

## VITAE

### Yu Ding

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## A. Personal

### A.1 Education

- Ph.D. 2001, Mechanical Engineering, University of Michigan, Ann Arbor, MI  
Dissertation advisor: Professor Jianjun (Jan) Shi
- M.S. 1998, Mechanical Engineering, Penn State University, University Park, PA  
Thesis advisor: Professor Asok Ray
- M.S. 1996, Precision Instruments, Tsinghua University, Beijing, China
- B.S. 1993, Precision Engineering, Univ. of Science & Technology of China, Hefei, China

### A.2 Professional Appointment

- Jan. 2020 – present Associate Director for Research Engagement, Texas A&M Institute of Data Science (TAMIDS).
- Jan. 2020 – present *Professeur Affilié*, Mechanics, Surface, and Materials Processing Laboratory, *Ecole Nationale Supérieure d'Arts et Métiers* (ENSAM), Aix en Provence, France.
- Jan. 2014 – Present *Mike & Sugar Barnes Professor* of Industrial and Systems Engineering,
- Nov. 2012 – Present *Professor* of Electrical and Computer Engineering,
- Sep. 2012 – Present *Professor* (with tenure) of Industrial and Systems Engineering,
- Aug. 2014 – Aug. 2016 *Associate Department Head for Graduate Affairs* of Industrial and Systems Engineering,
- Sep. 2012 – Jul. 2014 *Director of Graduate Program* of Industrial and Systems Engineering,
- Jan. 2010 – Aug. 2012 *Associate Professor* (with tenure), and Holder of the *Centerpoint Energy Career Development Professorship* Dept. of Industrial and Systems Engineering,
- Sep. 2007 – Dec. 2009 *Associate Professor* (with tenure) Dept. of Industrial and Systems Engineering,
- Aug. 2001 – Aug. 2007 *Assistant Professor*, Dept of Industrial and Systems Engineering

## **B. Honors and Awards**

- The Engineering Genesis Award, Texas A&M Engineering, November 20, 2020.  
(The award is a team award, presented to the team of Texas A&M Engineering researchers who received a significant research grant of \$1 million or more.)
- The Association of Former Students (AFS) University Level Distinguished Achievement Award in Research, Texas A&M University, April 27, 2020.
- Award for Technical Innovation in Industrial Engineering, Institute of Industrial & Systems Engineering (IISE), May 2019.
- Honorable Mention of Best Application Paper for 2018, IISE Transactions on Quality and Reliability Engineering, May 2019, for “Spline model for wake effect analysis: Characteristics of single wake and its impacts on wind turbine power generation” By Hwangbo, Johnson, and Ding, in IISE Transactions, Vol. 50, pp. 112-125.
- TEES Research Impact Award, College of Engineering, Texas A&M University, April 2018.  
(Official citation “*for innovations in data and quality science impacting the wind energy industry.*”)
- Fellow, American Society of Mechanical Engineering (ASME), July 2016.
- Fellow, Institute of Industrial Engineers (IIE), June 2015.
- Best Application Paper Award, IIE Transactions on Quality and Reliability Engineering, February 2014, for “A multi-stage, semi-automated procedure for analyzing the morphology of nanoparticles” by Park, Huang, Huitink, Kundu, Mallick, Liang, and Ding, in IIE Transactions, Vol. 44, pp. 507-522.
- Charles H. Barclay, Jr. ’45 Faculty Fellow, College of Engineering, Texas A&M University, April 2013.
- Best Conference Paper Award, from the Modeling and Simulation Track of 2011 IIE Annual Conference, Reno, NV, May 23, 2011.
- TEES Fellow Award, College of Engineering, Texas A&M University, April 2011.
- Brockett Professorship Award, College of Engineering, Texas A&M University, April 2009.
- Donna and Jim Furber ’64 Faculty Fellow, Industrial and Systems Engineering Department, Texas A&M University, April 2007.
- TEES Select Young Faculty, College of Engineering, Texas A&M University, Oct 2006.
- Best Paper Award, IIE Transactions on Quality and Reliability Engineering, April 2006, for “Online Automatic Process Control Using Observable Noise Factors for Discrete-part Manufacturing” by J. Jin and Y. Ding, in IIE Transactions, Vol. 36(9), pp. 899-911.
- Montague - Center for Teaching Excellence Scholar, Texas A&M University, Oct 2005 (in recognition of outstanding teaching, this award recognizes one tenure-track assistant professor in

each college every year).

- CAREER Award, National Science Foundation, 2004.
- Best Paper Award, 2000 ASME International Mechanical Engineering Congress and Exposition, ASME Manufacturing Engineering Division, Nov 2000.
- Excellence in Research Award from the S. M. Wu Foundation, July 2000.

## **C. Teaching**

### **C.1 Educational Development**

- Revise and re-open ISEN 619 “Analysis and Prediction” in Fall 2002 (this course has not been taught since 1997). In spring 2007, once again significantly revise the content of the course for teaching contemporary machine learning through regularization. This course was one of the very first in Texas A&M’s College of Engineering course offering that comprehensively covers machine learning topics in the textbook of Hastie, Tibshirani and Friedman. This course was taught twice as summer short course at Chinese Academy of Sciences.
- Re-open ISEN 414 (has not been taught since Fall 1998) and developed all the lecture materials plus nine new lab sessions. Lab sessions designed using Box’s “paper helicopter experiment” to illustrate the response surface methodology.
- Offered a seminar course, ISEN 689 -- “Statistical Analysis of Sensor Systems,” in Spring 2003, develop all the course materials. This course covers the state-of-the-art statistical data-mining methods, which can facilitate the analysis, benchmarking, and design of distributed sensor systems. This is a research-oriented course for Ph.D. students.
- Revised ISEN 314 course materials and develop five new lab sessions (out of a total of ten sessions) for this course.
- Significantly revise ISEN 614 in Spring 2008. The new content aims to present the fundamental methods about *anomaly and change detection* in a process or an environment. Methods covered include the univariate and multivariate analysis for continuous and discrete data, risk adjustments, data pre-analyses (such as dimension reduction), and scan statistics. The application examples of anomaly and change detection used in this course include manufacturing quality control, health care delivery, disease outbreak monitoring and detection, as well as homeland security surveillances.

### **C.2 Courses Taught at Texas A&M University**

- Taught six different courses at Texas A&M, including one undergraduate required course, one undergraduate elective, two master’s level graduate courses, and two Ph.D. level advanced topics.
- Developed two distance learning (online) courses, one for advanced statistical quality control and one for design of experiment. Taught more than 65 students.

### **C.3 Ph.D. Student Committees Chaired or Co-chaired**

1. Pansoo Kim, graduated August 2004,

- Dissertation Title: “Near optimal fixture design in multi-station manufacturing systems.”  
Employment: Professor, School of Business Administration, Kyungpook National University, South Korea.
2. Jung Jin Cho, graduated August 2007,  
Dissertation Title: “On the robust methods for clustered sensor systems.”  
Employment: Baker Hughes, Houston, TX.
  3. Yuan Ren, graduated December 2008,  
Dissertation Title “Adaptive evolutionary Monte Carlo methods for heuristic optimization.”  
Employment: Head of Data Science, at mParticles, New York City
  4. Haifeng Xia (change name to Heidi Rodenbeck after marriage), graduated December 2008,  
Dissertation Title: “Bayesian hierarchical methods for combining two-resolution metrology data”  
Employment: Data Scientist, at Freddie Mac, Virginia.
  5. Abhishek K. Shrivastava, graduated December 2009  
Dissertation Title: “Listing unique fractional factorial designs”  
Employment: first position upon graduation was an Assistant Professor at the City University of Hong Kong, now with Capital One, Dallas, TX.
  6. Eunshin Byon, graduation: May 2010,  
Dissertation Title: “Optimization and simulation of wind farm operations under stochastic conditions”  
Employment: Associate Professor, Industrial & Operations Engineering, University of Michigan, Ann Arbor.
  7. Chiwoo Park (co-chaired with Jianhua Huang at Statistics Department), graduation: August 2011  
Dissertation Title: “Automated morphology analysis of nanoparticles.”  
Employment: Associate Professor, Industrial & Manufacturing Engineering, Florida State University.
  8. Giwhyun Lee, graduation: August 2013  
Dissertation Title: “Data analytics methods in wind turbine design and operations.”  
Employment: Assistant Professor (Rank: Major), Korea Army Academy at Yeongcheon, South Korea.
  9. Arash Pourhabib (co-chaired with Faming Liang at Statistics Dept), graduation: August 2014.  
Dissertation Title: “Gaussian process modeling and computation in engineering applications.”  
Employment: first position upon graduation was an Assistant Professor at Oklahoma State University, now with Google, Mountain View, CA.
  10. Hoon Hwangbo, graduation: August 2017.  
Dissertation Title: “Performance evaluation of wind power systems based on production economics theory.”  
Employment: Assistant Professor, Department of Industrial & Systems Engineering, University of Tennessee-Knoxville.
  11. Yanjun Qian, graduation: August 2018.  
Dissertation Title: “Data science methods for analyzing nano material images and videos.”  
Employment: Assistant Professor, Department of Statistical Sciences and Operations Research, Virginia Commonwealth University.

