ADEL ALAEDDINI

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EDUCATIONAL BACKGROUND

Post Doc Researcher
University of Michigan, Ann Arbor, Michigan, USA (2011-2012)

Ph.D. of Industrial and Systems Engineering
Wayne State University, Detroit, Michigan, USA (2008-2011)

Ph.D. of Mechanical Engineering
Iran University of Science and Technology (IUST), Tehran, Iran (2004 – 2008)

Master of Science in Computer Science-Artificial Intelligence
Wayne State University, Detroit, Michigan, USA (2009-2011)

APPOINMENT

Assistant Professor, Department of Mechanical Engineering, University of Texas at San Antonio (UTSA), (2012-Present)

Post- Doc Researcher, Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor (2011-2012)

Faculty Member, Department of Mechanical and Industrial Engineering, Azad University-Qazvin Branch, Iran (2004-2008)

AWARDS & HONORS

Air force Office of Scientific Research (AFOSR) -Young Investigator Award (2016)

AFOSR Summer Faculty Fellowship Program (USAF-SFFP) (2016)

Finalist of Pierskalla Award (Health Applications Section) INFORMS (2010)

Best Paper Award of Industrial Engineering Research Conference (IERC), Cancun, Mexico (2009)

Selected paper of International Fuzzy Systems Association (IFSA) World Congress, Cancun, Mexico (2007)

National Elite Scholar of Iran (2007)

Iran University of Sci. and Tech. (IUST) Featured Student Award (KHATAM) (2007)

RESEARCH GRANTS

*Air force Office of Scientific Research (AFOSR)- **Young Investigator Award** (06/01/2016-05/31/2019), $371,937*
An Active Learning Methodology for Design and Optimization of Complex Expensive Tests (FA9550-16-1-0171)
PI: A. Alaeddini,
Institution names: UTSA
Contribution: 100%

National Institutes of Health (NIH/NIGMS) (05/04/2016- 03/31/2019), $441,000
A Novel Probabilistic Methodology for Prediction of Emerging Diseases in Patients with Multiple Chronic Conditions (1SC2GM118266-01)
PI: A. Alaeddini,
Institution names: UTSA
Contribution: 100%

Air Force Research Laboratory (AFRL-MLRCP) (08/01/2016-1/21/2017) $49,723
Prediction and Optimization in Engineered Residual Stresses (ERS) with Minimum data (FA8650-13-C-5800)
PI: A. Alaeddini,
Institution names: UTSA
Contribution: 100%

Department of Veteran Affairs (9/29/2015-9/28/2017), $66,234
Chronic Effects of Neuro-trauma (VA268-15-D-0073)
PI: L. Potter, Co-PI: A. Alaeddini
Institution names: UTSA, UTHSCSA
Contribution: 50%

Harland Clarke (7/1/2015-6/30/2016), $77,630
Image-based Process Monitoring Phase 1: Real-time Quality Monitoring of Printing Process
PI: A. Alaeddini, CO-PI: S. Agaian
Institution names: UTSA
Contribution: 80%

Harland Clarke (7/1/2015-6/30/2016), $90,000
Predictive Maintenance - Phase 2: From Data to Performance Metrics
PI: C. Saygin, CO-PIs: A. Alaeddini, F. Chen, H.D. Wan, K. Castillo
Institution names: UTSA
Contribution: 25%

Harland Clarke Co. (8/1/2015-7/31/2017) $62,000
Process Excellence and Continuous Improvement at Harland Clarke
PI: H. Wan Co-PI: A. Alaeddini, Can Saygin, F. Chen, K. Castillo,
Institution names: UTSA
Contribution: 20%

Flat Rock Engineering (9/1/2014-8/30/2015) $84,272
An Arial-Based Technology for Integrated Monitoring of Pipelines
PI: A. Montoya, CO-PIs, A. Alaeddini, V. Moldonado
Institution names: UTSA
Contribution: 33%

Toter LLC. (7/20/2014-9/30/2014) $12,500
Analysis of Warranty Claims for the City of San Antonio Automated Waste Collection System
Institution names: UTSA
PI: A. Alaeddini
Contribution: 100%

Grants for Research Advancement and Transformation (GREAT), UTSA (9/1/2014-9/30/2015) $20,000
Integrative Statistical and Operational Methods for Effective Chronic Disease Management
Institution names: UTSA
PI: A. Alaeddini
Contribution: 100%

University of Texas Health Science Center (UTHSC) (3/1/2014-5/15/2014) $7,500
Applying Lean Principles to the Faculty Appointment Process at UTHSC
Institution names: UTSA
PI: A. Alaeddini
Contribution: 100%

University of Texas Health Science Center (UTHSC) (7/15/2014-9/15/2014) $5000
Applying Lean Principles to the Faculty Appointment Process at UTHSC- VP- AFSA
Institution names: UTSA
PI: A. Alaeddini
Contribution: 100%

