Abdulaziz (Aziz) Ahmed, Ph.D.

Associate Professor (Tenured), Graduate Programs in Health Informatics
Department of Health Services Administration
School of Health Professions
University of Alabama at Birmingham
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EDUCATION

State University of New York at Binghamton, Binghamton, New York USA
Ph.D., Industrial and Systems Engineering, May 2016

Jordan University of Science and Technology, Irbid, Jordan
M.S., Industrial Engineering, August 2012

Jordan University of Science and Technology, Irbid, Jordan
B.S., Industrial Engineering, June 2009

PROFESSIONAL CERTIFICATIONS

Lean Six Sigma Black Belt Certification, Thomas J. Watson School of Engineering and Applied Science, Binghamton University, September 2015

Lean Six Sigma Green Belt Certification, Thomas J. Watson School of Engineering and Applied Science, Binghamton University, May 2013

CURRENT POSITIONS

Oct 2023 – Present	**Associate Professor of Health Informatics (Primary)**, School of Health Professions, Department of Health Services Administration, University of Alabama at Birmingham (UAB), Birmingham, AL.
Jul 2024 – Present	**Associate Professor of Health Informatics (Secondary)**, Department of Biomedical Informatics and Data Science, Heersink School of Medicine, UAB, Birmingham, AL.
Aug 2024 – Present	**Scientist**, Center for Outcomes and Effectiveness Research and Education, Heersink School of Medicine, UAB, Birmingham, AL.
Apr 2022 – Present	**Associate Scientist**, Center for Clinical and Translational Science (CCTS), UAB, Birmingham, AL.

PREVIOUS POSITIONS

Jul 2021 – Sep 2023	**Assistant Professor of Health Informatics**, School of Health Professions, Department of Health Services Administration, UAB, Birmingham, AL.
Aug 2016 – Jun 2021	**Assistant Professor**, Business Department, University of Minnesota Crookston, Crookston, MN.
Aug 2016 – Jun 2021	**Lead, Manufacturing Management and Quality Management Programs**, Business Department, University of Minnesota Crookston, Crookston, MN.
Aug 2021 – Jul 2022	**Adjunct Faculty**, Business Department, University of Minnesota Crookston, Crookston, MN.

Mar 2021 – May 2021	**Adjunct Faculty**, DeVos Graduate School of Management, Northwood University, Midland, MI.
May 2015 – May 2016	**Graduate/Teaching Assistant**, Systems Science and Industrial Engineering Department, State University of New York at Binghamton, Binghamton, NY.
Jan 2014 – Aug 2015	**Graduate Project Assistant**, ACHIEVE, Johnson City, NY.
Sep 2012 – Dec 2013	**Graduate Research Assistant**, Watson Institute for Systems Excellence (WISE), State University of New York at Binghamton, Binghamton, NY.
Summer 2008	**Engineering Intern**, ShaphaCo Pharmaceutical Industries, Sana'a, Yemen.

GRANTS

External Grants Awarded/Scored

1. AI-based decision support system for addressing emergency department return among mental health patients. **Role: Contact PI**. Agency: **NIMH**. Type: **R01**. Total Budget: **$3.9M**. *Scored*: ***12th percentile***.
2. Building and implementing a predictive decision support system based on a proactive full capacity protocol to mitigate emergency overcrowding problem. **Role: Contact PI**. Agency: **AHRQ**. Type: **R21/R33**. Total Budget: **$1.0M**. *Sept 2023–Aug 2028*. Project#: 1R21HS029410.
3. Evaluating associations of rurality and neighborhood disadvantage with racial disparities in breast cancer mortality among women in the state of Alabama. **Role: Collaborator**. Agency: **Breast Cancer Research Foundation of Alabama**. Type: **Pilot Grant**. Total Budget: **$50K**. *Dec 2022–Nov 2023*. (PI: Aneja).
4. Data-Driven Operations Analytics for Addressing Emergency Department Crowding Problem. **Role: PI**. Agency: **Sanford Hospital**. Total Budget: **$1,000**. *Nov 2019*.

