CURRICULUM VITAE

MD OSMAN GANI

EDUCATION

Ph.D.	2017	Marquette University, WI, Computational Sciences
M.Sc.	2013	Marquette University, WI, Computational Sciences
B.Sc.	2009	Military Institute of Science and Technology, Bangladesh, Computer Science and Engineering

Experience in Higher Education

2020 –	University of Maryland, Baltimore County, MD, Assistant Professor, Information Systems
2025 –	University of Maryland, Baltimore County, MD, Affiliate Assistant Professor, Computer Science and Electrical Engineering
2020 –	Causal Artificial Intelligence Lab, Director, UMBC
2021 –	Rehabilitation Research Design & Disability (R2D2) Center, University of Wisconsin - Milwaukee, WI, Faculty Affiliate, AI and Rehabilitation
2018 – 2022	Regenstrief Center for Healthcare Engineering, Purdue University, IN, Faculty Affiliate, AI and Healthcare
2017 – 2020	Miami University, OH, Visiting Assistant Professor, Computer Science and Software Engineering
2011 – 2017	Marquette University, WI, Instructor and Graduate Assistant, Mathematics, Statistics and Computer Science
2009 – 2011	Military Institute of Science and Technology (MIST), Bangladesh, Lecturer, Computer Science and Engineering

Experience in Other than Higher Education

Honors Received

2025	Excellent Reviewer, Top 10% – 20% reviewers, KDD
2016	NSF Travel Grant, ACM HotMobile, St. Augustine, FL
2015	Best Research Poster, Forward Thinking Poster Session, Marquette University, WI
2015	Summer Research Fellowship, Marquette University, WI
2013	Summer Research Fellowship, Marquette University, WI
2012	Summer Research Fellowship, Marquette University, WI
2011	National Digital Innovation Award – Runner Up, Bangladesh Government
2011	Champion, IT Innovation Search Programme, Bangladesh Association of Software and Information Services
2008	7th Place, International Collegiate Programming Competition, Asia Regional, Dhaka
2008	10th Place, National Collegiate Programming Competition, Dhaka, Bangladesh
2008	1st Place, MIST Programming Competition, Dhaka, Bangladesh

Research Support and/or Fellowships

2024 – 2029	$3,394,663, The Development, Implementation, and Evaluation of a Social Engagement Support System, National Institutes of Health, Co-I. PI: Ian Stockwell
2022 – 2026	$13,000,000, HDR Institute: HARP- Harnessing Data and Model Revolution in the Polar Regions, National Science Foundation (NSF), Senior Personnel. PI: Vandana Janeja
2022 – 2023	$25,000, A Causal Inference Framework to Translate COVID-19 Observational Data to New Knowledge, Strategic Awards for Research Transitions (START), UMBC, PI.
2021 – 2024	$600,000, Accessible Routing Using Smart Crowd-Sensed Surface Classification for Wheelchair Users, National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), UMBC-PI.
2018	$5400, Summer Research Fund for Undergraduate Students, Miami University, PI

Ph.D. Students

Muhammad Hasan Ferdous	2021 – Present	Chair
Uzma Hasan	2021 – Present	Chair
Emam Hossain	2022 – Present	Chair
Omar Faruque	2025 – Present	Member
Samin Semsar	2024 – Present	Member
Saad Khan	2025 – Present	Member
Sancharee Hom Chowdhury	2024 – Present	Member
Maloy Kumar Devnath	2024 – Present	Member
Tashnim Chowdhury	2022 – 2024	Member
Avijoy Chakma	2022 – 2024	Member
Debvrat Varshney	2022 – 2024	Member
Argho Sarkar	2022 – 2024	Member
Sahara Ali	2022 – 2024	Member
Munshi Mahbubur Rahman	2022 – Present	Member
Masud Ahmed	2022 – 2025	Member
Catherine Ordun	2022 – 2023	Member
Rashidul Islam	2021 – 2022	Member

Master's Students

ASM Mobarak Hossain	2024 – Present	Chair
Md Fourkanul Islam	2022 – 2024	Chair
Parisa Eslami	2025 – 2025	Member
Rohan Salvi	2022 – 2024	Member
Valeria Mokrenko	08/14/2020	Member, Miami University
Shrawani Silwal	05/16/2020	Member, Miami University

