Tanvir Rahman

https://pritomtanvir.github.io/pritomtanvir/

Ph.D. candidate specializing in machine learning, multimodal sensing, and real-time AI systems, with experience building scalable intelligent applications for personalized decision-making and data-driven automation. Passionate about applying AI, software engineering, and distributed technologies to solve complex real-world problems in large-scale environments. Authorized to work in the U.S.; no sponsorship required now or in the future.

Skills

Languages	Python, Swift, Java, C/C++, SQL, Bash
ML / AI	Neural Networks, Deep Learning, Time-Series Modeling, On-device Learning, Activity Recognition, Feature Engineering
Frameworks & Libraries	PyTorch, TensorFlow, OpenCV, scikit-learn, NumPy, CoreMotion, HealthKit
Systems & Tools	Git, Docker, AWS, GCP, Unix/Linux, Xcode
Data & Analytics	Sensor Data Processing, Time-Series Analysis, Statistical Analysis, Experimental Design
Software Engineering	Backend Development, API Integration, Debugging, Data Pipelines, Performance Optimization
Research & Modeling	Behavioral Modeling, Context-Aware Systems, JITAI Design, Decision Trees, Neural Networks
Teaching & Communication	Lecturing, Mentoring, Technical Writing, Explaining Complex Concepts, Curriculum Design
On-device ML	watchOS ML deployment, Real-time inference, Sensor fusion (CoreMotion, HealthKit), Activity/posture classification
Other	Wearable Computing (Apple Watch), Posture Detection, Human Activity Recognition, LaTeX

Conferences

45th Annual Meeting and Scientific Sessions	Philadelphia, PA	SBM 2024 Meritorious Award
1st Annual DE EPSCoR & INBRE Statewide Conference	Newark, Delaware	Outstanding Abstract and Poster Award
22 SHIFT	Fort Collins, CO	Presented a poster
22 SHIFT	Fort Collins, CO	Conducted a workshop as one of the expert panel members
AI4Health Industry Day '26	Delaware	Presented a poster

Education

Ph.D. in Computer Science
University of Delaware
Advisor: Dr. Keith Decker
September 2021 — January 2027 (Expected)

Master of Science in Computer Science and Engineering
University of Delaware
Advisor: Dr. Keith Decker
August 2026

Master of Science in Computer Science and Engineering
Brac University
Advisor: Dr. A M Esfar-E-Alam
Highest Distinction (Ranked 1st in class)
September 2023

Bachelor of Science in Computer Science and Engineering
Brac University
Advisor: Dr. Jia Uddin
Highest Distinction (Ranked 3rd in class)
November 2019

Recent Work Experiences

Graduate Teaching Assistant — **September 2021 — Present**
University of Delaware — *Newark, DE*

- Helping the professors to grade the assignments of undergraduate and graduate classes
- Creating quizzes and assignments for the undergraduate and graduate classes
- Proctoring exams and conducting labs
- Graded about 450 people over several semesters.

Summer Instructor **Summer 2022 — Summer 2025**
Intro to Computer Science, University of Delaware *Newark, DE*

- Conducting class lectures and creating assignment for the students,
- Setting up question papers, and grading midterm and final exam
- Overall rating 4.93 from 100 students.

Instructor **2025 — Present**
Intro to Data Science, University of Delaware *Newark, DE*

- Conducting class lectures and creating assignment for the students,
- Setting up question papers, and grading midterm and final exam
- Overall rating 4.43 from over 50 students.

Lecturer **January 2019 — September 2021**
Brac University *Dhaka, Bangladesh*

- Conducting theory and lab classes for the undergraduate classes
- Setting the exams and publishing results
- Supervising undergraduate thesis works

Management Trainee Officer **October 2018 — January 2019**
IFIC Bank Limited *Dhaka, Bangladesh*

- Writing codes in IBM-RPG language
- Setting up secure networks for the bank
- Making models to classify loans

Management Trainee Officer **June 2018 — October 2018**
MGH Group *Dhaka, Bangladesh*

- Writing codes in SAP-ABAP4 language
- Setting up secure networks for chatting between employees
- Making models for new ventures in Bangladesh

