Fadel M. Megahed
Associate Professor of Information Systems and Analytics

CONTACT INFORMATION [LINKS IN RED]

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IMPACT [LINKS IN RED]

- **Externally Funded Research**: >$875k (**Share:** ≈$500K). Sponsors include: Aflac, American Society for Safety Professionals Foundation, GE Research, Gore, National Science Foundation, NIOSH Deep South Center for Occupational Health & Safety and Ohio Supercomputer Center.
- **Publications:** 35 peer-reviewed journal papers, 2 invited papers, & 8 conference proceedings.
- **Total Citations (as of July 2, 2020):** 930; h-index: 17, and i10-index: 20.
- **Press Coverage:** Research findings have been covered by over 50 media outlets including: Arizona Republic Online, Bloomberg, Industry Week and Yahoo Finance.
- **PhD Advisor** for 8 PhD recipients (all from Auburn University).

RESEARCH INTERESTS

Applied machine learning, data visualization, fatigue management, statistical surveillance, transportation safety

EDUCATION

Virginia Tech, Blacksburg, Virginia USA

Ph.D., Industrial and Systems Engineering, May 2012

- Dissertation: "The Use of Image and Point Cloud Data in Statistical Process Control"
- Advisors: Jaime A. Camelio and William H. Woodall

M.S., Industrial and Systems Engineering, December 2009

- Thesis: "Towards the Utilization of Machine Vision Systems as an Integral Component of Industrial Quality Monitoring Systems"
- Advisor: Jaime A. Camelio

The American University in Cairo, Cairo, Egypt

B.S., Mechanical Engineering (Specializations: Industrial Engineering and Materials), June, 2008

HONORS AND AWARDS

Miami University: Tenured and promoted to Associate Professor, 2020.

Miami University: *Neil R. Anderson Endowed Assistant Professor*, 2019-2020.

Miami University: *Outstanding Professor Award Nominee* by the Associated Student Government, 2018 (campus-wide honor for a faculty who made significant difference in students' lives & careers).

NIOSH Deep South Center for Occupational Health and Safety: Recipient of the *Career Development Award*, 2012

American Statistical Association: Recipient of the *Mary G. and Joseph Natrella Scholarship* from the Quality and Productivity Section of the American Statistical Association, 2012

Institute of Industrial Engineers: Finalist, *Gilbreth Memorial Fellowship* awarded, 2011

Virginia Tech: Co-Recipient of the Industrial and Systems Engineering Outstanding GTA Award, Finalist of the Paul E. Torgersen Award for Excellence in Graduate Student Research ["Third Best Master's Research in the College of Engineering for the academic year 2009/2010"], 2010

The American University in Cairo: graduated Summa Cum Laude, graduated Highest Ranked GPA in the Mechanical Engineering Spring 2008 Graduating Class

Academic Experience [links in red]

Miami University, Department of Information Systems and Analytics, Oxford, Ohio USA

Associate Professor **July, 2020 - present**
Neil R. Anderson Endowed Assistant Professor **July, 2019 - June, 2020**
Assistant Professor **August, 2016 - June, 2020**

- Ongoing research in applied machine learning, data visualization, physical fatigue modeling, statistical surveillance, stock market prediction, transportation analytics.
- Redesigned the *Quantitative Analysis of Business Problems* course and developed the *Data-Driven Security* course.
- Courses Taught:
  - ISA 203: Supplementary Business Statistics, Spring: 2018.
  - ISA 321: Quantitative Analysis of Business Problems, Fall: 2016-2018.
  - ISA 401/501: Business Intelligence & Data Visualization, Spring: 2017, 2018, 2020 & Fall: 2019, 2020.
  - ISA 444: Business Forecasting, Fall: 2020.
  - ISA 480: Data-Driven Security, Spring: 2020.
- Dissertation committees: Longwen Zhao (Biostatistics, Expected Ph.D. 2022, Saint Louis University), Eileen Rintsch (Geography, Expected M.S. 2021), Miao Cai (Biostatistics, Expected Ph.D. 2020, Saint Louis University), Sahand Hajifar (Industrial, Expected Ph.D. 2021, University at Buffalo), Amir Baghdadi (outside reader: Mechanical and Aerospace Engineering, Ph.D. 2019, University at Buffalo).
- Service:
  - FSB Technology Policies Committee Member (2019 - current).
  - Search Committee Member for five tenure-track positions (2017-2018, 2018-2019, 2019-2020).
  - Project lead for the Center for Analytics and Data Science (CADS) (2016- current).
  - Major/Minor Coordination Committee: Chair (2019 - current), and Member (2017 - 2019).
  - Master of Science in Business Analytics Curriculum Developer, where I co-contributed to the initial design of five proposed courses (2018).
  - STAR Seminar Series Committee Member (August 2016 - May 2017).

Auburn University, Department of Industrial and Systems Engineering, Auburn, Alabama USA

Affiliate Professor **August, 2016 - present**
Assistant Professor **August, 2012 - July, 2016**

- Research in data mining, data visualization, spatio-temporal statistics, statistical surveillance, stock market prediction, transportation analytics.
- Initiated and taught a graduate/undergraduate course on *Data Visualization* (Spring 2014 and Spring 2016).
- Initiated and taught a graduate/undergraduate course on *Big Data Analytics* (Spring 2013).
- **Advisor**: Lin Lu (Industrial, Ph.D. 2019), Hamidreza Ahady Dolatsara (Industrial, Ph.D. 2019), Mohammad Ali Alamdar Yazdi (Industrial, Ph.D. 2018), Zahra Sedighi Maman (Industrial, Ph.D. 2018), Bin Weng (Industrial, Ph.D. 2017), Theyab Alhwiti (Industrial, Ph.D. 2017), Ali Dag (Industrial, Ph.D. 2016), Alexander Schnichels (B.S. Thesis at FH Aachen-Germany, 2016), Yao-Te Tsai (Industrial, Ph.D. 2015).
- Dissertation committees: Qiong Hu (Industrial, Expected Ph.D. 2021), Amir Mehdizadeh (Industrial, Expected Ph.D. 2021), Ali Aldubiassi (Industrial, Ph.D. 2020), Nasrin Mohabbati Kalejahi (Industrial, Ph.D. 2019), Ebrahim Mortaz (Industrial, Ph.D. 2017), Eren Sakinc (Industrial, Ph.D. 2016), Thomas Sanders (Industrial, Ph.D. 2016), Masood Jabarnejad (Industrial, Ph.D. 2015), Heather Avery (Computer Science, Ph.D. 2015), Zhou Hai (Industrial, Ph.D. 2014), Adam Paul (Computer Science, M.S. 2014), Melody Denhere (reader: Statistics, Ph.D. 2013), Dilcu Helvaci (Industrial, Ph.D. 2013).
- Service: Faculty Advisor to Alpha Pi Mu (2014-2016), Graduate Admissions Committee (2014-2016), Library Coordinator (2013-2016), Department Chair Administrative Review Committee (2014-2015), Search Committee Member for Administrative Support Associate (2013), and Department Representative at Summer Graduation (2013).

