

# Fadel M. Megahed

## Associate Professor of Information Systems and Analytics

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### CONTACT INFORMATION [LINKS IN RED]

800 E. High Street  
Farmer School of Business (Office: 2004)  
Oxford, OH 45056  
United States

(513) 529-4185  
✉ [fmegahed@miamioh.edu](mailto:fmegahed@miamioh.edu)  
G Scholar **Fadel M. Megahed**  
🔗 [Official MU Site](#) | 🌐 [fmegahed](#)

### IMPACT [LINKS IN RED]

- **Externally Funded Research:** >\$1.2M (**Share:** ≈\$620K). Sponsors include: Aflac, American Society for Safety Professionals Foundation, GE Research, Gore, National Science Foundation, National Institute for Occupational Safety and Health, and the Ohio Supercomputer Center.
- **Publications:** 47 peer-reviewed journal papers, 3 invited papers, & 11 conference proceedings.
- **Total Citations (as of November 2, 2021):** 1,488; h-index: 19, and i10-index: 27.
- **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, fatigue management, medical informatics, statistical process monitoring, and 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: Student Recognition of Teaching Excellence Award, 2020.

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).

Miami University: Received 13 *Faculty Commendations*, 2018-2020 (where graduating students identify faculty “who made a positive impact on your learning and development while at Miami.”).

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, developed the *Data-Driven Security* course and assisted with the successful proposal for our MSBA program.
- 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: 2019-2021.
  - ISA 444: Business Forecasting, Fall: 2020, 2021 & Spring: 2021.
  - ISA 480: Data-Driven Security, Spring: 2020.
- Dissertation committees: Kelly Ayres (Biostatistics, Expected Ph.D. 2023, Saint Louis University), Longwen Zhao (Biostatistics, Expected Ph.D. 2022, Saint Louis University), Sahand Hajifar (Industrial, Expected Ph.D. 2022, University at Buffalo), Saeb Ragani Lamooki (outside reader: Mechanical and Aerospace Engineering, Expected Ph.D. 2022, University at Buffalo), Eileen Rintsch (Geography, M.S. 2021), Miao Cai (Biostatistics, Ph.D. 2020, Saint Louis University), Amir Baghdadi (outside reader: Mechanical and Aerospace Engineering, Ph.D. 2019, University at Buffalo).
- Service:
  - VP for Research and Innovation Search Committee: Member (2021-2022)
  - FSB Committee on Societal Impact: Member (2021 - 2023)
  - Search Committee Chair for Data Analytics Lecturer position (2021-2022).
  - FSB Research Committee: Member (2021 - 2023)
  - Miami University Carbon Offsets Subcommittee: Member (2020-2021)
  - FSB Technology Policies Committee Member (2019 - 2020)
  - Search Committee Member for five tenure-track positions (2017-2018, 2018-2019, 2019-2020).
  - Major/Minor Coordination Committee: Chair (2019 - current), and Member (2017 - 2019).
  - Project lead for the Center for Analytics and Data Science (CADS) (2016-2019).
  - 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).
- **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).
- Initiated and taught a graduate/undergraduate course on *Big Data Analytics* (Spring 2013).




- Dissertation committees: Amir Mehdizadeh (Industrial, Expected Ph.D. 2021), Qiong Hu (Industrial, Ph.D. 2021), Mohammadnaser Ansari (Industrial, Ph.D. 2020), 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: 47)  
[\*GRADUATE,  
\*\*UNDERGRAD  
& LINKS IN RED]




**Megahed, F.M.**, Jones-Farmer, L.A., Zhao, L., Rigdon, S.E., 2021, "A Retrospective Cluster Analysis of COVID-19 Cases by County", to appear in *PLOS One* [ [Page](#)].




Hajifar, S.\*, Ragani Lamooki, S., Cavuoto, L.A., **Megahed, F.M.**, Sun, H., "Investigation of Heterogeneity Sources for Occupational Task Recognition via Transfer Learning", *Sensors* [ [DOI](#),  [ResearchGate](#) and  [Repo](#)].

Ahady Dolatsara, H.\*, Chen, Y-J., Leonard, R., **Megahed, F.M.**, Jones-Farmer, L.A., 2021, "Explaining Predictive Models: An Experimental Study of Data Preparation and Model Choice on Predictive Performance", ahead of print in *Big Data* [ [DOI](#),  [ResearchGate](#) and  [Page](#)].