12. Ahmed Aziz Ezzat, graduation: August 2019.  
Dissertation Title: “Spatio-temporal modeling and analysis for wind energy applications.”  
Employment: Assistant Professor, Department of Industrial & Systems Engineering, Rutgers University.
13. Imtiaz Ahmed, graduation: August 2020.  
Dissertation Title: “Unsupervised anomaly detection of high dimensional data with low dimensional embedded manifold.”  
Employment: Post-doc at Texas A&M University

**(Ph.D. students in process)**

14. Joel Macaluso (passed qualifying and on leave)
15. Shilan Jin (passed qualifying)
16. Abhinav Prakash (pass qualifying)
17. Adaiyibo E Kio (pass qualifying)
18. Effi Latiffianti (before qualifying)
19. Hae Won Sohn (before qualifying)

After Dr. Dan Apley left Texas A&M, per the graduate school requirements, I served as the co-chair for the following Ph.D. students:

Hyun Cheol Lee and Chang-Ho Chin, both graduated in August 2004;  
Feng Zhang, graduated in December 2004.

**C.4 Master Student Committees Chaired or Co-chaired**

**M.S. Thesis**

1. Qinyan Liu, graduated May 2004  
Thesis Title: “Optimal Coordinate Sensor Placement for Estimating Mean and Variance Components of Variation Sources.”  
Continue as a graduate student at Stanford University, Department of Management Science and Engineering.
2. Abhishek Gupta, graduated May 2004  
Thesis Title: “Robust Design Using Sequential Computer Simulations and Its Application in Electronic Packaging.”  
Continue as a Ph.D. student at the Wharton School of the University of Pennsylvania, Department of Statistics.
3. David Perez, graduated August 2018  
Thesis Title: “Exploring key variables in wind turbine power curve modeling.”

4. Jason K. Lawley, graduated August 2018  
Thesis Title: “Optimal personnel deployment strategy for self-perform maintenance on wind farms.”

#### **M.S. non-thesis but conducted a research project**

5. Sampatraj S. Mandroli, graduated May 2004  
Project Title: “A Survey of Inspection Strategy and Sensor Distribution Studies in Discrete-part Manufacturing Processes.”

#### **C.5 Undergraduate Student Research Mentoring**

1. Undergraduate Research Activity:

Haydee Montes (from University of Texas at El Paso), summer 2002;

Yasin Alan, spring, summer 2005;

Juan Carlos Ballesteros and Mauricio Dominguez, spring 2005

Molly Moodt and Adi Yogatama, summer 2006.

Gregory Glass, summer 2007.

Akeal Hawkins, fall 2007.

Viktor Corrales and Yosua Kristanto, summer 2008.

Lokesh Kulkarni, summer and fall 2009.

Carolina M. Rivera, fall 2009, spring 2010.

Santiago Garrido-Lecca, spring and summer 2010.

David Kalinowski, spring 2011.

Ayrton Bryan, fall 2011, spring 2012.

Erika Sy, summer and fall 2012.

David Dzubay, summer 2015.

Briana Niu, summer 2016

Victor Gálvez Yanjarí (from PUC Chile), spring 2017.

2. INEN459/460 Project Faculty Advisor: spring 2003, fall 2004, spring 2006, fall 2006, fall 2010, fall 2012, fall 2013, spring 2014, spring 2016, spring 2019.

#### **C.6 High School Teacher/Student Research**

1. Research Experience for Teacher (RET) project (part of the E<sup>3</sup> Teacher Summer Research Program), summer 2004. Participants: Jesse Smith from Raymondville High School, Raymondville, TX and Patricia McMorris from Milby High School, Houston, TX.
2. Karen Wang, junior student from A&M Consolidated High School, summer 2010. Design and build a desktop size, prototypical wind turbine.
3. Research Experience for Teacher (RET) project (part of the E<sup>3</sup> Teacher Summer Research Program), summer 2013. Participants: Brenda Banning from Cypress Creek High School of Houston TX and Adam Eannarino from Robert E. Lee High School of San Antonio, TX.

#### **C.7 Teaching Improvement**

1. July 24, 2002, participation of *Workshop: COURSE OBJECTIVES AND CLASSROOM ASSESSMENT*, Texas A&M Campus.

## **D. Grants and Contracts**

### **Funded Research**

1. *National Science Foundation GOALI Program*, “Collaborative Research: Analysis and Optimization Method for Distributed Sensor Systems in Electronics Assembly Processes,” \$163,201 (DMI-0217481), PI: Y. Ding, co-PI: Feng Niu of Motorola Inc., 09/2002-08/2005. This project is in collaboration with Dr. Dariusz Ceglarek at University of Wisconsin - Madison under grant no. DMI-0218208.  
  
- *RET (Research Experience for Teachers) Supplement*, \$10,000, 04/2003.
2. *Nokia Mobile Phones*, “Robust Design for Electronics Package and Phone Mechanics,” \$15,000, PI: Y. Ding, 01/2003 – 12/2003.
3. *Texas Higher Education Coordination Board Advanced Technology Program (ATP)*, “Optimal Utilization of Distributed Sensor Systems for Manufacturing Fault Diagnosis,” \$149,900, PI: Y. Ding, Co-PI: A. Banerjee, 01/2004-12/2005.
4. *National Science Foundation*, “CAREER: Collaborative Information Processing of Distributed Sensor Networks for Manufacturing Quality Improvements,” (DMI-0348150), PI: Y. Ding, \$400,000, 06/2004-05/2009.
5. *National Science Foundation*, “SST: Robust Wireless Piezoelectric Sensor Network for Structural Health Monitoring,” PI: Y. Ding, \$150,000 (CMS-0427878), 08/2004-07/2007. This project is in collaboration with Dr. Jiong Tang at University of Connecticut under grant no. CMS-0428210 and Dr. Xiaodong Wang at Columbia University under grant no. CMS-0427353.
6. *National Science Foundation*, “Sensors: Strategic Design and Tactical Operation of Surveillance Sensor Systems for Ports and Waterway Security,” PI: W. Wilhelm, Co-PI: Y. Ding, \$331,111, (DMI-0529026), 09/2005-08/2008.  
  
- *REU (Research Experience for Undergraduates) Supplement*, \$12,000, 11/2005.  
- *REU (Research Experience for Undergraduates) Supplement*, \$12,000, 02/2007.
7. *National Science Foundation*, “DDDAS - SMRP: A Framework for the Dynamic Data-Driven Fault Diagnosis of Wind Turbine Systems,” PI: Y. Ding, \$180,000, (CMS-0540132), 06/2006-05/2009. This project is in collaboration with Dr. Jiong Tang at University of Connecticut under grant no. CMS-0540278.
8. *National Science Foundation*, “Collaborative Research: Fault Tolerance Analysis and Design of Clustered Sensor Networks,” PI: Y. Ding, \$161,336 (CMMI-0727305), 09/2007-08/2010. This project is in collaboration with Dr. Yong Chen at the University of Iowa under grant no. CMMI-0726939.
9. *Department of Homeland Security, the Domestic Nuclear Detection Office (DNDO)*, “ARI-LA: A Framework for Developing Novel Detection Systems Focused on Interdicting Shielded HEU,” 11/2007-10/2012, \$7,496,088 total.

Dr. Warren F. (Pete) Miller at Nuclear Engineering is the overall PI (after Dr. Miller left, Dr. Bill Charlton of Nuclear Engineering took over as the PI for the project). Drs. Gary Gaukler and Yu Ding direct the Systems Team, receiving \$1,019,374 for five years.

