

# Monirul Haque

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## RESEARCH INTERESTS

Natural Language Processing, Computer Vision, Generative Adversarial Network, Text Retrieval, Machine Learning

## ACADEMIC QUALIFICATIONS

**Master of Science in Computer Science and Engineering**

*Brac University, Dhaka, Bangladesh*

**Spring 2023 – Present**

*CGPA: 3.83 out of 4.00 (Thesis Defense Pending)*

**Bachelor of Science in Computer Science and Engineering**

*Brac University, Dhaka, Bangladesh*

**Summer 2018 – Fall 2021**

*CGPA: 3.81 out of 4.00*

## PUBLICATIONS

***BanglaBait: Semi-Supervised Adversarial Approach for Clickbait Detection on Bangla Clickbait Dataset.***

Md. Motahar Mahtab, **Monirul Haque**, Mehedi Hasan, and Farig Sadeque. Proceedings of Recent Advances in Natural Language Processing, pages 748–758, Varna, Bulgaria, September 2023. <https://aclanthology.org/2023.ranlp-1.81/>

## RESEARCH PROJECTS

**Information Retrieval using Community Detection Techniques on a Word Association Graph Network and Hybrid Approach for Ranking** (M.Sc. Thesis 2024)

*A novel information retrieval technique that leverages community detection on word association graph network using low resource machines. Also, I am experimenting hybrid approaches with the network for ranking.*

**WhisperWave: Synergizing Parameter Efficient Fine-Tuning using LoRA Technique in Transformer Models for Out-Of-Distribution Bangla Automated Speech Recognition** (Accepted in IEEE CSDE 2023)

*Fine-tuning pre-trained multilingual Whisper LargeV2 with Low-Rank Adaptation Parameter Efficient Fine-Tuning Technique on a low specification computer.*

**Flagging Sexism on Social Media Leveraging Hidden Layers of Transformers as Word Representations and Facilitating Model Interpret-ability through XAI Techniques** (Accepted in IEEE CSDE 2023)

*Calibrated different layers of pre-trained BERT-based transformer models to obtain higher scores on the SemEval-2023 Task 10 Dataset while explaining their insights using Lime and SHAP.*

**Machine Learning-Based Prediction of Rice Leaf Nutrient Contents Across Growth Stages Using UAV Data** (Review in process in Smart Agricultural Technology Journal)

*Analyzed multi-spectral images from UAV drones to calculate different vegetation indexes and canopy reflectance from a completely new dataset sponsored by BRRI and experimented machine learning techniques for prediction.*

## TEACHING EXPERIENCE

**Adjunct Lecturer**

*Brac University, Dhaka, Bangladesh*

**May 2022 – Present**

Courses: \* CSE111: Programming Languages II \* CSE331: Automata & Computability \* CSE419: Competitive Programming  
\* CSE220: Data Structures \* CSE360: Computer Interfacing \* CSE421: Computer Networks  
\* CSE221: Algorithms \* CSE370: Database Systems \* CSE422: Artificial Intelligence  
\* CSE341: Microprocessors \* CSE446: Blockchain

**Undergraduate Teaching Assistant**

*Brac University, Dhaka, Bangladesh*

**June 2021 – January 2022**

Courses: \* CSE220: Data Structures \* CSE221: Algorithms

## CERTIFICATIONS

***Deep Neural Networks with PyTorch***

IBM, Coursera, August 2024

***Text Retrieval and Search Engines***

University of Illinois Urbana-Champaign, Coursera, May 2024

***Neural Networks and Deep Learning***

DeepLearning.AI, Coursera, July 2020

***Basics of Robotics***

Brac University, Residential Campus, December 2018

## ACHIEVEMENTS

- ❑ Participant in ICPC Dhaka Regional, 2019
- ❑ Stood 21<sup>st</sup> in LU CSE Carnival Programming Contest, Sylhet, 2019
- ❑ Stood 5<sup>th</sup> in CSE-ian of BD Programming Contest 7, 2019 (Junior Division)
- ❑ Appeared in VC's List 4 times and Dean's List 2 times

## CO-CURRICULAR ACTIVITIES

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- Served as the role of **Coach** for two teams in **ICPC Dhaka Regional 2022** & four teams in **ICPC Dhaka Regional 2023**
- Conducted a workshop on **Introduction to Competitive Programming** in **Fall 22**
- Acted as a **Representative of Robotics activity** in RS day (**Residential Semester 49, 2018**)

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, Java, JavaScript, PHP, XML, JSON, Markdown

**AI Frameworks/Libraries:** Pytorch, Tensorflow, Keras, Scikit-Learn, Hugging Face

**Tools:** Git, Docker, L<sup>A</sup>T<sub>E</sub>X, Selenium, Playwright, CUDA

**DBMS:** MySQL, PostgreSQL, Oracle, SQLite, MongoDB (NoSQL)

**Web Technologies:** Spring Boot, Django, Node JS, Express JS, React JS, HTML/CSS, Bootstrap

## RELEVANT COURSES

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CSE712: Symbolic Machine Learning II (NLP), CSE710: Advanced Artificial Intelligence, CSE706: Parallel Programming, CSE713: Advanced Syntactic Pattern Recognition, CSE707: Distributed Systems, CSE490: WAN Routing & Technologies, STA301: Modern Probability Theory & Stochastic Processes

## SOFTWARE PROJECTS

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**My Entertainment Hub:** Java, Spring Boot, Spring Security, MySQL, MVC, TMDb API

A Social cataloging web application to organize and give personal ratings for movies and tv shows.

**Bengali Online News Scraper:** Python GUI, Selenium Web Driver

A Python GUI software to scrap news from different websites to add in CSV files with additional information.

**Catch the Letter 8086 Game:** 8086 Assembly Language, TASM compile, DOSBox

An 8086 game which was made using Assembly language to run on TASM compiler and DOS-BOS.

**Students Scholarship Management System:** Node JS, Express, MySQL, Embedded JavaScript

A CRUD web application to manage and store student scholarship.

**Khela Hobe:** Node JS, Express, MySQL, Embedded JavaScript

A CRUD storefront web app for video game digital distribution service.

## LANGUAGE PROFICIENCY

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**IELTS Score: 7.0**

**October 2023**

*Speaking: 7.0, Listening: 8.0, Reading: 7.0, Writing: 6.5*

## REFERENCES

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**Muhammad Nur Yanhaona**

*Associate Professor, Brac University, Dhaka, Bangladesh*

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**Farig Yousuf Sadeq**

*Associate Professor, Brac University, Dhaka, Bangladesh*

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**Md. Imran Bin Azad**

*Senior Lecturer, Brac University, Dhaka, Bangladesh*

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