

# Mohammad Ishtiaque Rahman

(Abir Rahman)

ASSISTANT PROFESSOR · COMPUTER INFORMATION SYSTEMS, TMU

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## Education

### University of Maryland- Baltimore County

PHD INFORMATION SYSTEMS

Baltimore, MD

June 2018 - December 2024

### University of Maryland- Baltimore County

MS INFORMATION SYSTEMS

Baltimore, MD

June 2018 - July 2023

### University of Dhaka

MBA MANAGEMENT INFORMATION SYSTEMS

Dhaka, Bangladesh

June 2016 - December 2017

### University of Dhaka

BBA MANAGEMENT INFORMATION SYSTEMS

Dhaka, Bangladesh

January 2012 - December 2015

## Professional Experience

- 2024-Now **Assistant Professor**, Department of Computer Information Systems, Thomas More University
- 2018-2022 **Research Assistant**, Health IT Lab @ University of Maryland- Baltimore County
- 2019-2022 **Teaching Assistant**, Information Systems, University of Maryland- Baltimore County
- 2015 **Research Intern**, Access to Information (A2I), UNDP, Prime-minister's Office, Dhaka, Bangladesh

## Teaching Experience

- MIS 660 **Data Visualization**, TMU
- MIS 650 **Data Analytics**, TMU
- MIS 615 **Data Mining, Warehousing, and Big Data**, TMU
- CIS 410 **Senior Seminar**, TMU
- MIS 390 **Business Simulation**, TMU
- CIS 341 **Web Programming I**, TMU
- MIS 320 **Database Management Systems**, TMU
- CIS 314 **Advanced Programming**, TMU
- CIS 255 **Introduction to Python Programming**, TMU
- CIS 226 **Data Structure and Algorithm**, TMU
- CIS 211 **Object Oriented Programming**, TMU
- CIS 115 **Introduction to Programming II**, TMU
- CIS 114 **Introduction to Programming I**, TMU
- IS 679 **Social Media Application and Analytics**, UMBC
- IS 300/607 **Introduction to Information Systems**, UMBC
- IS 450 **Data Communications and Networks**, UMBC
- IS 425 **Decision Support System**, UMBC

## Publications

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### JOURNAL ARTICLES

1. Rahman, M. I. (2025). Understanding private equity-owned HHAs in the U.S.: A performance comparison between PE-owned and non-PE-owned agencies. *Health Policy*, 153, 105250. DOI: <https://doi.org/10.1016/j.healthpol.2025.105250>
2. Rahman, M. I. (2025). Fusion of Vision Transformer and Convolutional Neural Network for Explainable and Efficient Histopathological Image Classification in Cyber-Physical Healthcare Systems. *Journal of Transformative Technologies and Sustainable Development*. DOI: <https://doi.org/10.1007/s41314-025-00079-0>
3. Rahman, M. I. & Emdad F.B. (2025). Exploring beyond adherence to clinical processes: Determinants of desirable discharge to community rates in US home healthcare agencies. *Social Sciences & Humanities Open*, 11, 101427. DOI: <https://doi.org/10.1016/j.ssaho.2025.101427>
4. Sayem, S.M., Islam, J., Anushka, A.H., Jahan, N., & Rahman, M.I. (2025) What Drives Generation Z's Green Purchases in Bangladesh? A Multidimensional Analysis of Psychological and Environmental Factors. *Social Science & Humanities Open*. DOI: <https://doi.org/10.1016/j.ssaho.2025.102052>
5. Rahman, M. I., Alam, J., & Emdad, F. B. (2025). Challenges of elderly caregiving in the Indian Subcontinent: A scoping review. *Public Health Challenges*, 4(3), e70085. DOI: <https://doi.org/10.1002/puh2.70085>
6. Rahman, M. I., Alam, J., Khanom, K., & Emdad, F. (2025). Social Determinants Influencing Internet-Based Service Adoption Among Female Family Caregivers in Bangladesh: A Socio-Demographic and Technological Analysis. *Health Science Reports*, 8(4), Article e70665. DOI: <https://doi.org/10.1002/hsr2.70665>
7. Rahman, M. I., Sharmin, K., & Alam, J. (2025). Quiet struggles in a connected world: Social media, mental health, and coping strategies among young women in northern Bangladesh. *Mental Health and Digital Technologies*, 2(3). DOI: <https://doi.org/10.1108/mhdt-04-2025-0029>

