# Sharif Amit Kamran

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## EDUCATION

**PhD. in Computer Science and Engineering**    **CGPA**: 3.7 / 4.0
University of Nevada, Reno    Aug 2019 – Present

**Ms. in Computer Science and Engineering**    **CGPA**: 3.63 / 4.0
University of Nevada, Reno    Aug 2019 – Dec 2020

**Bsc. in Computer Science and Engineering**    **CGPA**: 3.45 / 4.0
BRAC University, Bangladesh    Jan 2013 – Apr 2017

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## 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, Volume 2., p.25-48, Springer.*

### JOURNALS

[1] CalciumGAN: Segmenting Spatio-temporal map using multi-scale generative adversarial networks, 2021, in *Elife*. **Under Review**

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

[3] Neuro-Ophthalmic Imaging Modalities, Visual Assessment, and Machine Learning for Spaceflight Associated Neuro-Ocular Syndrome (SANS): Past, Present, and Future, in *Survey of Ophthalmology*.

[4] A Novel Deep Learning Conditional Generative Adversarial Network for Producing Angiography Images from Retinal Fundus Photographs, 2020, in *Scientific Reports.*, 10, 21580.

[5] A High Throughput Machine-Learning Driven Analysis of Ca 2+ Spatio-temporal Maps, 2020, in *Cell Calcium, 91*, p.102260.

### CONFERENCES

[1] ECG-Adv-GAN: Detecting ECG Adversarial Examples with Conditional Generative Adversarial Networks, in *20th International Conference on Machine Learning and Applications (ICMLA)*. **Under Review**

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

[3] 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)*.

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

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

[6] 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)*.

[7] 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)*.

[8] Total Recall: Understanding Traffic Signs using Deep Hierarchical Convolutional Neural Networks, in *21st IEEE International Conference on Computer and Information Technology 2018 (ICCIT)*.

[9] Efficient Yet Deep Convolutional Neural Networks for Semantic Segmentation, in *IEEE International Symposium on Advanced Intelligent Informatics 2018 (SAIN)*.

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| **WORK EXPERIENCE** | **Product Development Intern**, Genentech Inc.<br>*South San Francisco, CA, USA* | May 2021 – Present |
| | **Graduate Research Assistant**, University of Nevada, Reno<br>*Department of Computer Science and UNR school of Medicine* | Aug 2019 – Present |
| | **Co-Founder**, Bengali.AI<br>*Dhaka, Bangladesh* | Apr 2018 – Present |
| | **Mentor**, Research & Engineering Apprenticeship Program (REAP)<br>*US Army Educational Outreach Program* | Jun 2020 – Aug 2020 |
| | **Researcher**, Center for Cognitive Skill Enhancement<br>*Independent University Bangladesh (IUB), Dhaka, Bangladesh.* | May 2017 – Jun 2019 |

## 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), Slurm

## PROJECTS

**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 Fluroscien Angiography from Retinal Fundus Photography.

**Automated Denoising and Segmentation using Deep Learning**
- Created a pipeline for Ca2+ 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.

## ACADEMIC SERVICES

**Reviewer**
- British Machine Vision Conference (BMVC) 2020 & 2021
- IEEE Winter Conference on Applications of Computer Vision (WACV) 2021 & 2022
- Translational Vision Science & Technology (IF: 2.37)
- Medical Physics (IF:4.071)
- Biomedical Optics Express (IF: 3.921)

**External Reviewer**
- International Conference on Robotics and Automation (ICRA) 2019
- IEEE Transactions on Medical Imaging (IF: 6.685)
- Sensors (IF: 3.275)

**Graduate Teaching Assistant** — Jan 2020 – May 2020
- CS491/CS691 Deep Learning

## AWARDS & GRANTS

**MICCAI 2021 Student Travel Award**, — Jun 2021
- The Medical Image Computing and Computer Assisted Interventions Society

**Outstanding Graduate Student**, — May 2021
- GSA Spring Awards 2021, University of Nevada, Reno

**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

**Outstanding Graduating Graduate Student**,                                                      Dec 2020
- GSA Fall Awards 2020, University of Nevada, Reno

**Graduate Dean's Award**,                                               Aug 2019 – May 2020
- Graduate School, University of Nevada, Reno

**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** | ■ Available upon request. |