Internal Grants Awarded

5. A Machine Learning Framework for Addressing Emergency Department Overcrowding Problem. **Role: PI**. Agency: **UAB School of Health Professions**. Type: **Pilot**. Total Budget: **$25,000**. *Jan 2022–Dec 2022*.
6. HSA/eMedicine Research Collaborative. **Role: Data Scientist**. Agency: **UAB Health System**. Type: **Effort Support (15%)**. *Sept 2021–Sept 2023*. (PI: Feldman).
7. Developing a machine learning approach to predict hospitalization for spinal cord injury patients. **Role: Supervising Data Analytics**. Agency: **NORC—Behavioral Science & Analytics Core**. Type: **Pilot Award**. Effort: 5%. *Sept 2022–Aug 2023*. (PI: Mehta).
8. Developing predictive–prescriptive analytical model for operating room scheduling problem. **Role: PI**. Agency: **Faculty Research & Engagement Fund (UMC)**. Type: **Internal Seed**. Total Budget: **$4,500**. *May 2020*.
9. Developing an analytical model for scheduling medical interpreter. **Role: PI**. Agency: **Faculty Research & Engagement Fund (UMC)**. Total Budget: **$4,500**. *May 2019*.

External Grants Under Review

10. A Proactive AI-driven Simulation System to Optimize Emergency Department Patient Flow and Mitigate Overcrowding (PASS-ED). **Role: Sole PI**. Agency: **NIBIB**. Type: **R01**. Total

Budget: **$2.9M**. *Under review.*

11. Improving Cardiovascular Health: Explainable AI and LLM Methods for Understanding Statin Non-Adherence. **Role: Dual PI (MPI)**. Agency: **PCORI**. Type: **Research Project**. Total Budget: **$1.0M**. *Under review.*

Internal and External Grants Not Funded

12. Leveraging Multi-Source Data to Model Emergency Department Utilization and Service Patterns in Autism Across the Lifespan. **Role: Contact PI**. Agency: **NIH**. Type: **OT**. Total Budget: **$1.0M**. *Not funded.*
13. Evaluating disparities in medication adequacy for secondary prevention of acute coronary syndrome: An extensive machine learning framework. **Role: PI**. Agency: **Forge-Ahead**. Type: **Pilot**. Total Budget: **$50K**. *Not funded.*
14. Building and implementing a predictive–prescriptive decision support system to optimize the delivery of language interpreting services in hospital settings. **Role: PI**. Agency: **AHRQ**. Type: **Research Grant**. Total Budget: **$1.7M**. *Not funded.*
15. Utilizing natural language processing and machine learning to develop a social media-based mental health surveillance system and identify social determinants of health. **Role: PI**. Agency: **NIH**. Type: **Research Grant**. Total Budget: **$1.9M**. *Not funded.*
16. Assessing disparities in medication adequacy for secondary prevention of acute coronary syndrome: A comprehensive machine learning framework. **Role: PI**. Agency: **AIM-AHEAD**. Type: **Research Grant**. Total Budget: **$100K**. *Not funded.*
17. Developing an AI-Driven Clinical Decision Support Solution for Early Identification and Prevention of Ventilator-Associated Pneumonia (AICDSS-VAP). **Role: PI**. Agency: **NIH**. Type: **R01 (R01HL178932-01)**. Total Budget: **$5.0M**. *Not funded.*
18. Leveraging AI Technology for Early Diabetic Retinopathy Screening and Prevention Strategies. **Role: PI**. Agency: **NIH**. Type: **R01 (R01EY037281-01)**. Total Budget: **$3.5M**. *Not funded.*

JOURNAL PUBLICATIONS

*(*Indicates Corresponding Author, ‡Indicates Student)*

1. **Ahmed, A***, Aram, K.Y., Alzeen, M., Vural, O., Booth, J., Lindsey, B.F., Ozaydin, B. Assessing the Impact of External and Internal Factors on Emergency Department Overcrowding. *Healthcare*, 2025. *Accepted*, in press.
2. Vural, O., Ozaydin, B., Aram, K.Y., Booth, J., Lindsey, B.F., **Ahmed, A***. 2025. An Artificial Intelligence–Based Framework for Predicting Emergency Department Overcrowding: Development and Evaluation Study. *JMIR Medical Informatics*, 13, p.e73960.
3. Vural, O., Ozaydin, B., Booth, J., Lindsey, B.F., **Ahmed, A***. Deep Learning-Based Forecasting of Boarding Patient Counts to Address Emergency Department Overcrowding. *Informatics*, 2025 Sep; 12(3):95.
4. Aly, S., Chen, Y., **Ahmed, A**. et al. Utilization of machine learning algorithm in the prediction of rehospitalization during one-year post traumatic spinal cord injury. *Spinal Cord* (2025).
5. Shami, T.M., Al-Tashi, Q., Khodadadi, N., Abdulkadir, S.J., **Ahmed, A**., Mirjalili, S. 2025. Dimension selection: an innovative metaheuristic strategy for particle swarm optimization. *Cluster Computing*, 28(6), p.379. (Q1)