Undergraduate Students

Cassiel Cordon	2025 – 2026	Undergraduate Research, Advisor
Mrinalini Nagampalli	2025 – 2026	Undergraduate Research, Advisor, UW Seattle
Kenny Chen	2021 – 2022	Undergraduate Research, Advisor
Nancy Nguyen	2021 – 2022	Undergraduate Research, Advisor
John Hata	2018 – 2019	Senior Design Project, Advisor, Miami University
Nick Wayne	2018 – 2019	Senior Design Project, Advisor, Miami University
Nick Jarvis	2018 – 2019	Senior Design Project, Advisor, Miami University
Austin Gee	2018 – 2019	Senior Design Project, Advisor, Miami University
Yiping He	2018 – 2019	Senior Design Project, Advisor, Miami University

Xiting Liang	2018 – 2019	Senior Design Project, Advisor, Miami University
Amit Kumar Saha	2011	Undergraduate Thesis, Advisor, MIST
Taskina Fayezeen	2011	Undergraduate Thesis, Advisor, MIST
Abdullah Al-Mamun	2011	Undergraduate Thesis, Advisor, MIST
Nafia Malik	2010	Undergraduate Thesis, Advisor, MIST
Sarah Ashraf	2010	Undergraduate Thesis, Advisor, MIST
Bushra Hossain	2010	Undergraduate Thesis, Advisor, MIST

High School Students

Zafira Wasma	2024 –	Research, Advisor, Boiling Springs High School, SC
Aileen Sharma	2023 – 2023	Research, Advisor, Poolesville High School, MD
Nabiha Sharif	2023 – 2023	Research, Advisor, Taft High School, CA
Alexander Dickens	2022 – 2022	Research, Advisor, Ingenuity Project, MD

TEACHING

Courses Taught

- Fall 2020
    1. IS/HCC 636 – Structured Systems Analysis and Design
- Spring 2021
    1. IS 698/800 – Causal Inference in AI and ML
- Fall 2021
    1. IS 428 – Data Mining Techniques and Applications
- Spring 2022
    1. IS 733 – Data Mining
- Fall 2022
    1. IS 428 – Data Mining Techniques and Applications
    2. IS 733 – Data Mining
- Spring 2023
    1. IS 790 – Causal Artificial Intelligence
- Fall 2023
    1. IS 709/809 – Computational Methods for IS Research
- Spring 2024
    1. IS 790 – Causal Artificial Intelligence
    2. IS 733 – Data Mining
- Fall 2024
    1. No courses taught [Family leave]
- Spring 2025
    1. IS 410/610 – Introduction to Database Design
- Fall 2025
    1. IS 733 – Data Mining

PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHIEVEMENTS

Publications

Student advisees/authors are underlined

Peer-Reviewed Works

- Journal Articles
  1. Devon Dunmire, Aneesh Subramanian, Emam Hossain, Md Osman Gani, Alison Banwell, Hammad Younas, Brendan M Myers, "Greenland Ice Sheet wide supraglacial lake evolution and dynamics: insights from the 2018 and 2019 melt seasons," Earth and Space Science, 12(2), e2024EA003793, February 2025.
  2. Uzma Hasan, Emam Hossain, Md Osman Gani, "A Survey on Causal Discovery Methods for IID and Time Series Data," Transactions on Machine Learning Research (TMLR), Sept 2023, https://openreview.net/pdf?id=YdMrdhGx9y.
  3. Md Osman Gani, Shravan Kethireddy, Riddhiman Adib, Uzma Hasan, Paul Griffin, and Mohammad Adibuzzaman. "Structural causal model with expert augmented knowledge to estimate the effect of oxygen therapy on mortality in the ICU." Artificial Intelligence in Medicine 137 (2023): 102493.
  4. Haoxiang Yu, Vaskar Raychoudhury, Snehanshu Saha, Janick Edinger, Roger O. Smith, and Md Osman Gani, "Automated Surface Classification System using Vibration Patterns - A Case Study with Wheelchairs," in IEEE Transactions on Artificial Intelligence, 2022, Pages 1-11, doi: 10.1109/TAI.2022.3190828.
  5. Md Osman Gani, Taskina Fayezeen, Richard J. Povinelli, Roger O. Smith, Muhammad Arif, Ahmed J. Kattan, Sheikh Iqbal Ahamed, "A light weight smartphone based human activity recognition system with high accuracy", Journal of Network and Computer Applications, Elsevier, Volume 141, Pages 59-72, September 1, 2019.
  6. N. Johnson, O. Bree, E. Lalley, K. Rettler, Md Osman Gani, S. Ahamed, "Effect of a Social Script iPad Application for Children with Autism Going to Imaging", Journal of Pediatric Nursing, Volume 29, Issue 6, Pages 651-659, 2014.
  7. Md Osman Gani, Hasan Sarwar, Chowdhury Mofizur Rahman "Prediction of state of wireless network using Markov and Hidden Markov Model", Journal of Networks, Volume 4, Issue 10, Pages 976-984, 2009.
- Chapters in Books
  1. Williams Drew, Md Osman Gani, Ivor D, AKM Jahangir Alam Majumder, Chandana P Tamma, Mong-Te Wang, Chih-Hung Chang, Sheikh Iqbal Ahamed, Cheng-Chung Chu. "Challenges in Developing Applications for Aging Populations", Optimizing Assistive Technologies for Aging Populations, Pages 1-21, 2015, IGI Global.
- Conference Proceedings
  1. Muhammad Hasan Ferdous, Emam Hossain, and Md Osman Gani. "TimeGraph: Synthetic Benchmark Datasets for Robust Time-Series Causal Discovery." In Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining, V. 2 (pp. 5425-5435), August 2025.
  2. Emam Hossain, Muhammad Hasan Ferdous, Devon Dunmire, Aneesh Subramanian, and Md Osman Gani, Causal time series modeling of supraglacial lake evolution in Greenland under distribution shift. In Proceedings of the 24th IEEE International Conference on Machine Learning and Applications (ICMLA 2025), Special Session on Deep Learning and Applications. Accepted for publication. Dec 2025.
  3. Emam Hossain and Md Osman Gani. "Learning what matters: Causal time series modeling for Arctic sea ice prediction." In Proceedings of the International Joint Conference on Artificial Intelligence, Workshop on AI for Time Series (AI4TS): Theory, Algorithms, and Applications, August 2025.
  4. ASM Mobarak Hossain, Md Nadim Mahmud, Ethan Han, Neil Advani, Bibodh Baral, Md Osman Gani, and Vaskar Raychoudhury, "A Smart and Barrier-Aware Navigation System for Wheelchair Routing", 7th International Workshop on Smart Living with IoT, Cloud and Edge Computing (SLICE), Accepted for publication, October 2025.
  5. Uzma Hasan and Md Osman Gani, "A knowledge-guided framework to enhance causal reasoning and human-AI collaboration", In Proceedings of the Causal AI for Robust Decision Making (CARD) Workshop

