ABDULLAH AL MAMUN

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https://scholar.google.com/citations?user=SOJ1o5QAAAAJ&hl=en

PROFILE HIGHLIGHTS

- Contributed to 9 NSF and NIH funded projects in AI for Healthcare.
- Author of 16 research papers, 11 are published in peer-reviewed journals (5) and conferences (6) including ACM Health (IF: 8), Progress in Biomedical Engineering (IF: 7.7), Sensors Journal (Impact Factor 3.5, Cite Score: 8.2), AAAI 2025 (Top-tier Artificial Intelligence conference), Current Opinion in Biomedical Engineering (COBME) Journal (Impact Factor: 4.2), IEEE EMBC 2025, BSN 2023, IEEE BSN 2022, and IEEE EMBC 2022. 2 journal papers are currently under review.
- Taught an AI course at Arizona State University as the sole instructor.
- Reviewed 34 journal and conference submissions, including for top-tier venues such as IEEE JBHI and AAAI.

AWARDS & HONORS

- Best Paper (Honorable Mention) Award at the IEEE BSN 2022 conference (2022).
- Outstanding Research Award winner at Arizona State University GSG Awards (2024).
- Teaching Excellence Award winner at Arizona State University GSG Awards (2024).
- Invited Talk: Time-Series Wearable Activity Forecasting at ASU Machine Learning Day (2023).
- Invited Talk at AZ Health Data Integration Meeting (2025): A meeting organized by ASU and Google.
- Full Membership of Sigma Xi, The Scientific Research Honor Society (2025). Nominated for significant contribution to the scientific community.
- Professional Membership of ACM (Association for Computing Machinery). Nominated for significant contribution to ACM.
- Multiple Travel Awards by IEEE, ASU GSG, ASU Graduate College (2023 – 2025).

EDUCATION

PhD, Computer Science, Arizona State University (GPA: 4.00) **Jan 2022 - Dec 2026 (Expected)**
- Advisor: Dr. Hassan Ghasemzadeh (hassan.ghasemzadeh@asu.edu)

MS (With Distinction), Computer Science, Arizona State University (GPA: 4.00) **Jan 2022 - May 2025**
- Advisor: Dr. Hassan Ghasemzadeh.

PhD Student (before transfer to ASU), Computer Science, Washington State University **Jan 2021 - Dec 2021**
- Advisor: Dr. Hassan Ghasemzadeh.

BSc, Computer Science, Bangladesh University of Engineering and Technology (GPA: 3.70) **Jul 2014 - Oct 2018**
- Selected courses: Data Structures, Algorithms, Compilers, OS, Computer Architecture, Databases (160 credits).

EXPERIENCE

Graduate Research Associate, Arizona State University (Phoenix, AZ, USA) **Dec 2021 - Present**
- Authored 16 papers as a researcher at the Embedded Machine Intelligence Lab (https://ghasemzadeh.com).
- Designed user studies, wrote IRB protocols, developed infrastructure, recruited participants, collected and analyzed data. Implemented API interfaces to access and process data on AWS S3, Spotify, Google Drive, etc.

Teaching Duties:
- Taught BMI 311: Modeling Biomedical Knowledge as the sole instructor in Fall 2024. Core topics: AI architecture, KNN, Random Forest, SVM, Neural networks, Validation methods, Deep learning, Clustering, etc.

Research and Teaching Assistant, Washington State University (Pullman, WA, USA) **Jan 2021 - Dec 2021**
- Submitted a paper. Helped over 100 students in Advanced Data Structures C/C++, taught by Dr. Yan Yan.

Lecturer, United International University (Dhaka, Bangladesh) **Sep 2019 - Jan 2021**
- Taught: Software Engineering, Java and C Programming, Digital System Design, System Analysis and Design.

Software Developer, HLC Technologies Limited (Dhaka, Bangladesh) **Nov 2018 - Sep 2019**
- Developed cybersecurity solutions for Windows, macOS, Ubuntu, and CentOS platforms, patch management and configuration monitoring tools, and online learning management systems. Implemented new features every sprint.

