Mitun Kanti Paul

Master's in Biomedical Engineering (Signal and Image Processing)
Homepage, Scholar, Linkedin, Github

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Research Interest

- Signal and Image Processing, Machine Learning, Deep Learning, Computer Vision

Education

- **University of Oulu** — Oulu, Finland
  MSc in Biomedical Engineering (Signal and Image Processing); CGPA: 4.67 out of 5 — *September 2023 - Ongoing*
  - **Relevant Courses**: Bio-signal Processing I(ECG) Biosignal Processing II(EEG), Deep Learning, Multi-modal Data Fusion, Machine Learning, Machine Vision, Intro. to Biomedical Image Processing, Big Data, Digital Image Processing
- **Shahjalal University of Science & Technology(SUST)** — Sylhet, Bangladesh
  Bachelor of Science in Electrical & Electronics Engineering; CGPA: 3.4 out of 4 — *March 2016 - June 2021*
  - **Relevant Courses**: Computer Programming(C, C++), Numerical Analysis, Signals and Linear Systems, Communication Engineering, Microprocessor and Interfacing, Digital Signal Processing, Control System, Linear Algebra, Probability and Statistics

Publications

- Fahad Jubayer, Janibul Alam Soeb, Abu Naser Mojumder, **Mitun Kanti Paul**, Pranta Barua, Shahidullah Kayshar, Syeda Sabrina Akter, Mizanur Rahman, Amirul Islam, Detection of mold on the food surface using YOLOv5, Current Research in Food Science, Volume 4, 2021, Pages 724-728, ISSN 2665-9271 https://doi.org/10.1016/j.crfs.2021.10.003 (October 2021)
  - The study aimed to identify different molds that grow on various food surfaces.
  - A dataset of 2050 food images with mold growing on their surfaces was created.
  - The dataset was trained using the pre-trained YOLOv5 algorithm.
  - In comparison to YOLOv3 and YOLOv4, this current YOLOv5 model had better precision, recall, and average precision (AP).

  Contributions: Formal analysis, algorithm development, review and editing.

Projects

- **Transfer Learning: Transfer Learning on EuroSAT** — University of Oulu
  Final project for Deep Learning Course — *December 2023*
  - Applied ResNet18, ResNet50, Vgg16 classifier
  - Accuracy: 60% achieved on test data by training on only 25 images.
- **Exercise Detection: Multi-modal Data Fusion** — University of Oulu
  Final project for Multi-modal Data Fusion Course — *December 2023*
  - Applied PCA and LDA to extract features from accelerometers and depth sensor data.
  - Achieved F1: 78% on test data
- **PID Controlled Line following Robot** — SUST Mecnovation
  contestant — *December 2019*
  - An advanced line following robot was built using IR sensor, Ultrasonic Sensor and Arduino.

Skills

- **Programming:** Python, MATLAB, C, SQL, Arduino
- **Python Library:** PyTorch, TensorFlow, Keras, scikit-learn, Pandas, NumPy, matplotlib, seaborn
- **Version Control System:** Git
- **PCB Designing tool:** Eagle, Ki-Cad
- **Soft Skills:** Team Work, Collaboration

Certifications

- **TensorFlow Developer Specialization** coursera.org
  DeepLearning.AI/certificate *December 2020*
  - Learned applied machine learning skills with TensorFlow to build and train powerful models.
  - Built scalable AI-powered applications with TensorFlow.

- **Deep Learning Specialization** coursera.org
  DeepLearning.AI/certificate *September 2020*
  - Built neural network architectures such as CNN, RNN, LSTMs, Transformers
  - Learned how to make them better with strategies such as Dropout, BatchNorm, Xavier/He initialization, and more.
  - Real-world case studies such as autonomous driving, sign language reading, music generation, computer vision, speech recognition, and natural language processing.

Training Experience

- **Training Institute for Chemical Industries (TICI)**
  Industrial Training on Electrical Engineering & Instrumentation *February 2020 - March 2020*
  - **Electrical & Electronic Engineering:** Electrical Switching & protective devices, Electrical testing & measuring instrument, Transformer, Generators, Motors, Starting and Control of Induction motors, Electrical Power Generation & Control Technique, Substation & Distribution System, Power Plant Starting Procedure, Motor Controlled by AC Drives, PLC Controlled Motor Operation.
  - **Instrumentation & Control Engineering:** Process Instrumentation, Sequential Logic Operation, Programmable Logic Controller (PLC), Distributed Control System(DCS), Factory Automation with SCADA
  - **Mechanical Engineering:** Bearing, Turbine, Machine Alignment.
  - **Industrial Safety & Health.**

Organizational Activities

- **Member at SEC Robotics Club**
  Participated in several Line Following Robot(LFR) contests.
- **Event Organizer at SEC EEE Society.**
  Organized Intra-campus Robotics Competitions and Seminars.
- **Member at Pentaton Musical Club**
  Organized Several Music Concerts on campus.

Standardized Test Scores

- **GRE**: Total: 306, Quantitative: 157, Verbal: 149, Analytical: 2.5
- **IELTS**: Overall: 6.5, Listening: 7.5, Reading: 6, Speaking: 6.5, Writing: 6

Hobbies

- Reading Non-fiction books, Playing Flute, Running and Listening Music.

Recommendations

MD. Shahid Iqbal
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