# 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**  **Spring 2023 – Present**
*Brac University, Dhaka, Bangladesh*  *CGPA: 3.83 out of 4.00 (Thesis Defense Pending)*

**Bachelor of Science in Computer Science and Engineering**  **Summer 2018 – Fall 2021**
*Brac University, Dhaka, Bangladesh*  *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

**Text Retrieval using Community Detection Techniques on a Word Association Graph Network** (M.Sc. Thesis 2024)
*A novel information retrieval technique that leverages community detection on a word association graph network generated from a news corpus.*

**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 predection.*

## TEACHING EXPERIENCE

**Adjunct Lecturer**  **May 2022 – Present**
*Brac University, Dhaka, Bangladesh*
Courses:
* CSE111: Programming Languages II
* CSE220: Data Structures
* CSE221: Algorithms
* CSE341: Microprocessors
* CSE331: Automata & Computability
* CSE360: Computer Interfacing
* CSE370: Database Systems
* CSE419: Competitive Programming
* CSE421: Computer Networks
* CSE422: Artificial Intelligence
* CSE446: Blockchain

**Undergraduate Teaching Assistant**  **June 2021 – January 2022**
*Brac University, Dhaka, Bangladesh*
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$^{st}$ in LU CSE Carnival Programming Contest, Sylhet, 2019**
❏ Stood **5$^{th}$ 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

❍ 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

**Languages**: Python, C/C++, Java, JavaScript, PHP, XML, JSON, MarkDown
**AI Frameworks/Libraries**: Pytorch, Tensorflow, Keras, Scikit-Learn, Hugging Face
**Tools**: Git, Docker, LaTeX, 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

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

*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 Scrapper:* 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-BOX.
*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

**IELTS Score: 7.0**                                                  **October 2023**
*Speaking: 7.0, Listening: 8.0, Reading: 7.0, Writing: 6.5*

## REFERENCES

**Muhammad Nur Yanhaona**
*Associate Professor, Brac University, Dhaka, Bangladesh*
Email: nur.yanhaona@Bracu.ac.bd
**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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