Fadel M. Megahed, PhD

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Impact Summary

Research

Externally Funded Research: ~ $2.72M. Sponsors include: The Ohio Bureau of Workers Compensation, National Institute of Occupational Safety & Health, American Society for Safety Professionals Foundation, National Science Foundation, Aflac, and GE Research.

Publications: 61 peer-reviewed journal papers, 4 invited editorials, and 12 conference proceedings

Total Citations: 4,366; h-index: 32, and i10-index: 58

Press Coverage: Research findings have been covered by over 50 media outlets including: Arizona Republic Online, Bloomberg, Industry Week, SupplyChainDive and Yahoo Finance.

Teaching and Mentoring

PhD Advisor: for 8 PhD recipients (all from Auburn University).

Classroom Teaching: Since joining Miami University in Fall 2016, I have taught 5 different courses and a total of 43 sections. The courses spanned the entire spectrum of business analytics, including topics on *introductory statistics*, *data visualization*, *forecasting*, *operations research*, and *data-driven security*. My pedagogical contributions were recognized with 3 university-wide teaching awards, and 27 faculty commendations by graduating students as a part of their anonymous survey when they collect their diplomas.

Education

PhD Industrial & Systems Engineering | Virginia Tech | Blacksburg, VA | 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 & Systems Engineering | Virginia Tech | Blacksburg, VA | 2009

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

B.S. Mechanical Engineering | The American University in Cairo | Cairo, Egypt | 2008

- Highest Ranked GPA in the Mechanical Engineering Spring 2008 Graduating Class
- Graduated Summa Cum Laude

Honors and Awards

Research

- **Miami University:** *Raymond E. Glos Professor,* 2025–2030.
- **Miami University:** *Excellence in Research & Innovation Award - Grants in Business,* 2026.

- **Miami University:** *Endres Associate Professor Fellow,* 2022–2025.
- **Miami University:** *FSB Research Fellow,* 2023–2025.
- **American Society for Quality:** *Jack Youden Prize,* 2025.
- **Miami University:** *University Faculty Scholar,* 2023.
- **Miami University:** *Neil R. Anderson Endowed Assistant Professor,* 2019–2020.
- **NIOSH Deep South Center for Occupational Health and Safety:** *CAREER Award,* 2012.
- **Institute of Industrial Engineers::** *Finalist, Gilbreth Memorial Fellowship,* 2011.
- **Virginia Tech:** *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.

Teaching

- **Miami University:** *Richard K. Smucker Teaching Excellence Award: Outstanding Professor,* 2025.
- **Miami University:** *ASG/Provost's Student Recognition of Teaching Excellence Award,* 2020.
- **Virginia Tech:** *Co-Recipient of the Industrial and Systems Engineering Outstanding GTA Award,* 2010.

Other Recognition

- **Miami University:** *University-Wide Outstanding Professor Award Nominee,* 2023.
- **Miami University:** *University-Wide Outstanding Professor Award Nominee,* 2018.
- **The American University in Cairo:** *Summa Cum Laude and graduated highest ranked GPA in the "Mechanical Engineering Spring 2008 Graduating Class",* 2008.

Academic Experience

Miami University — Department of Information Systems and Analytics — Oxford, OH

Raymond E. Glos Professor	Jul 2025– Jun 2030
Professor	Jul 2024– current
FSB Faculty Research Fellow	Jul 2023–Jul 2025
Endres Associate Professor Fellow	Jul 2022–Jun 2024
Associate Professor	Jul 2020– Jun 2024
Neil R. Anderson Assistant Professor	July 2019–Jun 2020
Assistant Professor	Aug 2016–Jun 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. Furthermore, I have made significant updates to the *Business Intelligence and Data Visualization* course, where I introduced modules on *data quality/validation*, *use of data mining for data exploration*, and *use of multiple platforms for dashboard development.*
- **Courses Taught:**
  - ISA 203: Supplementary Business Statistics — Last taught: S2018
  - ISA 321: Quantitative Analysis of Business Problems — Last taught: F2018
  - ISA 401/501: Business Intelligence & Data Visualization — Last taught: S2026
    Course Materials: Publicly available at ISA 401 GitHub Repo
  - ISA 419: Data-Driven Security — Last taught: S2025

– ISA 444: Business Forecasting — Last taught: S2026
Course Materials: Publicly available at ISA 444 GitHub Repo