Harland Clarke (2/1/2013-7/30/2014), $77,630
Predictive Maintenance - Phase 1: A Roadmap for Intelligent Maintenance
PI: C. Saygin, CO-PIs: <u>A. Alaeddini</u>, F. Chen, H.D. Wan, K. Castillo
Institution names: UTSA
Contribution: 20%

Harland Clarke Co. (7/1/2013-6/30/2015) $33,000
Continuous Improvement and Sustainability at Harland Clarke
PI: H. Wan Co-PI<u>: A. Alaeddini</u>, Can Saygin, F. Chen, K. Castillo, H. Rashed-Ali
Institution names: UTSA
Contribution: 16.5%

National Institutes of Health (NIH/NIAMS) (12/1/2013-11/30/2015), $362,174
Intrafibrillar Mineralization vs. Bone Fragility (1R21AR065641-01)
PI: X. Wang, Co-Investigators: <u>A. Alaeddini,</u> H V Remmen, J. Almer
Institution names: UTSA, UTSA, UTHSCSA, Argonne National Lab
Contribution: 5%

Chrysler LLC., (2009-2011), $77,000
Advanced Data Analysis Module Development for the New Generation of Body Shop Analysis Toolbox
PI: K. Yang, CO-PI: W. Yang, Senior Personnel: <u>A. Alaeddini</u>
Institution names: Wayne State University (WSU)

National Science Foundation (NSF) (2012-2014), $300,000
Improving Clinical Access through Optimal Determination of Patient Aligned Care Team (PACT)
PIs: K. Yang, Romesh Saigal, Senior Personnel: <u>A. Alaeddini</u>, Consultant: K. Murty
Institution names: Wayne State University (WSU), University of Michigan (UoM), WSU, UoM

Veteran Engineering Resource Center-VAPHS-VERC, (2011), $200,000
Patient Panel Determination for Patient Aligned Care Team (PACT)
PI: K, Yang, Senior Personnel: <u>A. Alaeddini</u>
Institution names: Wayne State University (WSU)

Veteran Engineering Resource Center-VAPHS-VERC, (2010-2013), $600,000
The National Initiatives to Reduce Missed Opportunities
PI: K. Yang, Senior Personnel: <u>A. Alaeddini</u>
Institution names: Wayne State University (WSU)

Veteran Engineering Resource Center-VA-CASE (2011-2012) $100,000
Patient Discharging Error and Re-admission Reduction
PI: K. Yang, Senior Personnel: <u>A. Alaeddini</u>
Institution names: Wayne State University (WSU)

INTELLECTUAL PROPERTY

Invention Disclosure 2015. 002.UTSA (9/15/2014)
An Integrated Pipeline Monitoring System Utilizing UAV-based Sensor Technology and Image Analysis
Inventors: <u>A. Alaeddini</u>, V.H. Maldonado, and A. H. Montoya Rodriguez.

RESEARCH/SCHOLARLY/CREATIVE/ACTIVITIES SUMMARY

Peer-Reviewed Journal Publications

1. <u>A. Alaeddini</u>, 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*, (2017): In Press.

2. <u>A. Alaeddini</u>, C. Jaramillo, M.J. Pugh, Mining Major Transitions of Chronic Conditions in Patients with Multiple Chronic Conditions, Methods *of Information in Medicine*, (2017): In Press.

3. 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*, (2017): 56 (4).

4. 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*

5. 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.

6. S. Shirinkam, A. Alaeddini, H. Millwater, On the Application of Multicomplex Algebras in Numerical Integration, *Applied Mathematics & Information Sciences,* 10.1 (2016): 1-9. DOI: 10.18576/amis/100101.

7. J. E. Helm, A. Alaeddini, J. Stauffer, K. Bretthauer, Reducing Hospital Readmissions by Integrating Empirical Prediction with Resource Optimization, *Production and Operations Management*, (2015): 25(2), 233–257. DOI: 10.1111/poms.12377.

8. 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.

9. 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.

10. 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 Micro Array Quality control, (2014): 6(1), 2-14.

11. 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

12. 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.

13. 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.

14. A. Alaeddini, I. Dogan, Using Bayesian Networks for Root Cause Analysis in Statistical Process Control, *Expert Systems with Applications,* 38.9 (2011): 11230-11243

   ♦ *5-Year Impact Factor: 2.981*

15. Yan Guo, K. Yang, A. Alaeddini, A Truncated Logistic Regression Model in Evaluation of Probability of Detection, *Quality Engineering,* 23.4 (2011): 365-377

16. 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*, (2010): 14 (2), 146-157, DOI: 10.1007/s10729-011-9148-9.

   ♦ *INFORMS 2010, Finalist of Pierskalla Award (Health Applications Section)*

17. 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

   ♦ *Impact Factor: 3.364*

18. 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

19. A. Alaeddini, K. Yang, Adaptive Sequential Experiment Methodology for Response Surface Optimization, *International Journal Quality Technology and Engineering*, 1 (2009): 20-61.

