Arshadul Hoque

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EDUCATION

BSc. Engineering Degree in Computer Science and Engineering   Chittagong, BD | August 2022
University of Chittagong
Coursework: Machine Learning, Artificial Intelligence, Algorithms, Data Structures
Undergraduate Thesis: "Sentiment Analysis of COVID-19 Vaccine Tweets using BERT" – conducted sentiment analysis using natural language processing to gauge public opinion on vaccine-related topics.

EXPERIENCE

UNIVERSITY OF CHITTAGONG | Research Assistant   Chittagong, BD | Dec 2023 – Present

- Developed a transformer-based model leveraging BanglaBERT for multi-label classification of sentiment (positive, neutral, negative) and sarcasm (sarcastic, non-sarcastic) on social media data related to Bangladesh Cricket.
- Applied advanced techniques such as **multilabel stratified k-fold cross-validation**, **class weights adjustments**, and **focal loss** to address severe data imbalance, achieving a significant increase in F1 scores for underrepresented classes.
- Designed and implemented a **comparison study with previous models**, demonstrating superior performance, especially in sarcasm detection.

KAGGLE COMPETITION: AUTOMATIC ESSAY SCORING | NLP Challenge Competitor: Kaggle 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.
- Implemented the **DeBERTa** model due to its impressive performance in the **text classification tasks**.
- Ranked 2141 out of 2706 participants.

CERTIFICATIONS

Machine Learning Specialization – DeepLearning.AI and Stanford University, Coursera (June 2023)
Deep Learning Specialization – DeepLearning.AI, Coursera (September 2024)
Excel Skills for Business: Essentials – Macquarie University, Coursera (June 2022)
SQL for Data Science – University of California, Coursera (February 2023)

PROJECTS

RESTAURANT IDEA GENERATOR ⬈   Python, Streamlit, Transformers, Pytorch
The tool uses AI to create innovative restaurant names and menu suggestions for different types of cuisine. It can be a valuable resource for entrepreneurs, chefs, and food enthusiasts looking for inspiration to launch a new restaurant, revamp an existing menu, or simply try out new culinary ideas.

HOUSE PRICE PREDICTION USING LINEAR REGRESSION ⬈   Python, scikit-learn
This project leverages machine learning techniques to build a predictive model that estimates house prices based on a range of input factors, utilizing the Python programming language and the scikit-learn library for implementation.

SKILLS

Core Skills: Machine Learning, Deep Learning, Natural Language Processing, Statistical Analysis
Languages: Python, SQL
Technologies & Tools: Pandas, NumPy, Matplotlib, Seaborn, Microsoft Excel