

Md Saiful Islam

Email: mislam6@ur.rochester.edu
skype: [saiful_cse_buet](#), mobile: +1-585-553-8081
Website: <https://saiful1105020.github.io>
[Google Scholar](#), [Github](#)

RESEARCH INTERESTS

- Affective Computing
- Natural Language Processing
- Technology and Climate Change
- Health Informatics

EDUCATIONAL BACKGROUND

Ph.D. (Ongoing) in Computer Science February 2021 - Current
Artificial Intelligence and Human Computer Interaction (AI-HCI)
University of Rochester

M.Sc. in Computer Science and Engineering April 2017 - August 2020
Bangladesh University of Engineering and Technology
CGPA: 4.00 out of 4.00

B.Sc. in Computer Science and Engineering April 2012 - February 2017
Bangladesh University of Engineering and Technology
CGPA: 3.96 out of 4.00

RESEARCH EXPERIENCE

Keyword Aware Influential Community Search in Large Attributed Graphs
[Information Systems, 2022](#) (Impact Factor: **2.309**)

We introduce a novel keyword aware influential community query that takes multiple keywords as input and finds communities with relevant expertise ranked by their influences in the network. We evaluate the effectiveness and efficiency of our proposed algorithms using three large, real-life attributed graphs.

Identifying Influential Spreaders in Twitter in a Distributed Environment
[Social Network Analysis and Mining, 2022](#) (Impact Factor: **3.868**)

We propose UACD, a novel method of identifying the most influential spreaders on the Twitter social network by combining both user-specific and topological information. We provide a distributed implementation of our proposed algorithm on the Amazon EC2 and compare our ranking result with state-of-the-art methods. Results suggest that UACD is scalable and can process a very large network while being 12.5% more accurate and $175\times$ faster.

Smart Emergency Warning System for Cardiovascular Patients
[IMWUT, 2022](#)

The objective of this study is developing a mobile-based smart monitoring and emergency response system for cardiovascular patients of Bangladesh. Vital signs like heart rate, blood pressure recorded by smart wearable devices are processed and analyzed by machine learning models. The output is a severity rating of the patient's health status and an advance predictive warning.

Integrating Non-verbal Cues in Pre-trained Language Models
[Under review, ACL, 2022](#)

We present a way to convert the acoustic and visual information present in multi-modal human interaction videos into corresponding textual descriptions and fine-tune language model on four downstream multimodal tasks: sentiment, humor, sarcasm, and hateful meme detection. Our approach significantly reduces model complexity, while achieving superior or competitive performance in all of these tasks.

Multimodal Argument Quality Assessment EMNLP, 2021

We study argument quality assessment in a multimodal context, and experiment on a dataset of long debate videos. We propose a set of interpretable debate-centric features and design MARQ, a hierarchical neural network model, to encode the multimodal signals and debate-centric features. We achieve an accuracy of 81.91% on the argument quality prediction task, outperforming established baseline models with an error rate reduction of 22.7%.

Parkinson's Analysis with Remote Kinetic Tasks JMIR, 2021

We propose a web-based framework that can help anyone, anywhere around the world, perform a set of standardized tasks (i.e., speech, facial expression, and motor functions), and get automated feedback on whether they have symptoms of Parkinson's Disease.

Multilingual Abstractive Text Summarization Findings of ACL, 2021

We present the largest multilingual abstractive text summarization dataset comprising 1 million professionally annotated article-summary pairs from BBC. The dataset covers 44 languages ranging from low to high-resource, contributing towards more equitable NLP research.

Automatic Detection of NoSQL Injection COMPSAC, 2019

We develop a tool for detecting NoSQL injections using supervised learning. Our tool has achieved 0.93 F2-score as established by 10-fold cross-validation. Our tool outperforms Sqreen, the only available NoSQL injection detection tool, by 36.25% in terms of detection rate.

LIST OF PUBLICATIONS

Identifying Influential Spreaders in Twitter in a Distributed Environment

T. M. Tariq Adnan, Md Saiful Islam, Md. Tarikul Islam Papon, Shourav Nath, Muhammad Abdullah Adnan

To be appeared in Social Network Analysis and Mining, January 2022

BayesBeat: Reliable Atrial Fibrillation Detection from Noisy Photoplethysmography Data

Sarkar Snigdha Sarathi Das, Subangkar Karmaker Shanto, Mohammed Eunus Ali, Masum Rahman, Atif Rahman, Dr. Mohammad M. Masud, and Md Saiful Islam

To be appeared in Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), January 2022

Keyword Aware Influential Community Search in Large Attributed Graphs

Md Saiful Islam, Mohammed Eunus Ali, Yong-Bin Kang, Timos Sellis, Farhana M. Choudhury, and Shamik Roy

