

# ASHIF S. IQUEBAL

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## EDUCATION

- Ph.D.** Industrial & Systems Engineering August 2020  
Texas A&M University, College Station, TX  
Thesis: Streaming data and image analytics for process control in advanced manufacturing  
Advisor: Prof. Satish Bukkapatnam
- M.S.** Statistics May 2019  
Texas A&M University, College Station, TX  
Title: Consistency of spectral properties of random planar graphs  
Advisor: Prof. Daren Cline
- B.Tech.** Industrial & Systems Engineering May 2014  
**Minor** Mathematics & Computing  
Indian Institute of Technology, Kharagpur, India  
Title: Multi-echelon supply chain network design  
Advisor: Prof. Manoj Kumar Tiwari

## PROFESSIONAL EXPERIENCE

- Assistant Professor**, Industrial Engineering Fall 2020 – present  
School of Computing, Informatics, and Decision Systems Engineering  
Arizona State University
- Graduate Research Assistant** Fall 2018 – Spring 2020  
Industrial & Systems Engineering, Texas A&M University
- Graduate Teaching Instructor** Fall 2014 – Spring 2017  
Industrial & Systems Engineering, Texas A&M University
- Co-instructor** Fall 2017 – Spring 2018  
Industrial & Systems Engineering, Texas A&M University
- Summer Research Intern** Summer 2017, 2018  
Industrial & Systems Engineering, Texas A&M University
- Summer Research Intern** Summer 2013  
University of Warwick, UK (Advisor: Prof. Darek Ceglarek)
- Summer Research Intern** Summer 2012  
Yuan Ze University, Taiwan (Advisor: Prof. Pei-Chann Chang)

## HONORS AND AWARDS

- IISE Pritsker Doctoral Dissertation Award**, Third Place May 2021  
Institute of Industrial and Systems Engineering (IISE)
- Finalist, Best Student Paper Competition** - Quality Control & Reliability Engineering May 2019  
Institute of Industrial and Systems Engineering (IISE) Annual Conference
- Winner, Best Student Poster Award** - Quality, Statistics, & Reliability Nov 2018  
Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting
- Finalist, Best Student Paper Competition** - Data Mining & Decision Analytics Nov 2018  
Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting

<b>NSF-REU Graduate Student Mentor Scholarship</b> Texas A&M University	Jul 2018
<b>NSF Travel Grant</b> Society of Manufacturing Engineers - North American Manufacturing Research Conference (SME-NAMRC) Institute of Industrial and Systems Engineering (IISE) Annual Conference	Jun 2018, May 2016
<b>Fellow, Academy of Future Faculty</b> - Center for Teaching Excellence Texas A&M University	May 2018
<b>Doctoral Student Colloquium Travel Grant</b> Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting	Nov 2017
<b>Graduate Teaching Fellowship</b> Texas A&M University	Aug 2017
<b>Runner-up, Best Student Poster Competition</b> Southeastern Texas Chapter of the American Statistical Association (SETCASA)	May 2017
<b>Finalist, Best Paper Competition</b> - SAS Data Mining Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting	Nov 2016
<b>Best Aggie Challenge Team Award</b> Texas A&M University	May 2016
<b>Merit-Cum-Means Scholarship</b> Indian Institute of Technology, India	Aug 2011 – May 2014
<b>TATA Millennium Scholarship</b> TATA Steel Limited, India	Aug 2010