- **Dissertation Committees:** Kelly Ayres (Biostatistics, Expected Ph.D. 2026, Saint Louis University), Setareh Kazemi Kheiri (Industrial, Ph.D. 2025, University at Buffalo), Anik Roy (external reviewer: Statistics, Ph.D. 2024, Indian Statistical Institute), Federica Garghetti (external reviewer: Mechanical Engineering, Ph.D. 2023, Politecnico di Milano), Longwen Zhao (Biostatistics, Ph.D. 2022, Saint Louis University), Sahand Hajifar (Industrial, Ph.D. 2022, University at Buffalo), Saeb Ragani Lamooki (outside reader: Mechanical and Aerospace Engineering, 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
  - Divisional Committee on Societal Impact: Member — 2021–2023
  - Dept. Search Committee for Lecturer Position: Chair — 2021–2023
  - Divisional Research Committee: Member — 2021–2023
  - MU Carbon Offsets Subcommittee: Member — 2020–2023
  - Divisional Technology Policies Committee: Member — 2019–2020
  - Dept. Search Committee for 5 TT positions: Member — 2017–2020
  - Major/Minor Coordination Committee:
    - Chair — 2019–2025
    - Member — 2017–2019
  - Center for Analytics and Data Science: Project lead — 2016–2019
  - Master of Science in Business Analytics Curriculum: Proposal Developer — 2018–2018
    I co-contributed to the initial design of five proposed courses (2018)
  - STAR Seminar Series Committee: — 2016–2017

Auburn University — Department of Industrial and Systems Engineering — Auburn, AL

Affiliate Assistant Professor — Aug 2016–Aug 2020
Assistant Professor — Aug 2012–Aug 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, Ph.D. 2022), 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 @ Grado Department of Industrial and Systems Engineering Blacksburg, VA

Graduate Teaching Assistant	Jan–May 2012
Instructor	Aug–Dec 2011
Graduate Research Assistant	Jan 2010–Aug 2011
Graduate Teaching Assistant	Aug 2009–Dec 2010

- 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

Journal Publications

- Conventions used in my publications list throughout this CV:
  - **Authorship order** follows the traditional scientific authorship conventions, where PI is placed last (or second-to-last in papers stemming from collaborative grants, e.g., with Cavuoto or Rigdon).
  - ※ and § are used to denote graduate and undergraduate students that I advised/mentored.

1. **Megahed, FM.**, Chen, YJ., Jones-Farmer, LA., Lee, Y., Wang, JB., & Zwetsloot, IM. (2026). Reliable Decision Support with LLMs: a Framework for Evaluating Consistency in Binary Text Classification Applications. *Journal of Business Analytics*. 1-19 [ ].

2. **Megahed, FM.**, Chen, Y-J., Colosimo, BM., Grasso, M., Jones-Farmer, LA., Knoth, S., Sun, H., & Zwetsloot, IM. (2026). Adapting OpenAI's CLIP Model for few-Shot Image Inspection in Manufacturing Quality Control: An Expository Case Study with Multiple Application Examples. *Journal of Quality Technology*. 1-27.

3. Ayres, K., Zhao※, L., **Megahed, FM.**, Jones-Farmer, LA., Burroughs, TE., & Rigdon, SE. (2026). COVID Vaccine Data Quality, Cleaning, and Management. *Quality Engineering*. 38 (1), 72-86 [ ].

4. **Megahed, FM.**, Chen, Y-J., Zwetsloot, IM., Knoth, S., Montgomery, DC., & Jones-Farmer, LA. (2024). Introducing ChatSQC: Enhancing Statistical Quality Control with Augmented AI. *Journal of Quality Technology*. 56 (5), 474-497 [ ].

5. Colosimo, BM., Jones-Farmer, LA., **Megahed, FM.**, Paynabar, K., Ranjan, C., & Woodall, WH. (2024). Statistical Process Monitoring from Industry 2.0 to Industry 4.0: Insights into Research and Practice. *Technometrics*. 66 (4), 507-530 [ ].

6. Hu※, Q., Mehdizadeh※, A., Vinel, A., Cai※, M., Rigdon, SE., Zhang, W., & **Megahed, FM.** (2024). Shortest Path Problems with a Crash Risk Objective. *Transportation Research Record*. 2678 (6), 284-300 [ ].

