

Amanat Ur Rahman

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Personal Profile

A PhD student with over two years of experience working on research projects encompassing predictive modeling, data science, and machine learning.

Education

University of Cincinnati (UC)

Cincinnati, OH, USA

PhD in Mechanical Engineering

August 2023 - Current

- GRA at Lab for Intelligent Metrology Systems
- Research focus: Predictive modeling, Virtual Metrology, Machine Learning, Semiconductors, Prognostics and Health Management
- Courses: Industrial Artificial Intelligence, Design of Experiments

University of Louisville (UofL)

Louisville, KY, USA

MS in Industrial Engineering

2023

- CGPA: 3.857 on a scale of 4.00
- GRA at Logistics and Distribution Institute (LoDI)
- GTA at Industrial Engineering Department
- Courses: Simulation, Design and Analysis of Computer Algorithms, Foundations of Optimization I, Introduction to Machine Learning, Algorithms for Optimization, Predictive Analytics II, Mathematical Statistics

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

M.Sc. in Industrial and Production Engineering

2020

- CGPA 3.08 on a scale of 4.00
- Part-time graduate student

Ahsanullah University of Science and Technology (AUST)

Dhaka, Bangladesh

B.Sc. in Industrial and Production Engineering

2014

- CGPA 3.795 on a scale of 4.00
- Merit Position: 1st (out of 65)
- Dean's List of Honor

Experience

Intelligent Metrology Systems (IMS), UC

OH, USA

Graduate Research Assistant

Fall 2023 - Current

- Research projects in collaboration with National Institute of Standards and Technology & University of Cincinnati Health
- Working with industry projects on member industries of Lab for Intelligent Metrology Systems

Logistics and Distribution Institute (LoDI), UofL

KY, USA

Graduate Research Assistant

Fall 2022 - Summer 2023

- Conducted research on the identification of post heart-transplant mortality rate using machine learning and development of novel statistical-learning / machine learning algorithms in context to health care applications.
- Developed 'Cybersecurity in Logistics system' modules (NSA funded project).
- LoDI social media manager: maintaining social accounts with new and exciting posts in upcoming technology, lab activities, and achievements.
- Served as a judge for the 'LoDI - Logistics Case Competition' that LoDI organizes every year.

Industrial Engineering (IE) department, UofL

KY, USA

Graduate Teaching Assistant

Fall 2021 - Summer 2022

- Classroom duties: grading exams, providing lectures (review classes), and addressing queries of students.
- Department work: create content (multimedia videos, PowerPoints, designs) to promote the IE department to prospective students.

Department of Mechanical & Production Engineering (MPE), AUST

Dhaka, Bangladesh

Assistant Professor / Lecturer

2015 - 2021

- Classroom teaching and academic advising.
- Applied research activity.
- Departmental service.
- Curriculum development through assessment.

Projects

Intracranial pressure event identification

OH, USA

UC

2023 - 2025

- This research is focused on studying the factors affecting patients with traumatic brain injury. The major outcome of this project is to predict patient outcomes which will aid neurosurgeons in planning the mode of treatments for patients in ICU. This project is in collaboration with Neurocritical Care Research (UC Health)

Impact of institutional variability and correlated multi-level factors on post-heart transplant survivability

KY, USA

UofL

2021 - 2023

- This research deals with quantitatively understanding the factors affecting post-heart transplant survival and developing a novel multi-task learning model for better generalization performance in predicting survival.

Cybersecurity for Logistics System

KY, USA

UofL

2022 - 2023

- This NSA-funded project included the creation of numerous modules of which I created the following modules: 'IT Basics', 'Network Foundation', 'Network Security', 'Risk Analysis' & 'Capstone Project'.

Supply chain performance prediction using Grey-based Neural Network

Dhaka, Bangladesh

BUET

MS research

- This research aims to identify key performance indicators of the supply chain and to implement a Grey-Neural Network model for the prediction of these indicators for successive periods.

Stock price prediction using Principal Component Analysis based Artificial Neural Network.

Dhaka, Bangladesh

AUST

BS research

- This research aims to apply principle component analysis to reduce the dimensionality of source data and subsequently apply a neural network for price prediction of future periods.

Skills

Programming Python, MATLAB

Softwares Gurobi optimization, Simio, ArcGIS, Latex, MS365 products

Communication Language: English (Professional proficiency), Bengali (Native proficiency)

Achievements

2023	Score: 140 , Duolingo English Test	Test Score
2022	2nd place , UofL IE department PhD research competition	Competition
2022	2nd place , Research! Louisville conference	Poster Competition
2014	Winner , Dean's List of Honor	BS Result

Publications

Artificial Intelligence approach to predict Supply Chain Performance: Implications for Sustainability

S.M. Ali, A. Rahman, G. Kabir, S.K. Paul

Sustainability 16 (2024). 2024

Enhanced data-driven Virtual Metrology on Chemical Mechanical Planarization process using Dual Linear Kalman Filter (Accepted)

A. Rahman, X. Han, X. Jia

International Manufacturing Science and Engineering Conference (2023) Accepted. 2023

A Grey approach for the prediction of supply chain demand

A. Rahman, MT Zahura

American Journal of Industrial Engineering 5.1 (2018) pp. 25–30. 2018

Simplified design and fabrication of water sprinkler system: A survey based analysis

A. Rahman, M. Zahura, A. Rezwan

Procedia Engineering 90 (2014) pp. 692–697. Elsevier, 2014

For any details, please contact me at rahmanah@mail.uc.edu