Ishraque Artefin Rafi

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Education

Brac University **2016 – 2020**
Bachelor of Science in Computer Science and Engineering
CGPA: 3.42/4.00 *Dhaka, Bangladesh*

Predicting Effectiveness of Marketing through Analyzing Emotional Context in Advertisement using Deep Learning
Supervisor: Md. Golam Rabiul Alam, PhD

Research Interests

Software Engineering, Machine Learning, Deep Learning, Natural Language Processing, Explainable AI

Publications

Predicting Effectiveness of Marketing through Analyzing Emotional Context in Advertisement using Deep Learning
2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)

- Recognized and evaluated emotional states in audio advertisements using deep learning and supervised machine learning algorithms
- Assessed the impact of these emotional states on consumer purchase intent through various feature extraction techniques

A Comprehensive Audio Dataset for Emotional Context Analysis in Advertisements
Under Review: Data in Brief — Journal, Impact Factor 1.0

- Collected 1,000 audio clips (6-second segments) from 100 public ads, along with emotional statements (Arousal, Valence, Dominance, Liking, Purchase intent) from a survey to assess consumer responses and ad impact
- Created a dataset of audio features (MFCC, ZCR, Energy, PSD, Spectrogram) and emotional metrics, providing a standardized resource for testing and comparing algorithms for emotion recognition and ad effectiveness

A Smart Avatar Tutor for Mimicking Characters of Bangla Sign Language
Under Review: 2025 International Conference on Robotics,Electrical and Signal Processing Techniques (ICREST)

- Developed a smart avatar tutor for teaching Bangla Sign Language (BSL) using image processing and machine learning to replicate hand gestures and provide real-time feedback, improving learning efficiency and engagement
- Utilized hand gesture images for 49 Bangla Sign Language characters to train the YOLOv8 Nano model for accurate real-time detection and recognition

Experience

MetLife, Inc. **Dec 2023 – Present**
Software Engineer

- Developed APIs utilizing the Spring Boot framework to align with project specifications, ensuring efficient communication and functionality.
- Implemented push notification functionality, enhancing user engagement and communication within the application ecosystem.
- Collaborated with team members to integrate features seamlessly into the project, ensuring cohesion and reliability.

Synesis IT Limited **Jan 2021 – Nov 2023**
Programmer

- Developed a server-sent event listener system to optimize performance and enhance responsiveness using the Spring Boot framework.
- Developed APIs using the Spring Boot framework, tailored specifically to meet project requirements.
- Optimized database queries, leading to a reduction in application response time.
- Effectively utilized Jasper Reports and Spring Boot to design and implement dynamic reports in various formats.

Current Research

A Systematic Review on the Use of AI and ML for Sentiment Analysis

- Conducted a systematic review of 52 papers focusing on the application of machine learning and deep learning techniques for sentiment analysis in the context of Twitter data and online reviews
- Analyzed methodologies, findings, and trends across the selected studies to assess the effectiveness and challenges of sentiment analysis approaches in extracting insights from Twitter and review datasets

An Interpretable Approach to Classify and Explain Online Hate Speech Using LIME

- Performed a comparative analysis of the performance of machine learning and deep learning models for sentiment analysis
- The Random Forest model achieved an F1-score of 93.7 %, with its predictions explained using LIME on a distinct test dataset

Explainable Fake News Classification using Support Vector Machine and Model-Agnostic Explanation

- Evaluated the performance of various machine learning models employing CountVectorizer and TF-IDF to determine the most effective feature extraction method for rumor detection
- Enhanced model interpretability for the top-performing rumor detection model by utilizing LIME to elucidate prediction decisions

Explainable Flight Fare Prediction Using Machine Learning Algorithms and LIME

- Employed Principal Component Analysis (PCA) for dimensionality reduction to enhance model efficiency and performance
- Utilized LIME to provide insights into the predictions of the best-performing model, facilitating better understanding and interpretability of its decision-making process

Technical Skills

Languages: Java, Python, JavaScript
Frameworks: Spring Boot,Reactjs
Machine Learning Frameworks: Tensorflow, Scikit-learn, Keras
Database : MySQL, MSSQL, Liquibase
Tools: Git,Intellij IDEA, Jupyter Notebooks,Google Colab, VS Code

Certificate & Awards

Dean's List Award, Brac University

- Earned a place on the Dean's List for the Summer 2019 semester with a **3.70 GPA.**

Standardized Test Score

IELTS: **Overall 7.0** (Listening 7.5; Reading 7.0; Writing 6.0; Speaking 7.0)

Extracurriculars

Director
Brac University Film Club **2019-2020**

Vice President
Dhaka College Science Club **2014-2015**

Guest Coordinator
HULT Prize at Brac University **2018**