Virginia Tech, Department of Information and Systems Engineering, Blacksburg, Virginia USA

Graduate Teaching Assistant **January, 2012 - May, 2012**
Instructor **August, 2011 - December, 2011**
Graduate Research Assistant **January, 2010 - August, 2011**
Graduate Teaching Assistant **August, 2009 - December, 2009**

- Research in quality control methodologies for massive datasets. Duties included: publishing work, presenting at national conferences, mentoring undergraduate student researchers, writing proposals, and preparing yearly reports for the NSF GOALI grant.
- Taught two sections of *Production Planning and Inventory Control* with full course responsibility.
- As a graduate teaching assistant, I held problem sessions, made exams, graded quizzes, and assisted the faculty with handling the students' projects. I was a co-recipient of GTA of the year.

PUBLICATIONS (TOTAL: 35) [*GRADUATE, **UNDERGRAD & LINKS IN RED]

Maman, Z.S.*, Chen, Y.-J., Baghadi, A.*, Lombardo, S.**, Cavuoto, L.A., **Megahed, F.M.**, 2020, "A Data Analytic Framework for Physical Fatigue Management using Wearable Sensors", *Expert Systems with Applications* [DOI, ResearchGate and Page].

Hu, Q.*, Cai, M.*, Mohabbati-Kalejahi, N., Mehdizadeh, A.*, Yazdi, A., Ali, M., Vinel, A., Rigdon, S.E., Davis, K.C., **Megahed, F.M.**, 2020. "A Review of Data Analytic Applications in Road Traffic Safety. Part 2: Prescriptive Modeling", *Sensors*, 20(4), 1096 [DOI, ResearchGate and Repo].

Mehdizadeh, A.*, Cai, M.*, Hu, Q.*, Yazdi, A., Ali, M., Mohabbati-Kalejahi, N., Vinel, A., Rigdon, S.E., Davis, K.C., **Megahed, F.M.**, 2020. "A Review of Data Analytic Applications in Road Traffic Safety. Part 1: Descriptive and Predictive Modeling", *Sensors*, 20(4), 1107 [DOI, ResearchGate and Page].

Lu, L.*, **Megahed, F.M.**, Cavuoto, L.A., 2019, "Interventions to Mitigate Fatigue Induced by Physical Work: A Systematic Review of Research Quality and Levels of Evidence for Intervention Efficacy", *Human Factors* [DOI, ResearchGate and Repo].

Baghdadi, A.*, Cavuoto, L.A., Esfahani, E.T., Jones-Farmer, L.A., Rigdon, S.E., **Megahed, F.M.**, 2019, "Monitoring Worker Fatigue Using Wearable Devices: A Case Study to Detect Changes in Gait Parameters", *Journal of Quality Technology* [DOI, ResearchGate and Page].

Yazdi, M.A.A.*, Negahban, A.*, **Megahed, F.M.**, Cavuoto, L.A., 2019 "Optimization of Split Keyboard Design for Touchscreen Devices", *International Journal of Human-Computer Interaction*, 35, 468-477 [DOI and ResearchGate].

Weng, B.*, Martinez, W., Tsai, Y-T*, Li, C., Lu, L., Barth, J., , **Megahed, F.M.**, 2018, "Macroeconomic Indicators Alone Can Predict the Monthly Closing Price of Major US Indices: Insights from artificial intelligence, time-series analysis and hybrid models", *Applied Soft Computing*, 71, 685-697 [DOI, ResearchGate and Repo].

Weng, B.*, Wang, X.*, Lu, L.*, **Megahed, F.M.**, Martinez, W., 2018, "Predicting Stock Market Short-Term Prices using Ensemble Methods and Online Data Sources", *Expert Systems with Application*, 112, 258-273 [DOI, ResearchGate and Repo].

Tsai, Y-T.*, Swartz, S.M., **Megahed, F.M.**, 2018, "Estimating the Relative Efficiency of Highway Safety Investments on Commercial Transportation", *Transportation Journal*, 57, 193-218 [DOI and ResearchGate].

Baghdadi, A.*, **Megahed, F.M.**, Esfahani, E.T., Cavuoto, L.A., 2018, "A Machine Learning Approach to Detect Changes in Gait Parameters following a Fatiguing Occupational Task", *Ergonomics*, 61, 1116-1129 [DOI and ResearchGate].

Mohabbati-Kalejahi, N.*, Alamdar Yazdi, M.A*, **Megahed, F.M.**, Schaefer, S.Y., Boyd, L.A., Lang, C.E., Lohse, K.R., 2017, "Streamlining the Scientific Method with Structured Data Archives:

Data-Driven Insights from the Stroke Rehabilitation Literature", *Scientometrics*, 113, 969-983 [DOI, ResearchGate and Web App].

Koosha, M., Noorossana, R., **Megahed, F.M.**, 2017, "Statistical Process Monitoring via Image Data Using Wavelets", *Quality and Reliability Engineering International*, 33, 2059-2073 [DOI, ResearchGate and Repo].

Cavuoto, L.A., **Megahed, F.M.**, 2017, "Understanding Fatigue: Implications for Worker Safety". *Professional Safety*, 62(12), 16-19 [Link].

