

Shourov Joarder

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EDUCATION

Bangladesh University of Engineering & Technology (BUET)

February 2020 - Present

Final year B.Sc. Student in Electrical and Electronic Engineering

Major : Communication and Signal Processing (*CSP*)

CGPA : **3.89/4.00** up to 7th semester

Class Position : **2nd** in *CSP major*

Relevant Coursework: Artificial Intelligence and Machine Learning — Digital Image Processing I — Digital Signal Processing — Control System I — Random Signals and Processes — Microprocessors and Embedded System — Digital Electronics — Electronic Circuits I & II — Probability and Statistics

RESEARCH INTERESTS

Applying Machine Learning and Deep Learning techniques in the fields of

- Computer Vision
- Natural Language Processing
- Biomedical Signal Processing
- Medical Imaging Processing
- Autonomous Vehicle
- Multimodal models VLMs

RESEARCH EXPERIENCE

Undergraduate Thesis Student

2024 - Present

Department of EEE, Bangladesh University of Engineering & Technology

Supervisor : [Dr. Kamrul Hasan](#)

My ongoing thesis is research on the development of a state-of-the-art **unsupervised** end-to-end deep learning method for ***Strain Elastography(SE)*** through the estimation of the displacement field (similar to the estimation of optical flow in CV). SE is a medical imaging technique that determines the tissue region strain that helps detect/classify the tumor/lesion region from the surrounding tissue by their strain.

Progress:

- Implemented [ReUSENet](#) paper in Pytorch.
- Developed a model consisting a new encoder with **TriCrossAttention**, **Convolutional-LSTM** based decoder and a novel loss for Displacement Field Estimation in Strain Elastography from RF sequence and implemented this in Pytorch.
- My proposed model achieves results close to SOTA and beats the [ReUSENet](#) (implemented) in terms of SNR, CNR and NRMSE metrics.

AWARDS and COMPETITIONS

- Multiple **University Merit** and **Dean's List** scholarships at BUET.
- 57th in the public leaderboard of [DL Sprint - BUET CSE Fest 2024](#), Bengali AI Math Olympiad an LLM based competition.
- Best Notebook Award at the [DL Sprint - BUET CSE Fest 2022](#), Bengali ASR Competition.
- 1st Runner up of Undergraduate Project Idea Contest at 25th ICCIT 2022, Bangladesh. [\[Certificate\]](#)

SKILLS

- **Programming:** C, C++, Python, MATLAB, Assembly, Verilog.
- **Frameworks & Libraries:** Pytorch, Jupyter, Mamba, Pandas, NumPy, Matplotlib, Scikit-Learn, TensorFlow, OpenCV, YOLO.
- **Software and Tools:** Raspberry Pi, Arduino, Proteus, Pspice, Quartus, Keil, MS WORD, EXCEL, PowerPoint.
- **App Development:** Android Studio, Kotlin (Basic).
- **Design Tools:** AutoCAD (Basic).

PROJECTS

Autonomous Inventory Robot [Github](#)

In this project, we developed a Inventory Bot which can take real time voice command and bring the object mentioned in the voice command using real time object detection by **YOLOv** then grabbing the object with necessary **ARM** movement finally bring it back to the base with **LFR**.

Deep-Learning-based-Breast-Cancer-Classification-Using-VGGIN [Github](#)

In this project, I trained the VGGIN model on the BreakHis histopathology dataset achieved **99.628%** accuracy on the test dataset. VGGIN is a deep learning model combining VGG-19 and the Inception module.

Voice Controlled Wheelchair for Disabled Patients [Github](#)

We developed a method to control a wheelchair with only the patients voice commands. Our wheelchair takes voice commands from the patients in any language and in any accent and moves accordingly.[\[Video\]](#).

Machine Learning Based Electrical-Fault-Classification-with-GAF-image [Github](#)

ML algorithms like Decision Tree Classifier, Random Forest and CNN based deep learning method were used to classify the electrical fault from the BUS voltage and current data.

Extracting Audio from Muted Video [Github](#)

The main objective of this project was to extract the audio signal from a muted video using signal processing methods in MATLAB. This was originally a project by Abe Davis, MIT [\[Visual Microphone\]](#).

Car Theft Detection and Prevention with Automatic GPS Tracking [Github](#)

This is a IoT based project. GSM and GPS technology was used to track and send the car location and ESP32-CAM module was used to capture the photo of the thief and shut the car down.[\[Video Presentation\]](#).

Single Phase Transformer Simulator [Github](#)

Developed a simulator which simulates a single phase transformer. The simulator was designed by MATLAB GUI and the back-end code was also done in MATLAB.

EXTRA CURRICULUM

- **President**, BUET Photographic Society
- **President**, BADHAN-(Ahsanullah Hall Unit, BUET)

REFERENCES

[Dr. Kamrul Hasan](#)

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[Dr. Sajid Muhaimin Choudhury](#)

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