at the IEEE International Conference on Pervasive Computing and Communications (PerCom), March 2025.

6. Uzma Hasan, Md Osman Gani, Muhammad Adibuzzaman and Shravan Kethireddy, "Leveraging causal AI for robust treatment policy formulation: An ensemble causal tree approach with expert insights in critical care decision-making", In Proceedings of the Causal AI for Robust Decision Making (CARD) Workshop at the IEEE International Conference on Pervasive Computing and Communications (PerCom), March 2025.
7. Riddhiman Adib, Md Mobasshir Arshed Naved, Chih-Hao Fang, Md Osman Gani, Ananth Grama, Paul Griffin, Uzma Hasan, Sheikh Iqbal Ahamed, and Mohammad Adibuzzaman, "CKH: Causal Knowledge Hierarchy for Estimating Structural Causal Models from Data and Priors", In Proceedings of the IEEE International Conference on Computers, Software, and Applications (COMPSAC 2025), 256-261, July 2025.
8. Riddhiman Adib, Md Osman Gani, Sheikh Iqbal Ahamed, and Mohammad Adibuzzaman, "Causal Discovery on the Effect of Antipsychotic Drugs on Delirium Patients in the ICU using Large Observational EHR Dataset", In Proceedings of the IEEE International Conference on Computers, Software, and Applications (COMPSAC 2025), 173-182, July 2025.
9. Emam Hossain, Muhammad Hasan Ferdous, Jianwu Wang, Aneesh Subramanian, and Md Osman Gani, "Correlation to causation: A causal deep learning framework for Arctic sea ice prediction", In Proceedings of the Causal AI for Robust Decision Making (CARD) Workshop at the IEEE International Conference on Pervasive Computing and Communications (PerCom), March 2025.
10. Emam Hossain, Md Osman Gani, Devon Dunmire, Aneesh Subramanian, Hammad Younas, "Time Series Classification of Supraglacial Lakes Evolution over Greenland Ice Sheet", 23rd International Conference on Machine Learning and Applications (ICMLA), 490-497, 2024.
11. Siyuan Wang, James Foulds, Md Osman Gani, and Shimei Pan, "Beyond RAG (BRAG): Reducing Hallucinations in Retrieval Augmented Generation for Scientific Claim Verification", In Proceedings of the Workshop on Document Understanding and Intelligence at AAAI, March 2025.
12. Rochishnu Banerjee, Ethan Han, Longze Li, Haoxiang Yu, Md Osman Gani, Vaskar Raychoudhury, Roger O Smith, "FedAccess: Federated Learning-Based Built Surface Recognition for Wheelchair Routing," IEEE 48th Annual Computers, Software, and Applications Conference (COMPSAC), 1406-1415, 2024.
13. Thomas Nguyen, Md Fourkanul Islam, Rochishnu Banerjee, Hanna M. Noyce, Emily M. Olejniczak, Roger O. Smith, Md Osman Gani, and Vaskar Raychoudhury. "MyPath: Accessible Route Generation Using Crowd-Sensed Surface Information." In *International Conference on Mobile and Ubiquitous Systems: Computing, Networking, and Services*, pp. 28-39. Cham: Springer Nature Switzerland, 2023.
14. Sahara Ali, Omar Faruque, Yiyi Huang, Md Osman Gani, Aneesh Subramanian, Nicole-Jeanne Schlegel, Jianwu Wang, "Quantifying causes of arctic amplification via deep learning based time-series causal inference," 24th International Conference on Machine Learning and Applications (ICMLA), 689 – 696, 2024.
15. Muhammad Hasan Ferdous, Uzma Hasan, Md Osman Gani, "CDANs: Temporal Causal Discovery from Autocorrelated and Non-Stationary Time Series Data," Machine Learning for Healthcare Conference, Proceedings of Machine Learning Research, Volume 219, Pages 186-207, 2023.
16. Uzma Hasan, and Md Osman Gani, "KCRL: A Prior Knowledge based Causal Discovery Framework with Reinforcement Learning.", Machine Learning for Healthcare Conference, Proceedings of Machine Learning Research, Volume 182, Pages 1-24, 2022.
17. Rochishnu Banerjee, Md Fourkanul Islam, Shaswati Saha, Vaskar Raychoudhury, and Md Osman Gani. "Surface Recognition from Wheelchair-induced Noisy Vibration Data: A Tale of Many Cities." In 2022 18th International Conference on Mobility, Sensing and Networking (MSN), pp. 619-626. IEEE Computer Society, 2022.