10. *Smith Services International*, “Inventory, Backlog, and Supply Chain Analysis,” \$144,500. PI: Dr. Barry Lawrence at Industrial Distribution, Co-PI: Y. Ding, 09/2007-08/2008.
11. *Texas Norman Hackerman Advanced Research Program (ARP)*, “Bayesian hierarchical models for integrating multi-resolution information,” \$150,000, PI: Bani Mallick (Statistics), Co-PI: Yu Ding and Helen Liang (Mechanical Engineering), 06/2008-05/2010.
12. *National Science Foundation*, “Collaborative Research: Efficient Probabilistic Approach Using Order Reduction and Hybrid Models -- A New Paradigm for Structural Dynamic Analysis,” PI: Y. Ding, Co-PI, F. Liang (Statistics), \$249,998 (CMMI- 0926803), 09/2009-08/2012. This project is in collaboration with Dr. Jiong Tang at University of Connecticut under grant no. CMMI-0927734.
  - *REU (Research Experience for Undergraduates) Supplement*, \$6,000, 04/2010.
13. *Institute of Applied Mathematics and Computational Science (IAMCS)* at Texas A&M University, “IAMCS Innovation Award: Parallelizable Gaussian process regression of very large, non-stationary spatial datasets,” \$37,500, PI: J.Z. Huang (Statistics), Co-PI: H. Sang (Statistics), L. Soumendra (Statistics), Y. Ding (ISE), 07/2010-05/2011.
14. *National Science Foundation*, “Collaborative Research: Multi-Accuracy Bayesian Models for Improving Property Prediction of Nanotube Buckypaper Composites,” PI: Y. Ding, \$178,233 (CMMI-1000088), 08/2010-07/2013. This project is in collaboration with Drs. Chuck Zhang, Arda, Vanli, and Ben Wang at Florida State University under grant no. CMMI-1000099.
15. *Institute of Applied Mathematics and Computational Science (IAMCS)* at Texas A&M University, “IAMCS Innovation Award: Statistical Methods Automating Morphology Analysis and Characterization of Overlapping Nano Particles,” \$25,000 plus \$15,000 travel fund, PI: Y. Ding, 07/2012-05/2013.
16. *Air Force Office of Scientific Research*, “Dynamic, data-driven modeling of nanoparticle self-assembly processes,” \$642,030 (AFOSR FA9550-13-1-0075 & AFOSR FA9550-17-1-0044), PI: Yu Ding, Co-PI: J.Z. Huang (Statistics), sub-award: Florida State University (C. Park, T. Liu and C. Zhang), 03/15/2013-04/14/2017.
17. *National Science Foundation*, “GOALI/Collaborative Research: A System-Level Framework for Operation and Maintenance: Synergizing Near and Long Term Cares for Wind Turbines,” PI: Y. Ding, \$199,969 (CMMI-1300560), 09/2013-08/2016. Industrial co-PI: Dr. Jianping Guo of GE Global Research Center. This project is in collaboration with Dr. Jiong Tang at University of Connecticut under grant no. CMMI-1300236.
18. *Qatar National Research Fund*, “Structure-Aware Reliability Analysis of State Estimators in Large-Scale Sensor Systems,” Lead PI: K. Kianfar, Co-Lead PIs: H. Parsaei, Co-PI: Y. Ding, \$851,757 (NPRP 7-953-2-357), 01/2015-12/2018.
19. *Texas A&M Engineering Experiment Station and Texas A&M University Division of Research*, “Big Data Enabled Proactive Alarm Management of Power Control Equipment,” PI: Y. Ding; Co-PIs: E. Moreno-Centeno (ISE), PR Kumar (ECE), N. Reddy (ECE), B. K. Mallick (STAT), J. Z. Huang (STAT), \$150,000 plus \$50,000 matching fund from ABB over two years, 09/2014-08/2016.



20. *National Science Foundation*, “CPS/Synergy/Collaborative Research: Cybernizing Mechanical Structures through Integrated Sensor-Structure Fabrication,” PI: Y. Ding, \$200,000 (CMMI-1545038), 01/2016-12/2018. This project is in collaboration with Drs. J. Tang and C. Cao at University of Connecticut under grant no. CMMI-1544707 and Drs. C. Zhang and B. Wang of GA Tech under grant no. CMMI-1544595.
21. *Texas A&M Engineering Experiment Station and Texas A&M University Division of Research*, “Learning Material Properties from in-situ Transmission Electron Microscopy Video Data,” PI: Y. Ding; Co-PIs: T. Cagin (Material), L. Zhou (STAT), \$50,000, 02/2016-01/2017.
22. *Texas A&M Energy Institute*, “Data Science Methods to Improve Wind Energy Operations,” PI: Y. Ding; Co-PIs: J.Z. Huang (STAT), Chanan Singh (ECEN), \$50,000, 07/2016-06/2017.
23. *National Science Foundation*, “BIGDATA: IA: Collaborative Research: From Bytes to Watts - A Data Science Solution to Improve Wind Energy Reliability and Operation,” PI: Y. Ding, Co-PIs: Bani Mallick (STAT) and Peng Li (ECEN), \$749,799 (IIS-1741173), 01/2018-12/2020. This project is in collaboration with Dr. E. Byon of the University of Michigan under grant no. 1741166 and Dr. J. Tang at University of Connecticut under grant no. IIS- 1741174.
24. *EDP Renewables*, “Machine learning modeling applied to the analysis of potential power gain from passive devices installed in wind turbine generators,” PI: Y. Ding, \$50,000, 10/12/2017-12/31/2018.
25. *ABB*, “Real-time Anomaly Detection, Forecasting, and Mitigation for Power and Automation Systems,” PI: Y. Ding, \$73, 417, 3/1/2018-12/31/2019.
26. *Air Force Office of Scientific Research*, “Dynamic, data-driven modeling of nanoparticle self-assembly processes,” TAMU portion: \$177,000, TAMU PI: Yu Ding, TAMU Co-PI: J.Z. Huang (Statistics). TAMU is a sub-award in the grant of AFOSR FA9550-18-1-0144, led by Florida State University (lead PI: Dr. Chiwoo Park), 04/15/2018-04/14/2021.
27. *Texas A&M Office of President X-grant Program*, “Autonomous material discovery and manufacturing via artificial intelligence,” PI: S. T. S. Bukkapatnam, Co-PI: R. Arroyave, Y. Ding, J. Z. Huang, I. Karaman, P. R. Kumar, B. K. Mallick, \$500,000, 9/2018-08/2020.
28. *Goldwind China*, “Goldwind and TAMU wind energy collaboration research project,” PI: Y. Ding, \$84,999, 01/01/2019-05/31/2020.
29. *Ensemble Energy*, “Anomaly detection in wind energy systems,” PI: Y. Ding, \$15,000, 01/15/2019-05/15/2019.
30. *National Science Foundation*, “S&AS: INT: Autonomous Experimentation Platform for Accelerating Manufacturing of Advanced Materials,” PI: Y. Ding, Co-PIs: Satish Bukkapatnam (ISEN), Raymundo Arroyave (MSEN), and Ben Hu (Computer Science), \$999,113 (IIS-1849085), 02/15/2019-1/31/2022.
31. *Amvalor*, “Development of control of the surface morphology of mechanical parts using new cyber-physical systems that integrates artificial intelligence (AI),” PI: Satish Bukkapatnam (ISEN), Co-PI: Yu Ding, \$140, 587, 11/01/2019-10/31/2022.
32. *National Science Foundation*, “TRIPODS: Texas A&M Research Institute for Foundations of Interdisciplinary Data Science (FIDS),” PI: Bani Mallick (STAT), Co-PIs: Ronald DeVore

(MATH), P. R. Kumar (ECEN), Nicholas Duffield (ECEN), Dilma Da Silva (CSCE), \$1,416,522 (CCF-1934904), 10/01/2019-09/30/2022. I am an unpaid senior personnel and serve on this TRIPODS Institute's Executive Committee (fids.tamu.edu).

33. National Science Foundation, "CPS: Medium: Real-Time Learning and Control of Stochastic Nanostructure Growth Processes Through in situ Dynamic Imaging," PI: Y. Ding (ISEN), Co-PIs: PR. Kumar (ECEN), Shahin Shahrapour (ISEN), Jiang Hu (ECEN), Sarbajit Banerjee (CHEM), \$1,197,737 (CMMI-2038625), 1/1/2021-12/31/2023.

