MD MEZBAUR RAHMAN

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RESEARCH INTERESTS

Natural Language Processing | Computational Linguistics | Machine Learning | Deep Learning

EDUCATION

University of Illinois Chicago — *Chicago, United States*
Ph.D. in Computer Science and Engineering — Aug 2023 - Present
Current CGPA: **4.00** out of 4.00

Islamic University of Technology — *Gazipur, Bangladesh*
M.Sc in Computer Science and Engineering — Jan 2020 - June 2023
Current CGPA: **3.96** out of 4.00

Islamic University of Technology — *Gazipur, Bangladesh*
B.Sc in Computer Science and Engineering — Jan 2016 - Nov 2019
CGPA: **3.86** out of 4.00 (4^{th} in class)
Last semester GPA: **4.00**

PROFESSIONAL EXPERIENCE

University of Illinois Chicago
Graduate Teaching Assistant — *Chicago, United States*
CS 401: Computer Algorithms I, CS 251: Data Structure, CS 521: Statistical NLP — Spring 2024, Spring 2025

Islamic University of Technology — *Gazipur, Bangladesh*
Lecturer, Department of Computer Science and Engineering — Jan 2020 - July 2023

Samsung R&D Institute Bangladesh — *Dhaka, Bangladesh*
Software Engineering Intern — Nov 2018 - Jan 2019

ONGOING RESEARCH PROJECT

Co-training with LLM Supervision — 2025
Supervised by Professor Cornelia Caragea — *Under Review in ICML 2025*

- This study aims to create an innovative approach for incorporating Large Language Model (LLM) supervision into the Co-training process of two distinct models, with the goal of enhancing their performance in Natural Language Processing (NLP) classification tasks..
  Keyword: Representation Learning, Natural Language Processing, Large Language Models

Improving Target Stance Pair Generation using LLMs — 2025
Supervised by Professor Cornelia Caragea

- The aim of this research is to leverage diverse Large Language Models and prompt tuning methodologies to enhance the Target Stance Pair generation task within a given text corpus.
  Keyword: Large Language Models, Prompt Tuning, Chain of Thought

PUBLICATIONS

Multihop Factual Claim Verification Using Natural Language Prompts — 2023
Canadian AI 2023

- This research aims to establish a strategy for verifying claims based on evidence sentences by employing prompt fine-tuning of state-of-the-art pre-trained language models. This study's objectives also include developing suitable language prompts for this task. This research also investigates how using multiple sentences as evidence increases

the difficulty of validating claims.
Online Link: https://caiac.pubpub.org/pub/ex7vouwq/release/1
Keyword: Natural Language Processing, Pre-trained Language Models, Prompt Fine Tuning

Explainable Artificial Intelligence Model for Stroke Prediction Using EEG Signal 2022 2022
Sensors Journal

- This study follows an explainable approach to predicting stroke patients based on their biomarker data collected from EEG signals via various machine learning models.
Online Link: https://www.mdpi.com/2008048
Keyword: Electroencephalography, Stroke, Neuroscience, Machine-learning, Explainable AI

BanglaRQA: A Benchmark Dataset for Under-resourced Bangla Language Reading Comprehension-based Question Answering with Diverse Question-Answer Types 2022
Findings of EMNLP 2022

- This paper introduces a novel reading comprehension-based question-answer dataset containing 3000 Bangla Wikipedia context passages and 14889 question-answer pairings. The experiments in this work also improve the performance of a pre-trained transformer model, as evidenced by higher EM(exact match) and F1 scores when compared to previous work on other comparable Bangla datasets.
Online Link: https://aclanthology.org/2022.findings-emnlp.186/
Keywords: Natural Language Processing, Question-Answering, Transformer Models, BanglaT5

Automated Tag Prediction for Movies from Plot Synopses using Neural Networks 2022
ICCIT 2022

- This study's major purpose is to identify options for improving the prediction of movie tags using plot summaries. Various models are utilized, including vanilla neural network and lstm-based models, as well as several pretrained transformer-based language models, and their performances are then compared.
Online Link: https://ieeexplore.ieee.org/document/10055349
Keywords: Natural Language Processing, Machine Learning, Deep Learning, LSTM, Pretrained Language Models, Tag Prediction.

SKILLS

Programming Languages	C, C++, Java, Python, LaTex
Development Tools	Matlab, Netbeans, Intellij, Visual Studio, Jupyter Notebook, Spyder
Databases	MySQL, Oracle SQL
Libraries & Frameworks	PyTorch, Kubernetes, Pandas, Numpy, Matplotlib, Hugging Face

ONLINE CERTIFICATION

- **Neural Networks and Deep Learning** by DeepLearning.AI on Coursera
- **Natural Language Processing with Probabilistic Models** by DeepLearning.AI on Coursera
- **Natural Language Processing with Classification and Vector Spaces** by DeepLearning.AI on Coursera

SIGNIFICANT PROJECTS

- **Target Invariant Stance Detection Using Large Language Models:** In this project, we explore the performance of Large Language Models (LLMs) in stance detection, comparing the zero-shot capabilities of 7B models to fine-tuned smaller models. Our findings reveal trade-offs between model size, fine-tuning, and contextual understanding in NLP tasks. (Github Link)
- **LLM-Guided Node Classification in Semi-Supervised Settings:** This project integrates an LLM-based sentence encoder with Text-Attributed Graphs to enhance node features and employs LLM-guided pseudo labels to initiate a semi-supervised learning approach. Our results demonstrate that the LLM-guided approach excels with a larger proportion of unlabeled nodes, while the sentence encoder-based node features consistently improve overall performance. (Github Link)

COMPETITIVE PROGRAMMING PROFILES

- **CodeChef** : trojan_king (Max. Rating: **1775**)
- **HackerRank** : Trojan_King (Max. Rating: **1998**)
- **Codeforces** : Mezbaur (Max. Rating: **1656**)