PHD RESEARCH PROJECTS

***See the PUBLICATIONS section for the outcomes from these projects.**

1. **CPS: Small: Human-in-the-Loop Learning of Complex Events in Uncontrolled Environments**
   Funding: National Science Foundation (NSF) #1932346, #2227002
2. **Smartphone-Based Diabetes Prevention in the VA: A Cluster-Randomized Trial**
   Funding: National Institutes of Health (NIH) #R18DK109516
3. **Developing a Music Listening mHealth Intervention for Stress Reduction in Early Recovery**
   Funding: National Institutes of Health (NIH) #R61AA031474
4. **Activity-Aware Prompting to Improve Medication Adherence in Heart Failure Patients**
   Funding: National Institutes of Health (NIH) #R21NR015410
5. **Keeping Labor Safe**
   Funding: WearTech Center, an applied research center owned and operated by the Partnership for Economic Innovation.
6. **CHS: Medium: Behavior360: Learning a Human Behaviorome in Uncontrolled Settings**
   Funding: National Science Foundation (NSF) #1954372
7. **CAREER: Autonomous Wearable Computing for Personalized Healthcare**
   Funding: National Science Foundation (NSF) #1750679, #2210133
8. **REU Site: Multidisciplinary Undergraduate Research Training in Wearable Computing**
   Funding: National Science Foundation (NSF) #1852163
9. **WorkWell: A Pre-clinical Pilot Study of Increased Standing and Light-intensity Physical Activity in Prediabetic Sedentary Office Workers**
   Clinical Trial: https://www.clinicaltrials.gov/study/NCT04269070
   Funding: Arizona State University College of Health Solutions Translational Science Award to the Metabolic Health Translational Team
10. **Interdisciplinary Systems-based Training for Precision Nutrition**
    Funding: National Institutes of Health (NIH) #T32DK137525
11. **PARTNER: AIPS:** Expanding AI Innovation in Pervasive Systems at Arizona State University
    Funding: National Science Foundation (NSF) #2402650

PUBLICATIONS

1. **Use of What-if Scenarios to Help Explain Artificial Intelligence Models for Neonatal Health.** A. Mamun, L. D. Devoe, M. I. Evans, D. W. Britt, J. Klein-Seetharaman, & H. Ghasemzadeh. ACM Transactions on Computing for Healthcare (2026) (**accepted for publication, in press**) (Impact factor: 8.0, Cite score: 15.6).
   Read: https://dl.acm.org/doi/10.1145/3814951. Source of funding: WearTech Center

2. **LLM-Powered Prediction of Hyperglycemia and Discovery of Behavioral Treatment Pathways from Wearables and Diet.** A. Mamun, A. Arefeen, S. B. Racette, D. D. Sears, C. M. Whisner, M. P. Buman, H. Ghasemzadeh. Sensors (2025), *25*(17), 5372. https://doi.org/10.3390/s25175372. (Impact factor: 3.5, Cite score: 8.2). *Read on the Sensors Journal website (**published paper**): https://www.mdpi.com/1424-8220/25/17/5372.*
   Source of Funding: NSF #2227002, NIH #T32DK137525

3. **Trustworthy AI in Digital Health: A Comprehensive Review of Robustness and Explainability.** A. Mamun, S. B. Soumma, H. Ghasemzadeh. Progress in Biomedical Engineering Journal (2026) (**published paper**). (Impact factor: 7.7)**.** *Read on Preprints.org: https://www.preprints.org/manuscript/202507.2387/v1.*
   Source of Funding: NSF #2227002

4. **Domain-Informed Label Fusion Surpasses LLMs in Free-Living Activity Classification**. S. B. Soumma, A. Mamun, H. Ghasemzadeh. AAAI Conference on Artificial Intelligence (AAAI 2025) Extended Abstract.
   *Read on the AAAI website (**published paper**): https://ojs.aaai.org/index.php/AAAI/article/view/35301.*
   Source of Funding: NIH #R21NR015410, NSF #2227002

5. **Designing Deep Neural Networks Robust to Sensor Failure in Mobile Health Environments**. A. Mamun, S. I. Mirzadeh, H. Ghasemzadeh. IEEE Engineering in Medicine and Biology Conference (EMBC 2022).
*Read on the NSF website (**published paper**): https://par.nsf.gov/servlets/purl/10325313.*
Source of Funding: NSF #1750679, #1852163, #1932346, #2210133, #1954372

6. **Multimodal Time-Series Activity Forecasting for Adaptive Lifestyle Intervention Design**. A. Mamun, K. S. Leonard, M. P. Buman, H. Ghasemzadeh. IEEE Wearable and Implantable Body Sensor Networks (BSN 2022) **(published paper)**.
Read on the NSF website: https://par.nsf.gov/servlets/purl/10389477. (Best paper honorable mention award winner)
Source of Funding: NSF #2210133, #2227002, #1954372, #1852163, NIH #R18DK109516

