

ACADEMIC CV OF MD ALI AKBER

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[Google Scholar profile](#)

[Linkdin Profile](#)

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ACADEMIC-QUALIFICATIONS

Bachelor of Science in Computer Science and Engineering 2023

Thesis on Natural Language Processing (NLP)

Ahsanullah University of Science and Technology,
Bangladesh

- ❖ GPA: 3.592 on the scale of 4.00
- ❖ **Last 60 credit hours GPA: 3.701 on the scale of 4.00**

ACADEMIC JOB EXPERIENCE

1. February 2024 – Continue:
Lecturer
Department of Software Engineering
Daffodil International University (DIU)
Dhaka, Bangladesh
2. February 2025 – Continue:
Lecturer (Part-time)
Department of Computer Science and Engineering
Southeast University (SEU)
Dhaka, Bangladesh

Responsibility: As a lecturer my responsibilities include taking theory course classes, conducting lab sessions, invigilating exams and checking answer script.

Courses Taken:

SE113: Introduction to Software Engineering (Spring 2024)
SE133: Capstone Project Lab (Spring 2024, Fall 2024)
SE132: Data Structure Lab (Fall 2024)
SE211: Object Oriented Concepts (Fall 2024)
SE217: Object Oriented Programming (Spring 2025)
SE216: Object Oriented Programming Lab (Spring 2025)

RESEARCH PUBLICATIONS

1. PAPER TITLE: **“Personality and Emotion – A Comprehensive Analysis Using Contextual Text Embeddings.”**
Published in: Natural Language Processing Journal (Volume 9)

Responsibility: This paper explores the complex relationship between personality traits and emotions using machine learning and statistical analysis. The study aims to automate the identification of connections between MBTI (Myers-Briggs Type Indicator) personality traits and Ekman's emotions by analyzing social media posts through contextual embedding. It employs two main phases: first, calculating cosine similarity scores between personality traits and emotions, and second,

using cross-dataset learning where machine learning models, particularly a Support Vector Machine (SVM) with an 85.23% accuracy, predict emotions based on patterns learned from labeled datasets. The results show while extroverted, intuitive, thinking, and perceiving individuals express negative emotions like anger and disgust. Introverts with intuition, thinking, and judging traits are more likely to post about fear and sadness. This study provides insights into how different personalities express emotions on social media. that extroverted, sensing, and feeling personalities tend to share joyful and surprising emotions,

2. PAPER TITLE: **“Personality prediction based on contextual feature embedding SBERT”**
Published in: 2023 IEEE Region 10 Symposium (TENSYP)

Responsibility: Personality prediction defines an individual's interior self and provides an overview of their behavioral characteristics. Individuals can develop personally and professionally with its aid. Since its inception, the MBTI has become one of the most valuable instruments available due to its widespread application in a variety of fields. Typically, psychologists use questionnaires or conduct interviews with subjects to make predictions. However, because it is only a question-and-answer session, it is prone to error. In this paper, an implicit model is suggested in order to optimize the process using machine learning. The primary objective of this paper is to use sentence transformers to discern the context of user-written social media posts in order to automate the process. In our proposed work, various text pre-processing techniques, such as data cleansing, stopword removal, and data balancing techniques such as random oversampling, are utilized. The context of the text posts is determined using Sentence-BERT (SBERT), a pre-trained model created especially for sentence-level embeddings. Using the Myers-Briggs Type Indicator (MBTI) and a variety of machine learning techniques, such as Support Vector Machines (SVM), Logistic Regression (LR), K-Nearest Neighbors (KNN) and Random Forest (RF) Classifier, it is possible to predict people's personalities based on text. SBERT combined with the Random Forest Classifier performs outstandingly to predict the MBTI personality.

3. PAPER TITLE: **“Interpretability of Machine Learning Algorithms for News Category Classification Using XAI”**
Published in: 2024 6th International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT)