20. 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.

   ♦ *Impact Factor: 3.364*

21. 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.

22. 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.

     ♦ *Impact Factor: 3.364*

23. 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.

24. R. Noorosana, A. Alaeddini, Using Constraint Area Between Reference and Observed Curves to Monitor Nonlinear Profiles", *Azad University Research Journal*, 54 (2004): 117-124.

Book Chapters Published

1. 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.

2. 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).

Papers under Revision/Review

1. A. Alaeddini, E. Kraft, Sequential Laplacian Regularized V-Optimal Design of Experiments for Response Surface Modelling of Expensive Tests: An Application in Wind Tunnel Testing, *IIE Transactions* (Under revision).

Papers in Preparation

1. P. Shi, A. Alaeddini, J. E. Helm. Discharge Optimization for Inpatient Flow and Patient Outcomes. To be submitted to *Healthcare Management Science*.

2. S.H.A. Faruqui, A. Alaeddini, C. Jaramillo, M.J. Pugh, A Hierarchical Temporal Bayesian Network for Modelling the Temporal Relation Among Psychiatric Comorbidity. To be submitted to *Journal of Nature-Scientific Report.*

3. A. Alaeddini, S.H.A. Faruqui, C. Jaramillo, M.J. Pugh, A functional continuous time Bayesian network for exploring the complex stochastic process governing the evolution of MCC. To be submitted to Technometrics.

4. A. Alaeddini, C. Jaramillo, M.J. Pugh, Sparse Latent Regression Mixture Markov Clustering (SLR-MCL) for Mining Major Temporal Transitions in Diverse Populations: An Application in Monitoring Psychiatric Comorbidity. To be submitted to *MIS Quarterly*.

5. S. Shirinkam, A. Alaeddini, E. Gross, A Generalization of Method of Moments using Homotopy Continuation, and Multi-Complex Algebras. To be submitted to *Journal of Machine Learning Research*.

6. S. Shirinkam, A. Alaeddini, E. Gross, Numerical Algebraic Geometry for Identifying the Number of Components in Gaussian Mixture Models. To be submitted to *Journal of Machine Learning Research*.

7. A. Alaeddini, S. Martinez, Active Learning Methodology for Design, and Optimization of Computer Experiments. To be submitted to *IIE Transactions.*

8. A. Alaeddini, R. Meka, Laplacian Regularized Multi-Objective Gaussian Process for Black-Box Expensive Functions Approximation. To be submitted to *Technometrics.*

9. A. Alaeddini, R.S. Kondagari, S. Guha, Regularized Multiway Kernel Partial Least Square (RM-KPLS) for Characterization and Monitoring of High-Dimensional Multistage Manufacturing Processes (MMP). To be submitted to *ASME Journal of Manufacturing Science and Engineering.*

Refereed Conference Papers (Published in proceedings)

1. S. Guha, <u>A. Alaeddini</u>, A Predictive Model for Multi-Stage Manufacturing using Nonlinear Partial Least Square Methods, IISE 2015, Nashville, TN (2015).

2. <u>A. Alaeddini</u>, Designing a Fuzzy Control System for Non-Random Pattern Detection in Individual Observation Control Charts, FAIM 2014, San Antonio, TX (2014).

3. <u>A. Alaeddini,</u> Using Adaptive Neuro-Fuzzy Inference Systems to Monitor Non-Linear Quality Profiles, FAIM 2014, San Antonio, TX (2014).

4. <u>A. Alaeddini</u>, K. <u>Yang</u>, Ch.K. Reddy, A Probabilistic Model for Decreasing the Rate of No-Show in Hospital Appointments, *IERC 2011*, Reno, Nevada (2011).

5. <u>Alaeddini</u>, K. <u>Yang</u>, A. Muart, Adaptive Sequential Experimentation Methodology for n-Dimensional Quadratic Response Surface Optimization, *IERC 2011*, Reno, Nevada (2011).

6. K. Yang, G. M. Abdella, <u>A. Alaeddini</u>, On Monitoring of Linear Quality Function under Uncertainty of the Process's Shift, *ICMIE 2010*, Singapore (2010).

7. <u>A. Alaeddini</u>, K. Yang, A. Muart, Adaptive Sequential Experimentation Methodology for Response Surface Optimization, *IERC 2011*, Cancun, Mexico (2010).

    ♦ ***Best paper award of Quality Control and Reliability Track***

8. M.H. Fazel Zarandi, <u>A. Alaeddini</u>, I.B. Turksen, M. Ghazanfari,. A Neuro-Fuzzy Multi-Objective Design of Shewhart Control Charts, *IFSA 2007* World Congress, Cancun, Mexico, (2007).

9. R. <u>Noorosana</u>, <u>A. Alaeddini</u>, A New Approach for Monitoring Nonlinear Profiles, *4th International Conference of Industrial Engineering*, Iran, Tehran, (2005).