7. **Megahed, FM.**, Chen, YJ., Ferris, JA., Knoth, S., & Jones-Farmer, LA. (2024). How Generative AI Models Such as ChatGPT can be (Mis) Used in SPC Practice, Education, and Research? an Exploratory Study. *Quality Engineering*. 36 (2), 287-315 [ ] [ ].

8. **Megahed, FM.**, Chen, Y-J., Jones-Farmer, LA., Rigdon, SE., Krzywinski, M., & Altman, N. (2024). Comparing Classifier Performance with Baselines. *Nature Methods*. 21 (4), 546-548 [ ].

9. Kheiri※, SK., Vahedi※, Z., Sun, H., **Megahed, FM.**, & Cavuoto, LA. (2023). Functional ANOVA for

Upper Extremity Fatigue Analysis During Dynamic Order Picking. *IISE Transactions on Occupational Ergonomics and Human Factors*. 11 (3-4), 123-135 [ ].

10. Kheiri※, SK., Vahedi※, Z., Sun, H., **Megahed, FM.**, & Cavuoto, LA. (2023). Human Reliability Modeling in Occupational Environments Toward a Safe and Productive Operator 4.0. *International Journal of Industrial Ergonomics*. 97, 103479 [ ].

11. Alhwiti※, T., Aldrugh, S., & **Megahed, FM.** (2023). Predicting in-Hospital Mortality after Transcatheter Aortic Valve Replacement using Administrative Data and Machine Learning. *Scientific Reports*. 13 (1), 10252 [ ].

12. Dolatsara※, HA., Chen, Y-J., Leonard, RD., **Megahed, FM.**, & Jones-Farmer, LA. (2023). Explaining Predictive Model Performance: An Experimental Study of Data Preparation and Model Choice. *Big Data*. 11 (3), 199-214 [ ].

13. Vahedi※, Z., Kheiri※, SK., Hajifar※, S., Lamooki※, SR., Sun, H., **Megahed, FM.**, & Cavuoto, LA. (2023). The Relationship Between Ratings of Perceived Exertion (RPE) and Relative Strength for a Fatiguing Dynamic Upper Extremity Task: A Consideration of Multiple Cycles and Conditions. *Journal of Occupational and Environmental Hygiene*. 20 (3-4), 136-142 [ ].

14. Lamooki※, S Ragani., Hajifar※, S., Hannan, J., Sun, H., **Megahed, F.**, & Cavuoto, L. (2022). Classifying Tasks Performed by Electrical Line Workers using a Wrist-Worn Sensor: A Data Analytic Approach. *Plos One*. 17 (12), e0261765 [ ].

15. Cai※, M., Mehdizadeh※, A., Hu※, Q., Yazdi※, MAA., Vinel, A., Davis, KC., Xian, H., **Megahed, FM.**, & Rigdon, SE. (2022). Hierarchical Point Process Models for Recurring Safety Critical Events Involving Commercial Truck Drivers: A Reliability Framework for Human Performance Modeling. *Journal of Quality Technology*. 54 (4), 466-484 [ ].

16. **Megahed, FM.**, Jones-Farmer, LA., Ma※, Y., & Rigdon, SE. (2022). Explaining the Varying Patterns of COVID-19 Deaths Across the United States: 2-Stage Time Series Clustering Framework. *JMIR Public Health and Surveillance*. 8 (7), e32164 [ ].

17. Lamooki※, SR., Hajifar※, S., Kang, J., Sun, H., **Megahed, FM.**, & Cavuoto, LA. (2022). A Data Analytic End-to-End Framework for the Automated Quantification of Ergonomic Risk Factors Across Multiple Tasks using a Single Wearable Sensor. *Applied Ergonomics*. 102, 103732 [ ].

18. **Megahed, FM.**, Jones-Farmer, LA., Zhao※, L., & Rigdon, SE. (2021). Modeling the Differences in the Time-Series Profiles of New COVID-19 Daily Confirmed Cases in 3,108 Contiguous US Counties: A Retrospective Analysis. *PLOS ONE*. 16 (11), e0242896 [ ].

19. Mehdizadeh※, A., Yazdi※, MAA., Cai※, M., Hu※, Q., Vinel, A., Rigdon, SE., Davis, K., & **Megahed, FM.** (2021). Predicting Unsafe Driving Risk among Commercial Truck Drivers using Machine Learning: Lessons Learned from the Surveillance of 20 Million Driving Miles. *Accident Analysis & Prevention*. 159, 106285 [ ].

