



ADEL E. ALAEDDINI, PHD

ASSOCIATE PROFESSOR OF MECHANICAL ENGINEERING

Director, Center for Adv. Manufacturing & Lean Sys. | Advanced Data Engineering Lab
COE Dean Fellow for Research
The University of Texas at San Antonio (UTSA)

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Past President of IISE Quality Control and Reliability Engineering Division

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EDUCATION

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|----------------|--|-----------|
| Postdoc | <i>The University of Michigan, Ann Arbor, Michigan</i> Industrial and Operations Engineering Advisors: Dr. Romesh Saigal and Dr. Katta Murty | 2011-2012 |
| PhD | <i>Wayne State University, Detroit, Michigan</i> Industrial and Systems Engineering Advisor: Dr. Kai Yang | 2008-2011 |
| MS | <i>Wayne State University, Detroit, Michigan</i> Computer Science-Artificial Intelligence Advisors: Dr. Chandan K. Reddy | 2009-2011 |
| PhD | <i>Iran University of Science and Technology (IUST), Tehran, Iran</i> Mechanical Engineering Advisors: Dr. Mehdi Ghazanfari | 2004–2008 |
| MS | <i>Azad University South Tehran Branch, Tehran, Iran</i> Industrial Engineering Advisors: Dr. Rassoul Noorossana | 2003-2004 |
| BS | <i>Azad University South Tehran Branch, Tehran, Iran</i> Industrial Engineering | 1999-2003 |

APPOINTMENTS

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| Associate Professor | <i>The University of Texas at San Antonio</i> Mechanical Engineering Director, Center for Advanced Man. and Lean Systems (Since 2021) College of Engineering Dean Fellow for Research (Since 2020) & Chair of INFORMS Quality, Statistics & Reliability Section Past President of IISE Quality Control & Reliability Eng. Division | 2018-Present |
| Assistant Professor | <i>The University of Texas at San Antonio</i> Mechanical Engineering Director, Advanced Data Engineering Lab (Since 2012) | 2012-2018 |
| Postdoc | <i>University of Michigan, Ann Arbor</i> Industrial and Operations Engineering | 2011-2012 |
| GRA | <i>Wayne State University</i> Industrial and Systems Engineering | 2008-2011 |
| Instructor | <i>Azad University-Qazvin Branch, Iran</i> Mechanical and Industrial Engineering | 2004-2008 |

AWARDS & HONORS

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|---|------|
| Best Poster Award Finalist Quality Control and Reliability Engineering (QCRE) Track Institute of Industrial & Systems Engineering (IISE) Annual Conference, Virtual | 2021 |
| Summer Faculty Fellowship Office of Naval Research (ONR) | 2021 |
| Best Student Paper Competition - Finalist Quality Statistics and Reliability (QSR) Division Institute for Operations Research and the Management Sciences (INFORMS) Conf., Seattle, WA | 2019 |
| Best Poster Award Quality Control and Reliability Engineering (QCRE) Track Institute of Industrial & Systems Engineering (IISE) Annual Conference, Orlando, FL | 2019 |
| Most Influential Service Operations Paper Award - Finalist Production and Operations Management (POMS) Conference, Houston, TX | 2018 |
| Young Investigator Award Air Force Office of Scientific Research (AFOSR) | 2016 |
| Summer Faculty Fellowship Air Force Office of Scientific Research (AFOSR) | 2016 |
| Pierskalla Competition - Finalist Health Applications Society Institute for Operations Research and the Management Sciences (INFORMS) Conf., Austin, TX | 2010 |
| Best Student Paper Award Quality Control and Reliability Engineering (QCRE) Track Industrial Engineering Research Conference (IERC), Cancun, Mexico | 2009 |
| Selected Paper International Fuzzy Systems Association (IFSA) World Congress, Cancun, Mexico | 2007 |

FUNDED PROPOSALS

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| Air Force Office of Scientific Research (AFOSR) A Novel Semi-Supervised Kernel Formulation for Extrapolation from Small Datasets: Rapid Predictive Modeling of the Effect of a Leeway Object Geometry on its Drift and Divergence in Deep Waters PI: A. Alaeddini , Co-PI: K. Bhaganagar | 03/01/22-02/28/25 \$351,000 |
| San Antonio Medical Foundation Biometric Collaborative Radiology Artificial Intelligence PI: E. Golob, Co-PI: A. Alaeddini | 10/01/21-09/30/22 \$183,976 |
| Air Force Research Laboratory Machine Learning Supported Cyber and Electromagnetic Warfare (EMW) Operations PI: J. Huggins, Co-PI: A. Alaeddini | 12/01/21-5/31/22 \$72,000 |
| Air Force Office of Scientific Research (AFOSR) Active Reinforcement Learning for Adaptive Formation of High Performing Teams of Experts PI: A. Alaeddini | 11/01/20-06/30/21 \$29,815 |
| Department of Homeland Security-United States Coast Guard Novel Interdisciplinary modeling and deep-learning approach towards improved Leeway Divergence prediction PI: K. Bhaganagar, Co-PI: A. Alaeddini | 01/01/20-07/30/21 \$289,379 |

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| Schlumberger Co. Downhole-gauge data analytics PI: P. Rad, Co-PI: A. Alaeddini | 02/01/20-08/31/21 \$110,000 |
| National Formosa University, South Korea Education, Training and Mentoring Program in Advanced Manufacturing/Industry 4.0 PI: F.F. Chen, Co-PI: A. Alaeddini , A. Jafari, P. Bhounsule, H. Wang | 08/15/19- 08/14/22 \$ 417,697 |
| Andeavor Co. Predictive Analytics of Safety Incidents PI: A. Alaeddini , F.F. Chen | 01/07/18-30/12/19 \$20,000 |
| Air Force Office of Scientific Research (AFOSR) - <u>YOUNG INVESTIGATOR AWARD</u> An Active Learning Methodology for Design and Optimization of Complex Expensive Tests (FA9550-16-1-0171) PI: A. Alaeddini | 06/01/16-11/31/20 \$371,937 |
| National Institutes of Health (NIH/NIGMS) A Novel Probabilistic Methodology for Prediction of Emerging Diseases in Patients with Multiple Chronic Conditions (1SC2GM118266-01) PI: A. Alaeddini | 05/04/16-03/31/20 \$441,000 |
| Air Force Research Laboratory (AFRL-MLRCP) Prediction and Optimization in Engineered Residual Stresses (ERS) with Minimum Data (FA8650-13-C-5800) PI: A. Alaeddini | 08/01/16-01/21/17 \$99,723 |
| Department of Veteran Affairs Chronic Effects of Neuro-trauma (VA268-15-D-0073) PI: L. Potter, Co-PI: A. Alaeddini | 09/29/15-09/28/16 \$66,234 |
| Harland Clarke Co. Image-based Process Monitoring Phase 1: Real-time Quality Monitoring of Printing Process PI: A. Alaeddini , Co-PI: S. Agaian | 07/01/15-06/30/16 \$77,630 |
| Harland Clarke Co. Predictive Maintenance - Phase 2: From Data to Performance Metrics PI: C. Saygin, Co-PIs: A. Alaeddini , F. Chen, H.D. Wan, K. Castillo | 07/01/15-06/30/16 \$90,000 |
| Harland Clarke Co. Process Excellence and Continuous Improvement at Harland Clarke PI: H. Wan Co-PI: A. Alaeddini , C. Saygin, F. Chen, K. Castillo | 08/01/15-07/31/17 \$62,000 |
| Flat Rock Engineering Co. An Arial-Based Technology for Integrated Monitoring of Pipelines PI: A. Montoya, Co-PIs, A. Alaeddini , V. Maldonado | 09/01/14-08/30/15 \$84,272 |
| Toter LLC. Analysis of Warranty Claims for the City of San Antonio Automated Waste Collection System PI: A. Alaeddini | 07/20/14-09/30/14 \$12,500 |
| The University of Texas at San Antonio - GREAT Integrative Statistical and Operational Methods for Effective Chronic Disease Management PI: A. Alaeddini | 09/01/14-09/30/15 \$20,000 |
| University of Texas Health Science Center (UTHSC) Applying Lean Principles to the Faculty Appointment Process at UTHSC PI: A. Alaeddini | 03/01/14-05/15/14 \$7,500 |
| University of Texas Health Science Center (UTHSC) Applying Lean Principles to the Faculty Appointment Process at UTHSC- VP- AFSA PI: A. Alaeddini | 07/15/14-09/15/14 \$5000 |