### CONFERENCE PROCEEDINGS

1. Rahman, M.I., Emdad, F., Hossain, M.R., Alam, S.M.Z., Sayem, S.M., Alam, A., & Islam, K.S. (2025 - Accepted) A Game-Theoretic Foundation Framework for Query Strategy Optimization in Interactive Healthcare Information Retrieval. *IEEE International Conference on Data Mining Workshops*.
2. Rahman, M.I. (2025). Potentially Preventable Readmission (PPR) Following Discharge of Home Health Agency Patients in US: Factors in Play Other Than Adherence to Clinical Processes. *9th ACM International Conference on Medical and Health Informatics, Kyoto, Japan, 2025*
3. Rahman, M.I. (2025). Explainable Prediction of Medicare End-Stage Renal Disease (ESRD) Service Demand in the U.S.: A County-Level Analysis of Demographic and Healthcare Variables. *9th ACM International Conference on Medical and Health Informatics, Kyoto, Japan, 2025*
4. Rahman, M. I. (2024). The Impact of Sociodemographic Factors on CMS HCC Risk Scores for Aged/Dual (AGDU) Beneficiaries in the US. In *2024 9th International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS)* (Vol. 9, pp. 717-722). IEEE. DOI: <https://doi.org/10.1109/iciibms62405.2024.10792689>
5. Rahman, M. I. (2024). Beyond City Limits: Exploring Home Health Agency Performance Across Rural-Urban Continuum Codes in the United States. In *2024 IEEE International Symposium on Technology and Society (ISTAS)* (pp. 1-5). IEEE. DOI: <https://doi.org/10.1109/istas61960.2024.10732414>
6. Alam, J., & Rahman, M. I. (2024). Does IT Knowledge Translate into Security Awareness And Secure Smartphone Behavior? An Empirical View from Bangladesh. In *2024 4th International Conference on Innovative Research in Applied Science, Engineering and Technology (IRASET)* (pp. 1-5). IEEE. DOI: <https://doi.org/10.1109/iraset60544.2024.10548409>
7. Sharmin, K., & Rahman, M. I. (2024). Digital Forensics: Assessing Enhanced Evidence Collection and New Perspectives for Strengthening Crime-Combating Efforts in the Bangladesh Police. In *2024 4th International Conference on Innovative Research in Applied Science, Engineering and Technology (IRASET)* (pp. 1-5). IEEE. DOI: <https://doi.org/10.1109/iraset60544.2024.10548409>
8. Emdad, F. B., Ravuri, B., Ayinde, L., & Rahman, M. I. (2024, March). "ChatGPT, a Friend or Foe for Education?" Analyzing the User's Perspectives on The Latest AI Chatbot Via Reddit. In *2024 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI)* (Vol. 2, pp. 1-5). IEEE. DOI: <https://doi.org/10.1109/iatmsi60426.2024.10502836>

9. Rahman, M. I., Emdad, F. B., Islam, C. M., & He, Z. (2023, November). Uncovering the interplay of demographics and healthcare provider availability on cms hcc risk scores for disabled beneficiaries. In International Conference on e-Health and Bioengineering (pp. 593-600). Cham: Springer Nature Switzerland. DOI: [https://doi.org/10.1007/978-3-031-62520-6\\_66](https://doi.org/10.1007/978-3-031-62520-6_66)

## PEER REVIEWED POSTERS

1. Jademi, O., Rahman, A., and Koru, G., (2021). Challenges and Opportunities of Information Technology Adoption by the Caregivers of Home Care Patients. American Medical Informatics Association (AMIA) Annual Symposium, San Diego, USA. DOI: <https://doi.org/10.2139/ssrn.4946165>
2. Koru, G., Yerram, S., & Rahman, A. (2021). A public repository to mobilize computable biomedical knowledge artifacts. annual public meeting: Mobilizing computable biomedical knowledge (MCBK 2021). Learning Health Systems, 6(1), e10300. Wiley Open Access. DOI: <https://doi.org/10.1002/lrh2.10300>
3. Rahman, A., Emdad, F., and Koru, G., (2020). Development and Evaluation of the Data Quality Toolkit: Toward Collaborative Improvement of Data Quality in Healthcare Organizations. American Medical Informatics Association (AMIA) Annual Symposium. DOI: <https://doi.org/10.2139/ssrn.4946155>
4. Rahman, A., Emdad, F., and Koru, G., (2019). Addressing the Pressing Home Care Coordination Challenges and Opportunities: A Systematic Review. American Medical Informatics Association (AMIA) Annual Symposium, Washington DC, 2019. DOI: <https://doi.org/10.2139/ssrn.4946159>

