang, Human Hand Movement Prediction based on Surface Electromyography Signals, 2017 (Expected, proposal passed in September, 2016, Defense expected in May 2017)

M.S. Students with Non-Thesis Option

1. Keerthi Pemula, 2014

2. Tingting Huang, 2014
3. Abhishek Kar, 2015
4. Qing Lan, 2015
5. Zilun Xu, 2015
6. Varun Kale, 2016
7. Dinesh Goundla, 2016
8. Debanshu Basu, 2016

Undergraduate Research Projects

1. Carlos Barbery, Layer-to-layer Monitoring for Additive Manufacturing, Fall 2015
2. Yifu Li, Image based Quality Assurance in Additive Manufacturing, Spring 2016
3. Mary Buckingham, Kyndal Stakes, Motion Tracking in Smart Surgery, Fall 2016
4. Ljie Ge, Experiments and Analysis with Quantitative and Qualitative Variables in Manufacturing Systems, Fall 2016
5. Suhyun Oh, Rae Wallace, Online Calibration of Biopsy Simulation, Fall 2016
6. Alvin Sie, Roman Tejada, Sensor Integration and Investigation of Energy-Smart Manufacturing, Fall 2016
7. Suhyun Oh, Online Calibration of Biopsy Simulation, Spring 2017

Advisees in Capstone Projects (ISE Senior Students)

1. Matthew Bielen, Leo Donald Glaser, John Hubbard Jesensky and David Cunyoung Lee, 2015-2016, Smart Perfusion, “Liver Viability Prediction”.
2. M. Chapman, S. Larkin, J. Niewola and E. Sloyer, 2011-2012, Smart Perfusion, “Soft Sensing for Organ Transplant”.
3. T. Hazekamp, C. Jarrett, C. Dingus and D. Wolf, 2011-2012, Orvis Co., “Facilities Planning for Orvis’ Warehouse Operations”.
4. M. Coleman, D. Martin, A. Parker and J. Vogler, 2012-2013, Smart Perfusion, “Quality Evaluation for Organ Preservation in Transplantation”.
5. J. Berube, I. Burgos, S. Rookard and E. Tabarly, 2013-2014, Smart Perfusion, “Perfusion Data Collection and Analysis of Kidneys”.
6. Peter Biskaduros, Cole Larrabee, Sun Han and Peter Katsos, 2014-2015, Smart Perfusion, “Articulating Liver Perfusion”.
7. Joanna Appugliese, Brandon Brown, Ben Codioli and Patrick Johns, 2014-2015, Smart Perfusion, “Modeling Kidney Viability with Pressure Measurements”.
8. Matthew Lee Cheatham, Ruihua Li, Leigh Raven Mathewes and Kyra Hikari Vila, 2015-2016, General Electric, “Visual Management System for Tracking, Scheduling and Order Progress”.
9. Heerak Lee, Yifu Li, Alexander Jong Hoon Park and Haoce Zhao, 2015-2016, Commonwealth Center for Advanced Manufacturing, “Investigating Part Quality in Additive Manufacturing”.

10. Julie Wright, Patrick Moody, Neel Ronvelia and Andrew McGroarty, Morgan Rhea, 2016-2017, Morgan Rhea, "Luxury Leather Goods Manufacturing Process Improvement".

Invited Presentations

1. INFORMS Conference, "On-line Surface Defect Detection in Rolling Process for Quality Improvement," Nov. 2007, Seattle
2. INFORMS Conference, "Variability Modeling and Analysis in Wafer Manufacturing Process," Oct. 2008, Washington, D.C.
3. INFORMS Conference, "Sequential Sensing Strategy Based on Gaussian Process Model for Wafer Geometric Profile Estimation," Oct. 2009, San Diego, CA
4. INFORMS Conference, "Reconfigured Piecewise Linear Regression Tree for Multistage Manufacturing Process Control," Oct. 2009, San Diego, CA
5. INFORMS Conference, "PDE-constrained GP Model for Thickness Profile Modeling and Optimization in Slicing Processes," Nov. 2010, Austin, TX
6. INFORMS Conference, "Multistage Multimode Process Monitoring using PLRTs Considering Modeling Uncertainty," Nov. 2010, Austin, TX
7. INFORMS Conference, "Engineered Surface Modeling Using Gaussian Process Models," Nov. 2011, Charlotte, NC
8. ISERC Conference, "Engineering Driven Reconfigured Tree based Variation Reduction Considering Uncertainties," May 2012, Orlando, FL
9. International Symposium on Business and Industrial Statistics, "Wafer Geometric Profile Modeling and Control in Lapping Processes using Gaussian Process Models," June 2012, Bangkok, Thailand
10. The Second International Conference on the Interface between Statistics and Engineering, "Reconfigured Piecewise Linear Regression Tree based Control Considering Modeling Uncertainty," June 2012, Tainan, Taiwan
11. INFORMS Conference, "Ensemble Modeling for Manufacturing Scale-up through Experimental and Observational Data Fusion," Oct. 2012, Phoenix, AZ
12. GE Global Research Center, Workshop on Sensor Enabled Adaptive Manufacturing, "Engineering Driven Data Fusion for Manufacturing System Modeling and Performance Improvement," April 2013, Schenectady, NY
13. ISERC Conference, "Non-negative Garrote based Logistic Regression Model for Crystal Growth Monitoring," May 2013, San Juan, PR
14. INFORMS Conference, "Organ Preservation and Viability Evaluation in Transplant," Oct. 2013, Minneapolis, MN
15. INFORMS Conference, "Broaching Process Monitoring based on Global and Cyclic Signals," Oct. 2013, Minneapolis, MN
16. ISERC Conference, "Control of Qualitative and Quantitative Responses with Asymmetric Loss Functions," May 2014, Montreal, QC, Canada
17. INFORMS Conference, "Dynamic Quality Models Considering Equipment Degradation in Manufacturing Systems," Nov. 2014, San Francisco, CA

