

S M Mehedi Zaman

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Personal Profile

A first year PhD student from the iSchool at Rutgers - New Brunswick. Passionate about Computational Social Science as an Information Science major. Eager to collaborate with projects that integrate large language models, generative AI, machine learning, and their practical applications.

Education

Rutgers, The State University of New Jersey

PhD in Communication, Information & Media

- Concentration: Library & Information Science

New Brunswick, NJ, USA

Sep 2024 - Present

Islamic University of Technology

BSc in Electrical and Electronic Engineering

- CGPA: 3.54 (Out of 4.00)

Gazipur, BD

Jan 2019 - May 2023

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 (ADI)

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

Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing, 2023, Singapore

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

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

2023 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

Papers Under Review

PREPRINTS

The What, Why, and How of Context Length Extension Techniques in Large Language Models—A Detailed Survey

Saurav Pawar, SM Tonmoy, **Zaman, SM**, Vinija Jain, Aman Chadha, Amitava Das

arXiv preprint arXiv:2401.07872 (2024). 2024

”Sorry, Come Again?” Prompting—Enhancing Comprehension and Diminishing Hallucination with [PAUSE]-injected Optimal Paraphrasing

Vipula Rawte, SM Tonmoy, **Zaman, SM**, Prachi Priya, Aman Chadha, Amit P Sheth, Amitava Das

arXiv preprint arXiv:2403.18976 (2024). 2024

A comprehensive survey of hallucination mitigation techniques in large language models

SM Tonmoy, **Zaman, SM**, Vinija Jain, Anku Rani, Vipula Rawte, Aman Chadha, Amitava Das

arXiv preprint arXiv:2401.01313 (2024). 2024

Exploring the relationship between LLM hallucinations and prompt linguistic nuances: Readability, formality, and concreteness

Vipula Rawte, Prachi Priya, SM Tonmoy, **Zaman, SM**, Amit Sheth, Amitava Das

arXiv preprint arXiv:2309.11064 (2023). 2023

Research Experience

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

Research Intern

Remote

Feb 2023 - May 2024

- Collaboration with a team of ten members to work towards the goal of improving generative AI and mitigating hallucination.
- Scrapped about 400k news tweet data from NY Times and compared those by generating AI text based on several LLMs.
- 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

IUT, BD

Comprehensive Study

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

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, R

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

Achievements

2024	LIS Fellowship , School of Communication & Information (SC&I), Rutgers - New Brunswick	USA
2023	Outstanding Paper Award , Conference on Empirical Methods in Natural Language Processing	Singapore
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

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).