Md. Farhadul Islam

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EDUCATION

Bachelor of Science in Computer Science, *Brac University*
Sep 2019 – Present
Dhaka, Bangladesh

CGPA: 3.83 *(Highest Distinction)*, Credits Completed: 118

Undergraduate Thesis: ***Uncertainty in Different Neural Network Structures using Monte Carlo Dropout*** *(Passed with the Highest Grade)*

PROFESSIONAL EXPERIENCE

Teaching Assistant, *OSUN Science Shop, Brac University*
Jan 2023 – Present
Dhaka, Bangladesh

Course(s):

- **CSE490.18 - Geospatial Data Analysis** (Funded by OSUN)

Responsibilities: Tutorial Classes, Consultations, Project Mentoring, Course Structure and Syllabus Making.

Student Tutor, *School of Data and Sciences, Brac University*
Feb 2022 – Present
Dhaka, Bangladesh

Course(s):

- **CSE424 - Pattern Recognition** (Fall 2022, Spring 2023)
- **CSE431 - Natural Language Processing** (Fall 2022, Spring 2023)
- **CSE449 - Parallel, Distributed, and High-Performance Computing** (Fall 2022, Spring 2023)
- **CSE221 - Algorithms** (Summer 2022)
- **STA101 - Introduction to Statistics** (Spring 2022)

Responsibilities: Assignment Script Checking, Regular Consultations, Lab Tutoring, Lab Exam Invigilation, Project Supervision.

Undergraduate Research Assistant
Mar 2021 – Present

Working on Medical Image Analysis, Uncertainty Estimation, State-of-the-art Deep Learning Models, Natural Language Processing, Statistical Data Analysis and Applications with Deep Learning.

Supervisor(s): Jannatun Noor, Meem Arafat Manab, Annajiat Alim Rasel
Field: Deep Learning

TECHNICAL SKILLS

Machine Learning/ Deep Learning *(Tensorflow/Keras, ScikitLearn, OpenCV, NLTK)*

OOP, Data Structures, Algorithms *(Python, Java, C, C++)*

Database Management System *(MySQL, MongoDB)*

Backend Web Development *(Django, Node.js, Flask)* • **Simulation & Modeling** *(SciPy, SimPy, SymPy)*

Web Scraping, Web Automation *(BeautifulSoup, Selenium)*

Data Analysis, Management & Visualization *(NumPy, Pandas, Matplotlib, Seaborn)*

Basic Robotics *(Arduino (C++))* • **Software Development Life Cycle [SDLC]**

PUBLICATIONS

UnIC-Net: Uncertainty Aware Involution-Convolution Hybrid Network for Two-Level Disease Identification*, *SoutheastCon 2023* 2023

Authors: **Md. Farhadul Islam**, Sarah Zabeen, Fardin Bin Rahman, Md. Azharul Islam, Fahmid Bin Kibria, Meem Arafat Manab, Dewan Ziaul Karim and Annajiat Alim Rasel. *Accepted for publication

Exploring Node Classification Uncertainty in Graph Neural Networks, *Proceedings of the 2023 ACM Southeast Conference* 2023

Authors: **Md. Farhadul Islam**, Sarah Zabeen, Fardin Bin Rahman, Md. Azharul Islam, Fahmid Bin Kibria, Meem Arafat Manab, Dewan Ziaul Karim and Annajiat Alim Rasel.

Forecasting Meteorological Solar Irradiation Using Machine Learning and N-BEATS Architecture, *2023 8th International Conference on Machine Learning Technologies Proceedings* 2023

Authors: Md. Tawhid Anwar, **Md. Farhadul Islam**, Md. Golam Rabiul Alam.

Classifying Corn Leaf Diseases using Ensemble Learning with Dropout and Stochastic Depth Based Convolutional Networks, *2023 8th International Conference on Machine Learning Technologies Proceedings* 2023

Authors: Md. Shamsul Rayhan Chy, Mohammad Rakibul Hasan Mahin, **Md. Farhadul Islam**, Md Sabbir Hossain, Annajiat Alim Rasel.