Lu, L.*, **Megahed, F.M.**, Sesek, R.F., Cavuoto, L.A., 2017, "A Survey of the Prevalence of Fatigue, its Precursors and Individual Coping Mechanisms among US Manufacturing Workers", *Applied Ergonomics*, 65, 139-151 [DOI, ResearchGate and Repo].

Weng, B.*, Abraar, M.A.*, **Megahed, F.M.**, 2017, "Stock Market One-Day Ahead Movement Prediction Using Disparate Data Sources", *Expert Systems with Applications*, 79, 153-163 [DOI, ResearchGate and Repo].

Maman, Z.S.*, Alamdar Yazdi, M.A.*, Cavuoto, L.A., **Megahed, F.M.**, 2017, "A Data-driven Approach to Modeling Physical Fatigue in the Workplace using Wearable Sensors", *Applied Ergonomics*, 65, 515-529 [DOI, ResearchGate and Repo].

Dag, A.*, Oztekin, A., Yucel, A.*, Bulur, S., **Megahed, F.M.**, 2017, "Predicting Heart Transplantation Outcomes through Data Analytics", *Decision Support Systems*, 94, 42-52 [DOI, ResearchGate and Repo].

He, K., Zhang, M., Zuo, L., Alhwiti*, T., **Megahed, F.M.**, 2017, "Enhancing the Monitoring of 3D Scanned Manufactured Parts through Projections and Spatiotemporal Control Charts", *Journal of Intelligent Manufacturing*, 28, 899-911 [DOI and ResearchGate].

Maman, Z.S.*, Murphy, W.W.*, Maghsoodloo, S., Ahmadi, H.H., **Megahed, F.M.**, 2016, "A Short Note on the Effect of Sample Size on the Estimation Error in Cp", *Quality Engineering*, 28(4), 455-466 [DOI, ResearchGate and Repo].

Tsai, Y-T.*, Smith, H.**, Swartz, S.M., **Megahed, F.M.**, 2016, "Using visual data mining in highway traffic safety analysis and decision making", *Journal of Transportation Management*, 26(1), 43-60 [DOI, ResearchGate and Spreadsheet App].

Dag, A.*, Topuz, M.K., Oztekin, A., **Megahed, F.M.**, 2016, "A probabilistic data-driven framework for scoring the preoperative recipient-donor heart transplant survival", *Decision Support Systems*, 86, 1-12 [DOI, ResearchGate and App].

Weese, M., Martinez, W., **Megahed, F.M.**, Jones-Farmer, L.A., 2016, "Statistical Learning Methods Applied to Process Monitoring: An Overview and Perspective", *Journal of Quality Technology*, 48(1), 4-27 [DOI and ResearchGate].

He, Z., Zuo, L., Zhang, M., **Megahed, F.M.**, 2016, "An Image-Based Multivariate Generalized Likelihood Ratio Control Chart for Detecting and Diagnosing Multiple Faults in Manufactured Products", *International Journal of Production Research*, 54(6), 1771-1784 [DOI ResearchGate and Repo].

Tsai, Y-T.*, Alhwiti, T.*, Swartz, S.M., **Megahed, F.M.**, 2015, "The Effects of Socio-economic and Public Policy Factors on U.S. Highway Safety", *Journal of Transportation Law, Logistics and Policy*, 81(1/2), 31-48 [Journal and ResearchGate].

Smith, H.**, **Megahed, F.M.**, Jones-Famer, L.A., Clark, M., 2014, "Using Visual Data Mining to Enhance the Simple Tools in Statistical Process Control: A Case Study", *Quality and Reliability Engineering International*, 30(6), 905-917 [DOI, ResearchGate and Spreadsheet App].

Zhang, M., **Megahed, F.M.**, Woodall, W.H., 2014, "Exponential CUSUM Charts with Estimated Control Limits", *Quality and Reliability Engineering International*, 30(2), 275-286 [DOI and ResearchGate].

Zhang, M., Peng, Y., Schuh, A., **Megahed, F.M.**, Woodall, W.H., 2013, "Geometric Charts with Estimated Control Limits", *Quality and Reliability Engineering International*, 29(2), 209-203 [DOI and ResearchGate].

Wells, L.J., **Megahed, F.M.**, Camelio, J.A., Niziolek, C.B., Woodall, W.H., 2013, "Statistical Process Monitoring Approach for High Density Point Clouds", *Journal of Intelligent Manufacturing*, 24(6), 1267-1279 [DOI, ResearchGate, Scan Data and Repo].

Megahed, F.M., Wells, L.J., Camelio, J.A., Woodall, W.H., 2012, "A Spatiotemporal Monitoring Method for Image Data", *Quality and Reliability Engineering International*, 28(8), 967-980 [DOI, ResearchGate, Image Data and Repo].

Wells, L.J., **Megahed, F.M.**, Camelio, J.A., Woodall, W.H., 2012, "A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems", *Journal of Intelligent Manufacturing*, 23(5), 2025-2036 [DOI, ResearchGate and Animation].

Megahed, F.M., Camelio, J.A., 2012, "Real-Time Fault Detection in Manufacturing Environments Using Face Recognition Techniques", *Journal of Intelligent Manufacturing*, 23(3), 393-408 [DOI and ResearchGate].

Megahed, F.M., Fraker, S.E., Woodall, W.H., 2012, "A Note on Two Performance Metrics for Public-Health Surveillance Schemes", *Journal of Applied Probability and Statistics*, 7(1), 35-41 [ResearchGate].

Megahed, F.M., Woodall, W.H., Camelio, J.A., 2011, "A Review and Perspective on Control Charting with Image Data", *Journal of Quality Technology* 43(2), 83-98 [DOI & ResearchGate].

Megahed, F.M., Kensler, J., Bedair, K., Woodall, W.H., 2011, "A Note on the ARL of Two-sided Bernoulli-based CUSUM Control Charts", *Journal of Quality Technology*, 43(1), 43-49 [DOI and ResearchGate].