SCHOLARY PRESENTATIONS

Conference Presentation- Invited

1. An Integrated Framework to Model the Trajectories of Chronic Conditions

    - *INFORMS 2016, Nashville, USA (2016)*
    - *ISERC 2015, Nashville, USA (2015)*
    - *INFORMS 2013, Minneapolis, USA (2013)*
    <u>A. Alaeddini</u>

2. A Comprehensive Probabilistic Framework for Prediction of Patient Readmission to Medial Centers

    - *Shared Visions: Improving Systems to Improve Lives Conference (Oct 15 – 16, 2014)*
    - *University of Texas System*
    - *Summer Institute Evidence-Based Quality Improvement, San Antonio, USA (2014)*
    - *INFORMS (2012-2014)*
    <u>A. Alaeddini</u>

3. Appointment Scheduling Under Patient No-shows: A Case Study in Veteran Affairs Hospital

    Continuos Improvement Meeting, The University of Texas at San Antonio, (October 5 2012)
    <u>A. Alaeddini</u>

4. Feature Selection for Unlabeled Data with Complex Structures for Quality Improvement

    INFORMS 2011, Charlotte, USA (2011)
    <u>A. Alaeddini</u>, K. Yang

Conference Presentations-Refereed

1. Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions

    - *IISE Conference, Pittsburgh, PA (2017)*
    - *INFORMS 2016, Nashville, TN (2016)*
    A. Alaeddini

2. Weighted Laplacian D-Optimal Design of Experiments

    IISE Conference, Pittsburgh, PA (2017)
    S. Martinez, A. Alaeddini

3. Temporal Abstraction of Multiple Chronic Conditions Using Hierarchical Multi-Level Temporal Bayesian Network

    IISE Conference, Pittsburgh, PA (2017)
    S.A. Faruqui, A. Alaeddini

4. Numerical Algebraic Geometry for Identifying the Number of Components in Gaussian Mixture Models

    JMM 2017, Atlanta, GA (2017)
    S. Shirinkam, A. Alaeddini, E. Gross

5. Designing a Fuzzy Control System for Non-Random Pattern Detection in Individual Observation Control Charts,

    FAIM 2014, San Antonio, TX (2014)
    A. Alaeddini

6. Using Adaptive Neuro-Fuzzy Inference Systems to Monitor Non-Linear Quality Profiles,

    FAIM 2014, San Antonio, TX (2014)
    A. Alaeddini

7. A Comprehensive Bayesian Framework for Prediction of Patient Readmission to Medial Centers

    ISERC*, Puerto Rico, USA (2013)*
    A. Alaeddini

8. Feature Selection for Unlabeled Data with Complex Structures for Quality Improvement

    IERC 2011*, Reno, Nevada (2011)*
    A. Alaeddini, K. Yang, S. Shirinkam

9. An Integrated Prediction and Optimization Model for Effective Appointment Scheduling in the Presence of No-shows

    INFORMS *2011, Charlotte, USA (2011)*
    Ch. K. Reddy, A. Alaeddini, K. Yang

10. A Probabilistic Model for Predicting Readmissions in Medical Centers

    INFORMS *2011, Charlotte, USA (2011)*
    Ch. K. Reddy, A. Alaeddini, K. Yang

11. A Probabilistic Model for Decreasing the Rate of Disruptions in Hospital Appointments

    IERC 2010, Reno, Nevada (2011)
    A. Alaeddini, K. Yang, Ch. Reddy

    Society for Health Systems Conference & Expo, Orlando, FL, USA (2011)
    A. Alaeddini, K. Yang

12. A Variable Sampling Hotelling T2 Chart for Monitoring Simple Linear Quality Profiles

    INFORMS 2010, Texas*, USA (2010)*
    K. Yang, G. M. Abdella, A. Alaeddini

13. A Probabilistic Approach for Modelling the Rate of No-Show in Hospital Appointments

    INFORMS 2010, Texas*, USA (2010)*

    ♦ *Finalist of Pierskalla Award (Health Applications Section)*

    IERC 2010, Cancun, Mexico (2010)
    K. Yang, A. Alaeddini, Susan Q. Yu

14. A Hybrid Optimization-Based Statistical Approach for Multivariate-Process-Control in Auto-Manufacturing Company

    IERC 2010, Cancun*, Mexico (2010)*
    X. Ma, A. Alaeddini, K. Yang, A. Muart

15. Adaptive Sequential Experimentation Methodology for Response Surface Optimization

    IERC 2010, Cancun*, Mexico (2010)*
    A. Alaeddini, K. Yang, A. Muart,

    ♦ *Best paper award of Quality Control and Reliability Track*

16. Using Hidden Markov Models for the Design of Control Charts

    INFORMS Annual Meeting, San *Diego, CA, U.S.A. (2009).*
    A. Alaeddini, K. Yang