### **Equipment Grants**

34. *TEES Permanent University Funds*, "Optical Coordinate Metrology Data Analysis Equipment," \$100,000, 10/2001, PI: D.W. Apley, co-PIs: A. Banerjee, Y. Ding.
35. *Dean's Undergraduate Equipment Initiative*, "Data visualization and quality control measurement equipment and software" \$80,000, 06/2005, PI: A. Banerjee, co-PI: Y. Ding.

## **E. Publications**

### **E.1 Books**

- B1. Ding, Y., 2019, *Data Science for Wind Energy*, 400 pages, Boca Raton, FL: Chapman-Hall/CRC Press (Taylor & Francis).
- B2. Park, C and Ding, Y., *Data Science for Nano Image Analysis*, Springer, manuscript to be delivered in 2020.

### **E.2 Articles in Peer-Reviewed Journals and Transactions.**

#### **(Published or Accepted)**

##### *Research Articles*

- J1. Ding, Y., Shi, J., and Ceglarek, D., 2002, "Diagnosability analysis of multi-station manufacturing processes," *ASME Transactions, Journal of Dynamic Systems, Measurement, and Control*, Vol. 124, pp. 1–13 (lead article).
- J2. Ding, Y., Ceglarek, D., and Shi, J., 2002, "Fault diagnosis of multi-station manufacturing processes by using state space approach," *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 124, pp. 313–322.
- J3. Ding, Y., Ceglarek, D., and Shi, J., 2002, "Design evaluation of multi-station manufacturing processes by using state space approach," *ASME Transactions, Journal of Mechanical Design*, Vol. 124, pp. 408–418.
- J4. Ding, Y., Kim, P.<sup>\*</sup>, Ceglarek, D., and Jin, J., 2003, "Optimal sensor distribution for variation diagnosis for multi-station assembly processes," *IEEE Transactions on Robotics and Automation*, vol. 19(4), pp. 543–556.

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\* The unlined is (or was) my student at Texas A&M.

- J5. Zhou, S., Ding, Y., Chen Y., and Shi, J., 2003, "Diagnosability study of multi-station manufacturing processes based on linear mixed model," *Technometrics*, vol. 45(4), pp. 312–325 (selected by Editor for 2003 INFORMS Technometrics Session).
- J6. Ding, Y. Gupta, A., and Apley, D., 2004, "Singularity of fixture fault diagnosis in multi-station assembly systems," *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 126(1), pp. 200–210.
- J7. Jin, J. and Ding, Y., 2004, "Online automatic process control using observable noise factors for discrete-part manufacturing," *IIE Transactions*, Vol. 36(9), pp. 899–911. (2006 Best Paper Award from *IIE Transactions on Quality and Reliability Engineering*).
- J8. Kim, P. and Ding Y., 2004, "Optimal design of fixture layout in multi-station assembly processes," *IEEE Transactions on Automation Science and Engineering*, Vol. 1(2), pp. 133–145.
- J9. Apley, D. W. and Ding, Y., 2005, "A characterization of diagnosability conditions for variance components analysis in assembly operations," *IEEE Transactions on Automation Science and Engineering*, Vol. 2(2), pp. 101–110.
- J10. Ding, Y., Jin, J., Ceglarek, D., and Shi, J., 2005, "Process-oriented tolerancing for multi-station assembly systems," *IIE Transactions*, Vol. 37(6), pp. 493–508.
- J11. Ding, Y., Zhou, S. and Chen Y., 2005, "A comparison of process variance estimation methods for in-process dimensional measurement and control," *ASME Transactions, Journal of Dynamic Systems, Measurement, and Control*, Vol. 127(1), pp. 69–79.
- J12. Kim, P. and Ding, Y., 2005, "Optimal engineering design guided by data-mining methods," *Technometrics*, Vol. 47(3), pp. 336–348 (selected by Editor for 2005 INFORMS Technometrics Session).
- J13. Liu, Q., Ding, Y., and Chen Y., 2005, "Optimal coordinate sensor placements for estimating mean and variance components of variation sources," *IIE Transactions*, Vol. 37(9), pp. 877–889.
- J14. Ding, Y., Zeng, L., and Zhou, S., 2006, "Phase-I analysis for monitoring nonlinear profile signals in manufacturing processes." *Journal of Quality Technology*, Vol. 38(3), pp. 199–216.
- J15. Chen, Y., Ding, Y., Jin, J., and Ceglarek, D., 2006, "Integration of tolerance and maintenance design for multi-station manufacturing processes," *IEEE Transactions on Automation Science and Engineering*, Vol. 3(4), pp. 440–453.
- J16. Gupta, A., Ding, Y., Xu, L., and Reinikainen, T. 2006 "Optimal parameter selection for electronic packaging using sequential computer simulations," *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 128(3), pp. 705–715.
- J17. Ren, Y., Ding, Y., and Zhou, S., 2006 "A data-mining approach to study the significance of nonlinearity in multi-station assembly processes." *IIE Transactions*, Vol. 38 (12), pp. 1069–1083.
- J18. Xue, X., Tang, J., Sammes, N., and Ding, Y., 2006 "Condition monitoring of PEM fuel cell

- using Hotelling  $T^2$  control limits,” *Journal of Power Sources*, Vol. 162, pp. 388–399.
- J19. Li, Z., Zhou, S., and Ding, Y., 2007, “Pattern matching for root cause identification of manufacturing processes with the presence of unstructured noise,” *IIE Transactions*, Vol. 39(3), pp. 251–263.
- J20. Ding, Y and Apley, D.W., 2007, “Guidelines for placing additional sensors to improve variation diagnosis in assembly processes.” *International Journal of Production Research*, Vol. 45 (23), pp. 5485–5507.
- J21. Cho, J.J., Chen, Y., Ding, Y., 2007, “On the (co)girth of connected matroids,” *Discrete Applied Mathematics*, Vol. 155, pp. 2456–2470.
- J22. Hao, S., Zhou, S., and Ding, Y., 2008, "Multivariate process variability monitoring through projection based on a process model," *Journal of Quality Technology*, Vol. 40(2), pp. 214–226.
- J23. Xia, H., Ding, Y., and Wang, J., 2008, “Gaussian process method for form error assessment using coordinate measurements,” *IIE Transactions*, Vol. 40, pp. 931–946.
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- J47. Li, C., Gaukler, G. M., and Ding, Y., 2013, “Using container inspection history to improve interdiction of illicit nuclear materials,” *Naval Research Logistics*, Vol. 60, pp. 433–448.
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- J66. Ezzat, A. A., A. Pourhabib, and Y. Ding, 2018, “Sequential design for functional calibration of computer models,” *Technometrics*, Vol. 60(3), pp. 286–296.
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*Review/Survey Articles*

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- J76. Ding, Y., Elsayed, E.A., Kumara, S., Lu, J-C., Feng, N., and Shi, J., 2006 “Distributed sensing for quality and productivity improvements,” *IEEE Transactions on Automation Science and Engineering*, Vol. 3(4), pp. 344–359.
- J77. Park, C. and Y. Ding, 2019, “Automating material image analysis for material discovery,” *MRS Communications*, Vol. 9(2), pp. 545–555.

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- S1. Pourhabib, A., R. Tuo, S. He, Y. Ding, and J.Z. Huang, “Local calibration of computer experiments,” *Journal of the American Statistical Association*, in second revision, 2018.
- S2. Ahmed, I., X. B. Hu, M. P. Acharya, and Y. Ding, “Unsupervised point anomaly detection using neighborhood structure assisted non-negative matrix factorization,” *Journal of Machine Learning Research*, submitted, Nov 2019 (manuscript available at <https://arxiv.org/abs/2001.06541>).
- S3. Sung, K. W. E. Brown, E. Moreno-Centeno and Y. Ding, “Imbalanced data classification via guided undersampling using ensemble filtering and normalized cuts,” *Machine Learning*, submitted, Feb 2019.
- S4. Prakash, A., R. Tuo, and Y. Ding, “Gaussian process aided function comparison using noisy scattered data,” *Technometrics*, submitted, Jan 2020 (manuscript available at <https://arxiv.org/abs/2003.07899>).
- S5. Ahmed, I.; T. Galoppo; X. Hu; and Y. Ding, “Graph regularized autoencoder and its application in unsupervised anomaly detection,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, submitted, March 2020.
- S6. Ding, Y., N. Kumar, A. Prakash, A. Kio, X. Liu, L. Liu, Q. Li, “Space-time performance comparison of wind turbines on a wind farm,” *Renewable Energy*, submitted, May 2020 (manuscript available at <https://arxiv.org/abs/2005.08652>).
- S7. Ezzat, A. A.; S. Liu, D. Hochbaum, Y. Ding, “A graph-theoretic approach for spatial filtering and its impact on mixed-type spatial pattern recognition in wafer bin maps,” *IEEE Transactions on Semiconductor Manufacturing*, submitted, Oct 2020 (manuscript available at <https://arxiv.org/abs/2006.13824>).
- S8. Shin, Y.-E., L. Zhou, and Y. Ding, “Joint estimation of monotone curves via functional principal component analysis,” *Computational Statistics and Data Analysis*, submitted, July



2020.

