Nusrat Jahan Riya

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riyanusrat.github.io

Education

North South University *Jan 2019 – Nov 2023*
B.Sc. in Computer Science and Engineering *CGPA: 3.53/4.0*

Research Interests

Machine Learning, Computer Vision, Biomedical Image Analysis, Image Processing, Reliable & Sustainable AI, Data Science, and Healthcare

Publications

Artificial Intelligence-Based Early Detection of Dengue Using CBC Data *Aug 2024*
Nusrat Jahan Riya, Mritunjoy Chakraborty, Riasat Khan
10.1109/ACCESS.2024.3443299

Research Projects

Deep Learning Frameworks for Task-Specific Medical Imaging	*Oct 2025 - Present*
LLM-Based Sentiment Analysis of People Due to Bangladesh's Government Change	*Aug 2025 - Present*
Artificial Intelligence-Based Early Detection of Dengue Using CBC Data	*July 2023 - May 2024*
Admission Prediction for Master's Candidates of Bangladesh	*Feb 2023- June 2023*

Experience

Research Assistant *Dhaka, Bangladesh*
Department of Electrical and Computer Engineering, North South University *Feb 2024 – Present*

- Deep Learning Frameworks for Task-Specific Medical Imaging— A gradient-guided convolutional network that integrates image edge information (from Sobel/Scharr filters) with standard RGB inputs to enhance edge sensitivity in biomedical image analysis.
- LLM-Based Sentiment Analysis of People Due to Bangladesh's Government Change— Analyzing public sentiment on social media (Twitter/X, YouTube) related to Bangladesh's recent political transition. Responsible for data collection, cleaning, preprocessing, and implementation of sentiment models using VADER, BERT, mBERT, XLM-RoBERTa, and other LLMs to interpret public opinion trends.
- Artificial intelligence based early detection of dengue using CBC data— This research aims to facilitate early detection of dengue from patients' complete blood count (CBC) medical laboratory reports collected from two hospitals in Dhaka, Bangladesh. Developed a custom-built dataset containing 320 samples. Implemented multiple preprocessing steps including, handling missing values and outliers, one-hot encoding, synthetic oversampling, and removing redundant features along with application of five feature selection methods and implementation of ensemble learning and transformer-based models.

Data Analyst *Dhaka, Bangladesh*
The Data Island *Mar 2025 – August 2025*

- Extracted data from various sources such as APIs, databases.
- Cleaned and preprocessed data (handling missing values, removing duplicates, normalizing formats).
- Identified patterns and trends in the data and used tools like Python (pandas, matplotlib, seaborn) or Tableau/Power BI for visualization.
- Assisted AI Engineers in preparing labeled datasets for model training.

Certifications

Short Course on Data Science, instructed by Dr. Jennifer Widom (Stanford University) — *North South University*, *16-22 Feb, 2024*

The Complete Healthcare Artificial Intelligence Course 2024 (Udemy) — *2024*

Extra Curricular Activities

Sub-Executive — *North South University*
Computer Engineering Club — *2022 - 2023*

Freelance Content Writer — *2019 - 2022*