6. Orewa, G.N., Blanchard, E.E., Feldman, S.S., Bains, J., Kelly, B., Scarborough, T., Stigler, W., Wallace, E., **Ahmed, A**. Discoveries and insights from implementing telehealth in a teleacute unit: A retrospective study. *Journal of Hospital Administration*, 2024, 13(2), 77–84. (Q4)
7. Park, K‡., Saleem, M‡., Al-Garadi, M.A.*., **Ahmed, A***. Machine learning applications in studying mental health among immigrants and racial and ethnic minorities: An exploratory review. *BMC Medical Informatics and Decision Making*, 2024, 24(1):298. (Q1).
8. Lu, Y., Duong, T., Miao, Z., Thieu, T., Lamichhane, J., **Ahmed, A**. and Delen, D. A novel hyperparameter search approach for accuracy and simplicity in disease prediction risk scoring. *JAMIA*, 2024, 31(8), 1763–1773. (Q1).
9. **Ahmed, A***., Aram, K., Tutun, S., Delen, D. A study of 'left against medical advice' emergency department patients: an optimized explainable artificial intelligence. *Healthcare Management Science*, 2024, 1–8.
10. **Ahmed, A***., Zengul, F.D., Khan, S., Hearld, K.R., Feldman, S.S., Hall, A., Orewa, G.N., Willig, J., Kennedy, K. Developing a decision model to early predict ICU admission for COVID-19 patients: A machine learning approach. *Intelligence-Based Medicine*, 2024, 100136. (Q1).
11. Lee, S., Al-Zeen, M‡., **Ahmed, A***. Estimation of racial and language disparities in pediatric ED triage using statistical modeling and NLP. *JAMIA*, 2024, 31(4), 958–967. (Q1).
12. **Ahmed, A**., Topuz, K., Moqbel, M., Abdulrashid, I. What makes accidents severe: explainable analytics framework with parameter optimization. *European Journal of Operational Research*, 2024, 317(2):425–436. (Q1).
13. Konkel, K., Oner, N., **Ahmed, A**., Berner, E.S., Jones, C., Zengul, F. Using NLP to characterize and predict homeopathic product-associated adverse events in consumer reviews. *JAMIA*, 2023, 31(1):70–78. (Q1).
14. **Ahmed, A***., Al-Maamari, M., Firouz, M., Delen, D. An adaptive simulated annealing-based ML approach for developing an e-triage tool. *Information Systems Frontiers*, 2023, 29:1–21. (Q1).
15. Schooley, B.L., **Ahmed, A**., Maxwell, J., Feldman, S.S. Predictors of COVID-19 from a statewide digital symptom and risk assessment tool. *JMIR*, 2023, 25:e46026. (Q1).
16. Li, L., Firouz, M., **Ahmed A**., Delen D. On the egalitarian-utilitarian spectrum in stochastic capacitated resource allocation problems. *IJPE*, 2023, 262:108900. (Q1).
17. Tutan, S., Johnson, M., **Ahmed, A**., Yesilkaya, I., Irgil, S. An AI-based decision support system for predicting mental health disorders. *Information Systems Frontiers*, 2023, 25(3):1261–1276. (Q1).
18. Ali, H., **Ahmed, A***., Olivos, C., Liu, J. Mitigating urinary incontinence using ML. *BMC Med Inform Decis Mak*, 2022, 22(1):1–10. (Q2).
19. **Ahmed, A***., Ashour, A., Ali, H. Integrated optimization and ML to predict ED admission status. *Expert Systems with Applications*, 2022, 15:202-117314. (Q1).
20. Hamasha, M.M., Ali, H., Hamasha, S., **Ahmed, A**. Inverse of left-sided truncated Gaussian CDF for simulation variates. *J Appl Eng Sci*, 2022, 20(2):582–589. (Q1).
21. Hamasha, M.M., Aqlan, F., **Ahmed, A**. Approximating lower truncated normal CDF based on Hamaker model. *Journal of Reliability and Safety*, 2022, accepted. (Q3).
22. **Ahmed, A***., Frohn, E. Predictive and prescriptive framework for scheduling language medical interpreters. *Health Care Management Science*, 2021, 1–20. (Q1).