18. Shaswati Saha, Lauren A. Selingo, Hanna M. Noyce, Emily M. Olejniczak, Roger O. Smith, Vaskar Raychoudhury, and Md Osman Gani, MyPath: Accessible Routing for Wheelchair Users, RESNA Conference, 2022.
19. Hanna M. Noyce, Emily M. Olejniczak, Lauren A. Selingo, Roger O. Smith, Vaskar Raychoudhury, Shaswati Saha, and Md Osman Gani, Community Accessibility for Wheelchair Users as Seen Through the Lens of I-Corps Interviews, RESNA Conference, 2022.
20. Valeria Mokrenko, Haoxiang Yu, Vaskar Raychoudhury, Janick Edinger, Roger O. Smith and Md Osman Gani, "A Transfer Learning Approach to Surface Detection for Accessible Routing for Wheelchair Users," 2021 IEEE 45th Annual Computers, Software, and Applications Conference (COMPSAC), 2021, pp. 794-803, doi: 10.1109/COMPSAC51774.2021.00112.
21. Shrawani Silwal, Vaskar Raychoudhury, Snehanshu Saha, Md Osman Gani, “A Dynamic Taxi Ride Sharing System Using Particle Swarm Optimization”, Proceedings of the IEEE 17th International Conference on Mobile Ad Hoc and Sensor Systems (MASS), Pages 112-120, December 10-13, 2020.
22. Marvi Bikak, Shravan Kethireddy, Md Osman Gani, Mohammad Adibuzzaman. Structural causal model with expert augmented knowledge to estimate the effect of oxygen therapy. CHEST, 158(4):A636, 2020.
23. Md Osman Gani, Vaskar Raychoudhury, Janick Edinger, Valeria Mokrenko, Zheng Cao, Ce Zhang, “Smart Surface Classification for Accessible Routing through Built Environment - A Crowd-sourced Approach”, Proceedings of the ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, Pages 11-20, November 13, 2019.
24. Md Osman Gani, G M T Ahsan, Amit Kumar Saha, Sheikh Iqbal Ahamed, Roger O. Smith, “A Novel Framework to Recognize Complex Activity”, Proceedings of the IEEE 41st Annual Computer Software and Applications Conference, Pages 948-956, July 2017.
25. Amit Kumar Saha, GMT Ahsan, Md Osman Gani, Sheikh Iqbal Ahamed, “Personalized Pain Study Platform using Evidence-based Continuous Learning Tool”, Proceedings of the IEEE 41st Annual Computer Software and Applications Conference Workshops, Pages 490-495, July 2019.
26. Nicholas Jarvis, John Hata, Nicholas Wayne, Vaskar Raychoudhury, Md Osman Gani, “MiamiMapper: Crowd Analysis using Active and Passive Indoor Localization through Wi-Fi Probe Monitoring”, Proceedings of the 15th ACM Symposium on QoS and Security for Wireless and Mobile Networks, Pages 1-10, November 2019.
27. Shrawani Shilwal, Vaskar Roychoudhury, Md Osman Gani, “A Survey of Taxi Ride Sharing System Architectures”, Proceedings of the IEEE International Conference on Smart Computing (SMARTCOMP) Workshop, Pages 144-149, June 2019.
28. Manh Nguyen, Md Osman Gani, Vaskar Roychoudhury, “Yours Truly? Accessibility of Our Personal Data in the Connected World”, Proceedings of the IEEE International Conference on Pervasive Computing and Communications Workshops, Pages 292-297, March 2019.
29. G M T Ahsan, Md Osman Gani, MD K Hasan, Sheikh I Ahamed, W Chu, Mohammad Adibuzzaman, Joshua Field, "A Novel Real-Time Non-Invasive Hemoglobin Level Detection Using Video Images from Smartphone Camera", In proceeding of the IEEE 41st Annual Computer Software and Applications Conference Workshop, Pages 967-972, July 2017.
30. Md Osman Gani, Golam Mushih Tanimul Ahsan, Duc Do, Drew Williams, Mohammed Balfas, Sheikh Iqbal Ahamed, Muhammad Arif, Ahmed J. Kattan, “A Novel Approach for localization in crowded area without GPS”, In proceedings of the IEEE Healthcom, Pages 1-6, 2016.
31. Md Osman Gani, Taskina Fayezeen, Sheikh Iqbal Ahamed, Dennis B. Tomashek, Roger O. Smith, “Simple Activity Recognition Using Smartphone Technologies For In-Home Rehabilitation”, In proceedings of the RESNA Annual Conference, Paper ID 151, 2015. [Online library, does not maintain page number]
32. Md Osman Gani, Sheikh Iqbal Ahamed, Samantha Ann Davis, Roger O. Smith, An Approach to Complex Functional Activity Recognition using Smartphone Technologies, In proceedings of the RESNA Annual Conference, Paper ID 152, 2014. [Online library, does not maintain page number]