Certifications

Preview Learning Data Science: Tell Stories With Data	September 2021
Preview Artificial Intelligence Foundations: Machine Learning (2018)	August 2021
Google Cloud Fundamentals: Core Infrastructure	December 2020
Introduction to Time Value of Money (TVM)	June 2020
Mathematical Thinking in Computer Science	June 2020
Python Basics	May 2020
Using Python to Access Web Data	May 2020
Programming for Everybody (Getting Started with Python)	May 2020
Python Data Structures	May 2020

Publications

- **Context-Aware On-Device Posture Detection for Improving Wearable Health Interventions.**
  Tanvir Rahman, *Gregory Dominick, Keith S Decker*
  (16th IEEE Global Humanitarian Technology Conference (GHTC)) (Accepted) 2026
  Proposed a lightweight on-device temporal posture detection framework for distinguishing sitting and idle standing using multimodal wearable sensing.

- **Improving Context-Aware Personalized Nudging Using Wearable Sensors to Reduce Sedentary Behavior.**
  Tanvir Rahman, *Cora Firkin, Ajith Vemuri, Barry Bodt, Elizabeth Orsega-Smith, Gregory M Dominick, Keith S Decker*
  (DJPH) February 2026
  The accuracy went from 42% to 78% without latency while nudging the users.

- **Development of a just-in-time adaptive intervention to promote walking behavior and reduce stationary time in physically inactive adults: The Walking with JITAIs study protocol.**
  Cora Firkin, Ajith Vemuri, ***Tanvir Rahman***, *Barry Bodt, Elizabeth Orsega-Smith, Keith S Decker, Gregory M Dominick*
  (JMIR) December 2025
  Introduced a benchmark for context-aware adaptive intervention protocol.

- **Flood Prediction Using Ensemble Machine Learning Model.**
  ***Tanvir Rahman**, Miah Mohammad Asif Syeed, Maisha Farzana, Ishadie Namir, Ipshita Ishrar, Meherin Hossain Nushra, Bhoktear Mahbub Khan*
  (2023 5th International Congress) June 2023

- **Impact of a Batter in ODI Cricket Implementing Regression Models from Match Commentary.**
  *Ahmad Al Asad, Kazi Nishat Anwar, Ilhum Zia Chowdhury, Akif Azam, Tarif Ashraf, **Tanvir Rahman***
  (2022 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)) December 2022

- **Analysis of Real-Time Hostile Activity Detection from Spatiotemporal Features Using Time Distributed Deep CNNs, RNNs and Attention-Based Mechanisms.**
  *Labib Ahmed Siddique, Rabita Junhai, Tanzim Reza, Salman Sayeed Khan, **Tanvir Rahman***
  (2022 IEEE 5th International Conference on Image Processing Applications and Systems (IPAS)) December 2022

- **Measuring Control of a Bowler to Predict Impact in ODI Cricket Using Classification Models.**
  *Ahmad Al Asad, Tarif Ashraf, Ilhum Zia Chowdhury, Akif Azam, Kazi Nishat Anwar, Md Golam Rabiul Alam, **Tanvir Rahman***
  (2022 7th International Conference on Intelligent Informatics and Biomedical Science (ICIIBMS)) November 2022

- **Flood Prediction Using Machine Learning Models.**
  *Miah Mohammad Asif Syeed, Maisha Farzana, Ishadie Namir, Ipshita Ishrar, Meherin Hossain Nushra, **Tanvir Rahman***
  (2022 International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA)) June 2022

- **Drone Detection by Neural Network Using GLCM and SURF.**
  *Tanzia Ahmed, **Tanvir Rahman**, Bir Ballav Roy, Jia Uddin*
  (Journal of Information Systems and Telecommunication) 2021

- **Automated Household Water Supply Monitoring & Billing System.**
  ***Tanvir Rahman**, Tanzia Ahmed, Ibteaz Hasan, Md Ashraful Alam*
  (2018 2nd International Conference on Inventive Systems and Control (ICISC)) January 2018

Hobbies

Reading Books, Watching Soccer, Watching NBA, Listening to songs