Responsibility: Text classification has been a popular research topic for several years. To date, several advanced models have been developed in this field. In today's digital landscape, the proliferation of online news sources necessitates the efficient categorization of user accessibility. To address this situation, machine learning models can be used to automate news category classification based on news headlines and short descriptions. However, we know that machine-learning models act like black boxes. The interpretability of a model provides a clear understanding of how decisions are made, ensuring transparency, and user acceptance. This transparency helps in model validation and effective collaboration between human and computer interactions. Local Interpretable Model-agnostic Explanations (LIME), as an Explainable Artificial Intelligence (XAI) technique, can be implemented to generate interpretable explanations that aid in understanding the reasoning behind

specific predictions. Our approach aims not only to predict news categories but also to provide transparent insights into model decisions. Initially, we used Sentence Bidirectional Encoder Representations from Transformers (SBERT) for contextual text embedding purposes, followed by different machine learning models for classification tasks, such as Random Forest (RF), Logistic Regression (LR), Decision Tree (DT), and K-Nearest Neighbors (KNN). Notably, RF achieves exceptional accuracy of 91.48 %, surpassing contemporary benchmarks. Finally, LIME elucidates crucial features guiding classification decisions, facilitating model validation, and fostering human-computer collaboration. This study enriches the evolving discourse on interpretable AI models by providing a robust framework for transparent news classification in an era inundated by information.

RESEARCH INTERESTS

1. Machine Learning
2. Deep Learning
3. Natural Language Processing (NLP)
4. Large Language Models (LLM)
5. eXplainable AI (XAI)
6. Computer Vision
7. Image Processing
8. Generative Adversarial Network (GAN)

UNDERGRADUATE ACADEMIC PROJECTS AND SKILLS

- I. TITLE: “Automatic Profiling of Gender, Age, and Handedness from Offline Bangla Handwritten Document Images.” [Link](#)

Responsibility: Identifying demographic characteristics from handwriting is challenging yet crucial in psychology, historical document interpretation, and forensics. Traditional methods struggle with gender, age, and handedness detection, especially from offline handwriting. This study explores Bangla handwriting using Convolutional Neural Networks (CNNs) with ImageNet pretraining for feature extraction. Remarkable accuracies were achieved: 0.9352 for gender (MobileNetV3), 0.8046 for age (DenseNet121), and 0.7622 for handedness (MobileNetV3). These findings indicate that CNNs outperform traditional models, advancing automated handwriting-based characteristic prediction.

- II. PROJECT: **iGraphics Game Development.** [GitHub](#)

Responsibility: This is an action-packed treasure hunting game where players battle monsters and gather treasures for an exciting gaming experience. Created in C++ using the iGraphics library, it runs on Visual Studio, delivering thrilling adventures for all.

- III. PROJECT: **Android Application Development.** [GitHub](#)

Responsibility: This Android application, created with Android Studio using JAVA programming language, follows SDLC and STLC for structured development and rigorous testing. It utilizes a Realtime Database for data management.

- IV. PROJECT: **Super Shop Management System.** [GitHub](#)

Responsibility: This Database Management System project is tailored for a supershop's comprehensive management, handling import, export, and stock tracking. It employs Java with JavaFx library on NetBeans, enabling precise monitoring of item inventory and calculating financial profit or loss for the supershop's operations.

- V. PROJECT: **GYM Website Development.** [GitHub](#)

Responsibility: This is a Fitness First Gym website, using HTML, CSS, PHP, and Bootstrap 5, provides gym information, membership purchases, and BMI assessment online. It uses MySQL to securely store user details for package purchases, ensuring an organized user information system.

RESEARCH PRESENTATIONS

Link: [Oral Presentation Certificates](#)

I presented an oral presentation at the 2023 IEEE Region 10 Symposium (TENSYP) to an audience of approximately 20 attendees. Additionally, I delivered another oral presentation at the 2024 6th International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT), which was attended by around 30 participants. Both events provided valuable opportunities to share my research findings, engage with experts in the field, and receive constructive feedback.

COMPLETED MAJOR COURSES (Bachelor of Science in Computer Science and Engineering)

1. Pattern Recognition with Lab
2. Digital Image Processing with Lab
3. Soft Computing with Lab
4. Numerical Methods with Lab
5. Artificial Intelligence with Lab
6. Computer Networks
7. Database
8. Distributed Database Systems with Lab
9. Formal Languages and Compilers with Lab
10. Computer Graphics with Lab
11. Telecommunication
12. Data Communication
13. Operating System with Lab
14. Microcontroller Based System Design with Lab
15. Mathematical Analysis for Computer Science
16. Digital System Design
17. Algorithms & Data Structures with Lab
18. Computer Architecture

SOFTWARE SKILLS

- i. Programming skills: C++, MATLAB, Python Language
- ii. Frameworks: Pytorch and Tensorflow
- iii. IDE & Applications: Google Colaboratory, Jupyter Notebook, Codeblocks, Netbeans & LaTeX