20. Romero, D., Wuest, T., Keepers, M., Cavuoto, LA., & **Megahed, FM.** (2021). Smart Wearable and Collaborative Technologies for the Operator 4.0 in the Present and Post-COVID Digital Manufacturing Worlds. *Smart and Sustainable Manufacturing Systems*. 5 (1), 148-166 [ ].

21. Lamooki※, SR., Kang, J., Cavuoto, LA., **Megahed, FM.**, & Jones-Farmer, LA. (2021). Personalized and Nonparametric Framework for Detecting Changes in Gait Cycles. *IEEE Sensors Journal*. 21 (17), 19236-19246 [ ].

22. Cai※, M., Yazdi※, MAA., Mehdizadeh※, A., Hu※, Q., Vinel, A., Davis, K., Xian, H., **Megahed, FM.**, & Rigdon, SE. (2021). The Association Between Crashes and Safety-Critical Events: Synthesized Evidence from Crash Reports and Naturalistic Driving Data among Commercial Truck Drivers. *Transportation Research Part C: Emerging Technologies*. 126, 103016 [ ].

23. Moore§, JF., Carvalho, A., Davis, GA., Abulhassan, Y., & **Megahed, FM.** (2021). Seat Assignments with Physical Distancing in Single-Destination Public Transit Settings. *IEEE Access*. 9, 42985-42993 [ ].

24. Lu※, L., **Megahed, FM.**, & Cavuoto, LA. (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 [ ].

25. Hajifar※, S., Lamooki※, SR., Cavuoto, LA., **Megahed, FM.**, & Sun, H. (2021). Investigation of Heterogeneity Sources for Occupational Task Recognition via Transfer Learning. *Sensors*. 21 (19), 6677 [ ].

26. Hajifar※, S., Sun, H., **Megahed, FM.**, Jones-Farmer, LA., Rashedi, E., & Cavuoto, LA. (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 [ ].

27. Baghdadi※, A., Cavuoto, LA., Jones-Farmer, A., Rigdon, SE., Esfahani, ET., & **Megahed, FM.** (2021). Monitoring Worker Fatigue using Wearable Devices: A Case Study to Detect Changes in Gait Parameters. *Journal of Quality Technology*. 53 (1), 47-71 [ ].

28. Wuest, T., Romero, D., Cavuoto, LA., & **Megahed, FM.** (2020). Empowering the Workforce in post–COVID-19 Smart Manufacturing Systems. *Smart and Sustainable Manufacturing Systems*. 4 (3), 281-285 [ ].

29. Dolatsara※, HA., Chen, YJ., Evans§, C., Gupta, A., & **Megahed, FM.** (2020). A Two-Stage Machine Learning Framework to Predict Heart Transplantation Survival Probabilities over Time with a Monotonic Probability Constraint. *Decision Support Systems*. 137, 113363 [ ].

30. Maman※, ZS., Chen, Y-J., Baghdadi※, A., Lombardo, S., Cavuoto, LA., & **Megahed, FM.** (2020). A Data Analytic Framework for Physical Fatigue Management using Wearable Sensors. *Expert Systems with Applications*. 155, 113405 [ ].

31. Hu※, Q., Cai※, M., Mohabbati-Kalejahi※, N., Mehdizadeh※, A., Yazdi※, MAA., Vinel, A., Rigdon, SE., Davis, KC., & **Megahed, FM.** (2020). A Review of Data Analytic Applications in Road Traffic Safety. Part 2: Prescriptive Modeling. *Sensors*. 20 (4), 1096 [ ].

32. Mehdizadeh※, A., Cai※, M., Hu※, Q., Yazdi※, MAA., Mohabbati-Kalejahi※, N., Vinel, A., Rigdon, SE., Davis, KC., & **Megahed, FM.** (2020). A Review of Data Analytic Applications in Road Traffic Safety. Part 1: Descriptive and Predictive Modeling. *Sensors*. 20 (4), 1107 [ ].

33. Yazdi※, MA Alamdar., Negahban※, A., Cavuoto, L., & **Megahed, FM.** (2019). Optimization of Split Keyboard Design for Touchscreen Devices. *International Journal of Human–Computer Interaction*. 35 (6), 468-477 [ ].