## JOURNAL ARTICLES (Published/accepted)

1. Z. Wang, Z. Wang, W.-H. Ko, **A. S. Iquebal**, V. Nguyen, N. A. Kazerooni, Q. Ma, A. Srinivasa, P. R. Kumar, and S. Bukkapatnam. An autonomous laser kirigami method with low-cost real-time vision-based surface deformation feedback system. *The International Journal of Advanced Manufacturing Technology*, 2021 (Accepted)
2. **A. S. Iquebal** and S. T. S. Bukkapatnam. [Consistent estimation of the max-flow problem: Towards unsupervised image segmentation](#). *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2020 (Early Access)
  - Finalist, Best Student Paper Competition - Quality Control & Reliability Engr., IISE, May 2019
  - Winner, Best Student Poster Award - Quality, Statistics, & Reliability, INFORMS, Nov 2018
  - Finalist, Best Student Paper Competition - Data Mining & Decision Analytics, INFORMS, Nov 2018
3. **A. S. Iquebal**, S. T. S. Bukkapatnam, and A. Srinivasa. [Change detection in complex dynamical systems using intrinsic phase and amplitude synchronization](#). *IEEE Transactions on Signal Processing*, 68:4743–4756, 2020
  - Runner up, Best Student Poster Competition - Southeastern Texas Chapter of the American Statistical Association (SETCASA), Texas A&M University, May 2017
  - Finalist, Best Student Paper Award - SAS Data Mining, INFORMS, Nov 2016
4. K. Afrin, **A. S. Iquebal**, M. Karimi, A. Souris, and B. K. Mallick. [Directionally dependent multi-view clustering using copula model](#). *PLoS One*, 15(10):1–18, 2020
5. B. Botcha, **A. S. Iquebal**, and S. T. S. Bukkapatnam. [Smart manufacturing multiplex](#). *Manufacturing Letters*, 25:102–106, 2020

6. **A. S. Iquebal**, S. Pandagare, and S. T. S. Bukkapatnam. [Learning acoustic emission signatures from a nanoindentation-based lithography process: Towards rapid microstructure characterization.](#) *Tribology International*, 143:106074, 2019
7. **A. S. Iquebal**, B. Botcha, and S. T. S. Bukkapatnam. [Towards rapid, in situ characterization for materials-on-demand manufacturing.](#) *Manufacturing Letters*, 23:29–33, 2019
8. S. Jin, **A. S. Iquebal**, A. Gaynor, S. T. S. Bukkapatnam, and Y. Ding. [A Gaussian Process Model-Guided Surface Polishing Process in Additive Manufacturing.](#) *Journal of Manufacturing Science and Engineering*, 141:1–17, 10 2019
9. **A. S. Iquebal**, D. Sagapuram, and S. T. S. Bukkapatnam. [Surface plastic flow in polishing of rough surfaces.](#) *Scientific reports*, 9(1):10617, 2019
10. T. Nakkina, **A. S. Iquebal**, R. K. Gorthi, and S. T. S. Bukkapatnam. [Identification of Microstructures in 3-D-Printed Ti-6Al-4V Using Acoustic Emission Cepstrum.](#) 2020
11. S. T. S. Bukkapatnam, **A. S. Iquebal**, and S. R. T. Kumara. [Planar random graph representations of spatiotemporal surface morphology: Application to finishing of 3-D printed components.](#) *CIRP Annals*, 67(1):495–498, 2018
12. I. El-Amri, **A. S. Iquebal**, A. Srinivasa, and S. T. S. Bukkapatnam. [Localized magnetic fluid finishing of freeform surfaces using electropermanent magnets and magnetic concentration.](#) *Journal of Manufacturing Processes*, 34:802–808, 2018
13. K. Afrin, **A. S. Iquebal**, S. K. Kumar, M. K. Tiwari, L. Benyoucef, and A. Dolgui. [Towards green automated production line with rotary transfer and turrets: A multi-objective approach using a binary scatter tabu search procedure.](#) *International Journal of Computer Integrated Manufacturing*, 29(7):768–785, 2016
14. **A. S. Iquebal**, A. Pal, D. Ceglarek, and M. K. Tiwari. [Enhancement of Mahalanobis–Taguchi system via rough sets based feature selection.](#) *Expert Systems with Applications*, 41(17):8003–8015, 2014
15. **A. S. Iquebal** and A. Pal. [Artificial bee colony optimisation-based enhanced Mahalanobis–Taguchi system for classification.](#) *International Journal of Intelligent Engineering Informatics*, 2(2/3):181–194, 2014
16. P. C. Chang, M. H. Chen, M. K. Tiwari, and **A. S. Iquebal**. [A block-based evolutionary algorithm for flow-shop scheduling problem.](#) *Applied Soft Computing*, 13(12):4536–4547, 2013

