SHIVANSH RAO

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EDUCATION

Pennsylvania State University — **University Park, PA**
Masters of Science, Informatics | ***CGPA : 4.0 / 4.0*** — *May 2021*
Coursework: Deep Learning, Computer Vision, Emotion Recognition, Natural Language Processing, Data Mining

Delhi Technological University — **New-Delhi, India**
Bachelor of Technology, Electronics & Communication Engineering | ***CGPA : 8.64 / 10*** — *May 2019*
Coursework: Computer Vision, Machine Learning, Pattern Recognition, Natural Language Processing

PROFESSIONAL EXPERIENCE

Scene Flow Estimation — **San-Diego, USA**
Qualcomm Inc. | ***Camera Team*** — *May - August 2020*
- Proposed an algorithm for generating basic scene flow by combining optical flow and depth from stereo for the latest snapdragon processor. Achieved comparative performance with non-deep learning SOTA techniques.
- Developed a Machine Vision Prototype to demonstrate the processor's scene flow, optical flow and depth from stereo feature capabilities to customers.

Google AI - DeepLDB Project — **Pennsylvania,USA**
Penn State University | ***Dr. Lee Giles, Dr. Daniel Kifer*** — *September 2019- Ongoing*
- Main role is to create the first large-scale landslide dataset in a semi-automated manner that can help predict the occurrence of landslide in a region.
- Previously developed teacher-student learning paradigm for landslide segmentation in the presence of noisy student.
- Currently working on cross-consistency training framework of semi-supervised learning for landslide segmentation.

Person Re-Identification in Videos — **Manitoba, Canada**
Computer Vision Lab, University of Manitoba | ***Dr. Yang Wang*** — *June-August 2018*
- Achieved SOTA results by an improvement of +8% for the task of Person Re-Identification that helps in identifying the same person from videos captured under different cameras.
- Proposed a non-local attention model that captures the attention scores in a global manner by considering all the frames in a video and hence extracts efficient long-range dependencies.

PUBLICATIONS

- **Semi-Supervised Facial Expression Recognition with Noisy Student:** *Vikas Kumar*, Shivansh Rao*, Li Yu*; ***BEEU Workshop - ECCV, 2020.*** [*Accepted*]
- **Neural Machine Translation for Low-Resourced Indian Languages:** *Himanshu Choudhury, Shivansh Rao, Rajesh Rohilla*; ***LREC, 2020*** [Paper].
- **Design of Hanman Entropy Network from RBFN:** *Madasu Hanmandlu, Shivansh Rao, Shantaram Vasikarla*; ***Journal of Modern Physics Vol.10 No.13, 2019.*** [Paper]
- **Non-Local Attentive Temporal Network for Person Re-Identification:** *Shivansh Rao, Peng Cao, Tanzila Rahman, Mrigank Rochan, Yang Wang*; ***IEEE AVSS, 2019***. [Paper].

PROJECTS

General Room Layout Estimation
Penn State University | ***Dr. Lee Giles, Dr. Daniel Kifer*** — *Fall 2020 - Ongoing*
- Main role is to estimate the 3D room layout from a single panoramic image.
- Developing a model that encodes the whole-room layout of panoramic scene in 1D representation and captures the long-range geometric patterns of the room.

Augmented Reality Viewer
Penn State University | ***Dr. Robert Collins*** — *Spring 2020*
- Implemented a custom augmented reality viewer (like ARKit/ARCore) to place a virtual object in the 3D scene.
- The developed AR viewer runs from scratch including 3D point cloud recovery of a real scene and placement of virtual object on the dominant plane of the scene.

SKILLS

Programming Languages: C++, Python, C, MATLAB, C#.

Tools: PyTorch, Tensorflow, Keras, Numpy, Pandas, Scipy, Matplotlib, Jupyter, OpenCV, Scikit Learn, LaTeX, Visual Studio 2017, GIT.