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| Harland Clarke Co. Predictive Maintenance - Phase 1: A Roadmap for Intelligent Maintenance PI: C. Saygin, Co-PIs: A. Alaeddini , F. Chen, H.D. Wan, K. Castillo | 02/01/13-07/30/14 \$77,630 |
| Harland Clarke Co. Continuous Improvement and Sustainability at Harland Clarke PI: H. Wan Co-PI: A. Alaeddini , C. Saygin, F. Chen, K. Castillo, H. Rashed-Ali | 07/01/13-06/30/15 \$33,000 |
| National Institutes of Health (NIH/NIAMS) Intrafibrillar Mineralization vs. Bone Fragility (1R21AR065641-01) PI: X. Wang, Co-Investigators: A. Alaeddini , H.V. Remmen, J. Almer | 12/01/13-11/30/15 \$362,174 |
| Chrysler LLC. Advanced-Data Analysis Module Development for the New Generation of Body Shop Analysis Toolbox PI: K. Yang, Co-PI: W. Yang, Senior Personnel: A. Alaeddini | 2009-2011 \$77,000 |
| National Science Foundation (NSF) Improving Clinical Access through Optimal Determination of Patient Aligned Care Team (PACT) PIs: K. Yang, R. Saigal, Senior Personnel: A. Alaeddini , Consultant: K. Murty | 2012-2014 \$300,000 |
| Veteran Engineering Resource Center-VAPHS-VERC Patient Panel Determination for Patient Aligned Care Team (PACT) PI: K. Yang, Senior Personnel: A. Alaeddini | 2011-2012 \$200,000 |
| Veteran Engineering Resource Center-VAPHS-VERC The National Initiatives to Reduce Missed Opportunities PI: K. Yang, Senior Personnel: A. Alaeddini | 2010-2013 \$600,000 |
| Veteran Engineering Resource Center-VA-CASE Patient Discharging Error and Re-admission Reduction PI: K. Yang, Senior Personnel: A. Alaeddini | 2011-2012 \$100,000 |

INTELLECTUAL PROPERTY

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|---|------|
| Invention Disclosure 2015.002.UTSA An Integrated Pipeline Monitoring System Utilizing UAV-based Sensor Technology and Image Analysis Inventor: A. Alaeddini , V.H. Maldonado, and A. H. Montoya Rodriguez. | 2015 |
| Invention Disclosure 2022.017.UTSA Integrated Mobile Platform for Maritime Target Detection and Tracking in Real-Time Inventor: K. Bhaganagar, A. Alaeddini , Prasanna Kolar | 2021 |

PUBLICATIONS

Peer-Reviewed Journal Publications

- [J1] S.H.A. Faruqui, [A. Alaeddini](#), S. Fisher-Hoch, J. McCormick, Dynamic Functional Continuous Time Bayesian Networks for Prediction and Monitoring of the Impact of Patients Lifestyle Behaviours on the Emergence of Multiple Chronic Conditions, *IEEE Access*, *Accepted*. 2021
- [J2] S.H.A. Faruqui, [A. Alaeddini](#), J. Wang, C. Jaramillo, M.J. Pugh, Functional Continuous Time Bayesian Networks for Exploring the Evolution of Multiple Chronic Conditions, *IEEE Access*, *Accepted*. 2021
- [J3] R. Meka, [A. Alaeddini](#), Nonso Ovuegbel, Pranav Bhounsule, P. Rad, k. Yang, Multi-Armed Bandit Regularized Expected Improvement for Efficient Global Optimization of Expensive Computer Experiments, *IEEE Access*, 9 (2021): 100125-100140. 2021

- [J4] R. Meka, A. Alaeddini, K. Bhaganagar, A Robust Deep Learning Framework for Short-Term Wind Power Forecast of a Full-Scale Wind Farm using Atmospheric Variables, *Energy*, 221 (2021), 119759 2021
- [J5] DL. Andrew, HC. Han, J. Ocampo, A. Alaeddini, M. Thomsen, Characterization of residual stresses from cold expansion using spatial statistics, *Fatigue & Fracture of Engineering Materials & Structures*, 44 (1) (2021): 101-114 2021
- [J6] PA Bhounsule, E Hernandez-Hinojosa, A. Alaeddini, One-Step Deadbeat Control of a 5-Link Biped Using Data-Driven Nonlinear Approximation of the Step-to-Step Dynamics, *Robotics*, 9.6 (2020): 90 2020
- [J7] S. Shirinkam, A. Alaeddini, E. Gross, Identifying the Number of Components in Gaussian Mixture Models using Numerical Algebraic Geometry, *Journal of Algebra and its Applications*, 19.11 (2019): 2050204. DOI: 10.1142/S0219498820502047 2020
- [J8] R. Meka, A. Alaeddini, S. Oyama, K. Langer, An Active Learning Methodology for Efficient Estimation of Expensive Noisy Black-Box Functions using Gaussian Process Regression, *IEEE Access*, 8 (2020): 111460-111474 2020
- [J9] S.H. Silva, A. Alaeddini, P. Najafirad, Temporal Graph Traversals using Reinforcement Learning with Proximal Policy Optimization, *IEEE Access*, 8 (2020): 63910-63922 2020
- [J10] S.H. Faruqui, A. Alaeddini, M.C.W. Chang, S. Shirinkam, C.A. Jaramillo, P. Rad, J. Wang, M.J. Pugh. Summarizing Complex Graphical Models of Multiple Chronic Conditions Interactions using the 2nd Eigenvalue of Graph Laplacian, *JMIR Medical Informatics*, 8 (6) (2020): e16372. DOI: 10.2196/16372 2020
- [J11] J. Nielson, K. Bhaganagar, R. Meka, A. Alaeddini, Using Atmospheric Inputs for Artificial Neural Networks to Improve Wind Turbine Power Prediction, *Energy*, 190 (2020): 116-273. 2020
- [J12] J. Sumner, A. Alaeddini, Analysis of Feature Extraction Methods for Prediction of 30-day Hospital Readmissions, *Methods of Information in Medicine*, 58.6 (2019): 213-221 2019
- [J13] S.H.A. Faruqui, R. Meka, A. Alaeddini, Y. Du, C. Li, S. Shirinkam, J. Wang, Development of a Deep Learning Model for Dynamic Forecasting of Blood Glucose Level for Type 2 Diabetes Mellitus: Secondary Analysis of a Randomized Controlled Trial, *JMIR mHealth and uHealth*, 7.11 (2019): e14452. 2019
- [J14] S. Martinez, A. Alaeddini, K. Langer, A Sequential Weighted Laplacian Regularized Optimal Design for Response Surface Modeling of Expensive Functions with Outliers: An Application in Linear Elastic Fracture Mechanics, *Quality and Reliability Engineering International*, 35.6 (2019):1911–1928. DOI: 10.1002/qre.2483 2019
IISE 2019, Best Poster Award of Quality Control and Reliability Engineering Track
- [J15] A. Alaeddini, P. Shi, J. E. Helm, S.H. Faruqui, An Integrated Framework for Reducing Hospital Readmissions using Risk Trajectories Characterization and Discharge Timing Optimization, *IIE Transactions on Healthcare Systems Engineering*, 9.2 (2019): 172-185. DOI: 10.1080/24725579.2019.1584133 2019
- [J16] A. Alaeddini, R. Meka, S. Martinez, E. Kraft, Sequential Laplacian Regularized V-Optimal Design of Experiments for Response Surface Modeling of Expensive Tests: An Application in Wind Tunnel Testing, *IIE Transactions*. 51.5 (2019): 559-576. DOI: 10.1080/24725854.2018.1508928 2019
INFORMS 2019, Finalist of Best Student Paper Award of Quality Statistics & Reliability Eng. Division
- [J17] S.H. Faruqui, A. Alaeddini, C.A. Jaramillo, J.S. Potter, M.J. Pugh. Mining patterns of comorbidity evolution in patients with multiple chronic conditions using unsupervised multi-level temporal Bayesian network. *PLOS One*. 13.7 (2018):1-22. DOI: 10.1371/journal.pone.0199768 J 2018