23. **Ahmed, A**[*]., He, L., Chou, C., Hamasha, M. MILP-based predictive approach to surgery prioritization. *Journal of Industrial and Production Engineering*, 2021, 1–15. (Q1).
24. Badrouchi, S[‡]., **Ahmed, A**[*]., Bacha M.M., Abderrahim, E., Abdallah, T.B. Predicting long-term survival of kidney transplantation using ML. *Expert Systems with Applications*, 2021, 182:115235. (Q1).
25. Zhou, J.G., Li, L.L., Tseng, M.L., **Ahmed, A**., Shang, Z.X. Green design using reliability assessment to improve resource utilization. *Journal of Industrial and Production Engineering*, 2021, 1–12. (Q2).
26. Ali, H., **Ahmed, A**., Cole, A[‡]. Nurses' perception of communicative technologies in nursing facilities. *Int J Older People Nurs*, 2021: e12404. (Q2).
27. Cole, A[‡]., Ali, H., **Ahmed, A**., Hamasha, S., Jordan, S. Turnover intention among Alabama frontline nurses during COVID-19. *J Multidiscip Healthc*, 2021:14, 1783. (Q1).
28. Hamasha, M., Ali, H., **Ahmed, A**. Approximation to left-sided truncated normal distribution based on Hart model. *J Appl Eng Sci*, 2021: 1–7. (Q3).
29. **Ahmed, A**[*]., Ali, H. Modeling patient preference in an OR problem. *Oper Res Health Care*, 2020, 25:100257. (Q1).
30. Ali, H., Cole, A., **Ahmed, A**., Hamasha, S., Panos, G. Major stressors and coping strategies of frontline nursing staff during COVID-19. *J Multidiscip Healthc*, 2020, 13, 2057. (Q1).
31. **Ahmed, A**[*]., Naji, A[‡]. and Tseng, M.-L. Selecting an SDS management system using fuzzy TOPSIS. *J Modelling in Management*, 2020, 15(4):1515–1541. (Q2).
32. **Ahmed, A**[*]., Shen, W., Khasawneh, M.T. Sustainability modelling of health information exchanges. *Int J Industrial and Systems Engineering*, 2019, 33, 413–434. (Q2).
33. Aqlan, F., **Ahmed, A**., Cao, W., Khasawneh, M.T. Ergonomic study of body motions during Muslim prayer. *Int J Industrial and Systems Engineering*, 2017, 25(3):279–296. (Q2).
34. Aqlan, F., **Ahmed, A**., Ashour, O. Optimal rush order acceptance decisions with simulation and utility theory. *Eur J Ind Eng*, 2017, 11(5):613–630. (Q1).
35. Al-Hawari, T., **Ahmed, A**., Khrais, S., Mumani, A. Impact of assignment, inventory policies and demand patterns on supply chain performance. *Int J Simulation Modelling*, 2013, 12(3):164–177. (Q2).

CONFERENCE PUBLICATIONS (FULLY REFEREED)

1. Shams Eddin, M., El Hajj, H., **Ahmed, A**. Breaking Language Barriers: Optimal Strategies for Interpreter Assignment in a Hospital Setting. Submitted to *OPTIMA 2025*. (Accepted).
2. Zengul, F., **Ahmed, A**., Ozydin, B., Oner, N., Bulut, A., Gray, H. A practical and empirical comparison of three topic modeling methods using a COVID-19 corpus: LSA, LDA, and Top2Vec. *HICSS*, 2023.
3. **Ahmed, A**[*]., Ashour, A., Ali, H., Fatemi, Y. Predict patient admission status using topic modeling and XGBoost. *ISEERC*, Seattle, WA, May 2022.
4. Tutun, S., **Ahmed, A**., Yesilkaya, I., Irgil, S., Khasawneh, M.T. Detecting psychological symptom patterns using regularized multinomial logistic regression. *ISEERC*, Orlando, FL, May 2019.
5. **Ahmed, A**[*]., Hamasha, M. Scheduling language interpreters at a medical center: an integer programming approach. *ISEERC*, Orlando, FL, May 2018.
6. **Ahmed, A**[*]., Lam, S.S. Optimizing the benefits of hospitals in health information exchange

networks. *ISEERC*, Pittsburgh, PA, May 2017.