Mehdizadeh, A.\*, Yazdi, M.A.A.\*, Cai, M.\*, Hu, Q.\*, Vinel, A., Rigdon, S.E., Davis, K., **Megahed, F.M.**, 2021, "Predicting Unsafe Driving Risk among Commercial Truck Drivers using Machine Learning: Lessons learned from the Surveillance of 20 Million Driving Miles", *Accident Analysis and Injury Prevention*, 159, 106285 [ [DOI](#) and  [ResearchGate](#) and  [Page](#)].

Romero, D., Wuest, T., Keepers, M., Cavuoto, L.A., **Megahed, F.M.**, 2021, "Smart Wearable and Collaborative Technologies for the Operator 4.0 in the Present and Post-COVID Digital Manufacturing Worlds", *ASTM International* 5 (1), 148-166 [ [DOI](#) and  [ResearchGate](#)].




Ragani Lamooki, S.\*, Kang, J., Cavuoto, L.A., **Megahed, F.M.**, Jones-Farmer, L.A., 2021, "A Personalized and Non-Parametric Framework for Detecting Changes in Gait Cycles", *IEEE Sensors Journal*, Early Access [ [DOI](#),  [ResearchGate](#) and  [Page](#)].




Cai, M.\*, Yazdi, M.A.A.\*, Mehdizadeh, A.\*, Hu, Q.\*, Vinel, A.\*, Davis, K., Xian, H., **Megahed, F.M.**, Rigdon, S.E., 2021, "Modeling Recurrent Safety-critical Events among Commercial Truck Drivers: A Bayesian Hierarchical Jump Power Law Process" *Journal of Quality Technology*, 1-19 [ [DOI](#),  [ResearchGate](#) and  [Page](#)].




Cai, M.\*, Yazdi, M.A.A.\*, Mehdizadeh, A.\*, Hu, Q.\*, Vinel, A.\*, Davis, K., Xian, H., **Megahed, F.M.**, Rigdon, S.E., 2021, "The Association between Crashes and Safety-critical Events: Synthesized Evidence from Crash Reports and Naturalistic Driving among Commercial Truck Drivers",





*Transportation Research Part C: Emerging Technologies*, 126(5), 103016 [  DOI and  Page].


Moore, J.F.\*\*\*, Carvalho, A., Davis, G.A., Abulhassan, Y., **Megahed, F.M.**, 2021, “Seat Assignments with Physical Distancing in Single-Destination Public Transit Settings”, *IEEE Access*, 9, 42985-42993 [  DOI,  Repo, and  Web App Web App].



Lu, L.\*, **Megahed, F.M.**, Cavuoto, L.A., 2021, “Interventions to Mitigate Fatigue Induced by Physical Work: A Systematic Review of Research Quality and Levels of Evidence for Intervention Efficacy”, *Human Factors*, 63(1), 151-191 [  DOI,  ResearchGate and  Repo].




Hajifar, S.\*, Sun, H., **Megahed, F.M.**, Jones-Farmer, L.A., Rashedi, E., Cavuoto, L.A., 2021, “A Forecasting Framework for Predicting Perceived Fatigue: Using Time Series Methods to Forecast Ratings of Perceived Exertion with Features from Wearable Sensors”, *Applied Ergonomics*, 90, 103262 [  DOI,  ResearchGate, and  Page].




Baghdadi, A.\*, Cavuoto, L.A., Esfahani, E.T., Jones-Farmer, L.A., Rigdon, S.E., **Megahed, F.M.**, 2021, “Monitoring Worker Fatigue Using Wearable Devices: A Case Study to Detect Changes in Gait Parameters”, *Journal of Quality Technology*, 53(1), 47-71 [  DOI,  ResearchGate and  Page].

Ahady Dolatsara, H.\*, Chen, Y.-J., Evans, C.\*\*\*, Gupta, A., **Megahed, F.M.**, 2020, “A Two-Stage Machine Learning Approach to Predict Heart Transplantation Survival Probabilities over Time with a Monotonic Probability Constraint”, *Decision Support Systems*, 137 (10), 113363 [  DOI,  ResearchGate,  Shiny App, and  Page].




