Khondker Fariha Hossain

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EDUCATION

Ph.D. in Computer Science and Engineering 2021 – Present
University of Nevada, Reno

M. Sc. in Computer Science and Engineering 2021 – 2022
University of Nevada, Reno

Master of Data Science 2019 – 2020
Deakin University, Australia

B.Sc. in Computer Science and Engineering 2013 – 2017
BRAC University, Bangladesh

WORK EXPERIENCE

Artificial Intelligence/Machine Learning Engineer Intern,
Ford Motor Company ; *Melbourne, Australia* Aug 2020 – Oct 2020

- Worked as a Team Lead(interns) to create a hierarchical Graphical Network of organization Members.
- Implemented ”Streamlit” for the dynamic visualization of the Machine Learning Model and the Graphical Network.
- Researched on ”Oracle Digital Assistance” to create an Economical and Organizational suitability report emphasizing on the Policy Maker and Technical perspective.

Tools: Tensorflow, Pandas, NumPy, Keras, Streamlit

Software Engineer Intern,
Kyoto Engineering and Automation Ltd. Oct 2017 – Dec 2017
Dhaka, Bangladesh

- Worked in 2 Software (Platform : .NET ; Language : C#)
- Worked with SAP Crystal Reports in Visual Studio
- Server : Microsoft SQL Server (Level :Basic , Language : SQL)
- Rectified and Created Official Website’s Pages (Language : HTML & PHP)

ACADEMIC EXPERIENCE

Graduate Research Assistant
Department of Computer Science; *University of Nevada, Reno* Jan 2021 – Present

- Working on a collaborative project with Neuromechanics Lab (UNR) for Sideline Concussion Assessment with Virtual Reality using Machine Learning models.
- Working on a collaborative project to Detect mass from mammogram images.

Tools: Tensorflow, Pandas, NumPy, Keras, OpenCV.

Graduate Teaching Assistant
Department of Computer Science; *University of Nevada, Reno* Jan 2021 – Present

Course: CS 302- Data Structure
Course: CS791 Topics- Mass Detection in Mammograms
Course: CPE 201- Digital Design

Mentor
Research & Engineering Apprenticeship Program (REAP) Jul 2021 – Aug 2021
US Army Educational Outreach Program

Researcher
Fab Lab Jun 2018 – Dec 2018
Independent University Bangladesh (IUB), Dhaka, Bangladesh.

- Collected and curated dataset for Bengali.AI Handwritten Grapheme Classification Challenge 2019 hosted by **Kaggle**

PUBLICATIONS **CONFERENCES**

[1] SWIN-SFTNet: Spatial Feature Expansion and Aggregation using Swin Transformer For Whole Breast micro-mass segmentation,accepted in *20th IEEE International Symposium on Biomedical Imaging, 2023 (ISBI) [Equal contribution]*.

[2] ECG-Adv-GAN: Detecting ECG Adversarial Examples with Conditional Generative Adversarial Networks, accepted for **Oral Presentation** in *20th International Conference on Machine Learning and Applications 2021 (ICMLA) [First Author]*.

[3] A Game theoretical Approach for Adversarial Attack on Deep Learning based Cyber Domain, in *17th International Symposium on Visual Computing (ISVC) 2022 [First Author]*

[4] ECG-ATK-GAN: Robustness against Adversarial Attacks on ECG using Conditional Generative Adversarial Networks, in *Applications of Medical AI (AMAI) at MICCAI 2022 [First Author]*

[5] Virtual-Reality based Vestibular Ocular Motor Screening for Concussion Detection using Machine-Learning, in *17th International Symposium on Visual Computing (ISVC) 2022 [First Author]*

[6] Feature Representation Learning for Robust Retinal Disease Detection from Optical Coherence Tomography Images, in *Ophthalmic Medical Image Analysis(OMIA9) at MICCAI 2022*

[7] VTGAN: Semi-supervised Retinal Image Synthesis and Disease Prediction using Vision Transformers, in *Proceedings of the IEEE/CVF International Conference on Computer Vision Workshops 2021 (ICCVW)*.

[8] RV-GAN: Retinal Vessel Segmentation from Fundus Images using Multi-scale Generative Adversarial Networks, in *24th International Conference on Medical Image Computing and Computer Assisted Intervention 2021 (MICCAI)*.

[9] Attention2AngioGAN: Synthesizing Fluorescein Angiography from Retinal Fundus Images using Generative Adversarial Networks, in *25th IEEE International Conference on Pattern Recognition 2020 (ICPR).*

[10] Fundus2Angio: A Novel Conditional GAN Architecture for Generating Fluorescein Angiography Images from Retinal Fundus Photography, in *15th International Symposium on Visual Computing 2020 (ISVC).*

JOURNALS

[1] New open-source software for subcellular segmentation and analysis of spatiotemporal fluorescence signals using deep learning, in **Journal Article. iScience 2022**.

[2] A Novel Deep Learning Conditional Generative Adversarial Network for Producing Angiography Images from Retinal Fundus Photographs, 2021, in *Scientific Reports.*, 10, 21580.

[3] Denoising Calcium Signals (Spatial-temporal Maps) using Mathematical Noise Modeling, 2021, in *IScience*. **Under Review**

POSTER PRESENTATION

Hossain, Khondker Fariha, Tanzila Jamil and Samiul Islam “X-Ray (2D) and CT-Scanned (3D) Image Matching for Person Identification“ in *7th International Conference on Informatics, Electronics & Vision 2018 (ICIEV), IEEE.*

SKILLS

- **Programming Languages:** C++,C#, Python,R, Java, Matlab, HTML-CSS, Git
- **Libraries:** OpenCV, Scikit-learn, Numpy, Pandas, Keras, Tensorflow, Streamlit, VS Code, Tensorboard, Apache Spark
- **Systems:** Linux OS, Slurm, Windows

AWARD

Graduate Dean's Merit Scholarship, Oct 2022
- Received Dean's Merit Scholarship 2022

Outstanding International Graduate Student, Apr 2022
- Received GSA Spring Award 2022

GR IM Access Grant
- Received Institutional Methodology Grant in January 2021, 2022

NIH-MICCAI 2021 Participation Award, Jun 2021
- The Medical Image Computing and Computer Assisted Interventions Society

REFERENCE

Available upon request.