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

Neural Networks and Deep Learning DeepLearning.AI, Coursera, July 2020
Introduction to Applied Machine Learning Alberta Machine Intelligence Institute, Coursera, July 2020
Machine Learning Specialization University of Washington, Coursera, June 2020
Basics of Robotics Brac University, Residential Campus, December 2018

ACHIEVEMENTS

- **Participant** in **ICPC Dhaka Regional, 2019**
- Stood **21st in LU CSE Carnival Programming Contest, Sylhet, 2019**
- Stood **5th 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 STA301: STA 301 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

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