Md. Akram Hossain

akram.hossain.cse.cu@gmail.com | Cell: +8801848355390 | Google Scholar

Research Interests

My research interests lie in Computational Linguistics and Natural Language Processing, particularly in the areas of Multilingual NLP, low-resource language modelling, and causal NLP applications. I am especially focused on developing NLP models for underrepresented languages like Bengali, with applications in the healthcare and financial domains.

Education

B.Sc. (Engg.) in Computer Science and Engineering (CSE) *Jan 2018 - Sep 2023*
University of Chittagong Chittagong, Bangladesh
Medium of Instruction: English
Undergraduate Thesis: Named Entity Recognition from Financial Text Using Graph Neural Network

Research Experience

Research Assistant *Apr 2020 - Present*

- At **CSECU-DSG Lab** with Dr. Abu Nowshed Chy, University of Chittagong, Chittagong, Bangladesh
  - Secured **first place at CLEF-2023, EMNLP-2022, and FIRE-2020** Conference's research track

Research Collaboration *Jan 2021 - Present*

- At **KDE Lab** with Prof. Dr. Masaki Aono, Toyohashi University of Technology Toyohashi, Japan
- With Dr. Md Zia Ullah, Edinburgh Napier University Edinburgh, UK

Teaching Experience

Lecturer *December 2024 - Present*
Department of CSE and CSIT, **Shanto-Mariam University of Creative Technology,** Dhaka, Bangladesh

Adjunct Lecturer *July 2024 - December 2024*
Department of CSE, **BGC Trust University Bangladesh,** Chittagong, Bangladesh

Research Publications

Journal Papers (J): ** implies equal contributions*

J1. Abdul Aziz*, **Md. Akram Hossain***, Abu Nowshed Chy, Md Zia Ullah, and Masaki Aono, *Leveraging Contextual Representations with BiLSTM-based Regressor for Lexical Complexity Prediction*, Elsevier Natural Language Processing Journal, Vol. 05, No. 100039, 2023. (PDF)

Conference and Workshop Papers (C) : ** implies equal contributions*

C1. **Md. Akram Hossain**, Abdul Aziz, Muhammad Anwarul Azim, Abu Nowshed Chy, Md Zia Ullah, and Mohammad Khairul Islam, *BiGCAT: A Graph-Based Representation Learning Model with LLM Embeddings for Named Entity Recognition*, RANLP 2025, Varna, Bulgaria (Short Paper).

C2. Nabila Ayman, **Md. Akram Hossain***, Abdul Aziz*, Rokan Uddin Faroqui, and Abu Nowshed Chy, *BengaliLCP: A Dataset for Lexical Complexity Prediction in the Bengali Texts*, LREC-COLING 2024, Torino, Italia (Long Paper). (PDF)

C3. Abdul Aziz, **Md. Akram Hossain**, and Abu Nowshed Chy, *CSECU-DSG at CheckThat! 2023: Transformer-based Fusion Approach for Multimodal and Multigenre Check-Worthiness*, CLEF 2023, Thessaloniki, Greece. (PDF)

C4. Abdul Aziz*, **Md. Akram Hossain***, and Abu Nowshed Chy, *CSECU-DSG @ Causal News Corpus 2022: Fusion of RoBERTa Transformers Variants for Causal Event Classification*, CASE@EMNLP 2022, Abu Dhabi, United Arab Emirates. (PDF)

C5. Abdul Aziz*, **Md. Akram Hossain***, and Abu Nowshed Chy, *Enhancing the DeBERTa Transformers Model for Classifying Sentences from Biomedical Abstracts*, ALTA 2022, Adelaide, Australia. (PDF)

C6. Abdul Aziz*, **Md. Akram Hossain***, and Abu Nowshed Chy, *CSECU-DSG at SemEval-2022 Task 3: Investigating the Taxonomic Relationship Between Two Arguments using Fusion of Multilingual Transformer Models*, SemEval@NAACL 2022, Washington, USA. (PDF)

C7. Abdul Aziz*, **Md. Akram Hossain***, and Abu Nowshed Chy, *CSECU-DSG at SemEval-2021 Task 1: Fusion of Transformer Models for Lexical Complexity Prediction*, SemEval@ACL-IJCNLP 2021, Bangkok, Thailand. (PDF)

C8. Abdul Aziz*, **Md. Akram Hossain***, and Abu Nowshed Chy, *Feature Fusion with Hand-crafted and Transfer Learning Embeddings for Cause-Effect Relation Extraction*, CEREX@FIRE 2020, Hyderabad, India. (PDF)

Achievements

1st Place (Winning Team) in CheckThat!@CLEF-2023 Subtask 1A Arabic *Aug 2023*
Task: Check-Worthiness in Multimodal and Multigenre Content (Task Website)
Paper URL: CheckThat!@CLEF-2023 (PDF)

1st Place (Winning Team) in CASE @EMNLP-2022 Subtask 1 *Dec, 2022*
Task: Event Causality Identification (Task Website)
Paper URL: CASE@EMNLP-2022 (PDF)

1st Place (Winning Team) in CEREX @FIRE2020 Task A *Dec, 2020*
Task: Automatic Cause-effect Relation Extraction from Text (Task Website)
Paper URL: CEREX @FIRE2020(PDF)

2nd Place in ALTA-2022 Shared Task *Dec, 2022*
Task: Biomedical Abstracts Classification for Evidence-Based Medicine (Task Website)
Paper: Enhancing the DeBERTa Transformers Model for Classifying Sentences from Biomedical Abstracts
Paper URL: ALTA-2022 (PDF)

4th Place in PreTENS-SemEval@NAACL-2022 Subtask 1 *Jul, 2022*
Task: Presupposed Taxonomies: Evaluating Neural Network Semantics (PreTENS) (Task Website)
Paper URL: PreTENS-SemEval@NAACL-2022 (PDF)

Extra Research Activities and Skills

Reviewer: RANLP '25, SemEval '21, '22, '23, and '25
Conference Student Volunteer (Virtual): ACL '23, SIGIR '21
Programming Languages: Python, C, C++, JAVA.
ML Libraries: PyTorch *(implement most of the projects using it)*, **TensorFlow**, **Huggingface**

Project Experience

AI-Based Hearing Aid System Development, *IoT and Robotics Lab, Shanto-Mariam University of Creative Technology, Bangladesh* *January 2025 - Present*
This project develops an embedded system for a cognitively-inspired hearing aid integrating NLP and speech enhancement for real-time audio processing on edge devices.
Technologies used: Python, TensorFlow, PyTorch, ESP32, Raspberry Pi 5, IoT Protocols

Medical Information System, *University of Chittagong, Bangladesh*
This application serves as a backbone system for a medical centre providing features like doctor and lab test appointments, an EHR system, a symptoms analyzer, a doctor finder, and a medicine routine.
Technologies used: Android Studio, Java, XML, Firebase, SQLite database, TensorFlow

Language Skills

Bengali: Vernacular
English: Proficient (IELTS Score: 7)

Referees

- Available on request