33. F Rahman, Md Osman Gani, G M T Ahsan, and S I Ahamed, "Seeing beyond visibility: A Four Way Fusion of User Authentication for Efficient Usable Security on Mobile Devices", In proceedings of the IEEE 8th International Conf. on Software Security and Reliability-Companion, Pages 121-129, 2014.
34. Md Osman Gani, Casey O'Brien, S I Ahamed, Roger O Smith, "RSSI based Indoor Localization for Smartphone using Fixed and Mobile Wireless Node", In proceedings of the IEEE 37th Annual Computer Software and Applications Conference, Pages 110-117, 2013.
35. S I Ahamed, C S Hasan, M M Haque, Md Osman Gani, "Towards TTP-Free Lightweight Solution for Location Privacy Using Location-Based Anonymity Prediction", In proceedings of the ACM Research in Applied Computation Symposium, Pages 293-297, 2011.
36. Md Osman Gani, SIB Ashraf, N Malik, B Hossain, MA Hossain, H Sarwar "Recursive implementation of Markov Model, A new approach". In proceedings of the 25th IEEE International Conference on Advanced Information Networking and Applications Workshop, Pages 216-220, 2011.
37. FM Mahbub-ul-Islam, Md Osman Gani, Samiul Azam, Ahmed Imtiaz Khan, and SA Hossain, "Computational Model for Bangla Text to Braille Translation", In proceedings of the International Conference on Computer Processing of Bangla, Paper ID 23, 2011, Bangladesh. [Online library, does not maintain page number]
38. Ahmed Imtiaz Khan, Samiul Azam, Md Osman Gani, FM Mahbub-ul-Islam, and Sayed A Hossain. "Architecture & Implementation of Bangla Text to Braille Translation", In proceedings of the International Conference on Computer Processing of Bangla, Paper ID 24, 2011, Bangladesh. [Online library, does not maintain page number]
39. Md Osman Gani, Iftekhar Jahan Mehedi, Mehnaz Seraj, Hasan Sarwar, and Chowdhury Mofizur Rahman. "Prediction of the density of the Active Wireless device using Markov Model", In proceedings of the IEEE International Conference on Computer and Information Technology, Pages 691-695, 2008.