18. INFORMS Conference, “Ensemble Modeling for Data Fusion in Manufacturing Process Scale-up,” Nov., 2014, San Francisco, CA
19. INFORMS student chapter at Virginia Tech, “Data Fusion: from Mixed Types of Data to Mixed Types of Information,” Feb., 2015, Blacksburg, VA
20. University of Washington, Dept. of Industrial and Systems Engineering, IND E 593, Industrial and Systems Engineering Seminar Series, “Ensemble Modeling via Design of Experimental and Observational Data Fusion in Manufacturing,” April, 2015, Seattle, WA
21. INFORMS Conference, “QQ Models: Joint Modeling for Quantitative and Qualitative Quality Responses in Manufacturing Systems,” Nov. 2015, Philadelphia, PA
22. International Conference for Advanced Manufacturing, “Soft Sensing and Process Modeling of Additive Manufacturing via Data Fusion,” April, 2016, Arlington, VA
23. Kansas State University, “Data Fusion in Smart Manufacturing,” October, 2016, Manhattan, KS
24. Georgia Institute of Technology, “Data-driven Modeling in Smart Manufacturing,” March, 2017, Atlanta, GA
25. University of Southern California, “Smart Manufacturing Modeling with Functional Data,” April, 2017, Atlanta, GA
26. IMS/ASA Spring Research Conference, “Modeling and Interpretation of Manufacturing Time Series Data via a Natural Language Processing Perspective”, May, 2017, Rutgers, NJ
27. IEEE CASE, “Ensemble Modelling of *in situ* Feature Variables for Printed Electronics Manufacturing with *in situ* Process Control Potential”, August, 2017, Xi’an, China

Major Service Responsibilities

Service to University:

1. Hearing Panel Member, Undergraduate Honor System of Virginia Tech, 2015-present

Service to College of Engineering:

2. Secretary, ISE Alternate for Engineering Faculty Organization Executive Committee of College of Engineering, Virginia Tech, 2015-present (Elected)

Services to Grado Department of Industrial and Systems Engineering:

3. Member, ISE Graduate Admission Committee (2011-2014, 2016-present)
4. Member, ISE Honor and Award Committee (2015-present)
5. Member, ISE Manufacturing Faculty Search Committee (2013-2014, 2014-2015)
6. Member, ISE Ingersoll-Rand Seminar Committee (2011-2015)

Services to the Professional Society:

7. **Associate Editor, *IISE Transactions*, Focus Issue on *Design and Manufacturing*, 2017-present**
8. Secretary and Treasurer, Quality, Statistics and Reliability Subdivision, INFORMS, 2015-present