7. **Neonatal Risk Modeling and Prediction**. A. Mamun, C.-C. Kuo, D. W. Britt, L. D. Devoe, M. I. Evans, H. Ghasemzadeh, J. Klein-Seetharaman. IEEE Conference on Body Sensor Networks (BSN 2023).
*Read the on IEEE Xplore (**published paper**): https://ieeexplore.ieee.org/document/10331196/*
Source of Funding: Weartech Center

8. **AI-Powered Wearable Sensors for Health Monitoring and Clinical Decision Making.** S. B. Soumma, A. Mamun, H. Ghasemzadeh. Current Opinion in Biomedical Engineering (**published paper**). (IF: 4.2)
Read on Preprints: https://www.preprints.org/manuscript/202507.2601.
Read the published version: https://doi.org/10.1016/j.cobme.2025.100628.
Source of Funding: NSF #2227002

9. **Enhancing Metabolic Syndrome Prediction with Hybrid Data Balancing and Counterfactuals**. S. P. Sah, A. Mamun, S. B. Soumma, H. Ghasemzadeh. IEEE Engineering in Medicine and Biology Conference (**published paper**, EMBC 2025). *Read on arXiv (IEEE EMBC accepted version): https://arxiv.org/abs/2504.06987.*

10. **Freezing of Gait Detection Using Gramian Angular Fields and Federated Learning from Wearable Sensors**. S. B. Soumma, S. M. R. Alam, R. Mahi, U. N. Mahi, A. Mamun, S. M. Mostafavi, H. Ghasemzadeh. IEEE Engineering in Medicine and Biology Conference (**published paper)**, EMBC 2025). *Read (EMBC accepted version): https://arxiv.org/abs/2411.11764.*

11. **The Effect of Music Listening on Stress Inoculation: Analysis of Psychological and Physiological Outcomes.** N. T. Chatrudi, R. K. Sah, A. Mamun, M. Belgrave, A. Habibi, M. J. Cleveland, H. Ghasemzadeh. International Journal of Stress Management, 2026 (**accepted for publication**) (5-year impact factor: 4.2) *Source of funding: NIH ##R61AA031474*

12. **AIMI: Leveraging Future Knowledge and Personalization in Sparse Event Forecasting for Treatment Adherence**. A. Mamun, D. J. Cook, H. Ghasemzadeh. Smart Health (**under revision**) (Cite score: 7.7). *Read: https://arxiv.org/abs/2503.16091. Source of funding: NIH #R21NR015410, NSF #2227002*

13. **GluBox: Glucose Prediction for Type 1 Diabetes from Multimodal Wearable Sensors using Region-Sensitive Loss and Bayesian Optimization**. P. Khorasani, E. Farahmand, A. Mamun, Hassan Ghasemzadeh. IEEE Sensors (**under revision**). *Source of funding: NSF #2402650*

14. **Multimodal Physical Activity Forecasting in Free-Living Clinical Settings: Hunting Opportunities for Just-in-Time Interventions.** A. Mamun, K. S. Leonard, M. E. Petrov, M. P. Buman, H. Ghasemzadeh. IEEE Sensors (submission pending) (Impact factor: 4.5). *Read on arXiv: https://arxiv.org/abs/2410.09643.*
Source of Funding: NSF #2210133, #2227002, #1954372, #1852163, NIH #R18DK109516

15. **Hybrid Label Fusion Approach using Domain Knowledge Surpasses LLM for Human Activity Recognition in Free-Living Contexts** (tentative title). S. B. Soumma, A. Mamun, N. Chaytor, D. J. Cook, H. Ghasemzadeh. IEEE Sensors (submission pending) (Impact factor: 4.5) *Source of Funding: NIH #R21NR015410, NSF #2227002*

16. **Actsafe: Predicting violations of medical temporal constraints for medication adherence.** P. Seegmiller, J. Gatto, A. Mamun, H. Ghasemzadeh, D. J. Cook, J. Stankovic, S. M. Preum. (Preprint)

Read on arXiv: https://arxiv.org/abs/2301.07051.

ACADEMIC SERVICES

- Mentored research projects of undergraduate and high school students. Outcomes: Full-contributed accepted paper in IEEE EMBC 2025. 1-page technical abstract accepted at BSN 2024.
- Reviewed 34 journal and conference submissions: 5 IEEE JBHI, 2 AAAI 2026, 1 BHI'23, 6 BHI'24, 1 BHI'25, 1 PerCom'23, 5 CHIL'24, 2 CHIL'25, 4 ML4H'24, 4 ML4H'25, 1 IEEE EMBC'25, and 2 IEEE BSN'25.
- Member of Program Committee: AAAI 2026