17. On the Use of Clustering as a General Change-point Estimator in Control Chart Applications

    IERC 2009, Miaimi, Florida*, USA, (2009)*
    A. Alaeddini, K. Yang,

18. Using Adaptive Neuro-Fuzzy Systems to Monitor Regression relations

    IERC 2009, Miaimi, Florida*, USA, (2009)*
    A. Alaeddini, K. Yang

    Wayne State University Graduate *Research Symposium, (2008)*
    A. Alaeddini, K. Yang

19. An Economic-Statistical Model for Decision Making about Production after Receiving the Out-of-Control Signal from the Control Chart

    INFORMS Annual Meeting, Washington *D.C., USA, (2008)*
    A. Alaeddini, K. Yang

20. Industrial Engineering Applications of Artificial Neural Networks

    Azad University-Qazvin, Iran, Fall (2007)
    A. Alaeddini

21. New Challenges in Business Process Re-engineering

    Azad University-Qazvin, Iran*, Spring (2007)*
    A. Alaeddini

22. Expert Systems and Artificial Intelligence applications in Industrial Engineering

    Azad University-Qazvin, Iran, Spring (2007)
    A. Alaeddini

Poster Presentations

1. Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions

    Shared Vision Conference 2016, San Antonio, TX (2016)
    A. Alaeddini

2. A Spatiotemporal Outlier Detection Method for Image-based Process Monitoring

    Fresh Air Conference 2016, San Antonio, TX (2016)
    A. Motasemi, A. Alaeddini

3. Modelling the Progression of Multiple Chronic Diseases over Time using Multi-State Markov Models

   Fresh Air Conference 2016, San Antonio, TX (2016)
   R. Nath, <u>A. Alaeddini</u>

4. Applying Lean Principles to the Faculty Appointment Process at UTHSC

   Shared Vision Conference 2014, San Antonio, TX (2014)
   J. Williams, <u>A. Alaeddini</u>

Institutions/Universities Presentations

1. Modelling the Accumulation of Comorbidities in Patients with Multiple Chronic Conditions
   University of Texas at Austin- Department of Mechanical Engineering (Fall 2016)
   ♦ *Invited Talk*

2. Active Learning Methodology for Design and Optimization of Complex Expensive Tests
   Arnold Airforce Base, Tullahoma, TN (Summer 2016)

3. What Clinicians and Non-Clinicians Need in Devices, Drug Discovery, and Data Analytics
   SALSI Academy Innovation Forum (Fall 2015)
   ♦ *Invited Talk*

4. A Comprehensive Bayesian Framework for Prediction of Patient Readmission to Medial Centres
   University of Texas at Austin- Department of Mechanical Engineering (Fall 2014)
   ♦ *Invited Talk*

5. Applying Lean Principles to the Faculty Appointment Process at UTHSC
   University of Texas at San Antonio- CAMLS Annual Meeting (Fall 2014)

6. City of San Antonio Automated Waste Management System Warranty Claims Analysis
   University of Texas at San Antonio- CAMLS Annual Meeting (Fall 2014)

7. Prediction of Patients' Readmission to Medial Centres
   University of Texas at San Antonio- CAMLS Annual Meeting (Fall 2013)

8. Improving Decision Making Process in Healthcare
   University of Texas at San Antonio- Continuous Improvement Process Meetings (Fall 2013)

TEACHING ACTIVITIES

Teaching

Assistant Professor, University of Texas at San Antonio, TX (2012)

   ♦ *Department of Mechanical Engineering*

   ◊ **Advanced Reliability Engineering** (ME 6973) (Spring 2016)
   Graduate level
   ♣ **Redesign and develop the course**
   (2016) Enrolment:5   Course rating 4.4   Instructor rating:4.8

   ◊ **Advanced Data Analytics** (ME 5013) (Spring 2015)
   Graduate level
   ♣ **Design and develop the course**
   (2015) Enrollment: 14   *Course rating 4.6   Instructor rating:4.5*

◊ **Topics in Systems Modelling: Introduction to Modelling and Simulation** (ME 4953, EGR 5123) (Spring 2013,14, 16)
Graduate and Undergrad Level
♣ **Design and develop the course**

(2013) Enrolment:16   *Course rating 4*   *Instructor rating:3.8*
(2014) Enrolment:27   *Course rating 3.93*   *Instructor rating:4.11*
(2015) Enrolment:23   *Course rating 4.4*   *Instructor rating:4.3*
(2016) Enrolment:19   *Course rating 4.6*   *Instructor rating:4.7*

◊ **Principles of Manufacturing Engineering** (ME 3263) (Fall 2013)
Undergrad Level

(2013) Enrolment:69   *Course rating 4.1*   *Instructor rating:4.11*

◊ **Reliability and Quality Control** (ME 4723) (Fall 2012,14,15,16)
Undergrad Level