## JOURNAL ARTICLES (Under review)

1. **A. S. Iquebal**, B. Botcha, I. Panda<sup>#</sup>, and S. T. S. Bukkapatnam. Automated identification and tracking of multiple surface defect types in additive manufacturing using a novel P-spline based image analysis. *Journal of Manufacturing Science and Engineering*, 2019 (Submitted)
2. **A. S. Iquebal**, D. Cline, and S. T. S. Bukkapatnam. Planar graph representation of surface morphology: A copula-based approach for modeling spatial random fields. *Technometrics*, 2019 (Submitted)

## JOURNAL ARTICLES (In preparation)

1. **A. S. Iquebal**, B. Botcha, and S. T. S. Bukkapatnam. Autonomous experimental design via active learning: Application to surface grinding. *To be submitted to IISE Transactions*, 2019
2. **A. S. Iquebal**, D. Yoon<sup>#</sup>, K. King<sup>#</sup>, and S. T. S. Bukkapatnam. Synthesis and characterization of magnetorheological abrasive fluids (MARF) for localized polishing of freeform surfaces. *To be submitted to International Journal of Machine Tools and Manufacture*, 2019

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<sup>#</sup>Undergraduate student mentee

## PEER-REVIEWED CONFERENCE PUBLICATIONS

1. B. Botcha, **A. S. Iquebal**, and S. T. S. Bukkapatnam. [Efficient manufacturing processes and performance qualification via active learning: Application to a cylindrical plunge grinding platform](#). *Procedia Manufacturing*, 53:716–725, 2021
2. X. Zhao, **A. S. Iquebal**, H. Sun, and H. Yan. [Simultaneous Material Microstructure Classification and Discovery via Hidden Markov Modeling of Acoustic Emission Signals](#). In *International Manufacturing Science and Engineering Conference*, volume 84263, page V002T07A035. American Society of Mechanical Engineers, 2020
3. **A. S. Iquebal**, Z. Wang, W. H. Ko, Z. Wang, P. Kumar, A. Srinivasa, and S. T. S. Bukkapatnam. [Towards realizing cybermanufacturing kiosks: Quality assurance challenges and opportunities](#). *Procedia Manufacturing*, 26:1296–1306, 2018
4. Z. Wang, **A. S. Iquebal**, and S. T. S. Bukkapatnam. [A vision-based monitoring approach for real-time control of laser origami cybermanufacturing processes](#). *Procedia Manufacturing*, 26:1307–1317, 2018
5. **A. S. Iquebal**, I. El-Amri, S. Shrestha, Z. Wang, G. P. Manogharan, and S. T. S. Bukkapatnam. [Longitudinal milling and fine abrasive finishing operations to improve surface integrity of metal AM components](#). *Procedia Manufacturing*, 10:990–996, 2017
6. **A. S. Iquebal**, S. Shrestha, Z. Wang, G. P. Manogharan, and S. T. S. Bukkapatnam. [Influence of milling and non-traditional machining on surface properties of Ti6Al4V EBM components](#). In *Proceedings of the 2016 Industrial and Systems Engineering Research Conference*, 2016

## BOOK CHAPTERS

1. **A. S. Iquebal** and S. T. S. Bukkapatnam. A case study in the development of a smart manufacturing platform for discrete part manufacturing applications. In S. K. Gupta, editor, *Smart Manufacturing*. World Scientific, Boca Raton, FL, 2019 (In press)
2. **A. S. Iquebal** and S. T. S. Bukkapatnam. [Change Detection and Prognostics for Transient Real-World Processes Using Streaming Data](#). In D. Shier, editor, *Recent Advances in Optimization and Modeling of Contemporary Problems*, pages 279–315. INFORMS, Phoenix, AZ, 2018
3. N. Thomas, **A. S. Iquebal**, S. T. S. Bukkapatnam, and A. Srinivasa. [Nanofinishing of Biomedical Implants](#). In V. K. Jain, editor, *Nanofinishing Science and Technology*, chapter 20, pages 549–595. CRC Press, Boca Raton, FL, 2017

