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.
- Reducing manual mapping time by 80% utilizing state-of-the-art technologies to provide quantitative analysis of acquired data.

***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.

***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 **99+** 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).