(2012) Enrolment:11   *Course rating 4*   *Instructor rating:4.3*
(2014) Enrolment:35   *Course rating 4.23*   *Instructor rating:4.41*
(2015) Enrolment:42   *Course rating 4.2*   *Instructor rating:4.42*
(2016) Enrolment:61   *Course rating 4*   *Instructor rating:4.04*

Instructor, Azad University-Qazvin, Iran (2004-2008)

♦ *Department of Management and Accounting*
◊ Applications of Computer in Accounting (Fall 2004)
◊ Applications of Computer in the Management (Fall 2004)
◊ Computer Programming (Fall 2004)

♦ *Department of Mechanical and Industrial Engineering*
◊ Management Information Systems (MIS) (Spring 2008)
◊ Theory of Probability and Its Applications (Fall 2006 & Spring 2007)
◊ Engineering Statistics (Fall 2007 & Spring 2008)

♦ *Department of Computer Science and Information technology*
◊ Management Information Systems (MIS) (Fall 2007)
◊ Theory of Probability and Its Applications (Fall 2006)
◊ Information Technology Project Management (Spring 2005)

Teaching Assistantship

Graduate Teaching Assistant, Wayne State University Detroit, MI (2008-2011)

♦ *Department of Industrial and Systems Engineering*
◊ Decision Making and Risk Analysis (Spring 2011, 2009)
◊ Stochastic Processes (Fall 2009)
◊ Quality Engineering (Spring 2010)
◊ Design of Experiments (Fall 2009)

♦ *FORD Motors Co.*
◊ Leadership and Project Management- EMMP Curriculum for Ford Motors Company Managers (2009-2010)

Graduate Teaching Assistant, Iran University of Sci. and Tech. (IUST), Tehran, Iran (2005)

♦ *Department of Industrial Engineering*
◊ Applications of Computer in Industrial Engineering (2005)

MENTORING ACTIVITIES

PhD Dissertations Directed

Abed Motasemi (Graduated in Spring 2016)
PhD - Mechanical Engineering, UTSA. (2013-2015)
Thesis Title: An Area based Methodology for Monitoring Complex Quality Profiles

MS Thesis Directed

Mehdi Chekameh (Graduated in Spring 2017)
MS-Advanced Manufacturing and Enterprise Engineering
Dissertation Title: *A Real-Time Prognostic Methodology Based on Feature Extraction and Multivariate Control Charting for Improving Reliability and Maintenance*

Syed Hasib Akhter Faruqui (Graduated in Fall 2016)
MS-Mechanical Engineering
Dissertation Title: *A Temporal Bayesian Network for Modelling the Temporal Relation Among Multiple Chronic Conditions*

Adrien Tiokeng Kenyantio (Graduated in Fall 2016)
MS-Advanced Manufacturing and Enterprise Engineering
Dissertation Title: *An Image-Based Process Monitoring Scheme for Outlier Detection in Manufacturing Process*

Seung Hee Hong (Graduated in Spring 2016)
MS-Advanced Manufacturing and Enterprise Engineering
Dissertation Title: *A Weighted Logistic Regression Based on Similarity Learning for Prediction of Readmission Event in Hospitals*

Phani Teja (Graduated in Fall 2015)
MS-Advanced Manufacturing and Enterprise Engineering
Dissertation Title: *A Regularized Higher Order Markov Clustering Algorithm for Monitoring Chronic Health Conditions*
Swarup Guha (Graduation time Spring 2015)
MS - Advanced Manufacturing and Enterprise Engineering, UTSA. (2012-2014)
Correlation Analysis of Multi-Stage Manufacturing Processes using Nonlinear Partial Least Square Methods

Raoul Wansi (Graduated in Fall 2014)
MS-Advanced Manufacturing and Enterprise Engineering
Dissertation Title: Identifying Control Charts Concurrent Patterns Using Hidden Markov Models

Current PhD and MS students

PhD - Mechanical Engineering

- ♦ Syed Hasib Akhter Faruqui (Spring 2017-Now)
- ♦ Rajitha Meka (Fall 2016-Now)
- ♦ Mike Chi-Wen (Fall 2017-Now)
- ♦ Rupa Nath (Fall 2015-Now)

MS - Advanced Manufacturing and Enterprise Engineering

- ♦ Stanford Maritnez (Spring 2016-Now)
- ♦ Joel Sumner (Fall 2016-Now)
- ♦ Rajeev Srivastav Kondagari (Summer 2017-Now)

Service on Dissertation Committee

PhD - Mechanical Engineering

Zhaoxuan Li (2017) (Proposal Defense)
control platform for commercial buildings using physics and statistical modeling
Chair: Bing Dong, Ph.D.

Laura C. Domyancic (2016) (Proposal Defense)
Probabilistic Method for Incorporating Multiple Crack Nucleation Mechanisms into Initial Flaw Size Distributions
Chair: Harry Millwatwer, Ph.D.

