

SHIVANSH RAO

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EDUCATION

Pennsylvania State University

Masters of Science, Informatics | **CGPA: 4.0/4.0**

Coursework: Deep Learning, Computer Vision, Emotion Recognition, Natural Language Processing, Data Mining

University Park, PA

May'21

Delhi Technological University

Bachelor of Technology, Electronics & Communication Engineering | **CGPA: 8.64/10**

Coursework: Computer Vision, Machine Learning, Pattern Recognition, Natural Language Processing

New-Delhi, India

May'19

PROFESSIONAL EXPERIENCE

Qualcomm Inc.

Scene Flow Estimation | **Camera Team**

- Proposed scene flow estimation algorithm by combining optical flow and depth from stereo for the latest Kona Snapdragon 865 processor. Attained a comparative performance on KITTI dataset.

- Built a machine vision prototype to demonstrate the processor's scene flow, optical flow and depth from stereo feature capabilities to end users.

San-Diego, USA

May'20 - August'20

Google AI / Penn State University

DeepLDB Project | **Dr. Lee Giles, Dr. Daniel Kifer**

- Achieved SOTA results for Landslide segmentation on satellite imagery. Presented poster at Google AI Summit'20.

- Previously developed semi-supervised model using teacher-student learning paradigm and attained 65% IoU.

- Currently achieving 68% IoU with semi-supervised segmentation using cross-consistency training framework.

Pennsylvania, USA

September'19 - Present

Computer Vision Lab, University of Manitoba

Person Re-Identification in Videos | **Dr. Yang Wang**

- Developed SOTA model with an improvement of 8% for the task of Person Re-Identification that helps in identifying the same person from videos captured under different cameras.

- Addressed the problem of extracting long-range dependencies by proposing a non-local attention model that captures the attention scores in a global manner by considering all the frames of the video.

Manitoba, Canada

June'18 - August'18

PUBLICATIONS

- Noisy Student Training using BoLD dataset Improves Facial Expression Recognition:** *Vikas Kumar*, Shivansh Rao*, Li Yu; BEEU Workshop - ECCV, 2020.*

- StarGAN-EgVA: Emotion Guided Continuous Affect Synthesis:** *Li Yu, Dolzodmaa Davaasuren, Shivansh Rao, Vikas Kumar; HuMA Workshop - ACM-MM, 2020.*

- Neural Machine Translation for Low-Resourced Indian Languages:** *Himanshu Choudhury, Shivansh Rao, Rajesh Rohilla; LREC, 2020.*

- Design of Hanman Entropy Network from RBFN:** *Madasu Hanmandlu, Shivansh Rao, Shantaram Vasikarla; Journal of Modern Physics Vol.10 No.13, 2019.*

- Non-Local Attentive Temporal Network for Person Re-Identification:** *Shivansh Rao, Peng Cao, Tanzila Rahman, Mrigank Rochan, Yang Wang; IEEE AVSS, 2019.*

PROJECTS

General Room Layout Estimation

Penn State University | **Dr. Lee Giles, Dr. Daniel Kifer**

Fall'20 - Present

- Improved SOTA results for reconstructing Manhattan World 3D room layouts from a single RGB panorama.

- Proposed a computationally efficient model that can encode the whole-room layout of the input panorama as three 1D vectors encoding the positions of floor-wall, ceiling-wall, and wall-wall boundaries.

Emotion Guided Continuous Affect Synthesis

Penn State University | **Dr. James Wang**

Spring'20

- Achieved SOTA results with an improvement of 2% for the task of continuous affect synthesis from single image.

- Implemented a model that utilizes 2D emotion representation (valence and arousal) to generate continuous facial emotions and further utilizes categorical emotions (e.g. happy, sad) to guide smooth transitions.

SKILLS

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

Tools: PyTorch, Tensorflow, Keras, Numpy, Pandas, Scipy, Matplotlib, Jupyter, OpenCV, Scikit Learn, L^AT_EX, Visual Studio 2017, GIT, Data Visualization/Data analysis, Flask, Google Cloud Platform (GCP).