34. Weng※, B., Lu※, L., Wang, X., **Megahed, FM.**, & Martinez, W. (2018). Predicting Short-Term Stock Prices using Ensemble Methods and Online Data Sources. *Expert Systems with Applications*. 112, 258-273 [ ].

35. Weng※, B., Martinez, W., Tsai※, YT., Li, C., Lu※, L., Barth, JR., & **Megahed, FM.** (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 [ ].

36. Baghdadi※, A., **Megahed, FM.**, Esfahani, ET., & Cavuoto, LA. (2018). A Machine Learning Approach to Detect Changes in Gait Parameters Following a Fatiguing Occupational Task. *Ergonomics*. 61 (8), 1116-1129 [ ].

37. Tsai※, YT., Swartz, SM., & **Megahed, FM.** (2018). Estimating the Relative Efficiency of Highway

Safety Investments on Commercial Transportation. *Transportation Journal.* 57 (2), 193-218 [ ].

38. Koosha, M., Noorossana, R., & **Megahed, F.** (2017). Statistical Process Monitoring via Image Data using Wavelets. *Quality and Reliability Engineering International.* 33 (8), 2059-2073 [ ].

39. Lu※, L., **Megahed, FM.**, Sesek, RF., & Cavuoto, LA. (2017). A Survey of the Prevalence of Fatigue, Its Precursors and Individual Coping Mechanisms among US Manufacturing Workers. *Applied Ergonomics.* 65, 139-151 [ ].

40. Mohabbati-Kalejahi※, N., Yazdi※, MAA., **Megahed, FM.**, Schaefer, SY., Boyd, LA., Lang, CE., & Lohse, KR. (2017). Streamlining Science with Structured Data Archives: Insights from Stroke Rehabilitation. *Scientometrics.* 113 (2), 969-983 [ ].

41. Maman※, ZS., Yazdi※, MAA., Cavuoto, LA., & **Megahed, FM.** (2017). A Data-Driven Approach to Modeling Physical Fatigue in the Workplace using Wearable Sensors. *Applied Ergonomics.* 65, 515-529 [ ].

42. Weng※, B., Ahmed※, MA., & **Megahed, FM.** (2017). Stock Market One-Day Ahead Movement Prediction using Disparate Data Sources. *Expert Systems with Applications.* 79, 153-163 [ ].

43. He, K., Zhang, M., Zuo, L., Alhwiti※, T., & **Megahed, FM.** (2017). Enhancing the Monitoring of 3D Scanned Manufactured Parts Through Projections and Spatiotemporal Control Charts. *Journal of Intelligent Manufacturing.* 28 (4), 899-911 [ ].

44. Dag※, A., Oztekin, A., Yucel, A., Bulur, S., & **Megahed, FM.** (2017). Predicting Heart Transplantation Outcomes Through Data Analytics. *Decision Support Systems.* 94, 42-52 [ ].

45. Maman※, ZS., Murphy§, WW., Maghsoodloo, S., Ahmadi, FH., & **Megahed, FM.** (2016). A Short Note on the Effect of Sample Size on the Estimation Error in C p. *Quality Engineering.* 28 (4), 455-466.

46. Dag※, A., Topuz, K., Oztekin, A., Bulur, S., & **Megahed, FM.** (2016). A Probabilistic Data-Driven Framework for Scoring the Preoperative Recipient-Donor Heart Transplant Survival. *Decision Support Systems.* 86, 1-12 [ ].

47. He, Z., Zuo, L., Zhang, M., & **Megahed, FM.** (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 [ ].

48. Weese, M., Martinez, W., **Megahed, FM.**, & Jones-Farmer, LA. (2016). Statistical Learning Methods Applied to Process Monitoring: An Overview and Perspective. *Journal of Quality Technology.* 48 (1), 4-24 [ ].

49. Tsai※, YT., Smith§, HD., Swartz, SM., & **Megahed, FM.** (2015). Using Visual Data Mining in Highway Traffic Safety Analysis and Decision Making. *Journal of Transportation Management.* 26 (1), 5 [ ].

50. Tsai※, YT., Alhwiti※, T., Swartz, SM., & **Megahed, FM.** (2015). The Effects of Socio-Economic and Public Policy Factors on U.S. Highway Safety. *Journal of Transportation Law, Logistics, and Policy.* 82 (1/2), 31.

