Md.Ariful Islam

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Research Interests

Natural Language Processing, Machine Learning, Deep Learning, High Performance Computing(HPC), Computer Vision.

Education

Bachelor of Computer Science and Engineering *Jan 2018 - Aug 2023*
Chittagong University of Engineering and Technology, Bangladesh.

- GPA: 3.21/4.0 (Transcript)
- **Coursework:** Computer Architecture, Artificial Intelligence, Data Structure, Algorithm, etc.

Publications

Islam, M., Ahasan, S., Hoque, M.M:**TranSenA: A Transformer-based Framework for Sentiment Analysis of Restaurant Reviews**. Accepted in International Conference on Signal Processing, Information, Communication and Systems(SPICSCON'2024).[Accepted]

Research Activities

CUET NLP LAB July 2024 - Present
Research Fellow

- Developing a multimodal restaurant review dataset for accurately express the sentiment.
- Developing a generalized Bengali dataset for sentiment classification including movie reviews, Airplane service.

CUET NLP LAB *Jan 2023 - June 2024*
Undergraduate Student Researcher

- **Dataset Development**: Collaborated in datasets tailored for low-resource languages: (1) BEmoLex(Bangla Emotion Lexicon Dataset) for emotion detection and (2) a restaurant review dataset (BRRD) containing 11004 Bengali restaurant reviews of three types positive (5622), negative (4402), and neutral (980).
- Investigated performance of various ML, DL, and transformer based models for sentiment analysis of restaurant reviews from Bengali Text.
- Achieved remarkable results with 0.90 F1 score surpassing previous multiclass sentiment analysis restaurant review detecting models.

Experience

Software Engineer *Milpitas, CA*
FSM(Frontier Semiconductor Metrology) *June 2023 – Present*

- Reduced time for Semiconductor wafer Roughness calculation for a stack of 800 images from 8 mins to 9 Seconds using GPGPU.
- Implemented OCR(Optical Character Recognition) to track the wafer ID from wafer Image to trace the wafer more accurately.
- Implementing parallel processing using NVIDIA GPU for faster stress, and smoothness measurement in semiconductor wafer.
- Analyze data and render 2D, 3D views for better understanding.
- Build Desktop application using MFC C++.

Software Engineer Intern *Dhaka*
SELISE Digital Platforms *Oct 2022 – Nov 2022*

- Designed and developed an E-commerce website using Angular, NodeJS, and MongoDB (Github)

Test Score

Graduate Record Examinations (GRE) *Sept 2024*
Score: 309 (Quantitative: 161, Verbal: 148, Analytical Writing: 3.0)

Selected Projects

Rock Paper Scissor (Github)

Created a real-time gesture recognition game using OpenCV and MediaPipe to classify hand gestures (rock, paper, scissors) for interactive gameplay. Optimized for smooth, real-time user interaction and dynamic responses.

CUET Bus Seat Booking System (Github)

Developed a web application for daily seat booking tailored for CUET students. Utilized HTML, CSS, and JavaScript for the front-end, while the back-end was implemented with PHP and MySQL.

Emergency-Point (Github)

Multivendor website that helps users find all necessary medical equipment sorted according to their location. Google Map API is used besides HTML, Bootstrap, and JavaScript.

Optical Character Recognition

Implemented an OCR system to detect wafer IDs written in semifont. Leveraged K-Nearest Neighbors (KNN) for accurate pattern matching and the identification of the nearest character match.

Honors and Awards

- **Undergraduate Merit Scholarship, CUET** 2019-2024
- **Bangladesh Education Board Scholarships**
  - Higher Secondary School Certificate (HSC) Talentpool Scholarship Award 2017
  - Secondary School Certificate (SSC) Talentpool Scholarship Award 2015
- **International Collegiate Programming Contest (ICPC)**Link 2020-2024
  - 161st among 1400+ teams in 2021-2022
  - 408th among 1300+ teams in 2020-2021 with Honorable Mention
- **Participated in National Collegiate Programming Contest (NCPC)** 2020
- Top 40% in **Google Code Jam** competition Link 2020-2023
- Top 30% in **Google Kick Start** competition Link 2020-2023
- Reached 2nd round in **Facebook Hacker Cup** Link 2022

Technical Skills

Expertise : ML/DL, NLP, HPC, GPGPU
Open-source Libraries : Keras, TensorFlow, Pandas, PyTorch, NumPy, Scikit-Learn, Matplotlib
Software Development Skills : HTML, CSS, MFC, Git, MongoDB
Languages : C, C++, Python, JavaScript, SQL

Solved 1200+ competitive programming problems in different online platforms as part of my preparation for programming contests (ICPC, NCPC, etc).

- **Codeforces** Solved 950+ problems (ai_an1k)
- **Leetcode** Solved 350+ problems (maang5)
- **Codechef** Solved 80+ problems (anik1652)

Selective Training and Workshops

- **Computational Linguistics Bangla Language Processing** - 2nd International Workshop on CLBLP
- **AI and Machine Learning with Python** - SKBIT, CUET

Leadership Experiences

CUET NLP Lab Jan 2023 - Present
Lab Member

- Meet bi-weekly with junior undergrads working in CUET NLP Lab. Discuss research problems, share ideas, and track progress.
- Teach students the basics of deep learning and NLP.

Competitive Programming Club, CUET 2021-2023
Programming Coordinator

- Teach students advanced data structures, number theory, and algorithms.
- Organize contests, keep track of individual performance, and form teams.

Greater Cumilla Student Welfare Association 2018-2024
Member

- Acted as a student representative and collaborated with academia and departmental service.
- Assisted in medical fundraising for critical students.