## Papers Under Review and In Preparation

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### UNDER REVIEW

1. Rahman, M.I. (Under Review) Algorithmic Bias and Transparency in Artificial Intelligence Tools for Nursing Education: A Scoping Review. Nurse Education in Practice
2. Rahman, M.I., Hossain, M.R., Sayem, S.M., & Emdad, F. (Under Review) AI-Driven Synthetic Data Generation in Healthcare: Methods, Challenges, and Implications for Future AI Development. Intelligence-Based Medicine
3. Rahman, M.I. & Rahman, A. (Under Review) AACNN-ViT: Adaptive Attention-Augmented Convolutional and Vision Transformer Fusion for Lung Cancer Detection. International Conference on e-Health and Bioengineering
4. Rahman, M. I. & Alam, J. (Under Review). Elderly Care in Post Pandemic USA: The Curious Case of Home Healthcare Agencies. Health Science Reports.
5. Rahman, M.I., Hossain, M.R., Sayem, S.M., & Emdad, F. (Under Review) Managing Expiring Knowledge: Temporal Dynamics of Business Information. Business Information Review
6. Rahman, M. I. & Alam. J., (Under Review). Digital Engagement Among Family Caregivers in Bangladesh: A Qualitative Study in Two Rural Communities on Information Needs and Challenges. International Journal of Population Studies.
7. Rahman, M.I., Rahman, A., & Emdad, F. (Under Review) Neural Network Based Simulation of Diagnostic Vulnerabilities in Telemedicine Using Synthetic Data: A Framework for Identifying Context-Driven Blind Spots. International Conference on Intelligent Medicine and Health
8. Rahman, M.I., Sayem, & Akter, S. (Under Review). Advancing Human Papillomavirus (HPV) Knowledge and Vaccine Intent in Bangladesh: A Comparative Study of Gen AI, Internet Search, Booklets, and Visual Storytelling. Discover Public Health
9. Akter, S., Sayem, S.M., Islam, M.T., Nodi, N.S., & Rahman, M.I. (Under Review). Understanding the Factors Influencing Blockchain Adoption of Banking Industry in Bangladesh: Do Risk Perception and Trust play a mediating role?. HELIYON.
10. Sayem, S.M., Alam, A. And Rahman, M.I. (Under Review) Generative AI and Cognitive Achievement in Tertiary Education: Mediating role of Innovativeness and IT Acceptance. Computers and Education Open
11. Sayem, S.M., Alam, A., & Rahman, M.I. (Under Review) The Role of Green Innovation and Green Supply Chain Practices in Linking Technological Advancements to Sustainability: Evidence from the FMCG Industry. International Journal of System Assurance Engineering and Management
12. Sayem, S.M., Akter, S., Alam. A., & Rahman, M.I. (Under Review). Impact of Business Intelligence & Information systems on Supply Chain Performance: Mediating Effect of Lean and Agile Strategy. Logistics Research.

## IN PREPARATION

1. Rahman, M. I. & Emdad, F.(In-preparation). Potential Renovation of Information Search Process with the Power of Large Language Model for Healthcare. arXiv preprint arXiv:2407.01627 (2024).
2. Rahman, A & Rahman, M. I. (In-preparation).HeartPSO: An Optimized Machine Learning Model for Heart Disease Prediction Leveraging PSO with Enhanced Interpretability Using XAI Techniques
3. Sayem, S.M., Moon, A., & Rahman, M.I. (In-preparation) Digital Vulnerability to AI-Generated Political Misinformation in Bangladesh: The Role of Regulation, Media Literacy, and Prompt Trust.
4. Sayem, S.M., Rahman, M., & Rahman, M.I. (In-preparation) Fostering Socially Responsible AI Ecosystems: A Socio-Technical Analysis of Stakeholder Perceptions and Organizational Impacts.
5. Abbas, S., Sayem, S.M., & Rahman, M.I. (In-preparation) Examining the Transition through Virtual Influencers towards Customer Purchase Intention in Bangladesh: Role of Mimetic Desire and Responder System.
6. Sayem, S.M., Islam, A., & Rahman, M.I. (In-preparation) Examining the Mediating Effect of Smart Product Platforming Powered by GAI and AI and Industrial Internet of Things: Transition Towards Robust Circular Supply Chain.
7. Sayem, S.M., Islam, Z., & Rahman, M.I. (In-preparation) Potential Adoption of AI-powered Voice-activated Payment Systems in Urban Bangladesh: The Mediating Role of Perceived Technological Trust.
8. Sayem, S.M., Gupta, A.S., Saki, S.I., Nizum, M.A., & Rahman, M.I. (In-preparation) Crafting greener future - Strengthening Sustainable Environmental Performance of SME Sector through Green Practices and Green Innovation.
9. Sayem, S.M., Islam, Z., Yesmin, A., Alam, A., & Rahman, M.I. (In-preparation) The Impact of AI Anxiety, Work Stress, High Commitment HR Systems, and Quiet Quitting on Employee Turnover Intention.
10. Sayem, S.M., Takib, M.T.J., Ria, I.J., Jahan, N., & Rahman, M.I. (In-preparation) AI-powered Financial Consultancy Services for Improved Financial Decision Making: Role of AI-assisted Human Consultant.