- S9. Ahmed, I., M. Jun, Y. Ding, “A spatio-temporal track association algorithm based on marine vessel automatic identification system data,” *IEEE Transactions on Intelligent Transportation Systems*, submitted, Oct 2020.
- S10. Xie, Y., Y. Ding, and S. Ji, “Augmented equivariant attention networks for electron microscopy image super-resolution,” *Bioinformatics*, submitted, Nov 2020 (manuscript available at <https://arxiv.org/abs/2011.03633>).

### E3. Software and Tool Box

- T1. Park, C., Huang, J.Z., and Ding, Y., 2012, “GPLP: a local and parallel computation toolbox for Gaussian process regression,” *Journal of Machine Learning Research*, Vol. 13, 775-779.

The whole toolbox and the supporting documents are accessible at MLOSS project website (Machine Learning Open Source Software) <http://mloss.org/revision/view/990/>

- T2. Hwangbo, H. and Y. Ding “Kernel PLUS wind turbine power curve,” *R package*, released June 6, 2017. The R package for the power curve method can be downloaded by typing `install.packages("kernplus")` on an R session and load the package by typing `library(kernplus)`.

- T3. Hwangbo, H., Y. Ding, D. Cabezon, “Machine Learning Based Analysis and Quantification of Potential Power Gain from Passive Device Installation,” *R package*, released June 28, 2019. The R package can be downloaded by typing `install.packages("gainML")` on an R session and load the package by typing `library(gainML)`.

The methodology companion of the package can be found at the arXiv, <https://arxiv.org/abs/1906.05776>.

- T4. Kumar, N., A. Prakash, and Y. Ding, “DSWE: Data Science for Wind Energy R package GitHub repository,” <https://github.com/TAMU-AML/DSWE-Package>, released May 2020.

### E.4 In Refereed Conference or Symposium Proceedings

- C1. Ding, Y., Ceglarek, D., and Shi, J., 2000, “Modeling and diagnosis of multi-station manufacturing processes: part I – state space model,” *Proceedings of the 2000 Japan/USA Symposium on Flexible Automation*, July 23-26, Ann Arbor, MI.
- C2. Ding, Y., Ceglarek, D., and Shi, J., 2000, “Modeling and diagnosis of multi-station manufacturing processes: part II – fault diagnosis,” *Proceedings of the 2000 Japan/USA Symposium on Flexible Automation*, July 23-26, Ann Arbor, MI.
- C3. Ding, Y., Jin, J., Ceglarek, D., and Shi, J., 2000, “Process-oriented tolerance synthesis for multi-station manufacturing systems,” *Proceedings of the 2000 International Mechanical Engineering Congress and Expositions*, Nov 5-10, Orland, FL, pp. 15-22.
- C4. Ding, Y., Ceglarek, D., and Jin, J., 2001, “A sensor distribution strategy for multi-station manufacturing systems,” *Proceedings of the 11<sup>th</sup> International Conference on Flexible Automation and Intelligent Manufacturing*, July 16-18, Dublin, Ireland, Vol-II, pp. 891-900.

- C5. Tang, J., and Ding, Y., 2004, "A frequency response based damage detection approach using shunted piezoelectric transducer with variable inductance," *Proceedings of SPIE -- Symposium on Smart Structures and Materials / NDE*, San Diego, CA, March 14-18.
- C6. Wang, J., Pendse, N., Ding, Y., 2005, "An effective dimensional inspection based on zone fitting," *Transactions of SME/NAMRI*, Vol. XXIII, pp. 137-144.
- C7. Shrivastava, A. K., Ding, Y., Niu, F., Coody, J., Ceglarek, D., 2006, "Modeling, analysis and design of complex quality testing systems using a hierarchical simulation framework" *Proceedings of the IEEE International Conference On Networking, Sensing and Control*, Ft. Lauderdale, FL, April 23-25.
- C8. Ding, Y., Byon, E., Park, C., Tang, J., Lu, Y. and Wang, X. 2007, "Dynamic data-driven fault diagnosis of wind turbine systems," *Lecture Note in Computer Science*, Vol. 4487, pp. 1197-1204.
- C9. Cho, J.J., Ding, Y., Chen, Y., and Tang, J., 2007, "Robust calibration for localization in clustered wireless sensor networks," *Proceedings of the IEEE Conference on Automation Science and Engineering (CASE 2007)*, Scottsdale, AZ, September 22-25.
- C10. Park, C., Ding, Y., and Byon, E., 2008, "Collaborative data reduction for energy efficient sensor networks," *Proceedings of the IEEE Conference on Automation Science and Engineering (CASE 2008)*, Washington, D.C. August 23-27.
- C11. Byon, E., Ding, Y., and Ntaimo, L., 2009, "Optimal maintenance strategies for wind turbine systems," *The 15th ISSAT International Conference on Reliability and Quality in Design*, San Francisco, CA, August 6-8.
- C12. Pérez, E., L. Ntaimo, E. Byon, and Y. Ding, 2010, "A stochastic DEVS wind turbine component model for wind farm simulation", *Proceedings of 2010 Spring Simulation Multi-Conference*, Orlando, FL, April 12-15.
- C13. Byon, E. and Ding, Y., 2011, "Integrating simulation and optimization for wind farm operations under stochastic conditions," *Proceedings of the 2011 Industrial Engineering Research Conference* (edited by T. Doolen and E. Van Aken), Reno, NV, May 21-25 (Best Conference Paper awarded by IERC 2011 Modeling & Simulation Track).
- C14. Pérez, E., L. Ntaimo, and Y. Ding, 2013, "Simulation of wind farm operations and maintenance," *Proceedings of the ASME Turbo Expo 2013: Power for Land, Sea and Air (GT2013)*, San Antonio, TX, June 3-7.
- C15. Zhang, S., J. Tang, and Y. Ding, 2014, "Modeling and analysis of time-periodic gearbox vibration," *Proceedings of the ASME Turbo Expo 2014: Power for Land, Sea and Air (GT2014)*, Dusseldorf, Germany, June 16-20.
- C16. Ding, Y., J. Tang, and J. Z. Huang, 2015, "Data analytics methods for wind energy applications," *Proceedings of ASME Turbo Expo 2015: Turbine Technical Conference and Exposition (GT 2015)*, Montreal, Canada, June 15-19.
- C17. Ding, Y. and S. T.S. Bukkapatnam, 2015, "Challenges and needs for automating nano image processing for nanomanufacturing applications," *Proceedings of SPIE*, Vol. 9556

(Nanoengineering: Fabrication, Properties, Optics, and Devices XII, edited by Eva M. Campo, Elizabeth A. Dobisz, Louay A. Eldada), San Diego, CA, August 9-13.

- C18. Sy, E., S. A. Jacobs, A. Dagnino, and Y. Ding, 2016, "Graph-based Clustering for Detecting Frequent Patterns in Event Log Data," *Proceedings of the 12<sup>th</sup> IEEE Conference on Automation Science and Engineering (CASE 2016)*, Fort Worth, TX August 21-25.
- C19. Vijayaraghavan, V., K. Kianfar, Y. Ding, H. Parsaei, 2017, "An L1-minimization based algorithm to measure the redundancy of state estimators in large sensor systems," *Proceedings of the 13th IEEE International Conference on Automation Science and Engineering (CASE 2017)*, Xi'an, China, August 20-23.
- C20. Vijayaraghavan, V., K. Kianfar, Y. Ding, H. Parsaei, 2018, "A mixed integer programming based recursive variance reduction method for reliability evaluation of linear sensor systems," *Proceedings of the 14th IEEE International Conference on Automation Science and Engineering (CASE 2018)*, Munich, Germany, August 20-24.
- C21. Ahmed, I., Dagnino, A., Bongiovi, A., and Ding, Y, 2018, "Outlier detection for hydropower generation plant," *Proceedings of the 14th IEEE International Conference on Automation Science and Engineering (CASE 2018)*, Munich, Germany, August 20-24.
- C22. Ahmed, I., Galoppo, T., and Ding, Y, 2019, "O-LoMST: An online anomaly detection approach and its application in a hydropower generation plant," *Proceedings of the 15th IEEE International Conference on Automation Science and Engineering (CASE 2019)*, Vancouver, BC, Canada, August 22-26, 2019.
- C23. Wang, Y. J.-J. Lee, Y. Ding and Peng Li, "A scalable FPGA engine for parallel acceleration of singular value decomposition," *Proceedings of the 21<sup>st</sup> International Symposium on Quality Electronic Design (ISQED 2020)*, Santa Clara, CA, March 25-26, 2020.