Carolina Quintana (2016)
A Variance Reduction Sampling Method to Efficiently Estimate the Probability-Of-Failure for Damage-Tolerant Structures
Chair: Harry Millwatwer, Ph.D.

Jose Garza (2014)
Multicomplex Variable Differentiation in Probabilistic Analysis and Finite Element Models Of Structural Dynamic Systems
Chair: Harry Millwatwer, Ph.D.

Juan Ocampo (2013)
Probabilistic Damage Tolerance for Small Airplanes Using a Linear-Elastic Crack Growth Fracture Mechanics Surrogate Model
Chair: Harry Millwatwer, Ph.D.

MS in Advanced Manufacturing and Enterprise Engineering (AMEE)

Bhargavaram Kallam (2013)
Topic: Implementation of Lean in Educational Institutions
Chair: Frank Chen, Ph.D.

Ramakrishna Arji, (2012)
Topic: Improvement project at Moore plastics
Chair: Frank Chen, Ph.D.

Mahendranath Desam, (2012)
Topic: Design and Implementation of Lean Manufacturing Flexible Work Cell
Chair: Frank Chen, Ph.D.

MS in Mechanical Engineering (ME)

SM Rahman (2015)
Topic: Data Driven Models Applied in Building Load Forecasting For Residential And Commercial Buildings
Chair: Bing Dong, Ph.D.

Debashis Dey (2015)
A Probabilistic Method to Diagnose Air Handling Unit (AHU) Faults.
Chair: Bing Dong, Ph.D.

Undergraduate Mentorship

Graduated (3 students)
Denise Guerra, Alireza Ahmadi, David Cormier

Current (3 students)
Stephanie Garcia, Jose Garcia, Ricardo Galindo-Riddle

PROFESSIONAL EMPLOYMENET HISTORY

Employment

Parsdjulfa Co. *(Telecommunication Equipment Producer)* **(2002-2007)**

Manager of Industrial Engineering Department

Conducting Feasibility Study for 16 new products
Designing and Conducting Project Management System for 4 Provincial level projects
Conducting SPC, ISO9001, 5S
Conducting project of Facility Design for new factory
Designed and conducted balanced scorecard (BSC)

Manager of Warehouses

Designing and conducting paperless warehouses system
Designing and conducting performance measurement system (PMS)
Conducting Work and Time Study

Behsazan Co. *(IT company)* **(2004-2005)**

Iran ICT Project Coordinator (National level Project)

Conducting Project web-access system
Designing Project Information system

Absal Co. *(Heater/ Cooler Manufacturer)* **(2001-2002)**

Planning Dept. Employee

Implementing of MRP
Implementing Information System

LMI Co. *(Industrial Valves Producer)* **(2000-2001)**

Industrial Engineering Dept. Employee

Implementing Work Study and Time Study
Implementing SPC

Consultancy

Iran Tax Administration (2007-2008)

Information Technology Strategic Planning Project consultant (Under Yaas System Engineering Co. Supervision)

Iran National Informatics co. & Iran Informatics Services Co. (2007)

Strategic Planning Project consultant (Under Yaas System Engineering Co. Supervision)

Saman Motor Co. *(Auto parts manufacturer)* **(2007)**

Management Consultant

Cash Flow Management, Foreign orders Management

SASAD *(Auto parts manufacturer)* **(2006-2007)**

Design & Planning Dept. Management Consultant

Management consultant in Implementing Strategic Planning and Balanced Scorecard

Share Noor Co. *(Electronic Equipment Producer)* **(2006-2007)**

Management Consultant

Management Consultant In selection and implementation of machine vision and RFID projects

Tanavash Co. *(Consultancy Company)* **(2006-2007)**

Instructor of the Project management and Quality Management courses

Kepstrum Co. *(Electronic Equipment Producer)* **(2005-2006)**

> *A complete market study for the automotive parts in Iran (Under Parsdjulfa Co. Supervision)*

Hydac Co. *(Electronic Equipment Producer)* **(2005-2006)**

> *A complete Feasibility study for the automotive parts in Iran (Under Parsdjulfa Co. Supervision)*

Iran Railway (2005-2006)

> *ICT Center management consultant team member (Under Behsazan Co. Supervision)*
>
> ICT Center management consultant in projects analysis and selection

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SERVICE ACTIVITIES

Committee Assignment

> *Graduate Committee Member (Spring 2012-Spring 2017)*
> *Committee Chairs: Dr. Yusheng Feng (2012-15), Dr. Kiran Bhaganagar (2016-17)*
> <u>Department of Mechanical Engineering</u>
> University of Texas at San Antonio, San Antonio, TX

> *Faculty Search Committee / Position: Cloud Manufacturing (Fall 2015)*
> *Search Committee Chair: Dr. Harry Millwater*
> <u>Department of Mechanical Engineering</u>
> University of Texas at San Antonio, San Antonio, TX