9. Secretary, Board Member, Process Industries Division, IISE, 2013-2014
10. Referee for National Science Foundation Review Panels (2012, 2013)
11. Referee for Book Articles
 - Wiley Book on Healthcare Data Analytics (1 time)
12. Referee for Journal Papers
 - IIE Transactions on Quality and Reliability Engineering (22 times)
 - Journal of Manufacturing Systems (11 times)
 - Quality Technology and Quantitative Management (5 times)
 - IEEE Transactions on Automation Science and Engineering (4 times)
 - ASME Transactions, Journal of Manufacturing Science and Engineering (4 times)
 - IEEE Transactions on Industrial Informatics (4 times)
 - International Journal of Production Research (4 times)
 - Journal of Quality Technology (1 time)
 - Naval Research Logistics (1 time)
 - International Journal of Performability Engineering (1 time)
 - Computers and Industrial Engineering (1 time)
 - IIE Transactions on Healthcare Systems Engineering (1 time)
 - Systems (1 time)
 - Journal of Engineering Manufacture (1 time)
13. Referee for Conference Papers
 - Proceedings of ASME International Manufacturing Science and Engineering Conference, 2012 (1 time)
 - Proceedings of IEEE International Conference on Automation Science and Engineering, 2015 (1 time)
 - Proceedings of MSEC 2017 (2 times)
14. Referee for Best Paper Awards
 - INFORMS, QSR Best Student Paper Awards, 2013, 2015 (7 papers)
 - INFORMS, QSR Best Paper Competition, 2015 (1 paper)
 - INFORMS, QSR Best Paper Competition, 2016 (2 papers)
 - INFORMS, Data Mining Best Paper Competition, 2016 (3 papers)
15. Conference Organization
 - Session chair of “Quality Improvement in Complex Systems,” Informs Conference 2010, Austin, TX
 - Track co-chair of Process Industries Track, Industrial and Systems Engineering Research Conference 2012, Orlando, FL
 - Session chair / co-chair of “Data Fusion for Manufacturing System Improvement I,” and “Data Fusion for Manufacturing System Improvement II,” Informs Conference 2012, Phoenix, AZ
 - Track co-chair of Process Industries Track, Industrial and Systems Engineering Research Conference 2013, San Juan, PR
 - Session chair / co-chair of “Data Fusion for Manufacturing Scale-up,” “Data

- Fusion in Healthcare Applications I,” “Data Fusion for Manufacturing Systems,”
Informs Conference 2013, Minneapolis, MN
- Track co-chair of Process Industries Track, Industrial and Systems Engineering Research Conference 2014, Montreal, QC, Canada
 - Session chair / co-chair of “Data Fusion in Manufacturing Systems,” “Data Fusion in Manufacturing and Biomedical Systems,” “Sensor-based System Informatics and Control,” “Gaussian Process and Spatial Data Analysis (II),” “Gaussian Process and Spatial Data Analysis (III),” Informs Conference 2014, San Francisco, CA
 - Session co-chair of “Design and Analysis of Data with Complex Structure,” “Modeling and Analysis of Data with Quantitative and Qualitative Variables,” Informs Conference 2015, Philadelphia, PA
 - Symposium organizer of “Engineering Analytics and Data Science for Advanced Manufacturing System Informatics and Sustainability,” Session co-chair of “Analytics for System Informatics and Sustainability 1,” “Analytics for System Informatics and Sustainability 4” (8 talks for two sessions), International Manufacturing Science and Engineering Conference 2016, Blacksburg, VA
 - Session co-chair of “Industrial Big Data Systems,” Informs Conference 2016, Nashville, TN
 - Session chair of “Data Fusion in Modern Manufacturing”, IMA/ASA Spring Research Conference 2017, Rutgers, NJ
 - Session co-chair of “Process Control”, IEEE CASE 2017, Xi’an, China

Outreach Activities

1. Outreach Efforts in Galipatia Friday Faculty Slush Rush: Engage Freshman and Sophomore Engineering Students to Industrial Engineering Major, 2013, 2014
2. Outreach Efforts in CTech² Workshop: 1.5-Day Workshop for at the Center for the Enhancement of Engineering Diversity, College of Engineering, Virginia Tech to introduce advanced manufacturing to female high school students, 2015
3. Initiated International Collaboration and Served as Liaison Officer for Virginia Tech in the Memorandum of Understanding between Virginia Tech and School of Mechanical Engineering, Zhejiang University, China, 2016 – present.
4. Outreach Efforts with the Center for the Enhancement of Engineering Diversity, College of Engineering, Virginia Tech in 1-hour seminar on Smart Manufacturing to Roanoke County gifted middle school students, 2016.
5. Institute for Critical Technology and Applied Science Diversity and Inclusion: Engaged Faculty and Students from Virginia State University and Promote Manufacturing Research with African American Students, 2016-2017

Professional Membership

1. Member of *The Institute for Operations Research and the Management Sciences (INFORMS)*, 2006-present
2. Member of *The Institute of Industrial and Systems Engineers (IISE)*, 2008-present
3. Member of *The American Society of Mechanical Engineers (ASME)*, 2010-present
4. Member of *The Minerals, Metals and Materials Society (TMS)*, 2016-present
5. Member of *Society of Manufacturing Engineers (SME)*, 2017-present
6. Member of *Institute of Electrical and Electronics Engineers (IEEE)*, 2017-present