- [J18] A. Alaeddini, A. Motasemi, S.H.A. Faruqui, A Spatiotemporal Outlier Detection Methodology based on Partial Least Square Regression and Area Delaunay Triangulation for Image-based Process Monitoring, *IIE Transactions*, 50.2 (2018): 74-87. DOI: 10.1080/24725854.2017.1386336 2018
- [J19] A. Alaeddini, C. Jaramillo, M.J. Pugh, S.H.A. Faruqui, Mining Major Transitions of Chronic Conditions in Patients with Multiple Chronic Conditions, *Methods of Information in Medicine*, 56.5 (2017): 391-400. DOI: 10.3414/ME16-01-0135 2017
- [J20] A. Alaeddini, SH. Hong, A Multi-Way Multi-Task Learning Approach for Multinomial Logistic Regression: An Application in Joint Prediction of Appointment Miss-Opportunities across Multiple Clinics, *Methods of Information in Medicine*, 56.4 (2017): 294-307. DOI: 10.3414/ME16-01-0112. 2017
- [J21] M. H. Bakhtiarifar, A. Amiri, A. Alaeddini, Economic-Statistical Design of Shewhart Control Charts with Fuzzy Parameters, *Journal of Intelligent & Fuzzy Systems*, 32.6 (2017): 3961-3971. DOI: 10.3233/JIFS-151097. 2017
- [J22] A. Motasemi, A. Alaeddini, and C. Zou. An Area-based Methodology for the Monitoring of General Linear Profiles. *Quality and Reliability Engineering International*, (2016): 159-181. DOI: 10.1002/qre.1998. 2016
- [J23] S. Shirinkam, A. Alaeddini, H. Millwater, On the Application of Multi complex Algebras in Numerical Integration, *Applied Mathematics & Information Sciences*, 10.1 (2016): 1-9. DOI: 10.18576/amis/100101. 2016
- [J24] J. E. Helm, A. Alaeddini, J. Stauffer, K. Bretthauer, Reducing Hospital Readmissions by Integrating Empirical Prediction with Resource Optimization, *Production and Operations Management*, 25.2 (2015): 233–257. DOI: 10.1111/poms.12377. POMS 2018, Finalist of Most Influential Service Operations Paper Award 2015
- [J24] A. Alaeddini, Ch. K. Reddy, K. Yang, Predicting Disturbances in Appointment Scheduling through Hybrid Probabilistic Modelling *IIE Transactions on Healthcare Systems Engineering*, 5.1 (2015): 14-32. DOI: 10.1080/19488300.2014.993006. 2015
- [J25] A. Alaeddini, K. Yang, H. Mao, A. Murat, B. Ankenman, An Adaptive Sequential Experimentation Methodology for Expensive Response Surface Optimization- Case Study in Traumatic Brain Injury (TBI) Modelling. *Quality and Reliability Engineering International*, (2014): 767-793. DOI: 10.1002/qre.1523. 2014
- [J26] G. Abdella, K. Yang, A. Alaeddini, Multivariate Adaptive Approach for Monitoring Simple Linear Profiles (VSSI-T2), *International Journal of Data Analysis Techniques and Strategies (IJDATS)*, Special Issue for MicroArray Quality control, 6.1 (2014): 2-14. 2014
- [J27] A. Alaeddini, A. Murat, K. Yang, B. Ankenman, An Efficient Adaptive Sequential Methodology for Expensive Response Surface Optimization, *Quality and Reliability Engineering International*, 29.6 (2013): 799-817. DOI: 10.1002/qre.1432 2013
- [J28] A. Alaeddini, K. Yang, A. Murat, ASRSM: A Sequential Experimental Design for Response Surface Optimization, *Quality and Reliability Engineering International*, 29.2 (2013): 241-258. DOI: 10.1002/qre.1306. IERC 2010, Best Paper Award of Quality Control and Reliability Engineering Track 2013
- [J29] G. Abdella, K. Yang, A. Alaeddini, On the Effect of Location of Explanatory Variable on Monitoring Polynomial Quality Profiles, *International Journal of Engineering*, 25.2 (2012): 131-140 ISSN 1025-2495. 2012
- [J30] A. Alaeddini, I. Dogan, Using Bayesian Networks for Root Cause Analysis in Statistical Process Control, *Expert Systems with Applications*, 38.9 (2011): 11230-11243 2011
- [J31] Y. Guo, K. Yang, A. Alaeddini, A Truncated Logistic Regression Model in Evaluation of Probability of Detection, *Quality Engineering*, 23.4 (2011): 365-377 2011

- [J32] A. Alaeddini, K. Yang, S. Q. Yu, Ch. K. Reddy, A Probabilistic Model for Predicting the Rate of No-Show in Hospital Appointments, *Healthcare Management Science*, 14.2 (2010): 146-157, DOI: 10.1007/s10729-011-9148-9. 2010
INFORMS 2010, Finalist of Pierskalla Award (Health Applications Section)
- [J33] M.H. Fazel Zarandi, A. Alaeddini, A General Fuzzy-Statistical Clustering Approach for Estimating the Time of Changes in Variable Sampling Control Charts, *Information Sciences*, 180 (2010): 3033–3044 2010
- [J34] M.H. Fazel Zarandi, A. Alaeddini, I.B. Turksen, M. Ghazanfari., Using Adaptive Neuro-Fuzzy Systems to Monitor Linear Quality Profiles, *Journal of Uncertain Systems*, 4.2 (2010): 147-160 2010
- [J35] A. Alaeddini, K. Yang, Adaptive Sequential Experiment Methodology for Response Surface Optimization, *International Journal Quality Technology and Engineering*, 1 (2009): 20-61. 2009
- [J36] Alaeddini, M. Ghazanfari, M. Amin Nayeri, A Hybrid Fuzzy-Statistical Clustering Approach for Estimating the Time of Changes in Shewhart Control Charts, *Information Sciences*, 170.11 (2009): 1769-1784. 2009
- [J37] M. Ghazanfari, A. Alaeddini, S.T.A. Niaki, M.B.G. Aryanejad, A Clustering Approach to Identify the Time of a Step Change in Shewhart Control Charts, *Quality and Reliability Engineering International*, 24.7 (2008): 765-778. 2008
- [J38] M.H. Fazel Zarandi, A. Alaeddini, I.B. Turksen, A Hybrid Fuzzy Adaptive Sampling –Run Rules for Shewhart Control Charts, *Information Sciences*, 17.8 (2008): 1152–1170. 2008
- [J39] M. Ghazanfari, A. Alaeddini, K. Noghondarian, A Novel Fuzzy Clustering Approach for Estimating the Time of Step Changes in Shewhart Control Charts, *International Journal of Industrial Engineering and Production Research*, 19.4 (2008): 39-64. 2008

Book Chapters

- [BC1] A. Alaeddini, K.G. Murty, *DSS (Decision Support System) for Allocating Appointment Times to Calling Patients at a Medical Facility*, *Case Studies in Operations Research*, Editor: K.G. Murty, Springer New York, (2015): 83-109. 2015
- [BC2] M.H. Fazel Zarandi, A. Alaeddini, I.B. Turksen, M. Ghazanfari, *Analysis and Design of Intelligent Systems Using Soft Computing Techniques*, Editors: Patricia Melin, Oscar Castillo, Eduardo G. Ramirez, Janusz Kacprzyk, Witold Pedrycz, Springer-Verlag Berlin and Heidelberg GmbH & Co. KG, (2007). 2007

Papers under Revision/Review

- [UR1] K. Bhaganagar, P. Kolar, S.H.A. Faruqui, D. Bhattacharjee, A. Alaeddini, K. Subbarao, A novel machine-learning framework with a moving platform for maritime drift calculations, *Frontiers in Marine Science*, Under Minor Revision. 2021
- [UR2] R. Meka, A. Alaeddini, K. Bhaganagar, Multi-Armed Bandit Regularized Knowledge Gradient for Sample-Efficient Bayesian Optimization of Expensive Computer Experiments with High Noise, *INFOMRS Journal of Computing*, Under Review. 2021
- [UR3] S.H.A. Faruqui, A. Alaeddini, J. Wang, Predictive Modeling and Control of Multiple Chronic Conditions using Nonlinear State Space Models. *JMIR*, Under Review 2021
- [UR4] S. Martinez, A. Alaeddini, A Laplacian-Regularized Dual-Phase Gaussian Process Technique for Response Surface Modeling of Noisy Black-Box Functions, *IEEE TASE*, Under Review. 2021
- [UR5] S. Martinez, A. Alaeddini, A Gradient and Acceleration Enhanced Semi-Supervised Kernel for Sample Efficient Learning of Expensive Functions. *Technometrics*, Under Review. 2021
- [UR6] S. Henrique Silva, A. Das, A. Alaeddini, P. Najafirad. Adaptive Clustering of Robust Semantic Representations for Adversarial Image Purification, *IEEE Transactions on Information Forensics and Security*, Under Revision. 2021

Papers in Preparation

- [W1] S. Shirinkam, A. Alaeddini, A Generalization of Method of Moments using Homotopy Continuation, and Multi-Complex Algebras. To be submitted to *JMLR*. 2021
- [W2] C. Ramirez-Tamayo, A. Belzung, A. Alaeddini, K. Bhaganagar, Deep Prediction of Wake Effects on Wind Turbine Performance, To be submitted to *Energy*. 2021
- [W3] C. Ramirez-Tamayo, S. Martinez, A. Alaeddini, K. Clark, Classification of Radiologists Expertise Based on Eye Fixation Data, To be submitted to *Radiology: AI*. 2021
- [W4] S.H.A. Faruqui, A. Alaeddini, J. Wang, Graphical Neural Networks for Predictive Modeling and Inference in Multiple Chronic Conditions. To be submitted to *Nature Communications*. 2021
- [W5] S.H.A. Faruqui, A. Alaeddini, J. Wang, A deep reinforcement learning framework for self-management of diabetes and weight using mobile app data. To be submitted to *AI in Healthcare*. 2021
- [W6] A. Alaeddini¹, A.B. Goodman, J.B. Alcantara, A. Alaeddini, F. Chen, A Recurrent Variational Autoencoder Control Chart for Predictive Monitoring of Continual Learning Process, To be submitted to *JQT*. 2021