Information Systems Journal, November 2021 [[Article](#)]

Hitting your MARQ: Multimodal ARgument Quality Assessment in Long Debate Video

Md Kamrul Hasan, James Spann, Masum Hasan, Md Saiful Islam, Kurtis Haut, Rada Mihalcea and Ehsan Hoque

Conference on Empirical Methods in Natural Language Processing (EMNLP), Punta Cana, Dominican Republic, November 2021 [[Article](#)]

Detecting Parkinson Disease From a Web-Based Speech Task: Observational Study

Wasifur Rahman, Sangwu Lee, Md Saiful Islam, ... , Max A Little, Ray Dorsey, Ehsan Hoque

Journal of Medical Internet Research (JMIR), October 2021 [\[Article\]](#)

XL-Sum: Large-Scale Multilingual Abstractive Summarization for 44 Languages

Tahmid Hasan, Abhik Bhattacharjee, [Md Saiful Islam](#), Kazi Mubasshir, Yuan-Fang Li, Yong-Bin Kang, M. Sohel Rahman and Rifat Shahriyar

Findings of the Association for Computational Linguistics: ACL-IJCNLP, Bangkok, Thailand, August 2021 [\[Article\]](#)

Automatic Detection of NoSQL Injection Using Supervised Learning

Md Rafid Ul Islam, [Md Saiful Islam](#), Zakaria Ahmed, Anindya Iqbal, and Rifat Shahriyar

IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC), Wisconsin, USA, July 2019 [\[Article\]](#)

PROFESSIONAL EXPERIENCE Graduate Research Assistant

February 2021 - Current

University of Rochester, New York, United States.

Assistant Professor at Department of CSE

November 2020 - January 2021

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

Lecturer at Department of CSE

May 2017 - November 2020

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

Primary Instructor at AI Training

November 2018 - March 2019

Successfully conducted the training course covering theoretical and hands-on expertise on traditional machine learning and deep learning with Python, offered by Hiperdyne Corporation, Japan. [\[Course Outline\]](#)

AWARDS AND HONORS

- University Merit Scholarship in each term of undergraduate studies.
- Dean's List Scholarship in each level of undergraduate studies.
- Champion in "Crowdsourcing information for city roads improvement" category in [BRACathon 2015](#).

OTHER PROJECTS (Selected)

Result Processing for Online College Admission System of Bangladesh

2018-19, 2019-20

Result processing of about 1.5 million applicants for admission into nearly 7,500 colleges of Bangladesh. This was a government-funded project to automate the entire higher secondary admission system. I designed and implemented the core algorithms for result processing using JAVA and Oracle database.

Requirement Analysis, System Designing, and Supervision of Bangladesh e-Government Enterprise Resource Planning Software

2018-2021

A government-funded project for the office automation of ICT Division and Planning Commission of the Peoples' Republic of Bangladesh. I worked as a technical consultant (designing and testing) in this project.

Fix My Street

2015-2017

An android application developed for Dhaka City Corporation. The citizens can report road and transportation-related issues to authority using this app. This project was initially developed for BRACathon 2015, a software development contest. After

being the champion, this project was funded by BRAC. I designed and implemented the back-end using the PHP Codeigniter framework. [\[Repository\]](#)

Fantasy Cricket

2014-2015

Fantasy cricket is a game where a user forms a virtual team consisting of the players from the real game and receives points based on the performance of those players in the actual game. I designed the database and implemented the back-end using the PHP Codeigniter framework. [\[Repository\]](#)

TECHNOLOGY SKILLS

Programming Languages: Java, Python, C, C++, MATLAB.

Scripting Language and Database: PHP, bash, HTML, MySQL, Oracle.

Tools and Frameworks: Pytorch, Scikit-learn, Ranklib, Weka, CodeIgniter.

EXTRA-CURRICULAR ACTIVITIES

- Organizing committee member, 5th and 6th International Conference on Networking, Systems and Security (NSysS) 2018, 2019.
- External judge of the ICPC Asia Kolkata-Kanpur Onsite Regional Contest 2018.
- Member of the organizing committee, Bangladesh Olympiad in Informatics ([BdOI](#)) 2017, 2018.
- Supervisor of Bangladesh site, Asia-Pacific Informatics Olympiad ([APIO 2018](#)).
- Chief Judge, Bangladesh Olympiad in Informatics 2018.

REFERENCE

[Dr. Ehsan Hoque](#)

Associate Professor, Department of Computer Science
University of Rochester, New York, United States
Email: mehoque@cs.rochester.edu

[Dr. Mohammed Eunus Ali](#)

Professor, Department of Computer Science and Engineering
Bangladesh University of Engineering and Technology, Bangladesh
Email: eunus@cse.buet.ac.bd