Raina, M., Kennes, D., **Megahed, F.**, and Gries, T., 2008, "Vliesstoffanalyse mittels digitaler Bildverabeitung", *Technische Textilien*, 4, 186-187. (Publication in German: "Fleece Material Analysis by Means of Digital Image Processing") [ResearchGate].

Invited Publications [links in red]

Maman, Z.S.*, Lu, L.*, **Megahed, F.M.**, Cavuoto, L.A., 2019, "A DMAIC Perspective on Physical Fatigue Management", *Professional Safety*, 64(6), 26-27 [Link].

Megahed, F.M., 2019, "Discussion of "real-time monitoring of events applied to syndromic surveillance": a roadmap for future work", *Quality Engineering*, 31(1), 97-104 [DOI ResearchGate and Repo].

Submitted & Working Papers [*Graduate, **Undergrad & links in red]

Hajifar, S.*, Sun, H., **Megahed, F.M.**, Cavuoto, L.A., Jones-Farmer, L.A., "A Forecasting Framework for Predicting Perceived Fatigue: Using Time Series Methods to Forecast Ratings of Perceived Exertion with Features from Wearable Sensors", under review at *Applied Ergonomics* [Page].

Ahady Dolatsara, H.*, Chen, Y-J., Evans, C.**, Gupta, A., **Megahed, F.M.**, "A Two-Stage Machine Learning Approach to Predict Heart Transplantation Survival Probabilities over Time with a Monotonic Probability Constraint" under second review at *Decision Support Systems* [Shiny App and Page].

Cai, M.*, Yazdi, M.A.A.*, Mehdizadeh, A.*, Hu,Q.*, Vinel, A.*, Davis, K., **Megahed, F.M.**, Xian, H., Rigdon, S.E., " The association between crashes and safety-critical events: synthesized evidence from crash reports and naturalistic driving among commercial truck drivers", under second review

at *Transportation Research Part C: Emerging Technologies* [Page].

Ahady Dolatsara, H.*, Chen, Y-J., Leonard, R., **Megahed, F.M.**, Jones-Farmer, L.A., "Explaining Predictive Models: An Experimental Study of Data Preparation and Model Choice on Predictive Performance", under review at *Information Systems Research* [Page].

Alhwiti, T.*, **Megahed, F.M.**, "Qualitative Weighted Keywords for Clustering Analysis in Bibliometrics Data", under review at *Scientometrics*.

Ragani Lamooki, S.*, Kang, J., Cavuoto, L.A., **Megahed, F.M.**, Jones-Farmer, L.A., "A personalized and non-parametric framework for detecting changes in gait cycles", to be submitted to *Scientific Reports* [Page].

Cai, M.*, Yazdi, M.A.A.*, Mehdizadeh, A.*, Hu,Q.*, Vinel, A.*, Davis, K., **Megahed, F.M.**, Xian, H., Rigdon, S.E., "Modeling Recurrent Safety-critical Events among Commercial Truck Drivers: A Bayesian Hierarchical Jump Power Law Process" to be submitted to the *Journal of the American Statistical Association* [Page].

Cai, M.*, Yazdi, M.A.A.*, Mehdizadeh, A.*, Hu,Q.*, Vinel, A.*, Davis, K., **Megahed, F.M.**, Xian, H., Rigdon, S.E., "Modeling safety-critical events using trucking naturalistic driving data: A driver-centric hierarchical framework for data analysis", to be submitted to *Analytical Methods in Accident Research* [Repo].

PROCEEDINGS (TOTAL: 8) [*GRADUATE STUDENT & LINKS IN RED]

Baghdadi, A.*, Maman, Z.S.*, Lu, L.*, Cavuoto, L.A., **Megahed, F.M.**, 2017, "Effects of Task Type, Task Duration, and Age on Body Kinematics and Subjective Fatigue", Proceedings of the Human Factors and Ergonomics Society Annual Meeting (1 pg) [DOI and ResearchGate].

Maman, Z.S.*, Baghdadi, A.*, **Megahed, F.M.**, Cavuoto, L.A., 2016, "Monitoring and Change Point Estimation of Normal (in-control) and Fatigued (out-of-control) State in Workers", Proceedings of the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC/CIE) (7 pg) [DOI and ResearchGate].

Thirugnanasambandam, S.*, Raj, A.*, Sanders, T.*, Sridhar, S.*, Gordon, S.*, Evans, J., Carpenter, M., **Megahed, F.M.**, Johnson, W., 2016, "Proportional Hazard Model of Doped Low Creep Lead Free Solder Paste under Vibration", Proceedings of the IEEE ITHERM Conference (9 pg) [DOI and ResearchGate].

Raj, A.*, Thirugnanasambandam, S.*, Sanders, T.*, Sridhar, S.*, Gordon, S.*, Evans, J., Carpenter, M., **Megahed, F.M.**, 2016, "Proportional Hazard Model of Doped Low Creep Lead Free Solder Paste under Thermal Shock", Proceedings of the IEEE ITHERM Conference (11 pg) [DOI and ResearchGate].

Megahed, F.M., Jones-Farmer, L.A., 2015, Statistical Perspectives on 'Big Data'. In Frontiers in Statistical Quality Control 11, S. Knoth, W. Schmid (Eds), Springer, ISBN 978-3-319-12355-4 [DOI and ResearchGate].

Ansari, M.*, Negahban, A.*, **Megahed, F.M.**, Smith, J. S., 2014, "HistoRIA: A New Tool for Simulation Input Analysis", Proceedings of the 2014 Winter Simulation Conference (pp. 2702-2713) [DOI, ResearchGate and Spreadsheet App].

Dag, A.*, **Megahed, F.M.**, Oztekin, A., Chen, Y., Yucel, A.*, 2014, "A Hybrid Data Analytical Approach to Predict Heart Transplant Success", INFORMS Data Mining Workshop Proceedings, San Francisco, CA (10 pg).

Megahed, F.M., Wells, L.J., Camelio, J.A., 2010, "The Use of 3D Laser Scanners in Statistical Process Control", SAE Technical Paper 2010-01-1864 [DOI].