Conference Proceedings

- [CP1] **IDTEC/CIE 2020, St. Louis, MO** 2020
P. Bhounsule, A. Alaeddini, M. Kim, Closed-form approximation of the step-to-step map enables computationally efficient and fast optimal control of legged robots
- [CP2] **IISE 2015, Nashville, TN** 2015
S. Guha, A. Alaeddini, A Predictive Model for Multi-Stage Manufacturing using Nonlinear Partial Least Square Methods.
- [CP3] **FAIM 2014, San Antonio, TX** 2014
A. Alaeddini, Designing a Fuzzy Control System for Non-Random Pattern Detection in Individual Observation Control Charts.
- [CP4] **IERC 2011, Reno, NV** 2011
A. Alaeddini, K. Yang, C.K. Reddy, A Probabilistic Model for Decreasing the Rate of No-Show in Hospital Appointments.
- [CP5] **ICMIE 2010, Singapore** 2010
K. Yang, G. M. Abdella, A. Alaeddini, On Monitoring of Linear Quality Function under Uncertainty of the Process's Shift.
- [CP6] **IERC 2010, Cancun, Mexico** 2010
A. Alaeddini, K. Yang, A. Murat, Adaptive Sequential Experimentation Methodology for Response Surface Optimization.
IERC 2010, Best Paper Award of Quality Control and Reliability Engineering Track
- [CP7] **IFSA 2007 World Congress, Cancun, Mexico** 2007
M.H. Fazel Zarandi, A. Alaeddini, I.B. Turksen, M. Ghazanfari, A Neuro-Fuzzy Multi-Objective Design of Shewhart Control Charts.
- [CP8] **4th International Conference of Industrial Engineering, Iran, Tehran,** 2005
R. Noorosana, A. Alaeddini, A New Approach for Monitoring Nonlinear Profiles.

PRESENTATIONS***Conference Presentations***

- [C1] A. Alaeddini¹, A.B. Goodman, J.B. Alcantara, A. Alaeddini, F. Chen, A Recurrent Variational Autoencoder Control Chart for Predictive Monitoring of Continual Learning Process, *AI Fest 2021, Virtual* 2021

- [C2] S.H.A. Faruqui, H. Bouzary, S. Alam, A. Alaeddini, F. Chen, 3D Object Detection for Streamlining Production Processes in a Cloud Manufacturing Infrastructure, *IISE 2021*, Virtual 2021
- [C3] S.H.A. Faruqui, A. Alaeddini, J. Wang, Utilizing Digital Twins to Develop Unsupervised Control Model for Self-monitoring And Management of Type 2 Diabetes Mellitus, *INFORMS 2020*, Virtual. 2020
- [C4] S.H.A. Faruqui, A. Alaeddini, Jing Wang, An Extended Kalman Filter For Dynamic Prediction and Detection of Risk of Multiple Chronic Conditions Based on Patient Lifestyle Behavioural Changes, *INFORMS 2020*, Virtual. 2020
- [C5] S.H.A. Faruqui, R. Meka, A. Alaeddini, J. Wang, A Reinforcement Learning Framework for Behavioural Management of Type-2-Diabetes Mellitus Patients, *IISE 2020*, Virtual. 2020
- [C6] S. Martinez, A. Alaeddini, A Laplacian Regularized Dual-Phase Gaussian Process Technique for Response Surface Modeling of Black-box Functions, *IISE 2020*, Virtual. 2020
- [C7] S. Martinez, A. Alaeddini, A Laplacian Regularized Dual-Phase Gaussian Process Technique for Response Surface Modeling of Black-box Functions, *INFORMS 2020*, Virtual. 2020
- [C8] R. Meka, A. Alaeddini, An Active Learning Methodology for Efficient Estimation of Noisy Black-Box Functions using Gaussian Process Regression, *INFORMS 2019*, Seattle, WA. 2019
Finalist of QSR Section Best Student Paper Competition
- [C10] S.H.A. Faruqui, A. Alaeddini, C. A. Jaramillo, M.J. Pugh., An Active Learning Framework for Learning and Summarizing Healthcare Networks, *IISE 2019*, Orlando, FL. 2019
- [C11] S.H.A. Faruqui, R. Meka, A. Alaeddini, J. Wang, Dynamic Forecasting of Diabetes Using Mobile-Based Health-Lifestyle Data, *IISE 2019*, Orlando, FL. 2019
- [C12] R. Meka, A. Alaeddini, Active Reinforcement Learning Approach for Efficient Estimation of Complex Functions, *IISE 2019*, Orlando, FL. 2019
- [C13] C. Chang, A. Alaeddini, Using Deep Learning for Predicting the Trajectory of Glucose Level in Patients with Type II Diabetes, *IISE 2019*, Orlando, FL. 2019
- [C14] S.H.A. Faruqui, R. Meka, A. Alaeddini, Y. Du, C. Li, S. Shirinkam, J. Wang, Dynamic Forecasting, and Control of Type II Diabetes Using Mobile-Based Health Lifestyle Data, *SURF 2019*, San Antonio, TX. 2019
- [C15] A. Alaeddini, Predictive Modeling of Multiple Chronic Conditions Development, *INFORMS 2018*, Phoenix, AZ. ♦ *Invited Talk* 2018
- [C16] R. Meka, A. Alaeddini, Laplacian Regularized Gaussian Processes for Modeling Expensive Black-Box Functions, *INFORMS 2018*, Phoenix, AZ. 2018
- [C17] S.H.A. Faruqui, Adel Alaeddini, Carlos Jaramillo, Mary Jo Pugh, A Continuous Time Bayesian Network Model for Identifying Patterns of Multiple Chronic Conditions, *INFORMS 2018*, Phoenix, AZ. 2018
- [C18] S.H.A. Faruqui, Adel Alaeddini, Carlos Jaramillo, Mary Jo Pugh, A Continuous Time Bayesian Network for Learning the Evolution of Multiple Chronic Conditions, *SURF 2018*, San Antonio, TX. 2018
- [C19] S.H.A. Faruqui, Adel Alaeddini, Carlos Jaramillo, Mary Jo Pugh, Learning the Evolution of Multiple Chronic Conditions using Bayesian Networks, *IISE 2018*, Orlando, FL (2018). 2018
- [C20] S. Martinez, A. Alaeddini, A Sequential Weighted Laplacian Regularized Optimal Design of Experiments for Response Surface Modeling: An application in Linear Elastic Fracture Mechanics, *IISE 2018*, Orlando, FL. 2018
- [C21] S.H.A. Faruqui, Adel Alaeddini, Carlos Jaramillo, Mary Jo Pugh, Sara Shirinkam, Eigen Analysis of Graph Laplacian for Summarizing Bayesian Networks, *IISE 2018*, Orlando, FL. 2018

