

# MD SAIFUL ISLAM

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## OVERVIEW

I love to apply AI that can help society in a diverse set of domains. My research on multimodal machine learning involves jointly modeling textual, acoustic, and visual modalities to help understand human communication. I am also trying to make healthcare more accessible with computer vision and machine learning. At the same time, I am working on natural language processing to improve the state-of-the-art of my native language (i.e., Bangla) and climate-change-related information extraction tasks.

## EXPERTISE

Multimodal Machine Learning, Machine Learning for Healthcare, Natural Language Processing, Social Network Analysis

## EDUCATION

<b>Ph.D. Candidate</b> , Computer Science, University of Rochester	2025
<b>M.Sc.</b> , Computer Science, University of Rochester (CGPA: 4.00 out of 4.00)	12/2022
<b>M.Sc.</b> , CSE, Bangladesh University of Engineering and Technology (CGPA: 4.00 out of 4.00)	08/2020
<b>B.Sc.</b> , CSE, Bangladesh University of Engineering and Technology (CGPA: 3.96 out of 4.00)	02/2017

## EXPERIENCE

<b>Assistant Professor</b> , Bangladesh University of Engineering and Technology	11/2020 - 01/2021
<b>Lecturer</b> , Bangladesh University of Engineering and Technology	05/2017 - 11/2020
<b>AI Training Instructor</b> , Hiperdyne Corporation, Japan [ <a href="#">Course Outline</a> ]	11/2018 - 03/2019
<b>Programming Contest Mentor</b> , Bangladesh University of Engineering and Technology	05/2017 - 01/2021

## TECHNICAL SKILLS

**Programming Languages:** Python, JAVA, C, C++, MATLAB, Assembly  
**Scripting Language and Database:** PHP, HTML, MySQL, Oracle, bash  
**Tools and Frameworks:** Pytorch, Scikit-learn, CodeIgniter.

## PUBLICATIONS

### Multimodal Machine Learning

- TextMI: Textualize Multimodal Information for Integrating Non-verbal Cues in Pre-trained Language Models (Under Review: AAAI 2023)
- Multimodal-CLIP: Pre-training Acoustic-Visual Representation from Monologue Speech to Analyze Behavioral Tasks (Under Review: AAAI 2023)
- Hitting your MARQ: Multimodal ARGument Quality Assessment in Long Debate Video (EMNLP 2021)

### Machine Learning for Healthcare

- BayesBeat: Reliable Atrial Fibrillation Detection from Noisy Photoplethysmography Data (IMWUT 2022)
- Detecting Parkinson Disease From a Web-Based Speech Task: Observational Study (JMIR 2021)

### Natural Language Processing

- KnowUREnvironment: An Automated Knowledge Graph for Climate Change and Environmental Issues (Under Review: AAAI 2022 Fall Symposium)
- BanglaBERT: Language Model Pretraining and Benchmarks for Low-Resource Language Understanding Evaluation in Bangla (Findings of NAACL 2022)
- XL-Sum: Large-Scale Multilingual Abstractive Summarization for 44 Languages (Findings of ACL 2021)

### Social Network Analysis

- Keyword aware influential community search in large attributed graphs (Information Systems 2022)
- UACD: A Local Approach for Identifying the Most Influential Spreaders in Twitter in a Distributed Environment (Social Network Analysis and Mining 2022)

## SELECTED ONGOING PROJECTS

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### **Promoting Eco-friendly Consumption using Machine Learning**

Can we inspire people to show more eco-friendly behavior in e-commerce settings (e.g., Amazon)? My research tries to detect keywords from the description of a product and connect those keywords with associated environmental impacts using a climate-change knowledge graph. The hypothesis that we can nudge the users towards eco-friendly consumption by showing appropriate information is being examined through a user study.

### **Computer Vision for Aiding Diagnosis of Parkinson's Disease**

People with neurological disorders like Parkinson's disease show difficulty in speech, facial expressions, and motor coordination tasks. We build a platform that enables anyone, anywhere in the world, to record themselves doing specific tasks. Then we use computer vision techniques like pose estimation, hand tracking, etc., to screen for Parkinson's disease. In addition, we aid neurologists with objective measures that can help reduce misdiagnosis in a telemedicine setting.

## ACHIEVEMENTS AND HONORS

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- **Bracathon-2015** winner. for building a mobile app to combat traffic jam. [Link](#)
- 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.

## OTHER INTERESTS

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- Cricket, Badminton, Swimming.