7. **Ahmed, A***., Ashour, O. Using artificial neural networks as a meta-modeling technique in supply chains. *ISEERC*, Nashville, TN, May 2015.
8. **Ahmed, A***., Al-Mashraie, M., Aqlan, F. Evaluating dispatching rules in manufacturing systems using simulation and DEA. *ISEERC*, Nashville, TN, May 2015.
9. **Ahmed, A***., Srihari, K., Khasawneh, M.T. Power source evaluation using hybrid Monte Carlo and AHP. *ISEERC*, Montreal, Canada, May 2014.
10. **Ahmed, A***., Lam, S.S. Material handling equipment selection using MAUT and Monte Carlo simulation. *ISEERC*, Montreal, Canada, May 2014.
11. **Ahmed, A***., Chou, C., Shehadeh, K.S. Joint effect of appointment scheduling rules and resource selection on outpatient clinics performance. *ISEERC*, Montreal, Canada, May 2014.
12. Aqlan, F., **Ahmed, A***., Srihari, K., Khasawneh, M.T. Integrating ANN and cluster analysis to assess energy efficiency of buildings. *ISEERC*, Montreal, Canada, May 2014.
13. Al-Hawari, T., **Ahmed, A**., Salman, L. Enhancing performance of the loading process in a cement factory through simulation. *ISEERC*, Orlando, FL, May 2012.
14. Momani, A.M., **Ahmed, A**. Material handling equipment selection using hybrid Monte Carlo and AHP. *WASET* 59 (2011): 953–958.
15. Al-Hawari, T., Al-Natour, M., Ababneh, M., **Ahmed, A**. Improving productivity and quality of service in internal medicine clinics through simulation. *IER Conference*, Reno, NV, May 2011.

POSTERS AND PRESENTATIONS

*(*Indicates Presenter)*

1. Ozaydin, B.; Feldman, S.; Dorsey, A. D.; Houser, S.; **Ahmed, A**; Singh, A.; Pierce, L. Facilitating Capstone Collaboration in Health Informatics. *AMIA 2025 Academic Forum, Annual Symposium*, Atlanta, GA, Nov 15–19, 2025. *Accepted.* **Finalist — Academic Forum LIEAF Best Paper Award**.
2. **Ahmed, A***, Saleem, M., Alzeen, M., Birur, B., Fargason, R. E., Burk, B. G., Harkins, H. R., Alhassan, A., Al-Garadi, M. A. Leveraging Large Language Models to Enhance Machine Learning Interpretability and Predictive Performance: A Case Study on Emergency Department Returns for Mental Health Patients. *AMIA 2025 Annual Symposium*, Atlanta, GA, Nov 15–19, 2025. Poster.
3. Vural, O., Ozaydin, B., Aram, K.Y., Booth, J., & **Ahmed, A**. (2025, Aug 12–15). Predicting emergency department boarding volumes for overcrowding management. In *GJCIE 2025*, Istanbul Technical University, Istanbul, Türkiye.
4. Vural, O., Ozaydin, B., **Ahmed, A***. Enhancing ED efficiency: predictive modeling for patient flow metrics. *International Conference on Mobility, AI and Health*, Marrakech, Morocco, Nov 20–22, 2024.
5. Vural, O., Ozaydin, B., Aram, K., Booth, J.S., **Ahmed, A***. AI-based approach for mitigating emergency overcrowding. *Symposium on AI in Medicine and Nursing*, UAB, Oct 17–18, 2024.
6. **Ahmed, A***., Ozaydin, B., Booth, J.S., Berner, Eta. Mitigating ED crowding using AI. *COERE LHS Incubator*, UAB, Feb 21, 2024.
7. Feldman, S.S., **Ahmed, A**., Maxwell, J., Schooley, B. Evaluation of a COVID-19 risk tool.