51. Smith§, HD., **Megahed, FM.**, Jones-Farmer, LA., & 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 [ ].

52. Zhang, M., **Megahed, FM.**, & Woodall, WH. (2014). Exponential CUSUM Charts with Estimated Control Limits. *Quality and Reliability Engineering International.* 30 (2), 275-286 [ ].

53. Wells, LJ., **Megahed, FM.**, Niziolek, CB., Camelio, JA., & Woodall, WH. (2013). Statistical Process Monitoring Approach for High-Density Point Clouds. *Journal of Intelligent Manufacturing.* 24 (6),

1267-1279 [ ].

54. Zhang, M., Peng, Y., Schuh, A., **Megahed, FM.**, & Woodall, WH. (2013). Geometric Charts with Estimated Control Limits. *Quality and Reliability Engineering International.* 29 (2), 209-223 [ ].

55. **Megahed, FM.**, Wells, LJ., Camelio, JA., & Woodall, WH. (2012). A Spatiotemporal Method for the Monitoring of Image Data. *Quality and Reliability Engineering International.* 28 (8), 967-980 [ ].

56. Wells, LJ., **Megahed, FM.**, Camelio, JA., & Woodall, WH. (2012). A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems. *Journal of Intelligent Manufacturing.* 23 (5), 2025-2036 [ ].

57. **Megahed, FM.**, & Camelio, JA. (2012). Real-Time Fault Detection in Manufacturing Environments using Face Recognition Techniques. *Journal of Intelligent Manufacturing.* 23 (3), 393-408 [ ].

58. **Megahed, FM.**, Fraker, SE., & Woodall, WH. (2012). A Note on Two Performance Metrics for Public-Health Surveillance Schemes. *Journal of Applied Probability and Statistics.* 7 (1), 35-41.

59. **Megahed, FM.**, Woodall, WH., & Camelio, JA. (2011). A Review and Perspective on Control Charting with Image Data. *Journal of Quality Technology.* 43 (2), 83-98 [ ].

60. **Megahed, FM.**, Kensler, JLK., Bedair, K., & Woodall, WH. (2011). A Note on the ARL of Two-Sided Bernoulli-Based CUSUM Control Charts. *Journal of Quality Technology.* 43 (1), 43-49 [ ].

61. Raina, MA., Kennes, DM., **Megahed, F.**, & Gries, T. (2008). Vliesstoffanalyse Mittels Digitaler Bildverarbeitung. *Technische Textilien.* 51 (4), 186-187.

Invited Papers/Discussions

1. Jones-Farmer, LA., **Megahed, FM.**, Chen, Y-J., Zwetsloot, I., Knoth, S., Montgomery, DC., & Capizzi, G. (2024). Editorial Advice for Selecting an Open-Source License for your Next Paper: Navigating Copyrights for Publicly Facing AI Chatbots. *Journal of Quality Technology.* 56 (5), 468-473 [ ].

2. **Megahed, FM.**, Chen, YJ., Megahed, A., Ong, Y., Altman, N., & Krzywinski, M. (2021). The Class Imbalance Problem. *Nat. Methods.* 18 (11), 1270-1272 [ ].

3. Maman※, ZS., Lu※, L., **Megahed, FM.**, & Cavuoto, LA. (2019). A DMAIC Perspective on Physical Fatigue Management. *Professional Safety.* 64 (6), 26-27.

4. **Megahed, FM.** (2019). Discussion on "real-Time Monitoring of Events Applied to Syndromic Surveillance". *Quality Engineering.* 31 (1), 97-104 [ ].

Funded Projects

External Funding

1. "NextSIGHT: A hands-on, service-learning class where faculty mentor students to design a lightweight, clip-on AI-powered sensing kit that provides voice-based scenery description and printed text reading assistance for low-vision individuals", PI (w/ Ibrahim Yousif, Mohamed Farrag, Rachelle Morissette, and others), **P&G Higher Education Grant**, $10,000 (Share: $10,000), 2026–2027.

2. "SIGHT: Safety Immersive and Gamified Hazard Training for Industry 4.0 Workers", PI (w/ Arthur Carvalho, Mohammad Mayyas and Jay Shan), **The Ohio Bureau of Workers Compensation**, $1,499,912 (Share: $374,978), 2025–2027.

