Moh Sabbir Saadat

Ph.D. - Computer Engineering University of South Carolina

- Develop, implement, and publish novel research ideas in Sensing and Imaging
- Implement multi-modal system prototypes with hardware-software synchronization
- Execute large-scale, distributed data processing and model training/testing on CUDA-based GPU server
- Advanced skills in applied Machine Learning, Signal Processing (Image, Audio, Wireless), and Coding

EXPERIENCE

Graduate Research/Teaching Assistant

- SyReX Lab University of South Carolina
- Explored the potential of wireless signal to achieve fine-grained perception and imaging (9 publications, 1 patent)
- Collaborative research, presentation, and visualization of outcomes, planning, and team-building
- Assisted a 400+ level class on computer networks with 100+ students (Socket programming with Java, Python, and C)

Executive Engineer

Siemens Healthcare Limited

- Oversaw the technical requirements of potential clients
- Built liaison between engineering department and existing clientele

EDUCATION

Ph.D. in Computer Engineering, University of South Carolina Master's in Computer Engineering, University of South Carolina B.Sc. in Electrical & Electronic Engineering, Bangladesh University of Engineering & Technology

SKILLS

Programming languages	Python, Java, C, C++, Matlab, HTML
Software libraries	PyTorch, TensorFlow, Keras, OpenCV, Robot Operating System (ROS)
Deep learning models	Graph Networks, Vision Transformer, Generative Adversarial Network (GAN), ResNet, Auto-encoder, LSTM
Computational skill	Signal and Image processing, Visualization, Statistical modeling, Data structures & Algorithms
Tools	Git version control, Shell scripting, LaTeX, Gnuplot, Inkscape, Onshape CAD
Operating System	Linux, Windows
Soft skills	Excellent verbal and written communication, Team player, Fast learner

PROJECTS

Automated NIH stroke scale segmentation from multiple sensors

- Processing 3D skeletal structure, 2D images, audio signal, wireless reflections
- Used Audio Speech Recognition (ASR) model, OpenAl's whisper
- Used Large Language Models (LLM), BERT and Sentence-BERT to map transcript to instruction
- Used Google's joint tracking model, Mediapipe to generate 3D skeletal joints

Multi-sensor fusion for contactless posture asymmetry scoring

- Multi-sensor prototype based on MATLAB and Python (4k camera, depth sensor, audio, wireless signal)
- Use Machine learning and Signal processing to map multi-sensory intelligence to meaningful posture asymmetry score
- Utilize established methods in Computer Vision, Audio Processing, and Large Language Models to process data

Co-existence of human-activity sensing on indoor networking system

- Graph neural network pipeline to overcome low-rate sensing signal due to co-existing networking
- Graph and Recurrent neural network (LSTM) to estimate 3D posture sequence of human body
- Exploring Vision Transformer to develop an end-to-end system

□ Imaging hidden objects with hand-held millimeter-wave devices

- Overcome sparse sampling and motion non-linearity with a set of signal processing methods (compressed sensing, unsupervised clustering etc.)
- Improve imaging quality through cGAN-based image super-resolution

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October, 2016 - November, 2018 Dhaka, Bangladesh

January, 2019 - Present

Columbia, SC, USA

December, 2024 (tentative) August, 2024 March, 2016