- [C22] A. Alaeddini, Mining Major Patterns of Disease Progression in Patients with Multiple Chronic Conditions, *INFORMS 2017, Houston, TX*. ♦ **Invited Talk** 2017
- [C23] R. Meka, A. Alaeddini, An Active Learning Approach for Gaussian Processes, *INFORMS 2017, Houston, TX*. 2017
- [C24] S. Martinez, A. Alaeddini, A Sequential Weighted Laplacian Regularized Optimal Design of Experiments for Response Surface Modelling of Expensive Tests, *INFORMS 2017, Houston, TX*. 2017
- [C25] S. Martinez, A. Alaeddini, Weighted Laplacian D-optimal Design of Experiments for Response Surface Modelling, *IISE Conference, Pittsburgh, PA*. 2017
- [C26] S.A. Faruqui, A. Alaeddini, Temporal Abstraction of Multiple Chronic Conditions Using Hierarchical Multi-Level Temporal Bayesian Network, *INFORMS 2017, Houston, TX*. 2017
- [C27] S.A. Faruqui, A. Alaeddini, Analyzing Patterns of Multiple Chronic Conditions and their Associated Behaviour in Temporal Direction using Multi-level Temporal Bayesian Network, *IISE Conference, Pittsburgh, PA*. 2017
- [C28] S. Shirinkam, A. Alaeddini, E. Gross, Numerical Algebraic Geometry for Identifying the Number of Components in Gaussian Mixture Models, *JMM 2017, Atlanta, GA*. 2017
- [C29] E. Gross, A. Alaeddini, S. Shirinkam, Model Selection for Gaussian Mixtures with Numerical Algebraic Geometry, *SIAM Conference on Applied Algebraic Geometry, Atlanta, GA*. 2017
- [C30] A. Alaeddini, Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions, *INFORMS 2016, Nashville, TN*. 2016
- [C31] A. Alaeddini, An Integrated Framework to Model the Trajectories of Chronic Conditions, *INFORMS 2016, Nashville, TN*. ♦ **Invited Talk** 2016
- [C32] A. Alaeddini, Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions, *IISE Conference, Pittsburgh, PA*. 2015
- [C33] A. Alaeddini, An Integrated Framework to Model the Trajectories of Chronic Conditions, *ISERC 2015, IISE Conference, Pittsburgh, PA*. ♦ **Invited Talk** 2015
- [C34] A. Alaeddini, A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers, *INFORMS 2014, San Francisco, CA*. ♦ **Invited Talk** 2014
- [C35] A. Alaeddini, A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers, *Summer Institute on Evidence-Based Quality Improvement, San Antonio, TX*. ♦ **Invited Talk** 2014
- [C36] A. Alaeddini, A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers, *Shared Visions: Improving Systems to Improve Lives Conf., San Antonio, TX*. ♦ **Invited Talk** 2014
- [C37] A. Alaeddini, Designing a Fuzzy Control System for Non-Random Pattern Detection in Individual Observation Control Charts, *FAIM 2014, San Antonio, TX*. 2014
- [C38] A. Alaeddini, Using Adaptive Neuro-Fuzzy Inference Systems to Monitor Non-Linear Quality Profiles, *FAIM 2014, San Antonio, TX*. 2014
- [C39] A. Alaeddini, A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers, *INFORMS 2013, Minneapolis, MN*. ♦ **Invited Talk** 2013
- [C40] A. Alaeddini, An Integrated Framework to Model the Trajectories of Chronic Conditions, *INFORMS 2013, Minneapolis, MN*. ♦ **Invited Talk** 2013
- [C41] A. Alaeddini, A Comprehensive Bayesian Framework for Prediction of Patient Readmission to Medial Centers, *ISERC, San Juan, PR*. 2013

- [C42] A. Alaeddini, A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers, *INFORMS 2012*, Phoenix, AZ. ♦ **Invited Talk** 2012
- [C43] Ch. K. Reddy, A. Alaeddini, K. Yang, An Integrated Prediction and Optimization Model for Effective Appointment Scheduling in the Presence of No-shows, *INFORMS 2011*, Charlotte, NC. 2011
- [C44] Ch. K. Reddy, A. Alaeddini, K. Yang, A Probabilistic Model for Predicting Readmissions in Medical Centers, *INFORMS 2011*, Charlotte, NC. 2011
- [C45] A. Alaeddini, Feature Selection for Unlabelled Data with Complex Structures for Quality Improvement, *INFORMS 2011*, Charlotte, NC. ♦ **Invited Talk** 2011
- [C46] A. Alaeddini, K. Yang, S. Shirinkam, Feature Selection for Unlabelled Data with Complex Structures for Quality Improvement, *IERC 2011*, Reno, NV. 2011
- [C47] A. Alaeddini, K. Yang, Ch. Reddy, A Probabilistic Model for Decreasing the Rate of Disruptions in Hospital Appointments, *IERC 2010*, Reno, NV. 2011
- [C48] A. Alaeddini, K. Yang, Self-learning strategies for experimental design and response surface optimization, *Wayne State University Graduate Research Symposium*, Detroit, MI. 2011
- [C49] K. Yang, G. M. Abdella, A. Alaeddini, A Variable Sampling Hotelling T2 Chart for Monitoring Simple Linear Quality Profiles, *INFORMS 2010*, Austin, TX. 2010
- [C50] K. Yang, A. Alaeddini, Susan Q. Yu, A Probabilistic Approach for Modelling the Rate of No-Show in Hospital Appointments, *INFORMS 2010*, Austin, TX. 2010
- Finalist of Pierskalla Award (Health Applications Section)*
- [C51] K. Yang, A. Alaeddini, Susan Q. Yu, A Probabilistic Approach for Modelling the Rate of No-Show in Hospital Appointments, *IERC 2010*, Cancun, Mexico. 2010
- [C52] X. Ma, A. Alaeddini, K. Yang, A. Murat, A Hybrid Optimization-Based Statistical Approach for Multivariate-Process-Control in Auto-Manufacturing Company, *IERC 2010*, Cancun. 2010
- [C53] A. Alaeddini, K. Yang, A. Murat, Adaptive Sequential Experimentation Methodology for Response Surface Optimization, *IERC 2010*, Cancun, Mexico. 2010
- Best Paper Award of Quality Control and Reliability Engineering Track*
- [C54] A. Alaeddini, K. Yang, Using Hidden Markov Models for the Design of Control Charts, *INFORMS 2009*, San Diego, CA. 2009
- [C55] A. Alaeddini, K. Yang, On the Use of Clustering as a General Change-point Estimator in Control Chart Applications, *IERC 2009*, Miami, FL. 2009
- [C56] A. Alaeddini, K. Yang, Using Adaptive Neuro-Fuzzy Systems to Monitor Regression relations, *IERC 2009*, Miami, FL. 2009
- [C57] A. Alaeddini, K. Yang, Using Adaptive Neuro-Fuzzy Systems to Monitor Regression relations, *Wayne State University Graduate Research Symposium*, Detroit, MI. 2008

Poster Presentations

- [PP1] S.H.A. Faruqui, A. Alaeddini, J Wang, S. P. Fisher-Hoch, and J B. McCormick. Nonlinear State Space Modeling and Control of the Impact of Patient's Modifiable Lifestyle Behaviors on the Emergence of Multiple Chronic Conditions, *IISE 2021*. 2021
- Runner-Up, IISE OCRE & DAIS Track Best Student Poster Award*
- [PP2] C. W. Chang, S. Martinez, S.H.A. Faruqui, A. Alaeddini, A Zone-Based Indoor RFID System for Real-Time Personnel Location Tracking", *IISE 2020*. 2020

- [PP3] S.H.A. Faruqui, A. Alaeddini, C. Jaramillo, M.J. Pugh, *A Functional Model for Structure Learning and Parameter Estimation in Continuous Time Bayesian Network: An Application in Identifying Patterns of Multiple Chronic Conditions*, INFORMS 2019, Seattle, WA 2019
- [PP4] S.H.A. Faruqui, A. Alaeddini, Learning and Summarizing Graphical Models using Eigen Analysis of Graph Laplacian: An Application in Analysis of Multiple Chronic Conditions, *IISE 2019*, Orlando, FL. 2019
- [PP5] S. Martinez, A. Alaeddini, A Sequential Weighted Laplacian-Regularized Optimal Design of Experiments for Response Surface Modeling of Expensive Tests: An Application in Linear-Elastic Fracture Mechanics, *IISE 2019*, Orlando, FL. 2019
IISE 2019, Best Poster Award of Quality Control and Reliability Engineering Track
- [PP6] A. Alaeddini, S.H.A. Faruqui, J. Wang, Using Machine Learning Methods for Dynamic Forecasting and Control of Type 2 Diabetes Using Mobile-Based Health Lifestyle Data, *DTM 2018*, North Bethesda, MD. 2018
- [PP7] R. Meka, A. Alaeddini, Laplacian Regularized Gaussian Process Method to Approximate Expensive Functions, *IISE 2018*, Orlando, FL. 2018
- [PP8] S. Shirinkam, A. Alaeddini, E. Gross, Identifying Clusters of In-Control and Out-Of-Control Parts in Manufacturing Processes using Numerical Algebraic Geometry and Nonparametric Regression, *SIAM Conference on Applied Algebraic Geometry*, Atlanta, GA. 2017
- [PP9] A. Alaeddini, Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions, *Shared Vision Conference 2016*, San Antonio, TX. 2016
- [PP10] A. Motasemi, A. Alaeddini, A Spatiotemporal Outlier Detection Method for Image-based Process Monitoring, *Fresh Air Conference 2016*, San Antonio, TX. 2016
- [PP11] R. Nath, A. Alaeddini, Modelling the Progression of Multiple Chronic Diseases over Time using Multi-State Markov Models, *Fresh Air Conference 2016*, San Antonio, TX. 2016
- [PP12] J. Williams, A. Alaeddini, Applying Lean Principles to the Faculty Appointment Process at UTHSC. *Shared Vision Conference 2014*, San Antonio, TX. 2014
- [PP13] A. Alaeddini, K. Yang, An Economic-Statistical Model for Decision Making about Production after Receiving the Out-of-Control Signal from the Control Chart, *INFORMS 2008*, Washington, DC. 2008