Non-Peer-Reviewed Works

- Articles
  1. Sahara Ali, Uzma Hasan, Xingyan Li, Omar Faruque, Akila Sampath, Yiyi Huang, Md Osman Gani, Jianwu Wang, "Causality for Earth Science--A Review on Time-series and Spatiotemporal Causality Methods," arXiv preprint arXiv:2404.05746, 2024

Works Submitted or In Preparation

- Articles
  1. Emam Hossain, Md Osman Gani, Devon Dunmire and Aneesh Subramanian, "RPS-TSC: Time Series Classification of Supraglacial Lakes via Reconstructed Phase Space Modeling," Deep Learning Applications, Book Chapter (**Under Review**)
  2. Uzma Hasan and Md Osman Gani, "DKC: Data-driven and Knowledge-guided Causal Discovery using a Tailored Scoring Criterion", Knowledge-based Systems, Elsevier, 2025 (**Under Review**).
  3. Muhammad Hasan Ferdous and Md Osman Gani. "DCD: Decomposition-based causal discovery for multivariate time series". Machine Learning for Health (ML4H), NeurIPS 2025 **(Under Review)**.
  4. Emam Hossain, Md Osman Gani, Devon Dunmire, Aneesh Subramanian, Hammad Younas, "A Causal Approach to Classifying Supraglacial Lake Evolution in Greenland under Distribution Shifts", Tackling Climate Change with Machine Learning, NeurIPS 2025 2025 **(Under Review)**.
  5. Hanna Noyce, Emily Olejniczak, Vaskar Raychoudhury, Roger O. Smith, Md Osman Gani, "Understanding Community Accessibility Requirements of Wheelchair Users - Interviews, Discussion, and Modeling", ACM CHI Conference on Human Factors in Computing Systems, 2025 (**Revising to Submit**)
  6. Riddhiman Adib, Sajid Hasan Apon, Md Osman Gani, Michael Heinz, Hari Bharadwaj, Mohammad Adibuzzaman, "Exploring Pathophysiology of Hearing Loss through Transportability of Causal Knowledge

from Animal to Human Studies", ACM Conference on Health, Inference, and Learning (CHIL), 2025 (**In-Preparation**).

7. Sahara Ali, Uzma Hasan, Xingyan Li, Jianwu Wang, Md Osman Gani, "A Survey of Spatiotemporal Causal Discovery Methods for Earth Science", Journal of Machine Learning Research, 2022 (**Ready to Submit**).
8. Muhammad Hasan Ferdous and Md Osman Gani, "G-DCD: Generalized decomposition-based causal discovery for multivariate time series", ACM KDD 2026 (**In-Preparation)**.

Presentations

Conference/Poster Presentations (Juried/Refereed)

1. Muhammad Hasan Ferdous and Md Osman Gani, "DCD- Decomposition-based Causal Discovery from Autocorrelated and Non-Stationary Temporal Data," Presented at COEIT Research Day 2025.
2. Uzma Hasan and Md Osman Gani, "DKC: Data-driven and Knowledge-guided Causal Discovery Using a Tailored Scoring Criterion," Presented at COEIT Research Day 2025.
3. Emam Hossain and Md Osman Gani, "Identification of Causal Representation in Variational Autoencoders," Presented at COEIT Research Day 2025.
4. Emam Hossain and Md Osman Gani, "Time Series Classification of Supraglacial Lakes Evolution over Greenland Ice Sheet," Presented at COEIT Research Day 2025.
5. Muhammad Hasan Ferdous and Md Osman Gani, "Attention-based Causal Discovery from Autocorrelated and Non-Stationary Temporal Data", Presented at COEIT Research Day 2024.
6. Sahara Ali, Omar Faruque, Yiyi Huang, Md Osman Gani, Nicole-Jeanne Schlegel, Aneesh Subramanian, and Jianwu Wang, "Estimating Causal Effects of Greenland Blocking on Arctic Ice Melt using Deep Learning Technique." AMS Annual Meeting, 2024
7. Emam Hossain, Sahara Ali, Yiyi Huang, Nicole-Jeanne Schlegel, Jianwu Wang, Aneesh Subramanian, Md Osman Gani, "Incorporating Causality with Deep Learning in Predicting Short-Term and Seasonal Sea Ice." AMS Annual Meeting, 2024
8. Aneesh Subramanian, Devon Dunmire, Emam Hossain, Md Osman Gani, Alison Banwell, Brendan M Myers, "The fate of Greenland Ice Sheet supraglacial lakes in a warm and cool year." EGU General Assembly Conference, Copernicus Meetings, April 2024.
9. Muhammad Hasan Ferdous, Uzma Hasan, Md Osman Gani, "eCDANs: Efficient Temporal Causal Discovery from Autocorrelated and Non-stationary Data", AAAI Student Abstract, Washington DC, 2023.
10. Sourajit Saha, Shaswati Saha, Md Osman Gani, Tim Oates, and David Chapman. "RFC-Net: Learning High Resolution Global Features for Medical Image Segmentation on a Computational Budget.", AAAI Student Abstract, Washington DC, 2023.
11. Shaswati Saha, Md Fourkanul Islam, Roger O. Smith, Vaskar Raychoudhury, and Md Osman Gani "Redefining Wheelchair Accessibility through Cross-Domain Knowledge Transfer (WheelTransfer)", Occupational Therapy Summit, Madison, WI 2022.
12. Uzma Hasan, Md Osman Gani. "Towards Developing an Explainable Healthcare Framework With AI-Human Collaboration - A Causal Perspective", Student Research Competition, IEEE International Conference on Digital Health, 2021.
13. John Hata, Md Osman Gani, and Vaskar Raychoudhury. "CARE: Campus-wide Accessible Route Estimation through Surface Analysis", In Proceedings of the 20th ACM International Workshop on Mobile Computing Systems and Applications, Pages 173-173, 2019.