How Certain are Transformers in Image Classification: Uncertainty Analysis with Monte Carlo Dropout*, *Fifteenth International Conference on Machine Vision (ICMV 2022), Rome Italy.* 2023

Authors: **Md. Farhadul Islam**, Sarah Zabeen, Md. Azharul Islam, Fardin Bin Rahman, Anushua Ahmed, Dewan Ziaul Karim, Annajiat Alim Rasel and Meem Arafat Manab. *Accepted for publication

Diagnosis of Autism Spectrum Disorder Through Eye Movement Tracking Using Deep Learning, *Proceedings of International Conference on Information and Communication Technology for Development* 2023

Authors: Nasirul Mumenin, ***Md. Farhadul Islam***, Md. Reasad Zaman Chowdhury, Mohammad Abu Yousuf.

Monte Carlo Dropout for Uncertainty Analysis and ECG Trace Image Classification, *Structural, Syntactic, and Statistical Pattern Recognition, Springer International Publishing* 2023

Authors: ***Md. Farhadul Islam,*** Sarah Zabeen, Md Humaion Kabir Mehedi, Shadab Iqbal, and Annajiat Alim Rasel.

Identifying Hurricane Damage using Explainable Compact Transformer with Convolutional Embedding, *2022 25th International Conference on Computer and Information Technology (ICCIT)* 2023

Authors: **Md. Farhadul Islam,** Sarah Zabeen, Mohammad Muhibur Rahman, Mutasim Husain Khan, Fairoz Nower Khan, Nabuat Zaman Nahim, Md. Tawhid Anwar, Mohammad Kaykobad.

InvoPotNet: Detecting Pothole from Images through Leveraging Lightweight Involutional Neural Network, *2022 25th International Conference on Computer and Information Technology (ICCIT)* 2023

Authors: Joyanta Jyoti Mondal, **Md. Farhadul Islam**, Sarah Zabeen, Meem Arafat Manab.

RNN Variants vs Transformer Variants: Uncertainty in Text Classification with Monte Carlo Dropout, *2022 25th International Conference on Computer and Information Technology (ICCIT)* 2023

Authors: **Md. Farhadul Islam**, Fardin Bin Rahman, Sarah Zabeen, Md. Azharul Islam, Md Sabbir Hossain, Md Humaion Kabir Mehedi, Meem Arafat Manab, Annajiat Alim Rasel.

Note: Plant Leaf Disease Network (PLeaD-Net): Identifying Plant Leaf Diseases through Leveraging Limited-Resource Deep Convolutional Neural Network, *COMPASS '22: ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS)* 2022

Authors: Joyanta Jyoti Mondal, ***Md. Farhadul Islam***, Sarah Zabeen, A. B. M. Alim Al Islam, and Jannatun Noor.

REVIEWER EXPERIENCE

ACM Journal on Computing and Sustainable Societies, *(ACM JCSS)*

International Conference on Networks, Communication and Information Technology, *(NCIT 2022)*

PROJECTS

Rant ON! - A Social Media Website, *Single Project* 2023

Project for the course CSE470: Software Engineering. MERN was used to develop the whole project. A minimalistic, stress relief-based social media platform for everyone who wants to share their anger, emotions, stories without revealing their identity. A comment sentiment-based reaction and trend-wise post suggestions as notable features.

AirWire: Predicting Air Quality Index from Sky Images, *Group Project* 2022

An app for predicting Air Quality Index from Sky Images. This project was conducted under the team "Ronin Technologies". I was responsible for Machine Learning tasks, developed TFLite version for the project's mobile app. Tensorflow/Keras, TFLite, Scikit-Learn was used.

Malware Classification using Deep CNN on Malimg Dataset, *Single Project* 2022

Achieved high accuracy with a CNN model made from scratch. Tensorflow/Keras was used. Model was developed focusing on classifying any type of malware attack images.

Auto Chloro - A Plant Disease Classifier & Remedies Provider in Bangla, *Group Project* 2021

2nd Runner up in Project Tech Tussle by IEEE Computer Society BRACU Student Chapter. Tensorflow/Keras was used for DL, EasyGUI for GUI.

Conference Management System, *Group Project* 2021

CSE370 - Database Project. For Backend Development Django was used and Used BeautifulSoup to scrape conference data. For DBMS, MySQL was used.