Invited Lectures

- [IL1] A. Alaeddini, Sample Efficient Estimation and Optimization of Expensive to Evaluate Black-Box Functions, *University of Illinois at Chicago*, and *Illinois Manufacturing Excellence Center (IMEC)*, Virtual Offline. Fall 2021
- [IL2] A. Alaeddini, Sample Efficient Estimation and Optimization of Expensive to Evaluate Black-Box Functions, *The University of Houston*, Virtual. Fall 2021
- [IL3] A. Alaeddini, Predictive Modeling, and Control of Continual Learning Processes, *NAWC-AD*, Virtual. Fall 2021
- [IL4] A. Alaeddini, Active Learning, and Optimization of Expensive to Evaluate Black-Box Functions, *The University of Texas at Austin*, Austin, TX. Spring 2021
- [IL5] A. Alaeddini, K. Krishnaiyer, Keep Human Safe: Predicting Safety Incidents, *Intelligent Automation Week*, Austin, TX. Fall 2018
- [IL6] A. Alaeddini, Mining Major Patterns of Disease Progression in Patients with Multiple Chronic Conditions, *Department of Mechanical Engineering, The University of Texas at Austin*, Austin, TX. Fall 2017

- [IL7] A. Alaeddini, Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions, *Department of Mechanical Engineering, The University of Texas at Austin*, Austin, TX. Fall 2016
- [IL8] A. Alaeddini, Active Learning Methodology for Design and Optimization of Complex Expensive Tests, *Arnold Air force Base*, Tullahoma, TN. Summer 2016
- [IL9] A. Alaeddini, What Clinicians and Non-Clinicians Need in Devices, Drug Discovery, and Data Analytics, *SALSI Academy Innovation Forum*, San Antonio, TX. Fall 2015
- [IL10] A. Alaeddini, A Comprehensive Bayesian Framework for Prediction of Patient Readmission to Medial Centres, *Department of Mechanical Engineering, the University of Texas at Austin*, Austin, TX. Fall 2014
- [IL11] A. Alaeddini, Applying Lean Principles to the Faculty Appointment Process at UTHSC, *Center for Advanced Manufacturing and Lean Systems (CAMLs) Annual Meeting, The University of Texas at San Antonio*, San Antonio, TX. Fall 2014
- [IL12] A. Alaeddini, City of San Antonio Automated Waste Management System Warranty Claims Analysis, *Center for Advanced Manufacturing and Lean Systems (CAMLs) Annual Meeting, The University of Texas at San Antonio*, San Antonio, TX. Fall 2014
- [IL13] A. Alaeddini, Prediction of Patients' Readmission to Medial Centres, *Center for Advanced Manufacturing and Lean Systems (CAMLs) Annual Meeting, The University of Texas at San Antonio*, San Antonio, TX. Fall 2013
- [IL14] A. Alaeddini, Improving Decision Making Process in Healthcare, *Continuous Improvement Process (CIP) Meeting, The University of Texas at San Antonio*, San Antonio, TX. Fall 2013
- [IL15] A. Alaeddini, Appointment Scheduling Under Patient No-shows: A Case Study in Veteran Affairs Hospital, *Continuous Improvement Process (CIP) Meeting, The University of Texas at San Antonio*, San Antonio, TX. Spring 2013
- [IL16] A. Alaeddini, Industrial Engineering Applications of Artificial Neural Networks, *Azad University-Qazvin*, Iran. Fall 2007
- [IL17] A. Alaeddini, New Challenges in Business Process Re-engineering, *Azad University-Qazvin*, Iran. Spring 2007
- [IL18] A. Alaeddini, Expert Systems, and Artificial Intelligence applications in Industrial Engineering *Azad University-Qazvin*, Iran. Spring 2006

TEACHING ACTIVITIES

Teaching

The University of Texas at San Antonio, TX
Department of Mechanical Engineering

2012-Present

| | Course/Section | Type* | Prep | Enrol. | Response | Rate 1 | Rate 2 | |
|------|--|-------|----------------------|--------|----------|--------|--------|-------|
| [T1] | ME 6543 Machine Learning and Data Analytics (Hybrid Setting) | GR | | 25 | 20 | 4.15 | 4.05 | F2021 |
| [T2] | ME 6973 Introduction to Deep Learning (Hybrid Setting) | GR | New course developed | 14 | 14 | 4.00 | 4.00 | S2021 |

| | | | | | | | | |
|-------|---|--------|----------------------|----|----|------|------|-------|
| [T3] | ME 6543 Machine Learning and Data Analytics | GR | New course developed | 31 | 27 | 4.19 | 4.26 | F2019 |
| [T4] | EGR 2323 Applied Engineering Analysis | LD | | 85 | 50 | 4.16 | 4.26 | F2018 |
| [T5] | ME 4723 Reliability and Quality Control | UD | | 26 | 26 | 3.96 | 4.08 | F2017 |
| [T6] | ME 4723 Reliability and Quality Control | UD | | 61 | 49 | 4 | 4 | F2016 |
| [T7] | ME 6973 Adv Reliability Methods | GR | Course Redesigned | 5 | 5 | 4.4 | 4.8 | S2016 |
| [T8] | EGR 5213 Introduction to Modelling and Simulation | GR, UD | | 19 | 18 | 4.6 | 4.7 | S2016 |
| [T9] | ME 4723 Reliability and Quality Control | UD | | 47 | 42 | 4.2 | 4.42 | F2015 |
| [T10] | ME 5013 - Advanced Data Analytics | GR | New course developed | 14 | 13 | 4.6 | 4.5 | S2015 |
| [T11] | EGR 5213 Introduction to Modelling and Simulation | GR, UD | | 16 | 15 | 4.4 | 4.3 | S2015 |
| [T12] | ME 4723 Reliability and Quality Control | UD | | 35 | 22 | 4.2 | 4.4 | F2014 |
| [T13] | EGR 5213 Introduction to Modelling and Simulation | GR, UD | | 27 | 27 | 3.93 | 4.11 | S2014 |
| [T14] | ME 3263 Manufacturing Engineering | LD, UD | | 69 | 44 | 4.1 | 4.11 | F2013 |
| [T15] | EGR 5213 Introduction to Modelling and Simulation | GR, UD | New course developed | 16 | 5 | 4 | 3.8 | S2013 |
| [T16] | ME 4723 Reliability and Quality Control | UD | Course Redesigned | 11 | 4 | 4 | 4.3 | F2012 |

*GR: Graduate, UD: Upper Division Undergraduate, LD: Lower Division Undergraduate, Rate 1 (Course), Rate 2 (Instructor)

Azad University-Qazvin, Iran

2004-2008

Instructor

| | | |
|-------|--|-------------------------|
| [T15] | <u>Department of Mechanical and Industrial Engineering</u> Management Information Systems (MIS) | Spring 2008 |
| [T16] | <u>Department of Mechanical and Industrial Engineering</u> Theory of Probability and Its Applications | Fall 2006 & Spring 2007 |
| [T17] | <u>Department of Mechanical and Industrial Engineering</u> Engineering Statistics | Fall 2007 & Spring 2008 |

| | | |
|-------|--|-------------|
| [T18] | <u>Department of Computer Science and Information technology</u> Management Information Systems (MIS) | Fall 2007 |
| [T19] | <u>Department of Computer Science and Information technology</u> Theory of Probability and Its Applications | Fall 2006 |
| [T20] | <u>Department of Computer Science and Information technology</u> Information Technology Project Management | Spring 2005 |
| [T21] | <u>Department of Management and Accounting</u> Applications of Computer in Accounting | Fall 2004 |
| [T22] | <u>Department of Management and Accounting</u> Applications of Computer in the Management | Fall 2004 |
| [T23] | <u>Department of Management and Accounting</u> Computer Programming | Fall 2004 |

Teaching Assistantship

Wayne State University Detroit, MI 2004-2008
Department of Industrial and Systems Engineering

| | | |
|-------|--|-------------------|
| [TA1] | Decision Making and Risk Analysis | Spring 2011, 2009 |
| [TA2] | Stochastic Processes | Fall 2009 |
| [TA3] | Quality Engineering | Spring 2010 |
| [TA4] | Design of Experiments | Fall 2009 |
| [TA5] | Leadership and Project Management- EMMP Curriculum for Ford Motors Company Managers | 2009-2010 |

Iran University of Science and Technology (IUST) 2009-2010
Department of Industrial Engineering

| | | |
|-------|--|------|
| [TA6] | Applications of Computer in Industrial Engineering | 2005 |
|-------|--|------|