## PATENTS

1. S. T. S. Bukkapatnam, A. Srinivasa, W. N. Hung, **A. S. Iquebal**, T. Nagarajan, M. R. Aguirre<sup>#</sup>, and K. Graham<sup>#</sup>. [Method and apparatus for performing targeted polishing via manipulation of magnetic-abrasive fluid](#), 2017. US Patent App. 15/236,004
2. S. T. S. Bukkapatnam, K. Afrin, and **A. S. Iquebal**. Point of care health informatics for proactive epilepsy seizure alert, 2017. Disclosure accepted, Texas A&M System Technology Commercialization (TTC)
3. S. T. S. Bukkapatnam and **A. S. Iquebal**. Fine abrasive finishing process as a post processing method to improve surface morphology, reduce surface porosity, and enhance the mechanical properties of additive manufactured parts, 2016. Disclosure accepted, Texas A&M System Technology Commercialization (TTC)

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<sup>#</sup>Undergraduate student mentee

## TEACHING EXPERIENCE

### Instructor, Arizona State University

IEE 474 Quality Control (Instructor Evaluation: 4.6) Spring 2021

### Instructor, Arizona State University

IEE 570 Advanced Quality Control (Instructor Evaluation: 4.4) Fall 2020

### Instructor/Co-instructor, Texas A&M University

ISEN 613 Engineering Data Analysis (for distance students) Summer 2018, 2017

ISEN 302 Economic Analysis of Engineering Project Spring 2018

ISEN 414 Total Quality Engineering Fall 2017

## MENTORING EXPERIENCE

**Graduate Student Mentor**, NSF-Research Experiences for Undergraduates Summer 2019, 2018, 2015

- Mentored **11 undergraduate students** on various projects related to cybermanufacturing, additive manufacturing, and streaming data analytics; refer to my website [bit.ly/ashif-iquebal](http://bit.ly/ashif-iquebal) for more details

**Graduate Student Mentor**, ENGR 491 Aggie Challenge Project Fall 2015 – Spring 2016

- Mentored **13 undergraduate students** from Industrial, Biomedical, and Mechanical Engineering
- **Winner of the 2016 Best Aggie Challenge Award**, Texas A&M University
- One of two teams selected as **winners of the Shell Award at the Engineering Showcase**; awarded to the highest scoring non-capstone team project at Texas A&M University

## SELECTED PRESENTATIONS

1. Active learning approach for autonomous experimentation: Application to surface grinding, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Seattle, WA, Oct 2019
2. Consistent estimation of the max-flow problem: Towards unsupervised image segmentation, Institute of Industrial and Systems Engineering (IISE) Annual Conference, FL, May 2019 (**Finalist, Best Student Paper Competition in Quality Control & Reliability Engineering**)
3. Unsupervised image segmentation via maximum *a posteriori* estimation of continuous max-flow, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Phoenix, AZ, Nov 2018 (**Finalist, Best Student Paper Competition in Data Mining & Decision Analytics**)
4. INFORMS TutORials on [change detection and prognostics for transient real-world processes using streaming data](#), Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Phoenix, AZ, Nov 2018 (with Prof. Satish Bukkapatnam)
5. Towards realizing cybermanufacturing kiosks: quality assurance challenges and opportunities, Society of Manufacturing Engineers - North American Manufacturing Research Conference (SME-NAMRC), Texas A&M University, TX, Jun 2018
6. Localized magnetic fluid finishing of freeform surfaces using electro-permanent magnets and magnetic concentration, Society of Manufacturing Engineers - North American Manufacturing Research Conference (SME-NAMRC), Texas A&M University, TX, Jun 2018 (**Fast track to Journal of Manufacturing Processes**)
7. Planar random graph representations of spatiotemporal surface morphology: Application to finishing of 3-D printed components, Institute of Industrial and Systems Engineering (IISE) Annual Conference, Orlando, FL, May 2018 (**Invited presentation**)
8. Mechanism and effect of post-processing on the topography and surface integrity of metal AM components, Materials Science and Technology (MS&T) Conference, Pittsburgh, PA, Oct 2017 (**Keynote presentation**)

