Md. Faishal Ahmed Rudro

B.Sc. in Computer Science and Engineering

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About Me

A Data Science and AI enthusiast with expertise in Machine Learning and Deep Learning, focused on developing advanced models. I have published two papers and have two more pre-prints, with several ongoing research projects. My background in competitive debating further strengthens my communication skills.

Education

· **East West University**	July 2021-Present
B.Sc. in Computer Science and Engineering	CGPA – 3.51
· **Dhaka College**	2020
Higher School Certificate (Science)	GPA- 5.0
·**Govt. Laboratory High School**	2018
Secondary School Certificate (Science)	GPA- 5.0

Technical Skills and Interests

Programming: Python, R, C, C++, Java
ML/DL: Supervised/Unsupervised Learning, CNNs, RNNs, Transformers
Computer Vision: Object Detection, OpenCV, YOLO
Tools: TensorFlow, PyTorch, Scikit-learn, XGBoost
Big Data: Spark, Hadoop
Visualization: Matplotlib, Seaborn
XAi: GradCam, SHAP, LIME
Research: LaTeX, Academic Writing
Web Scraping: BeautifulSoup, Selenium

Databases: MySQL, Oracle, MongoDB, PHP
Areas of Interest: Data Science, Machine Learning, Deep Learning

Research Works

Published Papers

1. Deep Learning-Driven Real-Time Visual Pollution Detection and Multi-Class Waste Classification in Urban and Textile Landscapes **2025**

- ***Worked as Second Author***
- Addressed the Growing Challenge of Visual Pollution, Urbanization and industrialization have led to increased visual pollution, impacting public health, environmental sustainability, and urban aesthetics.
- **Published in Procedia Computer Science** (Volume 252, 2025, Pages 529-538).
- **Paper Link , Certificate**

2. Fusion of Classical Machine Learning and LSTM Architectures for Enhanced Human Activity Recognition in Modern Tecnology **2025**

- ***Worked as Second Author***
- Addressed the challenge of accurate human activity recognition (HAR) across diverse contexts, focusing on applications in healthcare, smart environments, and security. It compares classical machine learning models (Logistic Regression, Linear SVC, rbf SVM) with deep learning LSTM networks, highlighting the superior performance of LSTMs in processing raw sensor data for HAR tasks.
- **Accepted by ICCIT 2024** , **Certificate**

Pre-Prints and Under Review

1. Meta-Ensemble Learning for IMDb Ratings: A Stacked Hybrid Model Integrating Gradient Boosting and Deep Neural Networks 2025

- ***Worked as First Author***
- Addressed the challenge of IMDb movie rating prediction by introducing the Meta-Ensemble Predictor (MEP), a hybrid model combining gradient boosting algorithms (CatBoost, LightGBM, XGBoost) and deep neural networks. MEP leverages advanced feature engineering and meta-learning to improve accuracy and reduce prediction errors, outperforming other state-of-the-art models.
- **Pre-Print Link**

2. T5-Driven Neural Network for Optimized Sentiment Classification: Enhancing User Feedback Analysis with Deep Learning 2025

- ***Worked as First Author***
- Addressed sentiment classification by proposing a T5-driven neural network model for user feedback analysis. The model uses T5 embeddings for deep context understanding and outperforms models like BERT and RoBERTa in accuracy, precision, and recall, while ensuring computational efficiency through SVD and SMOTE-ENN techniques.
- **Pre-Print Link**

On-Going Studies

1. Multi Modal Human Emotion Recognition and trustworthiness using Xai.

- Addressing multi-class emotion recognition, using audio speech, audio sings, video speech, video songs. Grad Cam is being used to check if the model is learning meaningful features.

2. Multiple Deep Learning and Self-Supervised Models for Breast Cancer Classification with AI-Driven Trustworthiness Validation Across Histopathology and Ultrasound Imaging.

- Using two completely different kind of datasets, building two separate DL models for each, parallelly building two more models based on SSL, drawing comparison between the models, proposing state of the art. For developing trust, solving Black-box problem and interpretability, GradCam, Bounding Box and Lime has been used.

3. Gallbladder Disease Classification.

- Addressing multi-class classification, where each class represents a GB disease. Developing CNN model to classify each class and predict GB disease with the highest accuracy, precision, recall, f1-score.

4. Knee MRI Classification Using Self Supervised Learning and Explainable AI .

- Dealing with a dataset that contains three MRI views (axial, coronal, sagittal), developing a self supervised model to deal with multi class classification.

5. GoldenharVision: Explainable AI for Automated Image Processing in the Diagnosis and Application of Medical Solutions for Goldenhar Syndrome

- GoldenharVision, focuses on utilizing explainable AI for automated image processing to aid in diagnosing and applying medical solutions for Goldenhar Syndrome. This project integrates advanced deep learning models with explainable AI techniques, enabling accurate craniofacial feature extraction while providing transparent reasoning for its diagnostic decisions. The system supports early detection and accurate diagnosis by leveraging sophisticated models, making it a valuable tool for medical professionals.

6. AI-Driven Drug Recommendation and Chatbot System Using Retrieval-Augmented Generation.

- The dataset was scraped using Python and Selenium from Drugs.com and UCI Drug Review, containing drug details and user reviews. A hybrid model was developed for drug recommendations by fine-tuning a pre-trained LLM, while the chatbot utilized both fine-tuning and a Retrieval-Augmented Generation (RAG) system to provide accurate, context-aware responses.