MENTORING ACTIVITIES

PhD Committee Chair

| | | |
|------|---|--|
| [D1] | <i>Stanford Martinez</i> Research Title: Active Learning Robust Kriging for Efficient Estimation of Expensive Spatio Temporal | Spring 2018-Now Status: PhD Student |
| [D2] | <i>Mike Chi-Wen</i> Research Title: Automated Lean Process Engineering using Smart and Connected Technologies | Fall 2017-Now Status: PhD Student |
| [D3] | <i>Syed Hasib Akhter Faruqui</i> Dissertation Title: Learning and Summarization of Complex and Large Datasets with Graphical Models: An Application in Multiple Chronic Condition Analysis | Spring 2017-Fall 2021 Status: PhD Graduate |
| [D4] | <i>Rajitha Meka</i> Dissertation Title: Efficient Estimation and Optimization of Expensive to Evaluate Black-Box Functions | Fall 2016-Fall 2020 Status: PhD Graduate |
| [D5] | <i>Abed Motasemi</i> Dissertation Title: An Area-based Methodology for Monitoring Complex Quality Profiles | F2013- S2016 Status: PhD Graduate |

MS Committee Chair

- | | | |
|-------|--|---|
| [M1] | <i>Nonso Ovuegbe</i> Dissertation Title: Bayesian Optimization Approach to Dynamic-Window Path Planning | Spring 2021 Mechanical Engineering Status: Graduated |
| [M2] | <i>Eakeen Muhammad Haque</i> Dissertation Title: Markov Decision Processes for Inventory Modeling and Control | Fall 2019 Mechanical Engineering Status: Graduated |
| [M3] | <i>Joel Sumner</i> Dissertation Title: Methods of Dimensionality Reduction in Survival Analysis: An Application in Prediction of Hospital Readmission | Spring 2019 Mechanical Engineering Status: Graduated |
| [M4] | <i>Stanford Martinez</i> Dissertation Title: Sequential Weighted Laplacian Regularized Optimal Design for Response Surface Modeling of Expensive Functions with Outliers: An Application in Linear Elastic Fracture Mechanics | Fall 2018 Mechanical Engineering Status: Graduated |
| [M5] | <i>Mehdi Chekameh</i> Dissertation Title: A Real-Time Prognostic Methodology Based on Feature Extraction and Multivariate Control Charting for Improving Reliability and Maintenance | Spring 2017 Adv. Man. & Ent. Eng. Status: Graduated |
| [M6] | <i>Syed Hasib Akhter Faruqui</i> Dissertation Title: A Temporal Bayesian Network for Modelling the Temporal Relation Among Multiple Chronic Conditions | Fall 2016 Mechanical Engineering Status: Graduated |
| [M7] | <i>Adrien Tiokeng Kenyantio</i> Dissertation Title: An Image-Based Process Monitoring Scheme for Outlier Detection in Manufacturing Process | Fall 2016 Adv. Man. & Ent. Eng. Status: Graduated |
| [M8] | <i>Seung Hee Hong</i> Dissertation Title: A Weighted Logistic Regression Based on Similarity Learning for Prediction of Readmission Event in Hospitals | Spring 2016 Adv. Man. & Ent. Eng. Status: Graduated |
| [M9] | <i>Phani Teja</i> Dissertation Title: A Regularized Higher-Order Markov Clustering Algorithm for Monitoring Chronic Health Conditions | Fall 2015 Adv. Man. & Ent. Eng. Status: Graduated |
| [M10] | <i>Swarup Guha</i> Correlation Analysis of Multi-Stage Manufacturing Processes using Nonlinear Partial Least Square Methods | Spring 2015 Adv. Man. & Ent. Eng. Status: Graduated |
| [M11] | <i>Raoul Wansi</i> Dissertation Title: Identifying Control Charts Concurrent Patterns Using Hidden Markov Models | Fall 2014 Adv. Man. & Ent. Eng. Status: Graduated |

PhD and MS Committee Member

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|-------|---|--|
| [CG1] | <i>Arman Ghasemi</i> Dissertation Title: Computational and Theoretical Methods for Stress Modulated Phase Transition in Solid State Materials with Applications to Two Dimensional MoTe ₂ Chair: Dr. Wei Gao | 2021 Ph.D. - Mechanical Eng. Status: Graduated |
| [GC2] | <i>Kolton Keith</i> Development of Models and Algorithms to Design Biomass Supply Chains for Biofuels Chair: Dr. Krystel Castillo | 2021 Ph.D. - Mechanical Eng. Status: Proposal Defense |

- [CG3] *Hamid Khodadadi Koodiani* 2021
Validation of Seismic Assessment Standards for Building Systems
Dr. Adolfo Matamoros
Ph.D. - Civil Eng.
Status: **Proposal Defense**
- [GC4] *Maria Aranguren* 2020
Stochastic Programming Models to Design Biomass Supply Chains for
Co-firing in Coal-fired Power Plants
Chair: Dr. Krystel Castillo
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [CG5] *Dallen Andrew* 2020
A Spatial Statistics Approach for Characterizing 2D Residual Stress
Chair: Dr. Hai-Chao Han
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [GC6] *Jordan Nielson* 2019
Improving Wind Farm Preconstruction and Short-Term Energy
Production Forecasting Using Field Data, Large Eddy Simulation and
Artificial, Neural Networks
Chair: Dr. Kiran Bhaganagar
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [CG7] *Hamed Bouzary* 2018
An Integrated Service Matching and Composition Approach for Cloud
Manufacturing Platform
Chair: Dr. Frank Chen
Ph.D. - Mechanical Eng.
Status: **Proposal Defense**
- [GC8] *Zhaoxuan Li* 2018
Control platform for commercial buildings using physics and statistical
modeling
Chair: Dr. Bing Dong
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [CG9] *Laura C. Domyancic* 2016
Probabilistic Method for Incorporating Multiple Crack Nucleation
Mechanisms into Initial Flaw Size Distributions
Chair: Dr. Harry Millwater
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [GC10] *Carolina Quintana* 2016
A Variance Reduction Sampling Method to Efficiently Estimate the
Probability-Of-Failure for Damage-Tolerant Structures
Chair: Dr. Harry Millwater
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [CG11] *Jose Garza* 2014
Multicomplex Variable Differentiation in Probabilistic Analysis and
Finite Element Models of Structural Dynamic Systems
Chair: Dr. Harry Millwater
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [GC12] *Juan Ocampo* 2013
Probabilistic Damage Tolerance for Small Airplanes Using a Linear-
Elastic Crack Growth Fracture Mechanics Surrogate Model
Chair: Dr. Harry Millwater
Ph.D. - Mechanical Eng.
Status: **Graduated**
- [CG13] *Luvin De Leon* 2019
Stochastic Programming Model Integrating Pyrolysis Byproducts in
The Design of Bioenergy Supply Chains
Chair: Dr. Krystel Castillo
MS-Adv. Man. & Ent. Eng.
Status: **Graduated**
- [GC14] *Mario Chapa* 2018
A cyberinfrastructure platform for the modeling and optimization of
biomass logistics
Chair: Dr. Krystel Castillo
MS-Adv. Man. & Ent. Eng.
Status: **Graduated**
- [GC15] *Bhargavaram Kallam* 2013
Implementation of Lean in Educational Institutions
Chair: Dr. Frank Chen
MS-Adv. Man. & Ent. Eng.
Status: **Graduated**

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|--------|--|--|
| [GC16] | <i>Ramakrishna Arji</i> Improvement project at Moore plastics Chair: Dr. Frank Chen | 2012 MS-Adv. Man. & Ent. Eng. Status: Graduated |
| [GC17] | <i>Mahendranath Desam</i> Design and Implementation of Lean Manufacturing Flexible Work Cell Chair: Dr. Frank Chen | 2012 MS-Adv. Man. & Ent. Eng. Status: Graduated |
| [GC18] | <i>SM Rahman</i> Data-Driven Models Applied in Building Load Forecasting for Residential and Commercial Buildings Chair: Dr. Bing Dong | 2015 MS in Mechanical Eng. Status: Graduated |
| [GC19] | <i>Debashis Dey</i> A Probabilistic Method to Diagnose Air Handling Unit (AHU) Faults Chair: Dr. Bing Dong | 2015 MS in Mechanical Eng. Status: Graduated |

MS Special Project Directed

| | | |
|-------|----------------------------|-------------|
| [MS1] | Monimul Haque | Fall 2021 |
| [MS2] | Rajeev Srivastav Kondagari | Fall 2018 |
| [MS3] | Christina Preddice | Spring 2015 |

SERVICE ACTIVITIES

Community Service

NSF Panelists

| | | |
|--------|--|-------|
| [NSF1] | Panelist Panel P221051: AI/ML Core Small Panel | F2021 |
| [NSF2] | Panelist Panel P212435: OE ERI Proposal Review | S2022 |

