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 **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

Muhammad Nur Yanhaona
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