14. Md Osman Gani, Taskina Fayezeen, Sheikh Iqbal Ahamed, Richard J. Povinelli, “Computationally Efficient Human Activity Modelling and Its Application as a Service in Android Framework”, ACM HotMobile, 2016, FL, USA.
15. Md Osman Gani, GMT Ahsan, Amit K. Saha, Sheikh Ahamed, “Smart Spectacle Clip to Train and Prevent Fall”, Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, Nov. 2016.
16. Taskina Fayezeen, Md Osman Gani, Sheikha Iqbal Ahamed, "mHealth System for the Patients with Arthritis", Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, Nov. 2015.
17. Md Osman Gani, Duc Do, Balfas, Drew Williams, G M Tanimul, Sheikha Iqbal Ahamed, “Ubitrack: Locating lost pilgrims in the crowded area of Makkah during Hajj”, Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, Nov. 2014.
18. Piyush Saxena, Md Osman Gani, Sheikh Iqbal Ahamed, Stephen Yau, “Situation-Aware Cyber-Human Environments for Enriched Assisted Living”, Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, Nov. 2014.
19. Johnson, N., Kabobel, O., Lalley, E., Retler, K., Grande, P., Unetesch, R., Coffey, M., Haberlin, S., Gani, Md O., & Ahamed, S.I. Effect of an IPAD Application for Medical Imaging Procedure Preparation for Children with Autism Spectrum Disorder. International Family Nursing Conference. Minneapolis, June 19–22, 2013.
20. Johnson, N., Kabobel, O., Lalley, E., Retler, K., Grande, P., Unetesch, R., Coffey, M., Haberlin, S., Gani, Md O., & Ahamed, S.I. Effect of an IPAD Application for Medical Imaging Procedure Preparation for Children with Autism Spectrum Disorder. The Fly-In Research Conference at Children's Hospital of Wisconsin. Milwaukee, Wisconsin, May 23-24, 2013.
21. N K Johnson, E O Lalley, Md Osman Gani, S I Ahamed. Medical Imaging Procedure Preparation for children with Autism with an IPad App Social Script. Building Bridges Conference, Milwaukee, Wisconsin, May 15, 2013.
22. N K Johnson, Md Osman Gani, S I Ahamed, IPAD Application for Imaging Preparation Compared to Regular Care: Two Case Studies of Children with Autism. Midwest Nursing Research Society Conference, Chicago, Illinois, March 7-10, 2013.
23. Md Osman Gani, S I Ahamed, Towards Fall Prevention Using Human Activity Genome on Smartphones, Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, Nov. 2011, pp26
24. M Adibuzzaman, F A Kawsar, M M Haque, Md O Gani, N Steinhafel, S I Ahamed, Multimodal Ubiquitous Affect Detection for Social Network, Proceedings of the Forward Thinking Poster Session, Marquette University, WI, USA, November 2011, pp22.

Creative Achievements

<u>Project Proposal Submitted or Works in Progress</u>

1. CAREER: Advancing Causal AI: Knowledge-Guided Discovery and Inference, National Science Foundation, $638,356, Under review (PI).
2. MyPath: AI-based Personalized Navigation System for Wheelchair Users, Maryland Innovation Initiative (MII), TEDCO, $130,000, Under review (PI).
3. CPS: MyPath: Personalized Accessible Routing for the Wheelchair Community through Smart Integration of User and Surface Characteristics, National Science Foundation, $1,500,000, Revising to resubmit (PI).
4. RI: Medium: Causality for Language Models, Language Models for Causality: Interpretability, Fairness, and COVID-19 Racism, National Science Foundation, $1,200,000, Revising to resubmit (PI).