Leadership Positions

| | | |
|-------|--|---------|
| [LP1] | Chair Quality Statistics, and Reliability (QSR) Section Institute for Operations Research and the Management Sciences (INFORMS) | 2021-22 |
| [LP2] | Past President Quality Control & Reliability Engineering Division Institute for Industrial & Systems Engineers (IISE) | 2020-21 |
| [LP3] | Chair-Elect Quality Statistics, and Reliability (QSR) Section Institute for Operations Research and the Management Sciences (INFORMS) | 2020-21 |
| [LP4] | President Elect Quality Control & Reliability Engineering Division Institute for Industrial & Systems Engineers (IISE) | 2019-20 |
| [LP5] | Board of Directors Quality Control & Reliability Engineering Division Institute for Industrial & Systems Engineers (IISE) | 2017-19 |
| [LP6] | Co-chair Membership Growth Committee Quality Statistics, and Reliability (QSR) Section Institute for Operations Research and the Management Sciences (INFORMS) | 2019&20 |

Conferences and symposiums

| | | |
|--------|---|------|
| [CS1] | Track Chair Quality Statistics, and Reliability (QSR) Section INFORMS 2021, Virtual | 2021 |
| [CS2] | Track Chair Quality Control & Reliability Engineering (QCRE) Division IISE 2020, Virtual | 2020 |
| [CS3] | Competition Chair Golomski Best Paper Award, Quality Control & Reliability Engineering (QCRE) Track, IISE 2020, New Orleans, LA | 2020 |
| [CS4] | Track Chair Quality Control & Reliability Engineering (QCRE) Division, IISE 2019, Orlando, FL | 2019 |
| [CS5] | Coordinator QCRE track, Student Interaction Session and Poster Competition, IISE 2019, Orlando, FL | 2019 |
| [CS6] | Session Chair QCRE track, Disease Predictive Modeling, and Control, IISE 2019, Orlando, FL | 2019 |
| [CS7] | Coordinator QRS Track, Panel Discussion on Publishing in JQT Journal: The Editors' Perspective, INFORMS 2018, Phoenix, AZ | 2019 |
| [CS8] | Competition Referee Data Mining Section, INFORMS 2018, Phoenix, AZ | 2018 |
| [CS9] | Session Chair QCRE track, Process Monitoring, and Control II, IISE 2018, Orlando, FL | 2018 |
| [CS10] | Coordinator QRS Track, Panel Discussion on Publishing in QSR Journals: The Editors' Perspective, INFORMS 2017, Houston, TX | 2017 |
| [CS11] | Track Chair Quality Control & Reliability Engineering (QCRE) Division, IISE 2017, Pittsburgh, PA | 2017 |
| [CS12] | Competition Referee Quality Control & Reliability Engineering (QCRE) Track, IISE 2017, Pittsburgh, PA | 2017 |
| [CS13] | Session Chair QSR track, Data-driven Analytical Models in Medical Decision Making, IISE 2017, Pittsburgh, PA | 2017 |
| [CS14] | Competition Referee Data Mining Section, INFORMS 2016, Nashville, TN | 2016 |
| [CS15] | Session Chair HSE track, Data Mining in Healthcare, INFORMS 2016, Nashville, TN | 2016 |
| [CS16] | Session Chair HSE track, Healthcare Data Analytics, ISERC 2015, Nashville, TN | 2015 |
| [CS17] | Panelist Big Data and Data Analytics Panel Discussion Session, SALSII Academy Innovation Forum, Texas Fresh AIR, San Antonio, TX | 2015 |

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| [CS18] | Organizing Committee of Conference 24th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM) 2014, San Antonio, Texas | 2014 |
| [CS19] | Competition Referee 24th International Conference on Flexible Automation and Intelligent Manufacturing 2014, San Antonio, Texas | 2014 |
| [CS20] | Session Chair HSE track, Readmission, and Patient Placement, INFORMS 2012, Phoenix, AZ | 2012 |
| [CS21] | Session Chair QSR track, New Advancement on Design of Experiments, IERC 2011, Reno, NV | 2011 |
| [CS22] | Competition Referee IISE 2011, Quality Control & Reliability Engineering (QCRE) Track, Reno, NV | 2011 |
| [CS23] | Coordinator 4th Graduate Research Symposium, ISE Dept., Wayne State University, Detroit, MI | 2011 |
| [CS24] | Competition Referee IISE 2010, Quality Control & Reliability Engineering (QCRE) Track, Cancun, Mexico (| 2010 |
| [CS25] | Session Chair QSR track, Recent Advancement in Statistical Process Monitoring. INFORMS 2009, San Diego, CA | 2009 |
| [CS26] | Competition Referee IISE 2009, Quality Control & Reliability Engineering (QCRE) Track, Miami, FL | 2009 |
| [CS27] | Panelist Quality and Reliability Engineering Panel Discussion Session, 5th International Industrial Engineering Conference, Tehran, Iran | 2007 |
| [CS28] | Panelist Panel discussion Session, 1st National Value Engineering Conference, Tehran, Iran | 2006 |

Editorial Board of Academic Journals

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| [EB1] | Associate Editor Healthcare Management Science | 2020-Present |
| [EB2] | Associate Editor IISE Transactions on Healthcare Systems Engineering | 2017-Present |
| [EB3] | Associate Editor Journal of Applied Statistics | 2019-Present |
| [EB4] | Editorial Board Sharif Journal of Industrial Engineering & Management | 2018- Present |
| [EB5] | Editorial Board Current Development in Theory and Applications of Computer Science, Eng. and Tech. | 2009-2013 |
| [EB6] | Editorial Board International Journal of Economics and Management Engineering (IJEME) | 2011- 2018 |
| [EB7] | Editorial Board International Journal of Operations Research and Information Systems (IJORIS) | 2008-2010 |

Review Service for Academic Journals

| Journal | Since | Journal | Since |
|---|-------|---|-------|
| Journal of Quality Technology (JQT) | 2021 | IEEE Neural Networks and Learning Systems | 2021 |
| Journal of Applied Statistics | 2019 | IEEE Transactions on Automation Science and Engineering | 2018 |
| Technometrics | 2018 | Quality Technology & Quantitative Management | 2017 |
| Annals of Operations research (ANOR) | 2016 | Quality and Reliability Engineering International | 2016 |
| Quality Engineering | 2016 | Transactions on Intelligent Systems and Technology | 2016 |
| Robotics and Computer Integrated Manufacturing | 2015 | ASME Journal of Manufacturing Science and Engineering | 2015 |
| IIE Transactions | 2014 | IIE Transactions on Healthcare Systems Engineering | 2014 |
| Annals of Internal Medicine | 2014 | European Journal of Operational Research (EJOR) | 2013 |
| International Journal of Production Research (IJPR) | 2012 | Medical Care | 2012 |
| Engineering Applications of Artificial Intelligence | 2012 | European Journal of Industrial Engineering (EJIE) | 2011 |
| International Journal of Engineering (IJE) | 2011 | International Journal of Computational Intelligence Systems | 2010 |
| Applied Soft Computing | 2010 | Scientia Iranica | 2009 |
| Amirkabir Journal of Science and Tech. | 2007 | Information Sciences | 2008 |

University Service (UTSA)

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| [U1] COE Dean's Fellow for Research | S2021- Present |
| [U2] Director of Center for Advanced Manufacturing and Lean Systems Department of Mechanical Engineering | F2021- Present |
| [U3] Director of Advanced Data Engineering Lab Department of Mechanical Engineering | F2012- Present |
| [U4] Co-Director of Flexible Manufacturing and Lean Systems Lab Department of Mechanical Engineering | F2012-S2021 |
| [U5] Core member of Center for Advanced Manufacturing and Lean Systems Department of Mechanical Engineering | F2012- Present |
| [U6] Associate Member of Center for Simulation Visualization & Realtime Prediction Department of Mechanical Engineering | F2016- Present |
| [U7] Research Member of Open Cloud Institute College of Engineering | F2016- Present |
| [U8] Graduate Committee Member Department of Mechanical Engineering | S2013-Present |

| | | |
|-------|--|-------------|
| [U9] | Faculty Search Committee / Position: Computer Science Department of Computer Science | Fall 2018 |
| [U10] | Scholarship Committee -Chair Department of Mechanical Engineering | Fall 2017 |
| [U11] | Faculty Search Committee / Position: Biomedical Engineering Department of Biomedical Engineering | Fall 2017 |
| [U12] | Faculty Search Committee / Position: Cloud Manufacturing Department of Mechanical Engineering | Fall 2015 |
| [U13] | Ph.D. Research Evaluation Seminar Series Session Chair Department of Mechanical Engineering | Fall 2015 |
| [U14] | Seminar Series Co-Organizer Department of Mechanical Engineering | S2013-F2013 |

MEMBERSHIPS

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| [E1] | American Society of Mechanical Engineers (ASME) | Since 2019 |
| [E2] | Society for Industrial and Applied Mathematics (SIAM) | Since 2014 |
| [E3] | Institute of Industrial Engineers (IIE) | Since 2008 |
| [E4] | Institute for Operations Research and the Management Sciences (INFORMS) | Since 2008 |