Maman, Z.S.\*, Chen, Y.-J., Baghdadi, 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*, 155, 113405 [  DOI,  ResearchGate and  Page].




Wuest, T., Romero, D., Cavuoto, L.A., **Megahed, F.M.**, 2020, “Empowering the Workforce in Post-COVID-19 Smart Manufacturing Systems”, *Smart and Sustainable Manufacturing Systems*, 4(3), 281-285 [  DOI and  ResearchGate].



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].

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.**, Gries, T., 2008, “Vliesstoffanalyse mittels digitaler Bildverarbeitung”, *Technische Textilien*, 4, 186-187. (Publication in German: “Fleece Material Analysis by Means of Digital Image Processing”).

**Megahed, F.M.**, Chen, Y. J., Megahed, A., Ong, Y., Altman, N., Krzywinski, M. 2021, “The Class Imbalance Problem”, ahead of print in *Nature Methods*. [  [DOI](#),  [ResearchGate](#) and  [Page](#)].

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](#)].

Ragani Lamooki, S.\* , Hajifar, S.\* , Hannan, J.\*\* , Sun, H., **Megahed, F.M.**, Cavuoto, L.A., “Classifying tasks performed by electrical line workers using a wrist-worn sensor: A data analytic approach”, under review at *PLOS One* [  [Repo](#)].


INVITED  
PUBLICATIONS  
[LINKS IN RED]



SUBMITTED  
PAPERS  
[\*GRADUATE,  
\*\*UNDERGRAD  
& LINKS IN RED]

**Megahed, F.M.**, Jones-Farmer, L.A., Rigdon, S.E., “A Two-Stage Modeling Framework for Analyzing COVID-19 Deaths By County”, under review at *JMIR Public Health* [ [Page](#)].


Cai, M.\*, Yazdi, M.A.A.\*, Mehdizadeh, A.\*, Hu, Q.\*, Vinel, A.\*, Davis, K., Xian, H., **Megahed, F.M.**, Rigdon, S.E., “Modeling safety-critical events using trucking naturalistic driving data: A driver-centric hierarchical framework for data analysis”, under review at *Analytical Methods in Accident Research* [ [Repo](#)].



PROCEEDINGS  
(TOTAL: 11)  
[\*GRADUATE  
STUDENT &  
LINKS IN RED]



Lamooki, S.R.\*, Kang, J., Cavuoto, L.A., **Megahed, F.M.**, Jones-Farmer, L.A., 2020, “Challenges and Opportunities for Statistical Monitoring of Gait Cycle Acceleration Observed from IMU Data for Fatigue Detection”, Proceedings of the 8th IEEE RAS/EMBS International Conference for Biomedical Robotics and Biomechanics (BioRob) (pp. 593-598) [ [DOI](#)].



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](#)].



Cavuoto, L. and **Megahed, F.**, 2017, “A data-driven approach to identifying physical fatigue”, Proceedings of the ASSE Professional Development Conference and Exposition. Paper Number: 17-740. American Society of Safety Engineers [ [ASSP Site](#)].

Cavuoto, L. and **Megahed, F.**, 2016, “Understanding Fatigue and the Implications for Worker Safety”, Proceedings of the ASSE Professional Development Conference and Exposition. Paper Number: 16-734. American Society of Safety Engineers [ [ASSP Site](#)].

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](#)].

FUNDED PROJECTS (SHARE: ≈ \$620K) “Reliability Modeling of Shoulder Fatigue and Recovery for Warehouse Operators Performing Dynamic Tasks”, **National Institute of Occupational Safety & Health**, Sole Co-I from Miami

University (Lead PI: Lora Cavuoto @ the University at Buffalo), \$361,486 (MU Share: \$119,621), 2020-2022.

“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.



