

Mohammad Shafkat Islam

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Education

The University of Iowa	IOWA CITY, IOWA, USA
Ph.D. in Electrical and Computer Engineering, CGPA 3.71/4.0	2015 - 2021
Chittagong University of Engineering & Technology	CHITTAGONG, BANGLADESH
B.S. in Electrical and Electronic Engineering, CGPA 3.68/4.0	2013

Experience

Postdoctoral Research Associate, The University of Virginia	May 2022 – Present
• Development of deep-learning and machine-learning-based approaches for neuronal morphology segmentation (PyTorch)	
Postdoctoral Fellow, The Children's Hospital of Philadelphia	Apr 2021 – Apr 2022
• Developed deep-learning and graph-algorithm-based approaches for whole-cell segmentation from multiplexed imaging data (PyTorch)	
Machine Learning/Artificial Intelligence Intern	Apr 2019 – Dec 2019
• Developed a machine-learning-based algorithm to predict the probability of adverse effects from biometric and medical history features	
Research Assistant, The University of Iowa	May 2016 – Apr 2021
• Developed a deep-learning-based approach to estimate 3D optic-nerve-head shape from 2D color fundus photographs (PyTorch)	
• Developed a deep-learning-based approach to segment retinal folds and wrinkles due to optic disc swelling (TensorFlow)	
• Designed a deep-learning-based method to segment retinal blood vessels from multiple <i>en-face</i> spectral domain optical coherence tomography images in cases of optic disc swelling (Caffe)	
Software Engineer, Samsung Research and Development Institute Bangladesh	Jan 2013 – Feb 2014
• Developed Tizen operating system and performed software testing with Tizen SDK emulator as a member of platform verification team	

Technical Skills

Programming Languages: Python, MATLAB, C

Deep Learning Framework: TensorFlow, PyTorch Caffe, Theano

Operating Systems: Linux (Ubuntu, openSUSE, CentOS), Windows, Tizen

Others: ITK, 3D Slicer, Git, LaTeX

Relevant Coursework: Deep Learning, Pattern Recognition, Machine Learning, Computational Intelligence

Projects

- Development of an automated segmentation tool for neuronal morphology analysis (PyTorch)
- Development of a deep-learning-based approach for differentiation between the causes of optic disc swelling (TensorFlow)
- Automated prediction of optic nerve head (ONH) volume from color fundus photographs using deep neural network (TensorFlow)
- Automated segmentation of retinal folds and wrinkles from *en-face* SD-OCT images in cases of optic disc swelling using deep neural network (TensorFlow)

Recent Publications

- **Islam, M.S.**, Wang, J.K., Johnson, S.S., Thurtell, M.J., Kardon, R.H., and Garvin, M.K., "A Deep-Learning Approach for Automated OCT *En-Face* Retinal Vessel Segmentation in Cases of Optic Disc Swelling Using Multiple *En-Face* Images as Inputs," *Translational Vision Science & Technology*, 9, no.2 (2020).
- **Islam, M.S.**, Wang, J.K., Wenxiang, D., Thurtell, M.J., Kardon, R.H., and Garvin, M.K., "Deep-Learning-Based Estimation of 3D Optic-Nerve-Head Shape from 2D Color Fundus Photographs in Cases of Optic Disc Swelling," *International Workshop on Ophthalmic Medical Image Analysis (OMIA)*, pp. 136-145. Springer, 2020.

Awards and Honors

- Full tuition scholarship in MS and Ph.D. program.
- Undergraduate merit scholarship.