Presentations & Invited Talks (Total: 64) [*Graduate & **Undergrad]

Ahady Dolatsara, H.*, **Megahed, F.M.**, Chen, Y.J., 2019, "Current Challenges in Development of a Survival Analysis Data Mining Study", Flash Session, INFORMS Annual Meeting, Seattle, WA.

Mehdizadeh, A.*, Hu, Q.*, Vinel, A.*, **Megahed, F.M.**, 2019, "Evaluation of Road Safety Using Machine Learning Methods Incorporating With Visualization Techniques", Contributed Talk, INFORMS Annual Meeting, Seattle, WA.

Hu, Q.*, Mehdizadeh, A.*, Vinel, A.*, **Megahed, F.M.**, 2019, "Inverse Reinforcement Learning in Improving Driver's Safety", Contributed Talk, INFORMS Annual Meeting, Seattle, WA.

Megahed, F.M., Jones-Farmer, L.A., Mohamed, M., Rigdon, S.E., 2019, "A Statistical (Process Monitoring) Perspective on Human Performance Modeling", Invited Talk, the 13^{th} Intelligent Statistical Quality Control Workshop, Hong Kong.

Chen, Y.-J., Ahady Dolatsara, H.*, **Megahed, F.M.**, 2019, "A Two-Stage Machine Learning Approach to Predict Heart Transplantation Survival Probabilities over Time with a Monotonic Probability Constraint", Invited Talk, Department of Applied Mathematics, National University of Tainan, Taiwan.

Chen, Y.-J., Maman, Z.S.*, Baghdadi, A.*, Cavuoto, L.A., **Megahed, F.M.**, 2019, "Comparing Machine Learning Models with Data from Wearable Sensors to Model Physical Fatigue Occurrence", Invited Talk, Graduate Institute of Educational Information and Measurement, National Taichung University of Education, Taiwan.

Ahady Dolatsara, H.*, Chen, Y.-J., Evans, C.*, **Megahed, F.M.**, 2019, "A Novel Two-Stage Machine Learning Approach for Monotonic Heart Transplantation Survival Prediction", Contributed Talk, ISSAT International Conference on Data Science in Business, Finance and Industry (DSBFI), Da Nang, Vietnam.

Weng, B.*, Martinez, W., Tsai, Y.-T.*, Li, Chen, Lu, L.*, Barth, J.R., **Megahed, F.M.**, 2019, "Insights from Using Macroeconomic Indicators to Predict the Monthly Closing Price of Major U.S. Stock Indices", Contributed Talk, ISSAT International Conference on Data Science in Business, Finance and Industry (DSBFI), Da Nang, Vietnam.

Lu*, L., Martinez, W., Weng, B.*, **Megahed, F.M.**, 2018, "Predicting Major Stock Indices using Macroeconomic Indicators", Contributed Talk, INFORMS Annual Meeting, Phoenix, AZ.

Maman, Z.S.*, Chen, Y.-J., Baghadi, A.*, Lombardo, S.**, Cavuoto, L.A., **Megahed, F.M.**, 2018, "A Data Analytic Framework for Physical Fatigue Management using Wearable Sensors", Contributed Talk, INFORMS Annual Meeting, Phoenix, AZ.

Cavuoto, L.A., **Megahed, F.M.**, 2018, "Recommending Workplace Interventions for Physical Fatigue", Contributed Talk, Safety 2018, San Antonio, TX.

Megahed, F.M., 2018, "Discussion of Real-time Monitoring of Events Applied to Syndromic Surveillance", Invited Discussant, The Sixth Annual Stu Hunter Conference, Roanoke, VA.

Maman, Z.S*, Chen, Y-J., **Megahed, F.M.**, Cavuoto, L.A, 2017, " Comparing Machine Learning Models on Data From Wearable Sensors to Model Physical Fatigue Occurrence", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Wang, X.*, Weng, B.*, Lu, L.*, **Megahed, F.M.**, Vinel, A., 2017, "Predicting Stock Market Short-term Price Based on Machine Learning", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Dolatsara, H.A.*, **Megahed, F.M.**, Dag, A., Chen, Y-J, 2017, "Development of a Dynamic Tool for Continuous Survival Analysis Transplant Survivor", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Yazdi, M.A.A.*, **Megahed, F.M.**, Vinel, A., 2017, " A Web Based Personal Driving Assistant using Real Time Data and a Dynamic Programming Model", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Azadeh-Fard, N., **Megahed, F.M.**, Pakdil, F., 2017, "Diagnosing Variations of Length of Stay Through Integrating Control Charts and Lean Management Practices within the Crisp DM Framework", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Lu, L.*, **Megahed, F.M.**, Cavuoto, L.A., 2017, "A Recommendation System for Managing Physical Fatigue in the Workplace", Contributed Talk, INFORMS: Annual Meeting, Houston, TX.

Megahed, F.M., 2017, "Data-Driven Decisions (D^3): Applications in Manufacturing, Transportation and Health Management", Seminar Series in the Department of Industrial and Management Systems Engineering in West Virginia University, Invited Talk, Morgantown, WV.

Megahed, F.M., 2017, "Recent Advances in the Use of Image Data in Quality Engineering: A Perspective, Updated Taxonomy and Some Guidelines for Future Work", 17th Annual Conference of the European Network for Business and Industrial Statistics (ENBIS), Invited Talk, Naples, Italy.

Megahed, F.M., Cavuoto, L.A., 2017, "A Data-Driven Approach to Identifying Physical Fatigue", Contributed Talk, Safety 2017, Denver, CO.