## E.5 Book Chapters

- BC1. Ceglarek, D., Huang, W., and Ding, Y., 2003, "Time-based competition in automotive industry: Stream-of-variation analysis methodology," pp. 67-97 in *New Challenges and Old Problems in Enterprise Management*, edited by Krupa, Scientific and Technical Publishers, Warsaw and Berlin.
- BC2. Byon, E., Ntaimo, L., Singh, C., and Ding, Y., 2013, "Wind energy facility reliability and maintenance," pp. 639-672, in *Handbook of Wind Power Systems: Optimization, Modeling, Simulation and Economic Aspects*, edited by Pardalos, Rebennack, Pereira, Iliadis and Pappu, Springer. [**Correction:** on Page 640 (namely the second page), line 3, 2082GW should be 282GW]
- BC3. Park, C and Ding, Y. 2020, "Dynamic data-driven distribution tracking of nanoparticle morphology," pp. 132-139, in *Dynamic Data Driven Application Systems 2020, LNCS 12312*, edited by F. Damerau, E. Blasch, S. Ravela, and A. Aved, Springer.

## E.6 Book Reviews

- BR1. Ding, Y., 2005, "Design and Analysis of Accelerated Tests for Mission Critical Reliability," by Michael J. LuValle, Bruce G. Lefevre, and SriRamin Kannan. Boca Raton, FL: Chapman&

## **E.7 Others**

- P1. Ding, Y. and Shi, J. 2006, Editorial of Special Section on Distributed Sensing For Quality and Productivity Improvement, *IEEE Transactions on Automation Science and Engineering*, Vol. 3(4), pp. 342.
- P2. Chen, Y, Y. Ding, V. R. Joseph and V. Nair 2015, Editorial for the Theme Issue on System Informatics, *Technometrics*, Vol. 57(3), pp. 303-304.

## **F. Presentations**

### **F.1 Keynote Talks**

- 1. “Wind energy reliability and performance assessment, and the data science relevance,” at the 8th International Workshop on Reliability Technology and Quality Science (RTQS-2018), organized by the Chinese Academy of Sciences, Tsinghua University and Peking University, Beijing, China, July 6, 2018.
- 2. “Constrained statistical learning for wind turbine performance assessment,” at the Fifth International Conference on the Interface between Statistics and Engineering, Seoul, South Korea, June 26, 2019.
- 3. “Gray-box machine learning for wind energy applications: power curve modeling and production efficiency analysis,” College of Engineering’s Distinguished Speaker Series in Strategic Research Initiatives, University of Miami, Miami, FL, January 21, 2020.
- 4. “Data science for wind energy,” at the 2020 National Renewable Energy Lab’s Drivetrain Reliability Workshop, Golden, CO, February 19, 2020.

### **F.2 Tutorials, Lecture Series & Short Courses**

- 1. “Automated morphology analysis of nanoparticles,” *A two-day Lecture Series*, Chinese Academy of Sciences, Quality Science Center, Beijing, China, July 18-19, 2011.
- 2. “Nano imaging and nano informatics,” *A 75-minute tutorial*, ISERC, Montreal, Canada, June 2, 2014.
- 3. “Advanced statistical quality control,” *One-day short course for engineers*, Quality Science Center, Chinese Academy of Sciences, Beijing China, July 1, 2015.
- 4. “Data analytics for wind energy applications,” *A two-hour tutorial*, ASME TurboExpo Conference, Seoul, South Korea, June 16, 2016.
- 5. “Data analytics and wind energy applications,” *A four-hour lecture series*, INFORMS Student Chapter at Texas A&M University, Sept 9, 16, Oct 7 and Oct 13, 2016.
- 6. “Data analytics and wind energy applications,” *A 90-minute tutorial*, INFORMS Annual Conference, Nov 15, 2016 (with Eunshin Byon of University of Michigan).

7. “Machine Learning through Regularization,” *a short course*, Chinese Academy of Sciences, July 2012 (two weeks) and July 2018 (one week).
8. “Machine learning-based power curve modeling” *A two-hour tutorial*, ASME TurboExpo Conference, Oslo, Norway, June 13, 2018.
9. “Machine learning-based methods for power curve modeling in wind energy applications” *An 80-minute tutorial*, ISERC, Orlando, FL, May 20, 2019.

### **F.3 Seminars at universities, national labs, and industrial research centers**

10. Nokia Research Center, Irving, TX, August 12, 2003.
11. University of Florida, Industrial and Systems Engineering Department, November 21, 2003.
12. University of Illinois at Chicago, Mechanical and Industrial Engineering Department, March 12, 2004.
13. Rutgers University, Industrial and Systems Engineering Department, March 23, 2004.
14. University of Pittsburgh, Industrial Engineering Department, October 7, 2004.
15. University of Arizona, Systems and Industrial Engineering Department, April 7, 2005.
16. Georgia Institute of Technology, School of Industrial and Systems Engineering, May 17, 2005.
17. General Electric Global Research Center, Niskayuna, New York, August 23, 2005.
18. University of California at Berkeley, Department of Industrial Engineering and Operations Research, May 8, 2006.
19. Tsinghua University, Beijing, China, Department of Industrial Engineering, July 7, 2006.
20. Tianjin University, Tianjin, China, School of Mechanical Engineering, July 12, 2006.
21. University of Wisconsin at Madison, Department of Industrial and Systems Engineering, March 23, 2007.
22. Texas A&M University, Departmental of Statistics, April 5, 2007.
23. University of South Florida, Department of Industrial and Management Systems, April 12, 2007.
24. Texas A&M University, Computer Engineering Seminar Series, Departmental of Electrical and Computer Engineering, February 12, 2008.
25. IBM T. J. Watson Research Center, Yorktown Heights, NY, April 18, 2008.
26. University of Houston, Department of Industrial Engineering, March 07, 2008.
27. University of Warwick, Warwick Digital Lab, United Kingdom, September 25, 2008.
28. Hong Kong University of Science & Technology, Department of Industrial Engineering &

Logistics Management, December 10, 2008.

29. Chinese Academy of Sciences, Quality Science Center, December 18, 2008.
30. University of Texas at Austin, Department of Mechanical Engineering, February 13, 2009.
31. Arizona State University, Department of Industrial Engineering, February 16, 2009.
32. University of Southern California, Department of Industrial and Systems Engineering, February 19, 2009.
33. Florida State University, Department of Industrial and Manufacturing Engineering, March 06, 2009.
34. Tilburg University, Tilburg, the Netherlands, Department of Information Management/CentER, December 16, 2010.
35. Georgia Institute of Technology, School of Industrial and Systems Engineering, January 27, 2011.
36. Technical University of Denmark (DTU), Lyngby, Denmark, Department of Informatics, August 15, 2011.
37. Risø DTU National Laboratory for Sustainable Energy, Roskilde, Denmark, Wind Energy Division, August 17, 2011.
38. Purdue University, Department of Industrial Engineering, August 17, 2012.
39. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia, Division of Physical Science and Engineering, December 5, 2012.
40. Rutgers University, Industrial and Systems Engineering Department, February 12, 2013.
41. ABB Corporate Research Center, Raleigh NC, April 23, 2013.
42. Penn State University, Industrial and Manufacturing Engineering Department, October 16, 2014.
43. University of Washington, Industrial and Systems Engineering Department, October 24, 2014
44. University of Houston, Department of Industrial and Systems Engineering, March 6, 2015.
45. Tsinghua University, Department of Industrial Engineering, July 10, 2015.
46. Texas A&M University – Qatar campus, Department of Mechanical Engineering, April 26, 2017.
47. Air Force Research Lab, Materials and Manufacturing Directorate, Dayton, Ohio, May 5, 2017.
48. ABB Corporate Research Center, Raleigh NC, July 26, 2017.
49. University of Michigan, Manufacturing Research Seminars, Ann Arbor, MI, September 22, 2017.
50. National Renewable Energy Lab, National Wind Technology Center, Boulder, CO, Nov 2, 2017.