5. MyPath NextGen: Smart Mapping of Crowd-Sensed Path Barrier Information for Personalized Navigation, National Institute on Disability, Independent Living, and Rehabilitation Research, $750,000, Revising to resubmit (PI).
6. Accessible Routing Using Scalable and Multimodal Path Characteristics Identification Techniques for Wheelchair Users , National Institute on Disability, Independent Living, and Rehabilitation Research, $750,000, Revising to resubmit (PI).
7. METAL: A Multimodal Evidence-based LLM Hallucination Investigation Framework, National Science Foundation, $600,000, Revising to resubmit (Co-PI), PI: Shimei Pan.
8. ArtISAN: Artificial Intelligence Powered Safe and Accessible Navigation Framework for Vulnerable Road Users, Federal Highway Administration (FHWA), US Department of Transportation, $220,000, Revising to resubmit (UMBC PI).
9. REU Site: Research Experiences for Undergraduates in Smart Computing & Communications, National Science Foundation, $475,000, Revising to resubmit (Co-PI), PI: Nirmalya Roy.

SERVICE TO THE DEPARTMENT, UNIVERSITY, COMMUNITY, AND PROFESSION

Service to the Community and Profession

1. 2025 – Present, Program Committee Member, International Conference on Knowledge Discovery and Data Mining (KDD)
2. 2024 – Present, Program Committee Member, International Conference on Learning Representations (ICLR)
3. 2024 – 2025, Publication Co-Chair, IEEE International Conference on Pervasive Computing and Communications (PerCom) 2025.
4. 2023 – Present, Program Committee Member, International Conference on Artificial Intelligence and Statistics (AISTATS)
5. 2021 – Present, Program Committee Member, Machine Learning for Healthcare (MLHC) Conference
6. 2021 – Present, Program Committee Member, Machine Learning for Health (ML4H) Symposium
7. 2022 – Present, National Science Foundation Panelist
8. 2023, Grant Reviewer, Army Research Office
9. 2021 – 2023, Program Committee Member, IEEE International Conference on Digital Health (ICDH)
10. 2017 – 2024, Program Committee Member, IEEE Computer Software and Applications Conference (COMPSAC)
11. 2021, Workshop Co-Chair, EAI MobiQuitous 2021 - 18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services
12. 2021, Co-Chair, Student Research Symposium, IEEE Computer Society Signature Conference on Computers, Software, and Applications Conference (COMPSAC)
13. 2021, Co-Chair, IEEE International Workshop on Pervasive Context-Aware Smart Cities and Intelligent Transportation Systems, PerCom
14. 2021, Program Committee Member, IEEE International Conference on Digital Health (ICDH)
15. 2021, Program Committee Member, IEEE International Conference on Mobility, Sensing and Networking
16. 2020, Program Committee Member, 2020 IEEE International Digital Health as a Service Symposium
17. 2020, Reviewer, 21st International Conference on Distributed Computing and Networking
18. 2020, Artifacts Co-chair, IEEE International Conference on Pervasive Computing and Communications (PerCom).
19. 2020, Reviewer, IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS)
20. 2019, Co-chair, IEEE International Workshop on Integrated Smart Healthcare (WISH), COMPSAC
21. 2019, Reviewer, IEEE International Conference on Pervasive Computing and Communications

22. 2018, 2024, Reviewer, International Conference on Networking, Systems and Security (NSysS)
23. 2017 – 2019, Program Committee Member, ACM Symposium on Applied Computing (SAC)
24. 2016, Judge, ACM Marquette University Programming Competition for High School
25. 2010, Chief Judge and Problem Setter, MIST Programming Contest, Bangladesh
26. 2009 – 2011, Coach, Programming Contest Team, MIST, Bangladesh

Service to the Department

1. 2025 – Present, Member, Undergraduate Committee
2. 2022 – 2025, Member, Graduate Committee: IS on Campus
3. 2024 – Present, Member, Honors and Awards Committee
4. 2023 - 2024, Member, Faculty Search Committee
5. 2022 – 2023, Research Seminar Coordinator
6. 2022 – 2024, Member, Research Committee
7. 2021 - 2022, Member, Faculty Search Committee
8. 2023, Judge, COEIT Research Day, UMBC
9. 2022, Volunteer, Cyber Scholar Application Reader, UMBC
10. 2021 – Present, Volunteer, Center for Women in IT, UMBC
11. 2021, Judge, Student Research Poster Session, IS, UMBC

Service to the University

1. 2023 – Present, Faculty Member, Academic Conduct Committee