AirDraw-n-Match-A-Webcam-Paint-Digit-Recognition-Program, 2020
Single Project

One of the winners in Skill Showcasing - R@D!X (Radix) by BRAC University Computer Club. Used Tensorflow/Keras, OpenCV, EasyGUI for developing the whole project.

NESARC Data Analysis, Management & Visualization, *Single Project* 2020

Coursera Course Project. Analysis on "How Depression Affects Diet and Lifestyle".

COVID19 Ventilator, *Group Project* 2020

Low-cost noninvasive ventilator. This allows control of respiratory rate and tidal volume where the patient will receive a set volume/pressure breath. Responsible for the software development with ARDUINO coding.

ONLINE SPECIALIZATION CERTIFICATES

DeepLearning.AI Tensorflow Developer, *DeepLearning.AI* 2021
Coursera

AI for Medicine, *DeepLearning.AI* 2021
Coursera

PRESENTATIONS & LECTURES

[Poster Presentation] Unmasking the Invisible: Finding Location-Specific Aggregated Air Quality Index with Smartphone Images, *9th International Conference on Networking, Systems and Security (NSysS 2022)* 2022

Authors: Joyana Jyoti Mondal, ***Md. Farhadul Islam***, Raima Islam, Nowsin Kabir Rhidi, Meem Arafat Manab, A. B. M. Alim Al Islam and Jannatun Noor.

[Poster Presentation] Identification of Plant Leaf Diseases using Deep Convolutional Neural Network with Less Computational Power (Poster Presentation), *8th International Conference on Networking, Systems and Security (NSysS 2021)* 2021

Authors: Joyanta Jyoti Mondal, ***Md. Farhadul Islam***, Sarah Zabeen, A. B. M. Alim Al Islam, and Jannatun Noor.

[Invited Class Lecture] Monte Carlo Simulations - Spring'22, Summer'22, 2022
CSE474 - Simulation & Modeling, Brac University

Invitation from the course instructor to take a class on Monte Carlo Simulations. 750+ views on YouTube of Spring 2022's class.

AWARDS/ACHEIVEMENTS

Runner-Up Award: Research Poster, *The 2022 9th International Conference on Networking, Systems and Security (9th NSysS 2022)* 2022

Poster: Unmasking the Invisible: Finding Location-Specific Aggregated Air Quality Index with Smartphone Images.

Presenter/Participation Grant at ACM COMPASS 2022 2022

Awarded for presenting our paper titled "Note: Plant Leaf Disease Network (PLeaD-Net): Identifying Plant Leaf Diseases through Leveraging Limited-Resource Deep Convolutional Neural Network".

Merit Based Scholarship, *BRAC University* 2020 – Present

Awarded for maintaining high CGPA. Awarded the scholarship for 6 semesters. Got upto 50% scholarship.

Winner: Skill Showcasing, 2021

R@D!X (Radix) by BRAC University Computer Club

Built a program where you can draw something without a keyboard or a mouse. It does not end here, it will give a random integer to draw, the Neural Network will predict the digit that you drew. The whole program works like a game.

3rd Place: Project Showcasing, 2021

IEEE Project Tech Tussle 2021 sponsored by Global Brand

Team Lead, and responsible for ML development. Built a framework to classify plant disease & provide remedies. The GUI is based on Bangla Language keeping in mind that, our primary target is to create an application to predict plant diseases and provide remedies for the Bangladeshi people.

Top 10: Idea Presentation, *Idea Competition - BUP MindExperia 2020* 2020

9th Position in the idea contest. Leading the team and proposed the idea of Covid19 Tracker and Prediction focusing on Bangladesh.

CLUBS

Robotics Club of BRAC University - ROBU, Dhaka, Bangladesh

Secretary of Research & Project Management

- Contest organizing, Rule Books, Guiding Club Freshers. Tutorial videos on Basics of Robotics, which is available on YouTube.
- Recognition Certificate

LANGUAGES

English *(Full Working Proficiency)* • **Bengali** *(Native)* • **French** *(Beginner)* • **Hindi** *(Conversational)*

REFERENCES

Available on Request