51. University of Wisconsin at Madison, Department of Industrial and Systems Engineering, October 5, 2018.
52. Texas Tech University, National Wind Institute and Department of Industrial, Manufacturing and Systems Engineering, October 2, 2019.
53. Northwestern University, Department of Industrial Engineering and Management Sciences, October 8, 2019.
54. Oklahoma State University, Department of Industrial Engineering and Management, November 13, 2019.
55. University of Iowa, Department of Industrial and Systems Engineering, October 22, 2020 (online seminar).
56. University of Texas at Austin, ORIE Seminar Series, November 13, 2020 (online seminar).

**F.4 Short presentations at conferences, workshops, or industries (only are the podium presentations delivered by myself included).**

57. "Analysis and optimization of distributed sensor system in electronics assembly processes," Motorola Florida Research Lab, Plantation, FL, January 7-8, 2002.
58. "Integration of tolerance and maintenance design for multi-station manufacturing processes," IERC, Orland, FL, May 19-22, 2002.
59. "Diagnosis of variation sources based on linear replicated models," INFORMS, San Jose, CA, Nov 17-20, 2002.
60. "Process-oriented tolerancing for multi-station manufacturing processes," IERC, Portland, Oregon, May 17-21, 2003.
61. "Diagnosability study of multi-station manufacturing processes based on linear mixed model," *Technometrics Invited Paper Session*, INFORMS, Atlanta, GA, Oct. 21, 2003.
62. "Robust design using sequential computer experiments and its applications for electronics packaging," IERC, Houston, TX, May 16, 2004.
63. "Robust estimation for multiple redundant sensors with potential sensor failures," IERC, Houston, TX, May 16, 2004.
64. "Analysis and optimization methods for distributed sensor system," SPIE Optics East, Boston, MA, Oct 24, 2005.
65. "Optimal engineering system design guided by data-mining methods," *Technometrics Invited Paper Presentation*, INFORMS, San Francisco, CA, November 15, 2005.
66. "Selecting unique designs from complex design spaces using graph enumeration method," International Conference on Design of Experiments and Its Applications, Tianjin, China, July 12, 2006.

67. "Data-mining, sensor systems, and quality and productivity improvements," Chaparral Steel, Midlothian, TX, January 17, 2006.
68. "Teaching Quality Engineering in IE/OR Programs," *QSR Panel Discussion*, INFORMS, Pittsburgh, PA, Nov 5, 2006.
69. "Process-oriented tolerancing for multi-station assembly processes," *IIE Transactions Invited Paper Session*, INFORMS, Pittsburgh, PA, Nov 6, 2006.
70. "Robust calibration for clustered wireless sensor network," IEEE Conference on Automation Science and Engineering, Scottsdale, AZ, Sep 25, 2007.
71. "Bayesian hierarchical model for integrating multi-resolution data," ENBIS Annual Meeting, Athens, Greece, September 23, 2008.
72. "Data-mining, sensor systems, and quality and productivity improvements," Texas Instruments, Plano, TX, March 27, 2009.
73. "A statistical procedure for morphology analysis of gold nano particles," ASA/ASQ Joint Research Conference, Gaithersburg, MD, May 26, 2010.
74. "Wind turbine reliability, operation, and maintenance," *Invited Panelist on Discussion of Reliability and Maintenance of Renewable Energy Systems*, INFORMS, Phoenix, AZ, Oct 15, 2012.
75. "Simulation of wind farm operations and maintenance," ASME TurboExpo Conference, San Antonio, TX, June 3, 2013.
76. "System informatics in wind industry: popularity of binning method and why it is the time to replace it," IEEE Conference of Automation Science and Engineering, Madison, WI, August 17, 2013.
77. "System-level approach to wind turbine performance assessment," ASME TurboExpo Conference, Dusseldorf, Germany, June 18, 2014.
78. "Systems informatics, big data and manufacturing," NSF Workshop on Advanced Manufacturing for the Oil and Gas Energy Industry, Houston TX, Nov 3, 2014.
79. "System Informatics: combining engineering knowledge and big data for model building and decision making," Texas A&M Big Data Workshop, Feb 13, 2015.
80. "Academic perspective on data analytics methods for wind energy applications," 2<sup>nd</sup> Annual Windpower Monthly's Data Management & Analysis Forum, March 25, 2015.
81. "Data analytics methods in wind energy applications," ASME TurboExpo Conference, Montreal, Canada, June 18, 2015.
82. "Needs for uncertainty quantification in engineering applications," Opening Ceremony and Workshop of Center of Experiment Design and Uncertainty Quantification, Chinese Academy of Sciences, Beijing China, June 27, 2015.



83. “Challenges and needs for automating nano image processing for material characterization,” Nanoengineering: Fabrication, Properties, Optics, and Devices XII, SPIE 2016, August 12, 2015.
84. “Wind energy operations, maintenance and reliability,” ISERC 2016, Anaheim, CA, May 23, 2016.
85. “Handling imbalance datasets,” Quality Science Center Workshop, Chinese Academy of Sciences, Beijing China, June 6, 2016.
86. “Wind turbine performance evaluation,” *University Researcher Panel Discussion*, ASME TurboExpo Conference, Seoul, Korea, June 16, 2016.
87. “Dynamic data-driven modeling of multi-stage nanocrystal growth using in-situ TEM video data,” SIAM Annual Conference, DDDAS Mini-symposium, Boston, MA, July 12, 2016.
88. “A multi-dimensional power curve model,” Power Curve Working Group meeting, Minneapolis, MN, Sept 29, 2016.
89. “Data sciences for wind energy application,” National Renewable Energy Lab, Golden, CO, Feb 22, 2017.
90. “A machine learning method for wind power curve modeling and its impact,” The 3rd Edition North America Wind Power Big Data and IoT Forum, Boston, MA, May 30, 2017.
91. “Learning probability density function for engineering applications,” The 2nd Sino-US Conference on Quality, Analytics and Innovations, Tsinghua University, Beijing, China, June 26, 2017.
92. “Statistical methods for processing dynamic nano material characterization data,” Joint Statistical Meeting, Baltimore, MD, August 2, 2017.
93. “Sequential design for functional calibration of computer models,” in the Technometrics invited paper session, Joint Statistical Meeting, Vancouver, Canada, July 31, 2018.
94. “Data science solution to unlock information from dynamic nanoscale imaging,” Material Research Symposium Fall Meeting, Boston, MA, Nov 28, 2018.
95. “Data science in autonomous manufacturing platform—A tale of five crazy minds,” The 2<sup>nd</sup> TEES-ENSAM Workshop on Smart Manufacturing, Aix-en-Provence, France, Jan 10, 2019.
96. “Computer experiment for reliability assessment in wind energy applications,” WuFest, Georgia Institute of Technology, Atlanta, GA, May 10, 2019, and then at the Uncertainty Quantification Center Workshop, Chinese Academy of Science, July 4, 2019.
97. “Efficiency metrics for wind turbine system-level performance,” The 7th Edition North America Wind Power Big Data and IoT Forum, Houston, TX, May 28, 2019.
98. “Data science in autonomous manufacturing platform,” The 9<sup>th</sup> Quality Science and Reliability Technology Workshop, jointly organized by Peking University, Chinese Academy of Science, and Tsinghua University, Beijing, July 5, 2019.
99. “Overview of data science for engineering automation,” Opening remarks at the Data Science for

Engineering Automation workshop at CASE 2019, Vancouver, BC, Canada, August 22, 2019.

## **G. Services**

### **G.1 Major Committee Assignments at Texas A&M University**

- Member, Texas A&M Institute of Data Science Faculty Advisory Committee, 2019-present.
- Chair, Qualifying Review Committee, 2015-16.
- Member, Departmental Executive Committee, 2013-2016.
- Member, College of Engineering Endowed Position Selection Advisory Committee, Sep. 2012 - present.
- Chair, Departmental Tenure & Promotion Committee, 2016 - 2018.  
Member, Departmental Tenure & Promotion Committee, 2012 - 2018.
- Member, College Strategic Planning Subcommittee on Faculty Development, 2012.
- Member, Department Head Search Committee, 2011-12 and 2016-2017.
- Member, *Ad Hoc* Committee on Student-Faculty Interactions, 2010.
- Chair, Departmental Honor and Award Committee, 2009-10.  
Member, Departmental Award and Honor Committee, 2003-04.
- Member, *Ad Hoc* Committee on Computer Infrastructure, 2009-10.
- Chair, *Ad Hoc* Committee on Ph.D. Student Career Development, 2007-08.
- Member, Departmental Faculty Search Committee, 2004-05, 2007-08, 2009-10.
- Member, *Ad Hoc* Committee on Junior Faculty Mentoring, 2006.
- Member, Departmental Graduate Committee, 2002, 2003, 2005, 2006, 2010, 2011, 2012, 2013, 2014, 2015, 2016.
- Member, Departmental *Ad Hoc* ABET Committee, 2003-2016.  
Coordinator, *Ad Hoc* ABET Course Committee for ISEN314, 2003-2016.

