

# Sharif Amit Kamran

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## EDUCATION

<b>PhD. in Computer Science and Engineering</b> (M.S. leading to PhD.)	<b>CGPA:</b> 3.5 / 4.0
University of Nevada, Reno	Aug 2019 – Present
<b>Ms. in Computer Science and Engineering</b>	<b>CGPA:</b> 3.5 / 4.0
University of Nevada, Reno	Aug 2019 – Dec 2020
<b>Bsc. in Computer Science and Engineering</b>	<b>CGPA:</b> 3.45 / 4.0
BRAC University, Bangladesh	Jan 2013 – Apr 2017

## PUBLICATIONS

### BOOK CHAPTER

- [1] A Comprehensive Set of Novel Residual Blocks for Deep Learning Architectures for Diagnosis of Retinal Diseases from Optical Coherence Tomography Images, 2020, *Book Chapter, in Deep Learning Vol 2., Springer Nature.*

### JOURNALS

- [1] GANgioNet: A Novel Deep Learning Conditional Generative Adversarial Network for Producing Angiography Images from Retinal Fundus Photographs, 2020, in *Scientific Reports*. **Under Review**
- [2] Denoising Calcium Signals (Spatial-temporal Maps) using Mathematical Noise Modeling, 2020, in *PLoS Computational Biology*. **Under Review**
- [3] A High Throughput Machine-Learning Driven Analysis of Ca<sup>2+</sup> Spatio-temporal Maps, 2020, in *Cell Calcium*, 91, p.102260.

### CONFERENCES

- [1] RV-GAN: Retinal Vessel Segmentation from Fundus Images using Multi-scale Generative Adversarial Networks, in *IEEE Winter Conference on Applications of Computer Vision 2020 (WACV)*. **Under Review**
- [2] Attention2AngioGAN: Synthesizing Fluorescein Angiography from Retinal Fundus Images using Generative Adversarial Networks, in *25th IEEE International Conference on Pattern Recognition 2020 (ICPR)*.
- [3] Fundus2Angio: A Novel Conditional GAN Architecture for Generating Fluorescein Angiography Images from Retinal Fundus Photography, in *15th International Symposium on Visual Computing 2020 (ISVC)*.
- [4] Improving Robustness using Joint Attention Network For Detecting Retinal Degeneration From Optical Coherence Tomography Images in *27th IEEE International Conference on Image Processing 2020 (ICIP)*.
- [5] Optic-Net: A Novel Convolutional Neural Network for Diagnosis of Retinal Diseases from Optical Tomography Images, in *18th IEEE International Conference on Machine Learning and Applications 2019 (ICMLA)*.
- [6] Total Recall: Understanding Traffic Signs using Deep Hierarchical Convolutional Neural Networks, in *21st IEEE International Conference on Computer and Information Technology 2018 (ICCIT)*.
- [7] Efficient Yet Deep Convolutional Neural Networks for Semantic Segmentation, in *IEEE International Symposium on Advanced Intelligent Informatics 2018 (SAIN)*.

## WORK EXPERIENCE

<b>Graduate Research Assistant</b> , University of Nevada, Reno <i>Department of Computer Science and UNR school of Medicine</i>	Aug 2019 – Present
<b>Co-Founder</b> , Bengali.AI <i>Dhaka, Bangladesh</i>	Apr 2018 – Present
<b>Mentor</b> , Research & Engineering Apprenticeship Program (REAP) <i>US Army Educational Outreach Program</i>	Jun 2020 – Aug 2020
<b>Researcher</b> , Center for Cognitive Skill Enhancement <i>Independent University Bangladesh (IUB), Dhaka, Bangladesh.</i>	May 2017 – Jun 2019

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## SKILLS

- **Programming Languages:** C++, Python, Java, Bash (Shell Scripting), Matlab, HTML-CSS, Git, PHP
  - **Libraries:** OpenCV, Scikit-learn, Numpy, Caffe, Keras, Tensorflow, PyTorch, CoreML, ImageJ.
  - **Systems:** Linux OS, Google Cloud Platform (Compute Engine & App Engine)
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## PROJECTS

### Self-supervised Contrastive learning

- Working on a self-supervised energy based model for various semantic segmentation and medical image segmentation tasks using contrastive learning.

### Semi-supervised multi-modal learning

- Working on a semi-supervised GAN for detecting calcium transient events using temporal and visual information from videos.

### Conditional Generative Adversarial Networks

- Implemented an attention-based generative adversarial networks for synthesizing Fluorescence Angiography from Retinal Fundus Photography.

### Automated Denoising and Segmentation using Deep Learning

- Created a pipeline for Ca<sup>2+</sup> spatio-temporal map generation, denoising and segmentation using deep learning.

### Traffic Sign Recognition

- Achieved state-of-the-art results for road traffic sign recognition using deep residual neural network network for German and Belgian Traffic sign data-set.

### Dilated Fully Convolutional Neural Networks (D-FCN)

- Implemented a FCN using dilated convolution and multi-scale skip connections for semantic segmentation and participated in University of Oxford's Pascal-VOC 2012 challenge.
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## ACADEMIC SERVICES

### Reviewer

2019 – Present

- BMVC-2020, WACV-2020, ICRA-2019, Sensors, IJAIT

### Graduate Teaching Assistant

Jan 2020 – May 2020

- CS491/CS691 Deep Learning
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## AWARDS & GRANTS

### Grant, National Aeronautics and Space Administration (NASA)

Oct 2020 – Sep 2021

- **Role:** Graduate Research Assistant
- **Program:** Human Exploration Research Program
- **Title:** A Non-intrusive Ocular Monitoring Framework to Model Ocular Structure and Functional Changes due to Long-term Space flight
- **Primary Investigator:** Dr. Alireza Tavakkoli

### Graduate Dean's Merit Scholarship,

Aug 2019 – May 2020

- Fall 2019 and Spring 2020

### Best Paper Award,

Aug 2018

- 2018 International Symposium on Advanced Intelligent Informatics (SAIN)
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## SELECTED COURSEWORKS

Algorithms, Linear Algebra, Statistics and Probability, Machine Learning, Deep Learning, Computer Vision, Image Processing, Database Systems

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## REFERENCES

### ■ Dr. Alireza Tavakkoli

Associate Professor, Department of Computer Science and Engineering  
University of Nevada, Reno, NV, 89557  
Email: tavakkol@unr.edu

### ■ Dr. Sal Baker

Associate Professor, Department of Physiology and Cell Biology  
University of Nevada, Reno, NV, 89557  
Email: sabubaker@med.unr.edu