# 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

## 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] VTGAN: Semi-supervised Retinal Image Synthesis and Disease Prediction using Vision Transformers, 2021, in *IEEE Transactions on Medical Imaging*. **Under Review**

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

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

[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] 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, Springer. **Under Review**

[2] ECG-Adv-GAN: Detecting ECG Adversarial Examples with Conditional Generative Adversarial Networks, in *24th International Conference on Medical Image Computing and Computer Assisted Intervention*, 2021, Springer. **Under Review**

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

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

[5] 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).*

[6] 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).*

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

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

## WORK EXPERIENCE

**Product Development Intern**, Genentech Inc. — May 2021 – Present
*South San Francisco, CA, USA*

**Graduate Research Assistant**, University of Nevada, Reno — Aug 2019 – Present
*Department of Computer Science and UNR school of Medicine*

**Co-Founder**, Bengali.AI — Apr 2018 – Present
*Dhaka, Bangladesh*

**Mentor**, Research & Engineering Apprenticeship Program (REAP) — Jun 2020 – Aug 2020
*US Army Educational Outreach Program*

**Researcher**, Center for Cognitive Skill Enhancement — May 2017 – Jun 2019
*Independent University Bangladesh (IUB), Dhaka, Bangladesh.*

## 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)

## 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** — 2019 – Present
- WACV-2021, BMVC-2020, ICRA-2019, Sensors, IJAIT

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

## AWARDS & GRANTS

**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)

## SELECTED COURSEWORKS

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

## 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