Ashfak Yeafi

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Research interests

Artificial Intelligence, Deep Learning, Bio-medical Imaging, Embedded Devices, Biomedical Devices, Digital Health, Biomedical Signal, and Image Processing.

Education

- **Bachelor of Electrical and Electronic Engineering** Jan. 2019– Mar. 2024
  Department of Electrical and Electronic Engineering,
  Khulna University of Engineering & Technology,
  Khulna-9203, Bangladesh

Experience

- **Software Sub-Team Co-Lead,** KUET Mars Rover - Team Durbar Jan. 2023– Mar. 2024
  - Led software development for the project
  - Played a crucial role in technical problem-solving
  - Contributed to the overall success of the Mars Rover initiative

- **Technical Secretary**, EEE Makers Hub Mar. 2022– Mar. 2024
  - Organized technical events, workshops, and seminars to promote skill development.
  - Led technical initiatives, demonstrating strong organizational and leadership skills.
  - Established connections with industry professionals for potential collaborations and opportunities.

- **Student Lab Operator**, FABLAB KUET Mar. 2022– Mar. 2023
  - 3D Printing: Operational expertise for translating designs into tangible objects.
  - Laser Cutting: Proficient in precision laser cutting technology.
  - PCB Design: Skilled in schematic capture and layout design.
  - CNC Cutting: Efficient in translating digital designs into physical prototypes.

Publications

Journal:

1. Jawad, Md Tasnim, **Ashfak Yeafi**, and Kalyan Kumar Halder. "GSNet: a multi-class 3D attention-based hybrid glioma segmentation network." Optics Express 31, no. 24 (2023): 40881-40906.
2. Amri, Emna, Yonis Gulzar, **Ashfak Yeafi**, Siwar Jendoubi, Faten Dhawi, and Mohammad Shuaib Mir. "Advancing automatic plant classification system in Saudi Arabia: introducing a novel dataset and ensemble deep learning approach." Modeling Earth Systems and Environment (2024): 1-17.

Conference:

1. Roy, Amit Deb, and **Ashfak Yeafi**. "Implementation of Encoder-Decoder based Long Short-Term Memory Network for Short-Term Electrical Load Forecasting." In 2022 4th International Conference on Sustainable Technologies for Industry 4.0 (STI), pp. 1-6. IEEE, 2022.
2. **Ashfak Yeafi**, Monira Islam, Sohag Kumar Mondal, KM Ishraq Hussain Nashad, and Md Salah Uddin Yusuf. "A Semi-supervised Approach For Brain Tumor Classification Using Wasserstein Generative Adversarial Network with Gradient Penalty."

Research Works (Ongoing)

- Waste detection using weak supervised learning.
- Multi disease detection using machine learning algorithm.
- Attention transformer-based model for skin cancer detection.
- Brain tumour interfacing system using augmented reality tools.

Software Skills

1. Programming language: Python, C, C++, Java, Arduino, Latex
2. Ai framework: Py torch, TensorFlow, Keras, Scikit-learn, CUDA, OpenCV, Media Pipe, Pandas, NumPy
3. Software: VS code, Jupiter Notebook, Anaconda, PyCharm, Vim, Spider.
4. Visualisation tools: Matplotlib, Matlab, Seaborn
5. Web Technologies: HTML, Flask, SCSS, WordPress.
6. OS system: Linux
7. Robotics: ROS (Robot Operating System), Gazebo, Rviz
8. Designing tools: AutoCAD Electrical, Simulink, Fusion 360
9. Electrical tools: Matlab, Proteus
10. Fabrication Tools: 3D Printer, Laser Cutter, Prusa Slicer, Ultimaker Cura

Projects

1. Real-time Heart Rate Estimation using Live Video Feed.
    a. Technolgy used: OpenCV, Python, SciPy, Qt5, rppg
2. Skin cancer detection web app.
    a. Technology used: OpenCV, TensorFlow, Flask, MRI image.
3. Drowsiness detector using Media Pipe + LSTM.
    a. Technology used: OpenCV, Python, Media pipe, LSTM.
4. Sign Language Detection.
    a. Technology used: OpenCV, Python, TensorFlow, CNN, Yolo v5
5. Autonomous Mobile Robot from scratch in ROS environment.
    a. Technology used: ROS, Cmake, Python, C++, Fusion 360, Gazebo, Rviz
6. Face detection with Raspberry Pi 4.
    a. Technology used: OpenCV, Python, Raspberry Pi
7. Satellite image segmentation using the Pix2Pix GAN model.
    a. Technology used: OpenCV, Python, Pix2Pix Gan, Py torch, Flask.
8. A Flask web app for brain tumour segmentation.
    a. Technology used: OpenCV, Python, Py torch, Flask.
9. Ebot- Personal Voice Assistance with Python 3 .
    a. Technology used: Goole speech to text model, Piiow, Python.

Awards and Achievements

1. Kaggle Datasets Grandmaster. (Highest rank: 24th worldwide).
2. Kaggle Notebook Master. (Highest rank: 226th worldwide).
3. Indian Rover Desing Challange by Mars Society South Asia - 2024.
4. Technical Scholarship, Department of EEE, KUET (2019,2020,2021,2023).
5. International Planetary Aerial System Challenge by Mars Society South Asia – 2021.
6. Indian Rover Desing Challange by Mars Society South Asia - 2020.
7. 1st place in Science & Technology article writing at the Intra-university cultural competition (2019).
8. Divisional Winner Bangladesh Chemistry Olympiad (2018).
9. Divisional Winner Bangladesh Physics Olympiad (2014).

Certifications

- Machine Learning by Stanford Online
- AWS Machine Learning Foundations
- Kaggle Intermediate Machine Learning
- Deep Learning Specialization
- Problem Solving (Intermediate) by HackerRank
- IBM AI Engineering
- Mathematics for Machine Learning and Data Science

Language skills

English (Professional, IELTS Band Score: _. _), Bangla (Native) and German (Learning).