Dolatsara, H.*, Dag, A.*, Weng, B.*, **Megahed, F.M.**, 2016, "Developing A Dynamic Tool For Transplant Survival Analysis", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Yazdi, M.A.*, **Megahed, F.M.**, 2016, "Adoptive Vehicle Cruise Control Using Real Time Data And A Dynamic Programming Model: A Web Based Application", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Lu, L.*, Weng, B.*, **Megahed, F.M.**, 2016, "Ensemble Methods With Disparate Data Sources For Stock Market Prediction", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Maman, Z.S.*, Yazdi, M.A.*, **Megahed, F.M.**, Cavuoto, L., 2016, "A Data-Driven Approach to Model Fatigue at the Workplace", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Tsai, Y-T*, Weng, B.*, **Megahed, F.M.**, Barth, J., 2016, "Ensemble Model For U. S. Stock Major Index Prediction Using Economic Factors With Interactive Visualization", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Yazdi, M.A.*, Negahban, A.*, **Megahed, F.M.**, 2016, "A Mixed-integer Programming Approach To Optimize Typing Method And Design Of Touchscreen Keyboards On Smartphones", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Dolatsara, H.A.*, **Megahed, F.M.**, 2016, "A Machine Learning Approach For Developing Intersection Safety Performance Function", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Alhwiti,T.*, Yazdi, M.A.*, Weese, M., Jones-Farmer, L.A., **Megahed, F.M.**, 2016, "What we learned from Visualizing 25 Years of Statistics Research?", Invited Talk, INFORMS: Annual Meeting, Nashville, TN.

Wang,X.*, Weng, B.*, **Megahed, F.M.**, 2016, "Stock Market Exploration And Prediction Through Visualization", Invited Talk, INFORMS: Annual Meeting, Nashville, TN.

Weng, B.*, Dolatsara, H.A.*, **Megahed, F.M.**, 2016, " Stock Market Movement Prediction Using Disparate Data Sources: A Probabilistic Prediction Model", Contributed Talk, INFORMS: Annual Meeting, Nashville, TN.

Maman, Z.S.*, Murphy, W.W.*, Maghsoodloo, S., Ahmadi, H.H., **Megahed, F.M.**, 2016, "A Short Note on the Effect of Sample Size on the Estimation Error in Cp", Contributed Talk, INFORMS:

Annual Meeting, Nashville, TN.

Weng, B.*, **Megahed, F.M.**, Li, C., 2016, " Ensemble Model With Cluster Analysis For Short-term Stock Prediction", Invited Talk, INFORMS: Annual Meeting, Nashville, TN.

Megahed, F.M., 2016, "Driven by Data: Analytics Research in Vehicular Production and Routing Systems", Invited Talk, Bowling Green State University.

Cavuoto, L.A., **Megahed, F.M.**, 2016, "Understanding Fatigue and the Implications for Worker Safety", Contributed Talk, ASSE Professional Development Conference & Exposition, Atlanta, GA.

Tsai, Y-T.*, Swartz, S.M., **Megahed, F.M.**, 2015, "Highway Safety Performance Evaluation of Commercial Transportation Using Data Envelopment Analysis", Contributed Talk, INFORMS: Annual Meeting, Philadelphia, PA.

Oztekin, A., Dag, A.*, **Megahed, F.M.**, 2015, "A Decision Analytic Approach to Modeling Heart Transplant Survival", Contributed Talk, INFORMS: Annual Meeting, Philadelphia, PA.

Weng, B.*, Ahmed, M.A.*, **Megahed, F.M.**, 2015, "Stock Market Prediction Using Disparate Data Sources", Contributed Talk, INFORMS: Annual Meeting, Philadelphia, PA.

Babu, Y.*, George, J.*, Maman, Z.S.*, **Megahed, F.M.**, 2015, "A Visual Analytics Perspective on the Analysis of Longitudinal Datasets", Invited Talk, The 4th Annual Symposium on Statistical Process Monitoring, Padua, Italy.

Jones-Farmer, L.A., Weese, M., Martinez, W., **Megahed, F.M.**, 2015, "What Can We Learn from Statistical Learning Methods in Process Monitoring?" Invited Talk, The 4th Annual Symposium on Statistical Process Monitoring, Padua, Italy.

Alamdar Yazdi, M.A.*, Swartz, S.M., **Megahed, F.M.**, 2015, "Towards a Fuel Efficient Cruise Controller", Contributed Talk, IIE Annual Conference and Research Expo, Nashville, TN.

Weese, M., Martinez, W., **Megahed, F.M.**, Jones-Farmer, L.A., 2015, "Statistical Learning Methods Applied to Process Monitoring: An Overview and Perspective", Invited Talk, 32nd Annual Quality & Productivity Research Conference, Raleigh, NC.

Megahed, F.M., 2015, "A Visual Analytics Perspective on Statistical (Process Control) Graphs", Invited Talk, 22nd ASA/IMS Spring Research Conference, Cincinnati, OH.

Tsai,Y-T.*, Swartz, S.M., **Megahed, F.M.**, 2015, "Towards the Identification of Predictor Variables for Commercial Vehicle Safety", 13th Annual Regional National Occupational Research (NORA) Young/New Investigators Symposium, Salt Lake City, UT. Also presented at the Deep South Center's Emerging Issues and Research Symposium, Opelika, Alabama.

Devall, T., **Megahed, F.M.**, Evans, J.L., Sesek, R., 2015, "Integrating Experiential Learning into the Occupational Safety and Ergonomics Curriculum", 13th Annual Regional National Occupational Research (NORA) Young/New Investigators Symposium, Salt Lake City, UT.

Sesek, R., Devall, T., **Megahed, F.M.**, Evans, J.L., 2015, "Teaching Human Factors and Ergonomics via the Tiger Motors Experiential Lab", Contributed Talk, 18th Annual Applied Ergonomics Conference, Nashville, TN.

Megahed, F.M. 2015, "Data-Driven Decisions (D3): Making the Data Talk to Different Stakeholders", Invited Talk: STAR Seminar Series, Miami University (OH), Oxford, Ohio.

Megahed, F.M. 2015, "Data Analytics: An Industrial Engineering Perspective", Invited Talk: Workshop Internacional de Ingeniería Aplicada Auburn – UACh, Austal, Chile.

Alhwiti, T.*, **Megahed, F.M.** 2014, "Mapping Research in Statistical Sciences: A Visual Exploration of Publications in the Journals of the American Statistical Association and their Citations",

Contributed Talk, IIE Annual Conference and Research Expo, Montreal, Canada.

