Naosher Mustakim

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Dedicated and curious researcher with a passion for advancing knowledge and making meaningful contributions. Eager to drive impactful discoveries through rigorous experimentation, data analysis, and critical thinking.

ACADEMIC CREDENTIALS

University of Dhaka (DU). **May 2023 – Oct 2024**
M.S. in Biomedical Physics & Technology - ***GPA - 3.86/4.00*** *Dhaka, Bangladesh*

Chittagong University of Engineering & Technology (CUET). **Mar 2017 – Aug 2022**
B.Sc. in Electrical and Electronics Engineering. - ***CGPA - 2.99/4.00*** *Chattogram, Bangladesh*

RESEARCH EXPERIENCE

Collaborative Research Work - Mahdy's Research Academy **May 2024 - Present**

Area - Statistical Machine Learning, & Deep Learning for Medical Imaging

- Designed a custom force sensing device using FSR and Arduino Mega.
- Designed a custom graphical user interface for visual feedback to participants using python and tkinter.
- Collected fnirs cognitive data correlated to five levels of hand clench force for both hands.
- Constructed, trained and evaluated a custom multi-label deep learning classifier model using CNN layer, spectral attention layer and LSTM layer.
- Applied explainable AI (SHAP) to interpret the deep learning model.
- Applicable in robotic arm control, stroke rehabilitation, determining Parkinson's disease, etc.

Graduate Research Work: Utilizing Deep Learning for Multi-Label Classification of Bimanual Clench Force fNIRS Data **Sept 2023 - July 2024**

- Designed a custom force sensing device using FSR and Arduino Mega.
- Designed a custom graphical user interface for visual feedback to participants using python and tkinter.
- Collected fnirs cognitive data correlated to five levels of hand clench force for both hands.
- Constructed, trained and evaluated a custom multi-label deep learning classifier model using CNN layer, spectral attention layer and LSTM layer.
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- Applicable in robotic arm control, stroke rehabilitation, determining Parkinson's disease, etc.

Undergraduate Research Work: Design & fabrication of a wideband slot-loaded textile antenna. **Jan 2022 - July 2022**

- Designed a wideband textile antenna using ADS & CST simulation software.
- Fabricated the antenna using 100% polyester (as substrate) and copper tape (as radiating patch & ground plane).
- Achieved high bandwidth of 20.73% in simulation and 12% in real world. Peak gain of the design antenna is 7.8 dBi.
- Achieved Specific Absorption Rate (SAR) of 0.316 W/Kg for 100 mW input power within FCC Guidelines of 1.6 W/Kg.
- Applicable in patient monitoring, protective suits of rescue worker & military personals vast, etc.

PUBLICATIONS

1. Rahman, M.A., Farhan, T., **Mustakim, N.**, Dhar, N., Bhuiyan, B.I., and Hossain, M.A.(2024) 'A compact wideband slot-loaded wearable textile antenna for ISM band applications', Springer, Discover Electronics. Accepted. In review.

2. Muntaha, S., Salam, S.S. and **Mustakim, N.**(2024) 'An Explainable AI-based Deep Learning Model for Classification of Diabetic Retinopathy Stages Using Retinal Fundus Images', 27th International Conference on Computer and Information Technology (ICCIT 2024). Accepted. In review.

STANDARDIZED TEST SCORES

International English Language Testing System (IELTS) **Dec 2022**

Overall	Reading	Writing	Speaking	Listening
7.0	7.5	6	6.5	8.5

Graduate Record Examination (GRE) **Sept 2024**

Total	Quantitative	Verbal	Analytical
335	170	165	4.5

PROFESSIONAL EXPERIENCE

Engineer Electrical– Bangladesh Steel Re-Rolling Mills Ltd (BSRM) **Mar 2024 – Present**

∗ Electrical maintenance of induction furnace and utilities

TECHNICAL SKILLS

Programming Languages: Python, PyTorch, Tensorflow, SciKit-Learn, Numpy, Pandas, Matplotlib, Plotly, Seaborn, MATLAB, C, LaTeX
Software: Microsoft Office, Overleaf, Draw.io, COMSOL, ADS simulation software, CST, Origin plots

PROJECTS

Sports Ball Recognizer | Fast.ai, Gradio, & HuggingFace **Jan 2023**

- Collected image data utilizing fast.ai library.
- Pre-processed data including data Cleaning, manipulation
- Trained a RESNET34 model applying fast.ai
- Deployed the model employing Gradio & HuggingFace API
- GitHub Link

Poly-pathology Diagnosis Platform | Python, Streamlit & Render **Sep 2022**

- Collected data from Kaggle.
- Trained a diabetes prediction model using SVM.
- Trained heart disease prediction model using logistic regression.
- Trained a Parkinson's disease prediction model using SVM.
- Deployed these model on Render.
- GitHub Link

VOLUNTEERING EXPERIENCE

Omdena **Jul 2021 – Aug 2021**
Junior Machine Learning Engineer *Chattogram, Bangladesh*

- Web scraped road accident data from newspaper
- Cleaned and preprocessed the data
- Visualized and analyzed the data
- Built a Time-series model using LSTM

AWARDS

1. Government Technical Scholarship awarded based on merit in the undergraduate entrance exam.

LANGUAGE PROFICIENCY

- English - Proficient
- Bangla - Native
- Hindi - Intermediate (Conversational)
- German - Beginner