Assigned Administrative Activities

> *Seminar Series Co-Organizer (Spring 2013-Fall 2013)*
> *Department Chair: Dr. Harry Millwater*
> <u>Department of Mechanical Engineering</u>
> University of Texas at San Antonio, San Antonio, TX

> *Ph.D. Research Evaluation Seminar Series (Fall 2015)*
> *Seminar Chair: Dr. Kiran Bhaganagar*
> <u>Department of Mechanical Engineering</u>
> University of Texas at San Antonio, San Antonio, TX

Professional Service Activities

Professional Society Board of Directors

- Institute for Industrial & Systems Engineers (IISE)
  Quality Control & Reliability Engineering Division (2017-19)

Journal Editorial Board

- International Journal of Operations Research and Information Systems (IJORIS) (2008-2010)
- International Journal of Economics and Management Engineering (IJEME) (2011)
- Current Development in Theory and Applications of Computer Science, Engineering, and Technology (2009-2013)

Journal Associate Editor

- IISE Transactions on Healthcare Systems Engineering (2017)

Organizing Committee of Conference

- 24th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM)
  May 20~23, 2014, San Antonio, Texas.

Track Chair of Conference

- 2017 Institute of Industrial and Systems Engineering (IISE) Annual Conference
  May 20 – May 23, 2017, Pittsburgh, PA (2017)

Journal Referee and Review Experience

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

Conference Referee and Review Experience

- 24th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM), May 20-23, 2014, San Antonio, TX.
- IISE Annual Conference and Expo 2009, 2010, 2011 and 2017 Conference Proceedings
- INFORMS 2016 Data mining best paper, November 13-16, 2016, Nashville, TN

Conferences and Symposiums Session Chair

- Quality Control and Reliability track on "Data-driven Analytical Models in Healthcare and Medical Decision Making", IISE (2017)
- Healthcare Systems Engineering track on "Data Mining in Healthcare", INFORMS (2016)
- Healthcare Systems Engineering track on "Healthcare Data Analytics", ISERC (2015)
- Healthcare Systems Engineering track on "Readmission and Patient Placement", INFORMS (2012)
- Quality, Statistic, and Reliability track on "New Advancement on Design of Experiments", Industrial Engineering Research Conference (IERC) (2011)
- Industrial and Systems Engineering Dept, Wayne State University, 4th Graduate Research Symposium (2011)
- Quality, Statistics and Reliability track on "Recent Advancement in Statistical Process Monitoring", INFORMS (2009)

Conferences and Symposiums Panelist

- SALSI Academy Innovation Forum, Texas Fresh AIR, San Antonio, TX (2015)
  Big Data and Data Analytics

- 5th International Industrial Engineering Conference, Tehran, Iran (2007)
  Quality and Reliability Engineering Session

- 1st National Value Engineering Conference, Tehran, Iran (2006)

Leadership Positions

Core member of Center for Advanced Manufacturing and Lean Systems (Fall 2012- Present)
Director: Dr. Frank Chen (2012-16) / Dr. Can Saygin (2016-17)
University of Texas at San Antonio, San Antonio, TX
Department of Mechanical Engineering

Co-Director of Flexible Manufacturing and Lean Systems Lab (Fall 2012- Present)
Co-Director: Dr. Frank Chen
University of Texas at San Antonio, San Antonio, TX
Department of Mechanical Engineering

Associate Member of Center for Simulation Visualization and Realtime Prediction (Fall 2016- Present)
Director: Dr. Yusheng Feng
University of Texas at San Antonio, San Antonio, TX
Department of Mechanical Engineering:

PROFESSIONAL DEVELOPMENT

QEM/NSF CAREER Proposal Development Workshop. Baltimore, MD, March 6-7, 2015.

Developing Competitive Proposal for the NSF's Directorate for Education and Human Resources (HER), Joint Mathematics Meeting. San Antonio, TX, January 8, 2015.

Wolfram technologies (Mathematica) in education and research (Wolfram/UTSA), UTSA, San Antonio, TX. 2015.

NSF Grant Writing Workshop. Joint Mathematics Meeting. San Diego, CA, January 7, 2013.

Teaching Workshop, College of Engineering, UTSA, San Antonio, TX. December 11, 2012.

Career Award Proposal Workshop, University of Michigan, Ann Arbor, 2012.

MEMBERSHIPS

Society for Industrial and Applied Mathematics (SIAM)

Society for Medical Decision Making (SMDM)

Institute of Industrial Engineers (IIE)

Institute for Operations Research and the Management Sciences (INFORMS)

American Society of Quality (ASQ)

Institute of Mathematical Statistics (IMS)

Iran Society of Statistics

Iran Society of Management

CERTIFICATIONS

Six Sigma Green Belt

DAS certified for ISO9000 Documentation requirements

DAS certified for ISO9000 Auditory

DAS certified for Master Consultancy