Tsai, Y-T.*, **Megahed, F.M.**, Swartz, S.M., 2014, "Data Mining and Visualization in Highway Accident Analysis", Contributed Talk, IIE Annual Conference and Research Expo, Montreal, Canada.

Megahed, F.M., Jones-Farmer, L.A., 2013, "Big Data = Big Opportunities for Research and Collaboration", Invited Talk, Fall Technical Conference, San Antonio, TX.

Smith, H.**, **Megahed, F.M.**, Jones-Famer, L.A., 2013, "Using Visual Analytics to Transform Some Traditional Quality Tools", Contributed Talk, INFORMS: Annual Meeting, Minneapolis, MN.

Tsai, Y-T.*, **Megahed, F.M.**, Swartz, S.M., 2013, "Using Visual Analytics to Enhance the Understanding of Occupational Safety Data", Contributed Talk, INFORMS: Annual Meeting, Minneapolis, MN.

Aldubaisi, A.*, **Megahed, F.M.**, 2013,"Opportunistic Condition Based Maintenance Using Equivalent Age Model", Session Organizer, INFORMS: Annual Meeting, Minneapolis, MN.

Megahed, F.M., Jones-Farmer, L.A., 2013, "A Statistical Process Monitoring Perspective on Big Data", Session Organizer, INFORMS: Annual Meeting, Minneapolis, MN.

Dag*, A., **Megahed, F.M.**, Oztekin, A., Yucel*, A., 2013, "Identifying Predictor Variables for the Success of Heart Transplants", Industrial and Systems Engineering Research Conference (ISERC), San Juan, Puerto Rico.

Aldubaisi*, A., Al-Khafaji, S., **Megahed, F.M.**, 2013, "An Equivalent Age Model for Opportunistic Maintenance", Industrial and Systems Engineering Research Conference (ISERC), San Juan, Puerto Rico.

Megahed, F.M., 2012, "On using Profile Monitoring Techniques for Monitoring Point Cloud Data", Invited Session, INFORMS: Annual Meeting, Phoenix, AZ.

Wells, L.J., **Megahed, F.M.**, Camelio, J.A., Woodall, W.H., 2012, "A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems", Invited Session, INFORMS: Annual Meeting, Phoenix, AZ.

He, K., Camelio, J., **Megahed, F.M.**, 2012, "A Method to Generate Image for SPC by Point Cloud Data", Invited Session, INFORMS: Annual Meeting, Phoenix, AZ.

Megahed, F.M., 2012, "From Fault Detection to Diagnosis: An Investigation Using SPC and Visual Analytics in High-Density Data Environments", Invited Session, Quality and Productivity Research Conference, Long Beach, CA.

Megahed, F.M., Wells, L.J., Camelio, J.A., Woodall, W.H., 2011, "A Spatiotemporal Method for Image Monitoring", Session Organizer, INFORMS: Annual Meeting, Charlotte, NC.

Megahed, F.M., Woodall, W.H., Camelio, J.A., 2011, "A Review and Perspective on Control Charting with Image Data", Invited Session, INFORMS: Annual Meeting, Charlotte, NC.

Zhang, M., Peng, Y., Schuh, A., **Megahed, F.M.**, Woodall, W. H., 2011, "A Reconsideration of Geometric Charts with Estimated Control Limits", Quality and Productivity Research Conference, Roanoke, VA.

Schuh, A., **Megahed, F.M.**, Conoor, S., Camelio, J., 2011, "Towards a More Effective Monitoring and Dissemination of Safety Data", Industrial Engineering Research Conference, Reno, NV.

Megahed, F.M., Woodall, W.H., Camelio, J.A., 2010, "The Use of Control Charts with Image Data", Invited Session, INFORMS: Annual Meeting, Austin, TX.

FUNDED PROJECTS (SHARE: ≈ $500K)

"Assessing the Measurement Capability of a Multi-Sensor Garment", **Gore**, Co-I (w/ Lora Cavuoto and Hongyue Sun), $31,000, 2020.

"Testing the Soteria Worker Safety System", **GE Research**, Co-I (w/ Lora Cavuoto and Hongyue Sun), $31,929, 2020.

"IUBRC Measuring Entrepreneurship in Southwest Ohio", **Indiana University Business Research Center**, Co-PI (w/ Lindsey Holden and Greg Niemesh), $15,393, 2019.

"ASSURED: Analytical Support System for Understanding Risk Exposure to Drivers", **University of Cincinnati Education and Research Center Pilot Research Project Training Program**, Co-I (w/ Robert Leonard, Tessa Chen and Lora A. Cavuoto), $4,642, 2018-2019.

"REU Supplement for GOALI: Collaborative Research: Human Maintenance - A Prognostics Framework to Model Changes in Drivers' Safety Performance and Optimize Dispatching Policies", **National Science Foundation**, PI (w/ Alex Vinel, Doug Mettenburg, Steve Rigdon and Karen Davis), $16,000, 2018-2019.

"Funding for DataFest 2017 & 2018", **P&G - The Greater Cincinnati Foundation**, Co-PI (w/ Allison Jones-Farmer), $20,000, 2017-2018.

"Text Mining of Social Media Mentions and Customer Survey Responses", **Aflac**, PI (w/ Alex Vinel), $72,000, 2016-2017.

"GOALI: Collaborative Research: Human Maintenance - A Prognostics Framework to Model Changes in Drivers' Safety Performance and Optimize Dispatching Policies", **National Science Foundation**, PI (w/ Alex Vinel, Doug Mettenburg and Steve Rigdon), $296,206 (AU Share: $212,716), 2016-2019.

"Advancing Safety Surveillance using Individualized Sensor Technology", **American Society for Safety Professionals Foundation Research Program**, PI for Auburn Site (Lead PI: Lora Cavuoto @ University at Buffalo), $300,000 (AU Share: $147,500), 2015-2018.

"Data Analytics for Reliability Testing of Electronics Packaging", **Department of Defense** (through Mechanical Engineering), Investigator (w/ John Evans and Jeff Suhling), $21,099, 2015-2016.

"The Application of Data Analytics for Assistance with a Product Launch for a Tier I Automotive Supplier", PI (w/ Tom Devall), **Industrial Partner**, $10,000, 2014-2015.

