Mahdi Islam

mahdiiut079.github.io kaggle

RESEARCH INTERESTS

Deep Learning, Computer Vision, Neuroscience, Biomedical Image Processing, Machine Learning

EDUCATION

Erasmus Mundus Joint Master, ***Medical Imaging & Applications*** September 2023 - Present

- First Semester: University of Burgundy, France
- Second Semester: University of Cassino, Italy
- Third Semester: University of Girona, Spain

Islamic University of Technology(IUT), Dhaka, Bangladesh January 2018 - May 2022
Bachelor of Science: Electrical & Electronic Engineering Cumulative GPA: 3.63/4.00

EXPERIENCE

Lecturer, ***Department of Computer Science & Engineering***
Metropolitan University, Bangladesh August 2022 - June 2023

- Developed and transitioned the Electrical Circuit course from a hardware-only format to an integrated software lab with practical simulations.
- Introduced Machine Learning and Deep Learning concepts for research, allowing students to apply advanced techniques to real-world electrical engineering problems.
- Mentored sophomore students, contributing to a 20% increase in students opting for a thesis over a project in their final semester.

PUBLICATIONS

Real-Time Clinical Gait Analysis and Foot Anomalies Detection Using Pressure Sensors and Convolutional Neural Network (1st Author) | *Paper Link*
7th International Conference on Business and Industrial Research (ICBIR) May 2022

- Created a novel dataset from sensor-acquired foot sole heat-map videos using image augmentation techniques.
- Developed a real-time multi-class classification model to detect multiple types of gait anomalies using Keras-Tensorflow framework.

PROJECTS

Colorectal Cancer Tissue Classification and Gland Segmentation from Histopathology Images | *Project Link*
University of Cassino March 2024 - May 2024

- Developed an image processing segmentation pipeline using K-means clustering and Watershed algorithms, improving segmentation accuracy with grayscale morphology, smoothing, and circularity-based estimation.
- Created a machine learning pipeline for multi-class classification, extracting GLCM, Local Binary Patterns, and Gabor features, and used classifiers such as XGBoost, LightGBM, and SVM for improved classification.
- Engineered a deep learning segmentation pipeline using PyTorch, experimenting with UNet and UNet++ architectures and backbones like VGG16, ResNet, and EfficientNet.

Stock Trends Prediction | *Project Link*
University of Cassino March 2024 - May 2024

- Conducted exploratory data analysis to handle missing values, outliers, and identify key predictors, improving data integrity for stock trend modeling.
- Performed multivariate analysis to uncover relationships among financial indicators, identifying crucial variables for trend prediction.
- Implemented an ensemble model using LightGBM and XGBoost, achieving accuracy in stock trend forecasting.

AI Generated Text Detection System | *Project Link*
University of Burgundy September 2023 - December 2023

- Built a web application to detect AI-generated sentences, using a Byte-Pair tokenizer followed by a TFIDF vectorizer for word embeddings.
- Developed a classification model using an ensemble of LightGBM, CatBoost, SGD, and Logistic Regression classifiers.
- Created the web interface using Streamlit for real-time user interaction.

SKILLS

- **Programming:** Python, R, SQL, MATLAB, C++, JavaScript, Java
- **Deep Learning:** Vision-Language Models, CNNs, LSTMs, RNNs
- **Machine Learning Frameworks:** PyTorch, TensorFlow, Keras, Hugging Face, Scikit-learn
- **Data Processing:** EDA, Feature Selection, Data Wrangling, PCA
- **Visualization:** Matplotlib, Seaborn, OpenCV, Skimage, PIL, Pandas, NumPy
- **Web Development:** MySQL, Apache, XAMPP, Streamlit

STANDARDIZED TEST SCORES

IELTS: Listening 8 | Reading 8 | Speaking 7 | Writing 6.5 | **Overall 7.5**

ACCOMPLISHMENTS

LLM - Detect AI Generated Text | The Learning Agency Lab | Kaggle Competition December 2024

- Top 30% among all participants
- Built the base classifier for my AI Text Detection Application.

Kaggle Tabular Playground Series February 2022

- Top 10% among all participants
- Prediction of bacteria species based on repeated lossy measurements of DNA snippets
- Data cleaning, data preprocessing, feature selection performed and sample weight added
- Prediction done using ExtraTrees Classifier and CrossValidation

Bangladesh Physics Olympiad, Divisional Round | Rank 5 2015
SUST Astro Carnival | Champion 2014
Bangladesh Physics Olympiad, National Round | Rank 7 2012

INVOLVEMENT

Captain, IUT University Tennis Club April 2021 - May 2022

- Secured funding to improve illumination conditions for night-time play, enhancing the overall playing experience and safety for participants.
- Organized intra-doubles and intra-singles tournaments with 16 and 32 teams respectively, significantly increasing participation compared to previous years.
- Fostered greater student engagement in sports through improved facilities and well-organized tournaments.

REFERENCES

Dr. Md. Ashraful Hoque, Professor
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