## Workshops and Presentations

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Fall 2020. Zhang, Y, Rahman, A., and Koru, G. Characterization of US Home Health Agencies with Respect to Utilization Outcomes, International Conference on Home Healthcare, Hospice and Information Technology, Virtual Conference 2020.

Fall 2019. *Development of Home Care Quality Toolkit*. 26th Annual Tcl/Tk Conference, Huston, Texas.

Fall 2019. Rahman, A., Emdad, F., and Koru, G.. Development and Usability Evaluation of a Software Toolkit to Support Continuous Quality Improvement in Home Health Agencies, International Conference on Home Healthcare, Hospice and Information Technology, Seattle 2019.

Fall 2019. *Comparison and visualization of performance measures for Home Health Agencies with the Home Care Quality Toolkit*. 2019 Annual Meeting of Maryland National Capital Homecare Association, Baltimore, Maryland

Spring 2020. *Demonstration of Data Quality Toolkit*. Presented the Data Quality Toolkit, developed by Health IT Lab @ UMBC to Maryland Department of Health, Baltimore, Maryland

## Projects

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**Home care Quality Toolkit (HCQT)**, A desktop application to summarize, visualize and compare performance of Home Health Agencies (HHAs) using the Home Health Compare (HHC) data. Tech used: Tcl/Tk, Python, Gnuplot, SQLite

**Data Quality Toolkit**, A toolkit developed for and funded by the Maryland Department of Health to identify and resolve MMIS data defects. Tech used: Tcl/Tk, C++, Python, Gnuplot, SQLite

**eMIPP Transition Plan**, A complete plan for transitioning Maryland Electronic Medicare and Medicaid Incentive Payment Program (eMIPP) web system from one staging to another. The plan included: hardware update requirements, code re-factoring requirements, and the cost estimation.

## Technical Skills

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<b>Languages</b>	Python, C++, C#, Tcl/Tk, R, SQL, PL/SQL
<b>Statistical Tools</b>	R Studio, IBM SPSS, WEKA
<b>Visualization</b>	Tableau, Apache Superset
<b>Databases</b>	Postgres, Oracle PL/SQL, SQLite
<b>Platforms</b>	Linux, Windows, Oracle Cloud
<b>Documentation</b>	LaTeX & BibTex, MS Office suite
<b>Web Frameworks</b>	Django, Flask

## Soft Skills

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### Project Management

Coordinated a team of four research assistants, three professional programmers, and multiple interns. Managed development of multiple desktop and web systems.

### Professional Outreach

Presented developed software in front of federal health administration agency professionals, i.e., Maryland Department of Health (MDH). Also, presented in multiple conferences and workshops, i.e., AMIA, MNCHA, etc.

### Qualitative Research

Led semistructured interviews with senior healthcare professionals and government administrators, covering protocol design, consent, meticulous field notes, and thematic analysis. Coordinated more than ten interns at the Health IT Lab at UMBC, training teams in qualitative methods and ensuring data quality and confidentiality.

## Outreach & Professional Development

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### SERVICE AND OUTREACH

- 2019 **Student Volunteer**, Summer Institute in Nursing Informatics Annual Conference
- 2021 **Student Volunteer**, AMIA Annual Symposium, San Diego

### PROFESSIONAL MEMBERSHIPS

- 2018-2023 **American Medical Informatics Association: AMIA**, Student Member
- 2018-2023 **American Medical Directors Association: AMDA**, Student Member