"Collaborative Research: Planning Grant: I/UCRC for Advanced Vehicle Manufacturing", CoPI (w/ John Evans, Andres Carrano, Virginia Davis, Sean Gallagher, and Tom Devall), **National Science Foundation**, $14,500, 2014-2015.

"Towards the Identification of Predictor Variables for Commercial Vehicle Safety", PI (w/ Stephen Swartz and Richard Sesek), **CDC-NIOSH through the Deep South Center for Occupational Health and Safety**, $19,315, 2013-2014.

"A Torque Tool System to Foster Auburn's Experiential Learning and Advanced Manufacturing Research", PI, **The P&G Fund of The Greater Cincinnati Foundation**, $10,000, 2012-2013.

INTERNAL FUNDING

"Data-Driven Security - A New FSB Course", PI, **FSB Strategic Initiatives Fund Award**, $13,445, 2019.

"Funds to Support Attending Two Top-Tier Data Analytics Conferences in Vietnam and Hong Kong during the 2019 Summer", PI, **Higgin Kim Asia Travel Grant**, $2,713, 2018-2019.

"Learning the state-of-the-art in data analytics through attending two top-tier international conferences", PI, **John E. and Winifred E. Dolibois Faculty Development Fund**, $4,130, 2018-2019.

Computational Grants

"Academic: Support for ISA 480 - Data-Driven Security", PI, **Ohio Supercomputer Center**, 10,000 (computing resource units), 2019-2020 (in-kind).

"Predicting Heart Transplantation Outcomes using a Two-Stage Machine Learning Methodology", PI, **Ohio Supercomputer Center**, 10,000 (computing resource units), 2019-2020 (in-kind).

"Utilization of Google Cloud for a Cyber-Security Analytics Class", PI, **Google Cloud Platform Education Grant**, $2,900, 2019-2020 (in-kind).

"Human Maintenance: A Prognostics Framework to Model Changes in Drivers' Safety Performance and Optimize Dispatching Policies", PI, **Ohio Supercomputer Center**, 10,000 (computing resource units), 2018-2019 (in-kind).

"Advancing Safety Surveillance Using Individualized Sensor Technology (ASSIST)", PI, **Ohio Supercomputer Center**, 30,000 (computing resource units), 2017-2019 (in-kind).

"Utilization of Amazon's Web Services for INSY 4970 Big Data Class", PI, **AWS in Education Coursework Grant award**, $11,800, 2013-2015 (in-kind).

"Utilization of Window's Azure for Big Data Analytics in Industrial and Systems Engineering", PI, **Educator Grant of Windows Azure Academic Passes**, $50,000, 2014 (in-kind).

Professional Experience

Institut fur Textiltechnik der RWTH Aachen (ITA), Aachen, Germany

Undergraduate Researcher **Summer 2007**

Developed a Graphical User Interface (GUI) to measure yarn properties using image processing techniques, developed a GUI to measure various quality parameters of non-woven fabrics, and researched fiber migration in air jet spun yarns.

British Gas, Cairo, Egypt

Engineering, Health and Safety Intern **Summer 2005 & Summer 2006**

Assisted in coordinating the Behavioral Based Safety Program, prepared the Health Risk Assessment file for all BG Egypt Activities, participated in the weekly safety inspection for the Egyptian Liquefied Gas Site, and trained radio operators on the emergency response procedures.

Professional Memberships

- American Statistical Association
- American Society for Quality
- American Society for Safety Engineers
- Institute for Operations Research and the Management Sciences
- Member of the Egyptian Engineer's Syndicate
- The International Society for Heart and Lung Transplantation

Professional Service

- Editorial Board Member, *Journal of Financial Economic Policy*, 2019-current.
- Scientific Committee Member, *XIIIth International Workshop on Intelligent Statistical Quality Control*, 2018-2019.
- International Program Committee Member, *ISSAT International Conference on Data Science in Business, Finance and Industry*, 2018-2019.
- Editorial Board Review Member, *Journal of Quality Technology*, 2018-current.
- Session Organizer, "Data Visualization", INFORMS Annual Meeting, 2016, Nashville, TN.
- Member of Scientific Committee for the XIIth International Workshop on Intelligent Statistical Quality Control, August 2016, Hamburg, Germany. Responsibilities included being a co-organizer of the America and Australian Group, where I identified and invited 12 Speakers from these continents to attend the workshop.
- Session Organizer, "Analytics and Visualization of Engineering Data", ISERC Annual Meeting, 2015, Nashville, TN.
- Session Organizer (w/ Kaibo Wang, Tsinghua University), "From Data to Decision-Making: A

SPC Perspective", "The Modeling, Monitoring and Control of Systems using Complex Data (I)", and "The Modeling, Monitoring and Control of Systems using Complex Data (II)", INFORMS Annual Meeting 2013, Minneapolis, MN.

- Session Organizer, "Phase I Control Charting: New Directions and Research Opportunities", INFORMS Annual Meeting 2012, Phoenix, Az.
- Served as a reviewer for *American Statistician, Applied Soft Computing, Applied Stochastic Models in Business and Industry, Communications in Statistics - Theory and Methods, Computers & Industrial Engineering, Computers & Operations Research, Decision Support Systems, Expert Systems with Applications, Human Factors, IEEE Access, IEEE International Conference on Industrial Informatics, IIE Transactions, International Journal of Production Research, Journal of Manufacturing Systems, Naval Research Logistics, Journal of Quality Technology, Reliability Engineering & System Safety, Quality Engineering, SME Journal of Manufacturing Systems.*
- Session Chair, Joint Statistical Meeting 2011, Miami, FL.

Skills

- Statistical Packages: R, Minitab, JMP.
- Optimization Software: Lindo/Lingo; some exposure to Cplex.
- Languages: R; some experience with MATLAB, Python, JavaScript, and HTML/CSS.
- Data Visualization: Tableau, R, PowerBI; some exposure to ArcGis and D3.js.
- Applications: LaTeX, Amazon Web Services (AWS), Windows Azure, common Windows database, spreadsheet, and presentation software.