COMPUTATIONAL GRANTS	<p>“Learning the state-of-the-art in data analytics through attending two top-tier international conferences”, PI, <b>John E. and Winifred E. Dolibois Faculty Development Fund</b>, \$4,130, 2018-2019.</p> <p>“Academic: Support for ISA 480 - Data-Driven Security”, PI, <b>Ohio Supercomputer Center</b>, 10,000 (computing resource units), 2019-2020 (in-kind).</p> <p>“Predicting Heart Transplantation Outcomes using a Two-Stage Machine Learning Methodology”, PI, <b>Ohio Supercomputer Center</b>, 10,000 (computing resource units), 2019-2020 (in-kind).</p> <p>“Utilization of Google Cloud for a Cyber-Security Analytics Class”, PI, <b>Google Cloud Platform Education Grant</b>, \$2,900, 2019-2020 (in-kind).</p> <p>“Human Maintenance: A Prognostics Framework to Model Changes in Drivers’ Safety Performance and Optimize Dispatching Policies”, PI, <b>Ohio Supercomputer Center</b>, 10,000 (computing resource units), 2018-2019 (in-kind).</p> <p>“Advancing Safety Surveillance Using Individualized Sensor Technology (ASSIST)”, PI, <b>Ohio Supercomputer Center</b>, 30,000 (computing resource units), 2017-2019 (in-kind).</p> <p>“Utilization of Amazon’s Web Services for INSY 4970 Big Data Class”, PI, <b>AWS in Education Coursework Grant award</b>, \$11,800, 2013-2015 (in-kind).</p> <p>“Utilization of Window’s Azure for Big Data Analytics in Industrial and Systems Engineering”, PI, <b>Educator Grant of Windows Azure Academic Passes</b>, \$50,000, 2014 (in-kind).</p>
PH.D. STUDENTS ADVISED (TOTAL: 8) [LINKS IN RED]	<p>Lin Lu, “Physical Fatigue at Work: Prevalence and Interventions”, Summer 2019, Co-chaired with R.F. Seseek. <i>Current: Assistant Professor of Business Analytics</i>, Fairfield University.</p> <p>Hamidreza Ahady Dolatsara, “A Systematic and Data-Driven Approach for Improving Survival Analysis of Heart Transplantation”, Summer 2019, Co-chaired with A. Gupta. <i>Current: Assistant Professor of Business Analytics</i>, Clark University</p> <p>Mohammad Ali Alamdar Yazdi, “A Web-Based Personal Driving Assistant Using Real-Time Data and a Dynamic Programming Model”, Summer 2018, Co-chaired with A. Vinel. <i>Current: Assistant Professor of Practice</i>, Johns Hopkins Carey School Business.</p> <p>Zahra Sedighi Maman, “A Data Driven Framework to Predict the Fatigue among Manufacturing Workers Using Wearable Sensors”, Summer 2018, Co-chaired with L. Cavuoto. <i>Current: Assistant Professor of Business Analytics</i>, Adelphi University.</p> <p>Bin Weng, “Application of machine learning techniques for stock market prediction”, Summer 2017. <i>Current: Applied Scientist II</i>, Amazon.</p> <p>Theyab Alhwiti, “A Novel Method for Visualizing Keywords in Bibliometrics Science”, Summer 2017. <i>Current: Adjunct Professor</i>, Clark University.</p> <p>Ali Dag, “A Data Driven Framework to Identify the Critical Variables, Visualize Their Conditional Relations and Predict the Outcomes of US Heart Transplants”, Summer 2016. <i>Current: Associate Professor of Analytics</i>, Creighton University.</p> <p>Yao-Te Tsai, “Towards the Identification of Predictor Variables for Highway Safety”, Fall 2015. <i>Current: Assistant Professor of International Business</i>, Feng Chia University (Taiwan).</p>
PROFESSIONAL EXPERIENCE	<p><b>Institut fur Textiltechnik der RWTH Aachen (ITA)</b>, Aachen, Germany <i>Undergraduate Researcher</i> <span style="float: right;"><b>Summer 2007</b></span> Developed a Graphical User Interface (GUI) to measure yarn properties using image processing tech-</p>

niques, 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

- Case Study Section Editor, *Journal of Quality Technology*, 2021-current.
- 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 Ergonomics*, *Applied Soft Computing*, *Applied Stochastic Models in Business and Industry*, *Communications in Statistics - Theory and Methods*, *Computational Statistics*, *Computers & Industrial Engineering*, *Computers & Operations Research*, *Decision Support Systems*, *Ergonomics*, *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 and Python.
- Data Visualization: R, Tableau, PowerBI; some exposure to D3.js.
- Applications: L<sup>A</sup>T<sub>E</sub>X, common Windows database, spreadsheet, and presentation software.