Studies in Health Technology and Informatics, 2024, 310, 1552–1553.

8. Aly, S., Mehta, T., **Ahmed, A**, Huacong, W., Yuying, C. Predicting hospital readmission post spinal cord injury with ML. *ASIA Annual Meeting*, Apr 17–19, 2023. (Best Poster Award).
9. **Ahmed, A***., Aram, K.A., Booth, J., Lindsey, B. Mitigating ED overcrowding using ML and simulation. *INFORMS Annual Meeting*, Phoenix, AZ, Oct 15–18, 2023 (Invited).
10. Park, K., **Ahmed, A**., Al-Garadi, M.A., Alzeen, A., Ozaydin, B. Impact of LEP and interpreter use on LOS in the ED. *39th Southern Biomedical Engineering Conference*, Sept 9, 2023.
11. **Ahmed, A**. Applications of predictive and prescriptive analytics in interpreting industry. *COERE*, UAB, Feb 15, 2022.
12. **Ahmed, A***. A machine learning framework for addressing ED crowding. *Health Informatics Seminar Series*, Loyola University Chicago, Mar 30, 2022.
13. **Ahmed, A***. A machine learning framework for addressing ED crowding. *Institute of Health Informatics Seminar*, UAB.
14. **Ahmed, A***. A machine learning framework for addressing ED crowding. *INFORMS Annual Meeting*, Anaheim, CA, Oct 24–27, 2021.
15. **Ahmed, A***. ML for predicting long-term graft survival after kidney transplantation. *II. International AI in Health Congress*, Apr 18, Turkey.
16. **Ahmed, A***. Scheduling medical interpreters: a data-driven optimization model. *INFORMS Annual Meeting*, Seattle, WA, Oct 20–23, 2019.
17. Tutun, S., **Ahmed, A***., Irgil, S., Yesilkaya, I, Yorulmaz, T. Behavioral business intelligence for occupational health and safety. Poster, *INFORMS Annual Meeting*, Seattle, WA, Oct 20–23, 2019.
18. Johnson, R., Wieland, O., **Ahmed, A**. Reflective learning: assessment benefits of the student experience at the Harvard Global Case Competition. *IUPUI Assessment Institute*, Indianapolis, IN, Oct 2018.
19. Wieland, O., Johnson, R., **Ahmed, A***. Reflective learning: the Harvard Global Case Competition as a student retention experience. *ACBSP Regional Conference*, Minneapolis, MN, Oct 2017.
20. **Ahmed, A**., Wieland, O., Johnson, R. Reflective learning. *Academy of Distinguished Teachers Conference*, Minneapolis, MN, Mar 2017.
21. Al-Hawari, T., **Ahmed, A**., Khrais, S., Mumani, A. Capacity constraints in a multilevel/multiproduct supply chain. Poster, *ISERC*, San Juan, PR, May 18, 2013.

WORKINGS/UNDER REVIEW MANUSCRIPTS

1. Phiri, M., Norman, A.A., Eke, C.I., Al-Garadi, M.A., **Ahmed, A**., Yeh, W. Digital health and deep learning: opportunities, challenges, and the imperative of data protection in wearable devices. *Engineering Applications of Artificial Intelligence*, under review. (Q1).
2. **Ahmed, A***., Saleem, M. Leveraging LLMs to enhance ML interpretability and predictive performance: case study on ED returns for mental health patients. *Submitted to JAMIA Open*, under review.
3. **Ahmed, A**., Jebali, A. A stochastic programming approach for the scheduling of medical interpreting service under uncertainty. *Submitted to International Journal of Production Research*, 2025, under review.