3. "Reliability Modeling of Shoulder Fatigue and Recovery for Warehouse Operators Performing Dynamic Tasks", Co-I (w/ Lora Cavuoto and Hongyue Sun), **National Institute of Occupational Safety &**

Health, $361,486 (Share: $119,621), 2020–2023.

4. "Assessing the Measurement Capability of a Multi-Sensor Garment", Co-I (w/ Lora Cavuoto and Hongyue Sun), **Gore**, $31,000 (Share: $0), 2020–2020.

5. "Testing the Soteria Worker Safety System", Co-I (w/ Lora Cavuoto and Hongyue Sun), **GE Research**, $31,929 (Share: $0), 2020–2020.

6. "IUBRC Measuring Entrepreneurship in Southwest Ohio", Co-PI (w/ Lindsey Holden and Greg Niemesh), **Indiana University Business Research Center**, $15,393 (Share: $7,696), 2019–2019.

7. "ASSURED: Analytical Support System for Understanding Risk Exposure to Drivers", Co-I (w/ Robert Leonard, Tessa Chen and Lora A. Cavuoto), **University of Cincinnati Education and Research Center Pilot Research Project Training Program**, $4,642 (Share: $1,547), 2018–2019.

8. "Funding for DataFests 2017– 2018", Co-PI (w/ Allison Jones-Farmer), **P&G- The Greater Cincinnati Foundation**, $20,000 (Share: $10,000), 2017–2018.

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

10. "GOALI:Collaborative Research: Human Maintenance- A Prognostics Framework to Model Changes in Drivers' Safety Performance and Optimize Dispatching Policies", PI (w/ Alex Vinel, Doug Mettenburg and Steve Rigdon), **National Science Foundation**, $296,206 (Share: $212,716), 2016–2020.

11. "Advancing Safety Surveillance using Individualized Sensor Technology", Co-I (w/ Lora Cavuoto), **American Society for Safety Professionals Foundation**, $300,000 (Share: $147,500), 2015–2018.

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

13. "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 (Share: $10,000), 2014–2015.

14. "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 (Share: $2,900), 2014–2015.

15. "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 (Share: $17,384), 2013–2014.

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

Computational Grants

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

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

3. "Utilization of Google Cloud for a Cyber-Security Analytics Class", PI, **Google Cloud Platform Education Grant**, 2900, 2019–2020.

4. "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.

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

6. "Utilization of Amazon's Web Services for INSY 4970 Big Data Class", PI, **AWS in Education Coursework Grant award**, 11800, 2013–2015.

7. "Utilization of Window's Azure for Big Data Analytics in Industrial and Systems Engineering", PI, **Educator Grant of Windows Azure Academic Passes**, 50000, 2014–2014.

PhD Students Advised

#	Name	Institution	Degree	Year	Current Status
1	Lin Lu	Auburn University	PhD, Industrial & Systems Engineering	2019	Assistant Professor of Business Analytics at Fairfield University
2	Hamid Ahady Dolatsara	Auburn University	PhD, Industrial & Systems Engineering	2019	Assistant Professor of Business Analytics at Clark University
3	Mohammad Ali Alamdar Yazdi	Auburn University	PhD, Industrial & Systems Engineering	2018	Assistant Professor of Practice (Business Analytics) at Johns Hopkins
4	Zahra Sedighi Maman	Auburn University	PhD, Industrial & Systems Engineering	2018	Assistant Professor of Business Analytics at Adelphi University
5	Bing Weng	Auburn University	PhD, Industrial & Systems Engineering	2017	Applied Scientist II at Amazon
6	Theyab Alhwiti	Auburn University	PhD, Industrial & Systems Engineering	2017	Visiting Assistant Professor at Clark University
7	Ali Dag	Auburn University	PhD, Industrial & Systems Engineering	2016	Associate Professor of Business Analytics at Creighton University
8	Yao-Te Tsai	Auburn University	PhD, Industrial & Systems Engineering	2015	Associate Professor at National Kaohsiung University of Science and Technology (Taiwan)

