

S M Mehedi Zaman

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Personal Profile

A BSc. Engineering graduate from Electrical and Electronic Engineering with research interests in natural language processing and artificial intelligence. Eager to collaborate with projects that integrate large language models, generative AI, machine learning, and their practical applications.

Education

Islamic University of Technology

BSc in Electrical and Electronic Engineering

- CGPA: 3.54 (Out of 4.00)

Gazipur, BD

Jan 2019 - May 2023

Adamjee Cantonment College

Higher Secondary Certificate (HSC) - Science

- GPA: 5.00 (Out of 5.00)

Dhaka Cantonment, BD

Aug 2016 - Apr 2018

Adamjee Cantonment Public School

Secondary School Certificate (SSC) - Science

- GPA: 5.00 (Out of 5.00)

Dhaka Cantonment, BD

Jan 2014 - Apr 2016

Peer-Reviewed Publications

CONFERENCE PROCEEDINGS

Counter Turing Test CT2: AI-Generated Text Detection is Not as Easy as You May Think – Introducing AI Detectability Index

Megha Chakraborty, S. M Towhidul Islam Tonmoy, **S M Mehedi Zaman**, Krish Sharma, Niyar R Barman, Chandan Gupta, Shreya Gautam, Tanay Kumar, Vinija Jain, Aman Chadha, Amit P. Sheth, Amitava Das

Accepted for Presentation at The 2023 Conference on Empirical Methods in Natural Language Processing, 2023

Atmospheric Influence on the Path Loss at High Frequencies for Deployment of 5G Cellular Communication Networks

Rashed Hasan Ratul, **S M Mehedi Zaman**, Hasib Arman Chowdhury, Md. Zayed Hassan Sagor, Mohammad Tawhid Kawser, Mirza Muntasir Nishat

Accepted for Presentation at The 14th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 2023

OOG- Optuna Optimized GAN Sampling Technique for Tabular Imbalanced Malware Data

S. M Towhidul Islam Tonmoy, **S M Mehedi Zaman**

2022 IEEE International Conference on Big Data (Big Data), 2022

Survival Prediction of Heart Failure Patients using Stacked Ensemble Machine Learning Algorithm

S M Mehedi Zaman, Wasay Mahmood Qureshi, Md. Mohsin Sarker Raihan, Abdullah Bin Shams, Sharmin Sultana

2021 IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE), 2021

Research Experience

The Artificial Intelligence Institute of University of South Carolina (AIISC)

Remote

Research Intern (Remote)

Feb 2023 - Present

- Collaborated with a team of ten members under the supervision of Dr. Amitava Das to work towards the goal of proving that AI Generated Text Detection is not flawless with the current state of the earth methods.
- Scrapped about 400k news tweet data from NY Times and compared those by generating AI text based on several Large Language Models (LLM).
- Among the LLMs used, Vicuna, BLOOM and OPT rendered the best outputs in terms of human like texts.
- Supervisor:** Prof. Amitava Das

Machine Learning Approach to Detect Schizophrenia from EEG Signal

IUT, BD

Undergraduate Thesis

Aug 2022 - May 2023

- Merged the three major EEG signal datasets of schizophrenic and healthy patients to get a bigger picture.
- Calculated various statistical measures from the dataset like kurtosis, variance, skewness etc. to further predict schizophrenia using various supervised machine learning models.
- Compared with contemporary studies to show the significance of larger EEG datasets with more schizophrenic patients and various prediction metrics.
- Supervisor:** Prof. Mirza Muntasir Nishat

Students' Mental Wellbeing Prediction in Relation to Mobile Connectivity: A Comprehensive Study

IUT, BD

Undergraduate Research Student

Feb 2022 - Nov 2022

- Conduction of a survey in order to facilitate the collection of data from the students of IUT to analyze the mental condition during and after COVID times.
- Prediction of their mental health conditions through the utilization of various Machine Learning algorithms.
- **Supervisor:** Prof. Mirza Muntasir Nishat

Projects

Machine Learning based MPPT System in the context of Bangladesh

IUT, BD

Capstone Project

Sep 2022 - May 2023

- Simulated a model solar panel with MATLAB Simulink which can take real-time temperature and irradiance as inputs and provide duty cycle as output.
- Trained supervised ML models with thousands of input data based on typical temperature variation of BD i.e. 10-40 degree Celsius.
- Working on implementing load variation to improve future applicability.
- **Technical Skills:** Simulink, Regression supervised models.

Password Protected DC Motor

IUT, BD

Microcontroller Project

Sep 2022 - Dec 2022

- Done on the AT89S52 Microcontroller board which comes with built in motor, keypad and LM016L LCD screen.
- The microcontroller, which will also have the feature of password protection added, powers the motor.
- The rotation orientation can also be changed between clockwise and counterclockwise by entering two different passwords.
- **Technical Skills:** Assembly language, Proteus.

Malware Detection using GAN based Training

Online Platform

Kaggle

Aug 2022 - Sept 2022

- Sampled the Androzoo dataset with Generative Adversarial Networks (GAN) which consisted 128 features and 4465 samples.
- Calculated the RMSE and other performance metrics to compare between imbalanced and balanced datasets.
- Competed with 20 teams from all over the world to emerge as the champion.
- **Technical Skills:** Python with Pandas, matplotlib, Seaborn, sklearn.

Emotion Detection from Bio-signals

IUT, BD

Independent Project

Aug 2021 - Sep 2022

- Analysis and processing of various bio-signals of humans (ECG, EEG, EDA, etc.) in different emotional states to create a dataset of 1157 samples.
- Training the dataset through several Machine Learning algorithms in order to predict a person's emotion from the bio-signals.
- **Technical Skills:** Python with Numpy, Pandas, matplotlib, Seaborn, sklearn.

Skills

Programming Python (NLTK, SpaCy, Pandas, PyTorch, NumPy, Scikit-learn, TensorFlow, Keras etc.), C, MATLAB

Tools Microsoft Office, \LaTeX (Overleaf), Proteus, Sony Vegas, Adobe After Effects

Achievements

2022	1st Place , IEEE Big Data Cup Challenge - Organized by Khalifa University, UAE	Online - Kaggle
2022	18th Place , European Rover Challenge (ERC) - Organized by European Space Foundation	Kielce, Poland
2020	Best Presentation Award , Robocon2020 - Organized by GlobalDWS, Canada	Online
2020	5th Place , MindExperia 2020 - Organized by Bangladesh University of Professionals Robotics Club	Bangladesh
2020	Finalist , International COVID-19 Congress (ICC2020) - Organized by IEEE	Bangladesh

Extracurriculars

IEEE Robotics And Automation Society IUT Student Branch

IUT, BD

Vice-Chair

Nov 2022 - May 2023

- Affiliated with various university organisations and organised multiple workshops and sessions for the club's sustainable development.
- Arranged intra robotics competition for freshers and sophomore students.

IUT Mars Rover - Team Avijatrik

IUT, BD

Documentation and Public Relations Lead

July 2022 - May 2023

- Lead the documentation sub-team in preparing the preliminary and final reports of the team's mars rover.
- Won the regional qualifiers in the prestigious European Rover Challenge 2022, held in Kielce, Poland.
- Got invited as a lead technical innovation in Basis Softexpo 2023 and International Conference on Sustainable Technology for Industries 4.0 (STI 2022).