4. Firouz, M., Li, L., Guo, J., Cui, J., Jia, H., **Ahmed, A**. Integrated vaccination site selection and dose allocation under equity and accessibility interests. *Submitted to European Journal of Operational Research*, 2025, under review.
5. Firouz, M., Li, L., Guo, J., Cui, J., Jia, H., **Ahmed, A**. Integrated vaccination site selection and dose allocation under equity and accessibility interests. *Submitted to Transportation Research Part E*, 2025, under review.
6. Al-Garadi, M., Gobbel G., **Ahmed A**., Sarker, A., Matheny, M. Emerging potentials and challenges of large language models for healthcare. In progress; to be submitted to *Nature*.
7. Banerjie, S., Zhu, Y., Freeman, I., Villa Machado, J., **Ahmed, A**., Sarker, A., Al-Garadi, M. A. Agentic AI in Healthcare: A Comprehensive Survey of Foundations, Taxonomy, and Applications. *Working paper*. Planned submission to *To be submitted to* ***The Lancet Digital Health***.

COURSES TAUGHT

Course	Times Taught	Student Rating
MGMT 3250 – Operations Management	Ten semesters	5.19/6.0
MGMT 3255 – Logistics/Supply Chain Management	Two semesters	5.50/6.0
BM 3025 – Lean Six Sigma	Six semesters	5.48/6.0
BM 3034 – Applied Quality	Three semesters	3.30/6.0
BM 3053 – Product Development Mgmt	One semester	5.00/6.0
MGT 665 – Solving Business Problems with ML	One semester	4.00/5.0
HI 641 – Healthcare Data Analytics	Four Semesters	4.22/5.0
HI 646 – Advanced Quantitative Methods	Four Semesters	4.06/5.0
HI 671/672 – Capstone Project I	Two Semesters	3.82/5.0

GRADUATE STUDENT MENTORING

- **Vidya Sagar Hanumanthu** (PhD Stduent), *Advisor. Developing Implementable Rules for a Decision Support System Based on Non-knowledge Technologies for Diagnosing Hematological Conditions Using Flow Cytometry Data (Dissertation Proposal).* **Status:** Expected Summer 2026.
- **Orhun Vural** (PhD Student — Software Engineering), *Mentor. Graduate Research Assistant working on the emergency overcrowding grant.*
- **Saleem Mohammed** (PhD Student), *Advisor. Using AI to detect non-ventilator hospital-acquired pneumonia (NV-HAP).* **Status:** Expected Summer 2026.
- **Mariam Alhamarna** (Master's — Health Informatics), *Advisor. The Impact of DAX Copilot on Provider Workflow and Documentation Experience: A User-Experience Evaluation.* **Status:** Expected Jun 2026.
- **Jasmine N. Parmer** (Master's — Health Informatics), *Advisor. Improving Communication Channels Between Radiation Oncologists and Patients: A UX Approach.* **Status:** Expected Jun 2026.
- **Seth Noble** (Master's — Health Informatics), *Advisor. Effects of Public Transportation Availability on Ambulatory Clinic Attendance.* **Status:** Expected Jun 2026.
- **Abby Doyle** (Master's — Health Informatics), *Advisor. Automated Detection of Alcohol Use Disorder in Electronic Health Records: A Natural Language Processing Approach.* **Status:** Graduated — Jun 2024.

- **Triniti Sims** (Master's — Health Informatics), *Advisor. Analyzing the effects of social determinants of health and patient characteristics on left without being seen in emergency care: A machine learning framework.* **Status:** Graduated — Jul 2024.
- **Jacklyn Smith** (Master's — Health Informatics), *Advisor. Evaluating AI-Generated Drafts for Nurse-to-Patient Communication: A Mixed-Methods Research Study.* **Status:** Graduated — Aug 2024.
- **Jadarrion Vickers** (Master's — Health Informatics), *Advisor. The Effects of COVID-19 on Post-Acute Care: Investigating the effect of COVID-19 using machine learning.* **Status:** Graduated — Jul 2023.

WORKSHOPS AND COURSES ATTENDED

- Best Practices in Online Course Development Workshop, University of Minnesota Twin Cities, Summer 2017.
- Critical Thinking for Engineers, Binghamton University, Apr 2014.
- Microsoft Approved Course 2273: Managing and Maintaining a Microsoft Windows Server 2003 Environment, Civil Society Development Center (C.S.D.C), J.U.S.T, Apr 2009.
- ISO 9001 Training, Jordanian Engineers Association in Irbid, 24 hrs, Apr 2008.
- Project Management Using Primavera, Jordanian Engineers Association in Irbid, 24 hrs, Feb 2008.