9. Longitudinal milling and fine abrasive finishing operations to improve surface integrity of metal AM components, Society of Manufacturing Engineers - North American Manufacturing Research Conference (SME-NAMRC), University of Southern California, CA, Jun 2017
10. Evolution of random planar graph network in mechanical polishing, Institute of Mathematical Statistics (IMS) and the American Statistical Association (ASA) Spring Research Conference, Rutgers, NJ, May 2017 (**Invited presentation**)
11. Change detection in complex dynamical systems using intrinsic phase and amplitude synchronization, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Nashville, TN, Nov 2016 (**Finalist, SAS Data Mining Best Paper Competition**)
12. Influence of milling and non-traditional machining on surface properties of Ti-6Al-4V EBM components, Institute of Industrial and Systems Engineering (IISE) Annual Conference, Anaheim, CA, May 2016 (**Invited presentation**)
13. Change detection in complex dynamical systems using intrinsic phase and amplitude synchronization, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Philadelphia, PA, Nov 2015
14. Lecture series on decision support modeling of naval operations to the officers of Indian Navy organized by Prof. Ravi Shankar, Department of Management Studies, IIT Delhi, India, Jun 2014 (with Prof. M. K. Tiwari, IIT Kharagpur)
15. Multi-echelon supply chain network design, IIT Bhubaneswar, India, Apr 2014 (**Invited presentation**)

## LEADERSHIP AND SERVICE

**President** Jan 2019 – Dec 2019  
INFORMS Student Chapter, Texas A&M University

- One of three INFORMS student chapter (out of 39) selected across the United States to receive the **highest distinction of summa cum laude** at the INFORMS Annual Meeting, 2019
- **Secured over \$3000 in funding** from the Industrial and Systems Engineering department, TAMU's Society of Engineering Council, and the SAS Institute
- **Led several lab tours** and demonstration of advanced manufacturing facilities to K-12 students

**Advisory committee member** Jan 2019 – Dec 2019  
Industrial & Systems Engineering, Texas A&M University

- Discuss and resolve issues concerning professional and academic welfare of graduate students, led by Prof. Alfredo Garcia

### Judge panelist

- Texas A&M Aggies Invent Jul 2019
- Undergraduate Summer Research Grant Poster Session Jul 2019

**Primary Advisor** Oct 2018 – May 2020  
Brothers in Engineering, Science, and Technology, Texas A&M University

### Session chair

- **Co-chair** of "Advanced Manufacturing" cluster with Prof. Satish Bukkapatnam at the INFORMS Annual Meeting, Seattle, WA Oct 2019
- **Chair** of "Manufacturing for Materials" at the INFORMS Annual Meeting, Seattle, WA Oct 2019
- **Co-chair** of the invited session on "Spatio-Temporal Data Analysis and Applications II" with Prof. Shyam Ranganathan at the INFORMS Annual Meeting, Phoenix, AZ Nov 2018

### Referee

- IISE Transactions
- IEEE Access
- IEEE Transactions on Automation Science and Engineering
- Journal of Quality Technology
- Journal of Manufacturing Science and Engineering
- SME - Procedia Manufacturing
- Journal of Manufacturing Systems
- Machining Science and Technology

## **PROFESSIONAL MEMBERSHIPS**

Institute of Industrial and Systems Engineers	May 2016 – present
Society of Manufacturing Engineers	May 2016 – present
Institute for Operations Research and the Management Sciences	Nov 2015 – present