ABDULLAH AL MAMUN

linkedin.com/in/ab9mamun | https://abdullah-mamun.com | ab9mamun@gmail.com | (425) 615-4157

RESEARCH INTERESTS

Deep Learning, Explainable AI, Counterfactual Explanation, Mobile Health, Time-Series Forecasting, Generative Models

EDUCATION

Doctor of Philosophy - Computer Science **Expected May 2026**
Arizona State University **GPA: 4.00**

- Advisor: Dr. Hassan Ghasemzadeh
- Selected courses: Reinforcement Learning, Embedded Machine Learning, Planning and Learning in AI, Knowledge Representation, Image Analytics & Informatics (completed 39 credit hours of graduate coursework)

Bachelor of Science - Computer Science and Engineering **October 2018**
Bangladesh University of Engineering and Technology **GPA: 3.70**

- Thesis: Comparative Analysis of Modern Garbage Collectors for Big Data in Distributed Systems
- Selected courses: Data Structures, Algorithms, Compilers, Operating Systems, Microprocessors and Microcontrollers, Computer Architecture, Artificial Intelligence, Pattern Recognition, Databases (160 credits)

PUBLICATIONS

1. **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)*
2. **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)*
3. **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)*

OTHER RESEARCH WORKS

Under review:

1. Use of What-if Scenarios to Help Explain Artificial Intelligence Models for Neonatal Health (Journal submission)
2. Explainable Postprandial Blood Glucose Prediction with Diet and Physical Activity (Conference submission)
3. Domain-Informed Label Fusion Surpasses LLMs in Free-Living Activity Classification (Conference submission)

Recent projects:

1. Developed risk analysis tools for predicting risk of neurological impairments in newborn children and suggesting intervention methods to minimize risk with help of Counterfactual Explanations and GAN-based augmentation.
2. Implemented clustering technologies to automatically create optimal number of groups for similar labels.
3. Multimodal early-fusion and late-fusion based next-day adherence forecasting with 81% accuracy.

Reviewed 3 IEEE JBHI, 1 PerCom'23, 1 IEEE BHI'23, 5 CHIL'24, 6 IEEE BHI'24, and 4 ML4H'24 submissions.
Mentored research projects of undergraduate and high school students. Got 1-page abstract accepted at BSN 2024.

EXPERIENCE

Instructor **August 2024 - Present**
Arizona State University **Phoenix, Arizona**

- Taught BMI 311: Modeling Biomedical Knowledge as the sole instructor in Fall 2024. Syllabus: AI architecture, Problem solving (principles, search, contingency, constraints), Reasoning under uncertainty, KNN, Random Forest, SVM, Neural networks, Validation methods, Genetic algorithm, Deep learning, Clustering.

Graduate Research Associate **December 2021 - Present**
Arizona State University **Phoenix, Arizona**

- Embedded Machine Intelligence Lab (Dr. Hassan Ghasemzadeh)

Teaching and Research Assistant **January 2021 - December 2021**
Washington State University **Pullman, Washington**

- Prepared and submitted a conference paper. Mentored undergraduate research. Helped over 100 students with homework and programming assignments in Advanced Data Structures C/C++, taught by Dr. Yan Yan.

Lecturer **September 2019 - January 2021**
United International University **Dhaka, Bangladesh**

- Taught five theoretical undergraduate courses: Software Engineering, Object-Oriented Programming, Digital System Design, Structured Programming Language, and System Analysis and Design.

Software Developer **November 2018 - September 2019**
HLC Technologies Limited **Dhaka, Bangladesh**

- Developed cybersecurity solutions for Windows, MacOS, Ubuntu, and CentOS platforms, patch management and configuration monitoring tools, and online learning management systems.
- Reduced data transfer overhead by more than 90% after converting a query-based system to an alert reporting system. Developed tools and tutorials for easy deployment of software solutions on new servers.
- Led daily stand-up meetings. Implemented new features every sprint. Reviewed code and fixed bugs in large projects written by other developers.

SKILLS

Deep Learning: Time-series, Tabular data, Object detection, Image segmentation, Counterfactuals, Generative models
Software Development: Python, Java, C, C++, ReactJS, Shell, Hadoop, Android, {My,Oracle,Postgre}SQL
Critical Reasoning: GRE General Test (2019): Quant - 166 (P86), Verbal - 156 (P72), Writing - 4.0 (P54)
Communication Skills: Full professional proficiency in English.

AWARDS & HONORS

- Invited Talk: Time-Series Wearable Activity Forecasting at ASU Machine Learning Day (2023)
- IEEE Student Travel Award to attend the IEEE BSN 2023 conference (2023)
- Best paper (honorable mention) award at the IEEE BSN 2022 conference (2022)
- University Merit List Scholarship by Bangladesh University of Engineering and Technology (2017)