INSTITUTIONAL AND PROFESSIONAL SERVICE

University-Related Services – UAB

School of Health Professions

- 2021 – Present: Member, Scholarship Award Committee.
- 2025 – Present: Member, Faculty Affairs Committee (FAC).

Department of Health Services Administration (HSA)

- 2023 – Present: Member, HI track PhD comprehensive exam committee.
- 2021 – Present: Member, Admissions, Scholarships, Policy Committee, Health Informatics Program.
- 2021 – Present: Member, Capstones/Faculty Advising, Health Informatics Program.

Department Faculty/Staff Search Committees

- 2023 – Present: Member, Data Analytics Faculty Search Committee, Health Informatics Program.
- 2023 – Present: Member, AI in Medicine program development, Health Informatics Program.
- 2022 – 2023: Member, User Experience Faculty Search Committee, Health Informatics Program.

University-Related Services – University of Minnesota Crookston

University Level

- 2019 – 2021: Member, Academic Futuring Committee.
- 2018 – 2021: Member, UMC Research Day Organizing Committee.
- 2018 – Present: Member, Sustainability Committee.
- 2018: Member, Economic Development Administration (EDA) search committee.

- 2017 – 2018: Member, Salary Equity Workgroup.
- 2016 – 2017: Member, Faculty Engagement Committee.

Department Level (Business Department)

- 2020 – 2021: Chair, Business Department Curriculum Committee.
- 2016 – 2021: Member, Business Department Curriculum Committee.
- 2018 – 2020: Chair, Online Quality Assurance Committee.
- 2016 – 2018: Member, Quality Assurance Committee.

Search Committees

- 2020 – 2021: Chair, Healthcare Management Search Committee.
- 2020: Chair, Management Tenure Track Position Search Committee.
- 2016 – 2017: Member, Search Committee for an Assistant Professor of International Business Management position.

Service to Professional Organization

- 2025–2026: Selected **Expert (PAIR Cohort 2)**, **AIM-AHEAD PAIR Program** — mentoring awardees through Apr 30, 2026.
- 2025: Reviewer, NIH Study section ZRG1 HSS-D (90) S, Topics in Health Services Research: Big Data, Health IT, and Clinical Informatics, 02/19/2025–02/20/2025.
- 2024: Session Chair, INFORMS annual meeting
- 2024: Reviewer, NIH Study section ZRG1 HSS – N (90), Topics in Clinical Informatics and Data Analytics (07/11/24 – 07/12/24).
- 2018: Conference Track Chair/Program Committee, Business Management Track, 3rd North American IEOM Conference, Washington, DC (Sept 27–29, 2018).
- 2018: Reviewer, 3rd North American IEOM Conference, Washington, DC (Sept 27–29, 2018).
- 2014–2015: Reviewer, Institute of Industrial and Systems Engineers Annual meeting.

Peer Review Service

Guest Editor

- Mathematics journal, special issue on The Applications of Mathematical Analysis and Machine Learning in Healthcare, July 2024 – Present.

Reviewer for Journals

- International Journal of Older People Nursing, Wiley, Jan 2019 – Present.
- Journal of Medical Internet Research, Sept 2019 – Present.
- Journal of Industrial and Production Engineering, Sept 2016 – Present.
- Journal of Systems Science and Systems Engineering, Feb 2017 – Present.
- Applied Soft Computing, Jan 2019 – Present.
- Computers & Industrial Engineering, Jan 2016 – Present.
- Transactions of the Society for Modeling and Simulation International, Sept 2019 – Present.

AWARDS AND HONORS

- Selected as **Expert (PAIR Cohort 2)**, **AIM-AHEAD PAIR Program** — *Awarded $5,000 stipend*, 2025.

- Best Poster Award — American Spinal Injury Association (ASIA) Annual Meeting, Apr 2023.
- Graduate Student Award for Excellence in Research — Binghamton University, 2015.
- Traveling Grant — Graduate School, Binghamton University, Apr 2015.
- Alpha Pi Mu — Industrial Engineering Honor Society, Binghamton University, NY (since 2014).

PROFESSIONAL ASSOCIATIONS

- AMIA — American Medical Informatics Association.
- INFORMS — Institute for Operations Research and the Management Sciences.
- IISE — Institute of Industrial and Systems Engineering.
- IEOM — Industrial and Operations Management Society.

REFERENCES

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