Dissertation Committees

#	Name	Institution	Degree	Year
1	Kelly Ayres	Saint Louis	PhD, Biostatistics	2026
2	Armando Ciardiello	U. Naples Federico II	PhD, Industrial & Systems Engineering	2026
3	Setareh Kazemi Kheiri	Buffalo	PhD, Industrial & Systems Engineering	2025
4	Frederica Garghetti	Politecnico di Milano [Italy]	PhD, Mechanical Engineering	2023
5	Amir Mehdizadeh	Auburn	PhD, Industrial & Systems Engineering	2022
6	Saeb Ragani Lamooki	Buffalo	PhD, Mechanical & Aerospace Engineering	2022
7	Sahand Hajifar	Buffalo	PhD, Industrial & Systems Engineering	2022
8	Longwen Zhao	Saint Louis	PhD, Biostatistics	2022
9	Qiong Hu	Auburn	PhD, Industrial & Systems Engineering	2021
10	Ali Aldubiassi	Auburn	PhD, Industrial & Systems Engineering	2020

(continued)

#	Name	Institution	Degree	Year
11	Mohammadnaser Ansari	Auburn	PhD, Industrial & Systems Engineering	2020
12	Miao Cai	Saint Louis	PhD, Biostatistics	2020
13	Amir Baghdadi	Auburn	PhD, Mechanical & Aerospace Engineering	2019
14	Nasrin Mohabbati Kalejahi	Auburn	PhD, Industrial & Systems Engineering	2019
15	Ebrahim Mortaz	Auburn	PhD, Industrial & Systems Engineering	2017
16	Eren Sakinc	Auburn	PhD, Industrial & Systems Engineering	2016
17	Thomas Sanders	Auburn	PhD, Industrial & Systems Engineering	2016
18	Heather Avery	Auburn	PhD, Computer Science	2015
19	Masood Jabarnejad	Auburn	PhD, Industrial & Systems Engineering	2015
20	Dilcu Helvaci	Auburn	PhD, Industrial & Systems Engineering	2013
21	Melody Denhere	Auburn	PhD, Statistics	2013
22	Zhou Hai	Auburn	PhD, Industrial & Systems Engineering	2013

Professional Memberships

- American Society for Quality.
- American Society for Safety Engineers.
- Institute for Operations Research and the Management Sciences.
- Egyptian Engineers Syndicate.

Skills

Software Packages

Software Packages

conformal-clip (Python)
Few-shot image classification using CLIP/OpenCLIP and timm vision models with conformal prediction and probability calibration. Aimed at manufacturing quality control.
PyPI | Code | 2,707 downloads

basemodels (R)
Baseline models for classification and regression (equivalent to scikit-learn's DummyClassifier/DummyRegressor).
CRAN | Code | 9,075 downloads

Interactive Web Applications

Interactive Web Applications — hosted on Hugging Face

CLIP Image Inspector
Classifies images as nominal/defective using reference images (few-shot QC).
Computer Vision | Live Demo

TAVR Mortality Predictor
Predicts in-hospital mortality risk for TAVR patients.
Clinical Decision Support | Live Demo

QE ArXiv Watch
Monitors quality engineering research from ArXiv with automated alerts.
Research Monitoring | Live Demo

Time Series Visualizer
Visualizes time series data with AI-powered insights.
Data Visualization | Live Demo

Statsforecast Demo
Upload CSV data and generate forecasts with multiple models.
Forecasting | Live Demo

CV Strategy Visualizer
Visualizes time-series cross-validation strategies.
Pedagogy | Live Demo

Decomposition Explorer
Interactive tool for understanding statistical decomposition methods.
Pedagogy | Live Demo

OEWS Jobs Explorer
Explore U.S. occupational employment and wage statistics.
Data Explorer | Live Demo

Structured Text Extraction
Structured text extraction using the ellmer R package.
NLP | Live Demo

Technical Skills

Technical Skills

Programming
(expert), Python (proficient) — e.g., basemodels R package, conformal-clip Python package

AI/ML
LLMs (OpenAI, Anthropic, open-source), CLIP/OpenCLIP, RAG/LangChain, conformal prediction — e.g., few-shot image QC app, RAG evaluation framework

Deployment
Docker, HuggingFace Spaces, Gradio, Streamlit, Shiny, GitHub Actions — e.g., 9 deployed web apps, automated ArXiv monitor

Visualization
Tableau, Power BI, R, Flourish, DataWrapper — e.g., time series visualizer, ISA 401 course materials

Other
Git/GitHub, Minitab, JMP, Lindo/Lingo