### **G.2 Service to Professional Organizations and Government**

#### **1. Officer Position**

- **Chair** (2017-2020), Advisory Board of INFORMS Section on Quality, Statistics, and Reliability, appointed in 2017.
- **Chair-Elect** (2007) and **Chair** (2008), INFORMS Section on Quality, Statistics, and Reliability, elected in 2006.

- **Council Member**, INFORMS Section on Quality, Statistics, and Reliability, elected in 2004, term 2005-2006.

## 2. Editorship and Editorial Functions

- **Senior Editor**, *INFORMS Journal on Data Science*, 2020 - present
- **Editor (on the senior editor panel)**, *IEEE Transactions on Automation Science & Engineering*, 2019 - present.
- **Department Editor**, *IIE Transactions on Quality and Reliability*, 2005 - 2020.
- **Associate Editor**, *IEEE Transactions on Automation Science & Engineering*, 2006 - 2009
- **Guest Co-Editor**, Special Issue on System Informatics of *Technometrics*, 2013-2015.
- **Guest Co-Editor**, Special Issue on Distributed Sensing for Quality and Productivity Improvement of *IEEE Transactions on Automation Science and Engineering*, 2005-2006.
- **Also serve as reviewers for the following Journals and Transactions**

*Technometrics; IIE Transactions: Quality and Reliability; IIE Transactions: Special Issue on Data-mining; Naval Research Logistics; Journal of Quality Technology; IEEE Transactions on Robotics and Automation; IEEE Transactions on Automation Science and Engineering; IEEE Transactions on Semiconductor Manufacturing; ASME Transactions, Journal of Journal of Computing and Information Science in Engineering; ASME Transactions, Journal of Manufacturing Science and Engineering; Journal of Global Optimization; International Journal of Flexible Manufacturing Systems; International Journal of Modeling and Simulation; International Journal of Computers and Industrial Engineering; International Journal of Systems Science; Journal of Manufacturing Processes, Renewable Energy, Wind Energy.*

## 3. Conference Organization

- Organizer, a three-session mini-track on “Distributed Sensing” for INFORMS 2004, October 26, Denver, CO.
- Co-Chair of Quality Control Track, and also member of the program committee of IERC 2005 at Atlanta, GA.
- Coordinator, Best Student Paper Competition, INFORMS Quality, Statistics, Reliability Section, 2005.
- Organizer, a four-session mini-track on “Distributed Sensing” for INFORMS 2005, November 13-16, San Francisco, CA.
- Program Committee Member, 2007 IEEE International Symposium on Assembly and Manufacturing (ISAM 2007), July 22-25, Ann Arbor, Michigan.
- Track Chair and Program Committee Member, “Sensor, Instrumentation, and Measurements,”

2007 IEEE Conference on Automation Science and Engineering (CASE 2007), Scottsdale, AZ, September 22-25.

- Cluster Chair, INFORMS Section on Quality, Statistics, and Reliability, 2007.
- Track Co-Chair and Program Committee Member, “Sensor, Instrumentation, and Measurements,” 2008 IEEE Conference on Automation Science and Engineering (CASE 2008), Washington, D.C., AZ, August 23-26.
- Track Co-Chair of Manufacturing and Design, 2009 IERC at Miami, FL.
- Track Chair and Program Committee Member, “Information Automation,” 2011 IEEE Conference on Automation Science and Engineering (CASE 2011), Trieste, Italy, August 24 - 27.
- Organization Committee Member for Conference on Advances in Big Data Modeling, Computation and Analytics, Texas A&M campus, Sept 23-24, 2016.
- Workshop organizer, for the pre-conference workshop on “Data Science for Engineering Automation,” 2019 IEEE Conference on Automation Science and Engineering (CASE 2019), Vancouver, Canada, August 22, 2019.

#### 5. Service to Government or Other Institutes

- Overseas Co-Director, Center for Design of Experiments and Uncertainty Quantification, Chinese Academy of Sciences, Beijing (2015-date).
- Numerous proposal reviews for National Science Foundation.
- External committee member, for a doctoral student at University of Texas at Austin, Oct 2010 – June 2012.
- External evaluator for Ph.D. dissertation, Tel-Aviv University, Israel, Oct 2009.

#### H. Others

##### H.1 Awards Received by My Graduate Advisees

1. Ph.D. student, Shilan Jin, is awarded the **NSF Data-Enabled Discovery and Design of Energy Materials (D3EM) Fellowship** (July 30, 2020).
2. Ph.D. student, Imtiaz Ahmed, is the First Prize Winner in the conference-wide **2019 INFORMS Poster Presentation** (Oct 22, 2019).
3. Ph.D. student, Imtiaz Ahmed, won the 2019 Texas A&M Conference on Energy **Best Poster Presentation Award** (Sept 24, 2019).
4. Ph.D. student, Imtiaz Ahmed, won the 2019 QCRE (Quality Control and Reliability Engineering) **Best Student Paper Competition** at ISERC 2019 (May 20, 2019).
5. Ph.D. student, Ahmed Aziz Ezzat, received the **Outstanding Ph.D. Student Award** from the

Department of Industrial & Systems Engineering at Texas A&M University (April 12, 2019).

6. Ph.D. student, Ahmed Aziz Ezzat, received the **Best Student Poster Award** from the Quality, Statistics, and Reliability Section at INFORMS 2017 in Houston, TX (Oct 23, 2017).
7. Ph.D. student, Ahmed Aziz Ezzat, received a **Best Presentation Award** at Texas A&M Energy Conference (Sept 28, 2016).
8. Ph.D. student, Yanjun Qian, received the **Best Student Paper Award** from QSR (Quality, Statistics, and Reliability) Section of INFORMS (Nov 2, 2015).
9. Ph.D. student, Arash Pourhabib, received recognition as a **Finalist** (one of the four) of the Best Student Paper Competition from QSR (Quality, Statistics, and Reliability) Section of INFORMS (Oct 7, 2013).
10. Ph.D. student, Abhishek K. Shrivastava, received the **Best Student Paper Award** from QSR (Quality, Statistics, and Reliability) Section of INFORMS (Oct 13, 2008).
11. Ph.D. students, Chiwoo Park and Eunshin Byon, received the **First Prize of Best Student Paper** from IEEE Conference on Automation Science & Engineering (CASE 2008) (Aug 25, 2008).
12. Ph.D. student, Haifeng “Heidi” Xia, received the **Best Student Paper Award** from QSR (Quality, Statistics, and Reliability) Section of INFORMS (Nov 05, 2007).
13. Ph.D. student, Yuan Ren, received an **Honorable Mention** in the poster competition of the Doctoral Student Colloquium during the 2007 IIE Annual Conference.
14. Ph.D. student, Jung Jin Cho, received recognition as a **Finalist** (one of the four) of the Best Student Paper Competition from QSR (Quality, Statistics, and Reliability) Section of INFORMS (Nov 14, 2005).
15. Ph.D. student, Pansoo Kim, received recognition as a **Finalist** (one of the four) of the Best Student Paper Competition from QSR (Quality, Statistics, and Reliability) Section of INFORMS (October 20, 2003).
16. M.S. student, Abhishek Gupta, was selected by the Quality and Productivity Section of the American Statistical Association (ASA) to receive the **Mary G. Natrella Scholarship** (March 2004). This scholarship is awarded to an M.S. student and a Ph.D. student nationwide who work in the research area of quality and productivity improvement.

## H.2 Membership

- Fellow (since 2015), Institute of Industrial Engineers (**IIE**).
- Fellow (since 2016), Member, American Society of Mechanical Engineers (**ASME**)
- Senior Member, Institute of Electrical and Electronics Engineers (**IEEE**)
- Member, Institute for Operation Research and the Management Sciences (**INFORMS**)