MdKamrulHasan Foysal

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SKILLS

Language: C, C++, Python, MATLAB, SQL, Java, R
Framework: TensorFlow, Keras, Panda, PyTorch, Scikit-learn, Decision Tree (Adaboost, Xgboost, Gradient boosting)
Machine Learning: Segmentation, Clustering, Supervised-Unsupervised ML, Regression, SVM, KNN, MLP, Random Forest)
Computing and Server: High Performance Computing, Google Cloud Platform, AWS
Deep Learning: YoLo, Resnet, Alexnet, Bidirectional LSTM, RNN, Deep-CNN, GAN, VGG, Federated Learning
Platform: Git, Android Studio, XCode

EDUCATION

Ph.D. – *Electrical & Computer Engineering,* Texas Tech University, Lubbock TX., August 2023
M.S. – *Electrical & Computer Engineering,* Texas Tech University, Lubbock TX., Aug. 2021 (GPA 3.86)
B.S. - *Electrical & Electronic Engineering,* Bangladesh University of Engineering & Technology, Apr. 2016 (GPA 3.37)
Relevant Coursework: Principle of Optimization, Deep Learning, Medical Imaging, Multivariate Signal Processing, Pattern
Recognition, Machine Learning, Image Processing, Communication Systems, Statistical Inference, Signal Processing, CITI

PROFESSIONAL EXPERIENCE

Data Science Analyst, Department of Physiology and Biomedical Engineering, Mayo Clinic, Rochester, MN. **(August. 2023-Present)**
- Bioinformatics and deep learning tool development for application in enteric neuroscience.

PhD Research Intern, Department of Physiology and Biomedical Engineering, Mayo Clinic, Rochester, MN. **(Jan. 2023-June 2023)**
- Developing a novel imaging software for Enteric Neuroscience (NIH) for mapping gut neurons using AI technology.
- Processing complex biomedical images with machine and deep learning algorithms on GCP, AWS to facilitate image analysis.
- Reducing manual mapping time by 80% utilizing state-of-the-art technologies to provide quantitative analysis of acquired data.

Graduate Part Time Instructor, Department of ECE, Texas Tech University, Lubbock, TX. **(Sept. 2022-Dec. 2022)**
- Developed teaching methodology for undergraduate level courses (*General Electrical Engineering, C++*) and graduate level course (*Multivariate Biomedical Signal Processing*), 32% increase in student satisfaction, exams, and project monitoring.
- Supervised *80+ undergraduate* and *15+ graduate students* aiding with technical mentorship for programming and data science

Academic Research Scientist, Inoon LLC, Lubbock, TX. **(May. 2021-Aug. 2022)**
- Designing proof of concept **prototype** for **Eye disease detection using smartphone** utilized big data technology, data visualization (Hybrid SVM-CNN, Reinforcement learning), and successfully raised $375k for NSF SBIR-STTR grant.
- Modeled 3D prototypes (*CAD*), Introduced Scalable Smartphone App for diagnosis (Android Studio) increasing diagnosis accuracy by more than 8% for Cataract, Keratoconus, and Glaucoma.

Graduate Research Assistant, Department of ECE, Texas Tech University, Lubbock, TX. **(Sept. 2018-Aug. 2023)**
- Attained 4+ years of proven experience in developing proof-of-concept studies for grants, signal and image processing, machine and deep learning modeling real data, and statistical methods, including predictive modeling and forecasting, time series analysis
- Lead a team of Software Engineer for **AI-based Speech Therapy Software Development for Telehealth-** designed and developed scalable desktop software for Tele-Health (Assessed, Outlined, and collaborated with TTUHSC- (UX-UI *Python*), SQL, full stack development), successfully delivered in fulfillment of $2.82M NIH grant requirement.
- Developed novel Smartphone based unbiased Skin Cancer Diagnosis Tool for personal diagnosis with higher accuracy on skin lesion classification (5% improved compared to SOTA techniques in Federated Setting).
- Delivered **Smartphone application to detect body shape and size of the consumer**, created Android application by Implementing Segmentation, and Clustering, Decision Tree, Alexnet, and Resnet, raised $50k NSF grant.
- Programmed image processing and regression-based application **Quantifying analyte in Lateral Flow Assay using Smartphone** (Funded by Govt. of Korea) to measure analyte quantity in LFA (Quantitative analysis, Java), Presented theoretical design for up to 98% accurate analyte quantity detection with R^2 value of 0.9838 (State of the Art).
- Invented algorithm for **Reducing Motion Noise Artifact in Smartphone PPG Signal** (NIH) by optimizing multichannel PPG for heart rate detection from sensor fusion increasing accuracy by 4.9% (XCode, Debugging and optimizing *APIs*).

Executive Engineer, Siemens Healthineers Gmbh, Dhaka, Bangladesh **(Aug. 2017-Aug. 2018)**
- Improved database management, operations, KPI, and Service operations log of 100+biomedical devices (CT, MRI, Ultrasound) coordinating a system of 120+ employees.
- Initiated reporting protocol for device maintenance and safety from user-end, by implementing Software for maintenance, and optimization, resulting in lead time reduction by 40% by reorganizing supply chains.

PUBLICATION AND RECOGNITION

- Accumulated **92+** citations from 2018 for **14 Publication- 6** journal papers (*Plos One, Electronics, Sensors*) and **7** conference articles (*IEEE, MHSRS, EMBC*), **4** journal articles and **3** conference papers in preparation.
- Achieved *Best Reviewer award by* Elsevier (2020, 2021), and *Techconnect Defense Innovation Award* (2019).