

Arshadul HOQUE



PROFILE SUMMARY

Motivated and detail-oriented Machine Learning Engineer with a strong foundation in natural language processing, deep learning, and statistical analysis. Developed a transformer-based model using BanglaBERT for multilabel classification of sentiment and sarcasm, achieving F1 scores of 0.73 for positive sentiment and 0.69 for neutral sentiment while addressing severe data imbalance. Competed in the Kaggle Automatic Essay Scoring competition, achieving an accuracy of 0.78 with the DeBERTa model and ranking 2141 out of 2706 participants. Proficient in Python, SQL, and tools such as Pandas, NumPy, and Scikit-learn, with hands-on experience in end-to-end project development and evaluation. Passionate about leveraging machine learning to solve complex problems and deliver impactful insights.

CONTACT DETAILS

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PERSONAL INFORMATION

Citizenship: Bangladeshi
Languages: Bangla, English, German

SKILLS

- Python, Statistical Analysis
- Machine Learning, Deep Learning, Natural Language Processing
- Microsoft Excel, SQL, LaTeX

EXPERIENCE

RESEARCH ASSISTANT at University of Chittagong
December 2023–Present

- ◊ Developed a **transformer-based** model utilizing **BanglaBERT** for multi-label classification of sentiment (positive, neutral, negative) and sarcasm (sarcastic, non-sarcastic) in social media data related to **Bangladesh Cricket**.
- ◊ **Implemented** advanced techniques, including **multilabel stratified k-fold cross-validation**, **class weight adjustments**, and **focal loss**, to effectively address data imbalance, achieving a notable improvement in F1 scores for underrepresented classes (e.g., **0.73 for positive** sentiment and **0.69 for neutral** sentiment).
- ◊ **Conducted** a comprehensive comparison study with previous models, demonstrating superior performance, particularly in sarcasm detection for Bangla text.

NLP CHALLENGE COMPETITOR: KAGGLE ESSAY SCORING at Kaggle
Competition: Automatic Essay Scoring Apr 2023 - Jul 2023

- ◊ Participated in a Kaggle competition focused on developing **machine learning models** for **automatic essay scoring**.
- ◊ Explored various **loss functions**, **language models**, and **memory optimization techniques** to enhance **accuracy** and **efficiency** by learning from shared insights and approaches of the community of data scientists.
- ◊ Utilized the **DeBERTa** model, achieving an **accuracy of 0.78**.
- ◊ Ranked 2141 out of 2706 participants.

EDUCATION

BSC. ENGINEERING DEGREE IN COMPUTER SCIENCE AND ENGINEERING
from University of Chittagong. January 2016–August 2022

CERTIFICATIONS

- ◊ MACHINE LEARNING SPECIALIZATION, *DeepLearning.AI and Stanford University on Coursera*. June 2023
- ◊ DEEP LEARNING SPECIALIZATION, *DeepLearning.AI on Coursera*. September-2024
- ◊ EXCEL SKILLS FOR BUSINESS: ESSENTIALS, *Macquarie University on Coursera*, June-2022
- ◊ SQL FOR DATA SCIENCE *University of California on Coursera*, February-2023

REFERENCES

Md. Ashikul Hosen Sagor Software Engineer Miaki Media Ltd sagor.ashikul@gmail.com	Dr. Tanzilur Rahman Assistant Professor KFUPM tanzilur.rahman@kfupm.edu.sa
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