Mosabbir Bhuiyan

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Personal website | ResearchGate | LinkedIn | GitHub

Education

Bachelor of Science in Electronics and Telecommunication Engineering *2017 - 2022*
Chittagong University of Engineering & Technology (CUET)
Major: Communication
CGPA: **3.55** out of 4.00 (75% marks obtained)

Research Interests

- **Image Processing**
- **Computer Vision**
- **Machine Learning**
- **Deep Learning**
- **IoT**
- **Robotics**

Publications

- **Bhuiyan, M.**, & Islam, M. S. (2023). **A new ensemble learning approach to detect malaria from microscopic red blood cell images.** Sensors International, 4, 100209.
- **Bhuiyan, M.**, Nasim, M. D., Saif, S., Gupta, D. K. D., Alam, M. J., & Talukder, S. (2023). **Online learning for X-ray, CT or MRI.** arXiv preprint arXiv:2306.06491.
- **Bhuiyan, M.**, Kabir, M. A. (2020). **Vehicle speed prediction based on road status using machine learning.** Advanced Research in Energy and Engineering, 2(1).

Work Experiences

Lecturer (Contractual) *Jan 2023 – Dec 2023*
Department of ICE, Daffodil International University (DIU)

- Conducted theory and lab courses, integrating both theoretical concepts and hands-on practical knowledge.
- Updated course curriculum with an Outcome Based Education (OBE) approach.
- Supervised AI and IoT-based implementable projects.
- **Courses:**
    1. Electrical Circuits
    2. Microwave Engineering
    3. Engineering Mathematics
    4. Discrete Mathematics
    5. Computer Fundamentals
    6. Simulation and Modeling
    7. Electrical Circuits lab
    8. Microwave Engineering lab
- **Supervised Projects:**
    1. A Semi-Autonomous Vehicle for Enhanced Transportation Accessibility (received University fund).
    2. Sun-Detecting Solar Systems: Optimizing Renewable Energy Efficiency for a Sustainable Future (received University fund).
    3. Revolutionizing Public Spaces: The Implementation of Automated Locker Systems (received University fund).
    4. IoT-based Smart Plant Monitoring System.
    5. Automatic Street Light system with Anti-Theft System.
    6. Automatic Grass Cutting Robot.
    7. Smart Road Safety and Vehicle Accident Prevention System for Mountain Roads.
    8. IoT-based Gas Leakage Detector with Message and Email Notification.
    9. Smart Parking System development with IoT.

Machine Learning Engineer (Intern) *Jun 2022 – Jul 2022*
CloudAEye, Inc. (a US-based company)
- Performed software testing for the AI-based system.

Software Engineer (Intern) *Dec 2020 – Mar 2021*
Mechanic Koi
- Led a team of four members in the development of two Flutter applications aimed at assisting users in locating nearby garages and scheduling appointments.

Projects

1. Retinal Fundus Images Detection and Classification Using ANN

ANN is applied to categorize two stages of the disease after detecting the fundus area in the retina.

Tools: Image Processing, Feature Extraction, ANN, MATLAB.

2. Pneumonia Classification using Transfer Learning models

Pneumonia is classified using different types of Transfer Learning models such as *VGG16, VGG19, ResNet50v2, Inceptionv3,* etc.

Tools: Google colab, Python, Transfer Learning.

3. A Neural Network-based Analysis to Classify Diabetes | code

In this experiment, a *neural network* model is developed using keras library. The performance is observed after taking all and some of the features. The best-performing result is found for some of the features.

Tools: Google colab, Python, Feature Engineering, Neural Network.

4. Stroke Prediction and Analysis using Classification Algorithms | code

A classification model is built using different classifier algorithms such as *Logistic Regression, SVM, KNN, Random Forest,* etc. This dataset is hugely imbalanced. So, the F1 score is used to evaluate the performance of an imbalanced dataset.

Tools: Google colab, Python, Feature Engineering, Classification algorithm.

5. Medical Cost Prediction and Analysis using Regression Algorithms | code

Several types of regression algorithms such as Linear regression, *Support Vector Regression, Decision Tree, and Random Forest* are applied to develop the model and predict the charges. The best outcome is observed after doing the standardization. The Random Forest algorithm gives the best-performing result.

Tools: Google colab, Python, Feature Engineering, Regression algorithm.

6. Build a Complete Gaming Website | code

Developed a gaming website where you can download, watch the trailer, and get updated news about the latest games. A signup and login system is also available there.

Tools: HTML, CSS, PHP, Xampp, Sql.

7. Cell Phone Presence Detector: Enhancing Security in Controlled Environments

Built a detector that can sense the presence of a cell phone within a 3-4 meter radius. When someone tries to call or message, it activates sound and starts blinking the light. This device is useful for preventing the use of cell phones in examination halls, confidential rooms, etc.

Tools: Electronic components such as Inductor, Resistor, Potentiometer, Capacitor, Op-Amp.

8. Develop a Four-Way Traffic Control System Using a Microcontroller

Controlled a four-way lane of road traffic using a microcontroller-based system.

Tools: Microcontroller, MikroC Pro, LED.

Technical Skills

Languages	: C, Python, MATLAB, Dart.
Library	: Tensorflow, Keras, NumPy, Pandas, Matplotlib, Flask.
Software	: Proteus, Git, Cadence, Multisim, Cisco Packet Tracer, LaTex.
Hardware	: Arduino, Microcontroller.
IDE	: Google Colab, Jupyter Notebook.
Mobile & Web Development	: Flutter, HTML, CSS, PHP, WordPress.

Linguistic Proficiency

Bengali (Native Language)

English (Fluent Working Proficiency)

Awards

- Secured **Merit-based Scholarship** in University for all semesters.
- Received **Government Scholarship** in Secondary School Certificate.

Professional Courses

- Advanced **Computer Vision** with TensorFlow *(Coursera - Running)*
- Intro to Tensorflow for **deep learning**. *(Udacity-2021)*
- **Game Development** for Modern Platforms. *(Coursera - Jul 2020)*
- A workshop was held on **Digital Fabrication** in Fab Lab, CUET. *(December 2019)*
- Training course on **Blockchain and Cryptocurrency** under ICT Division and Bangladesh High Tech Park, CUET. *(June 2019)*

Extra-Curricular Activities

- Secretary (Creative), **CUET Career Club**, CUET. (2021-2022)
- Organized CUET ETE'17 **Fresher's Reception** in 2018.
- Worked as a volunteer in **'ROBI CAREER CARNIVAL'** which was held on 13th November 2017.
- Champion in Annual Hall **Cricket Tournament** in 2019.

References

1. **Dr. Md. Saiful Islam**
   Associate Professor
   Department of ETE, CUET
   Email: saiful05eee@cuet.ac.bd

2. **Mohammad Anisur Rahaman**
   PhD Student / Research Assistant
   Iowa State University
   &
   Assistant Professor
   Department of ETE, CUET (Study Leave)
   Email: anisur.rahaman@cuet.ac.bd