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, Artificial Emotion Recognition, 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

Google AI - DeepLDB Project — **Pennsylvania,USA**
Penn State University | ***Dr. Lee Giles, Dr. Daniel Kifer*** — *September 2019- Ongoing*
- Working in the Computer-Vision team on the DeepLDB project that aims to predict the occurrence of a landslide in a region, and is one of the 20 grantees of the Google AI Impact Challenge, 2019.
- I am currently using 3D U-NET model to segment the landslide regions in the post-landslide images. The base 3D U-NET model has an IOU of 0.74, which is expected to increase after adding elevation feature to the dataset.

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

Task-oriented language visual grounding — **Kanpur, India**
Computer Vision Lab, IIT-Kanpur | ***Dr. Vinay Namboodiri*** — *December 2017-March 2018*
- Worked as a student research associate on a visual grounding project which helps an autonomous agent to extract semantically meaningful representations of language and map it to the visual elements and actions in the environment.
- My main contributions was to incorporate the stacked attention mechanism into the end-to-end trainable neural architecture which could efficiently combine the text and image representation and then use a policy to execute the natural language instruction.

PUBLICATIONS

- ***Neural Machine Translation for Low-Resourced Indian Languages*****:** *Himsndhu Choudhury, Shivansh Rao, Rajesh Rohilla*; *Language Resources and Evaluation Conference,* ***(LREC-2020)*** *France.*
- ***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; 16th IEEE International Conference on Advanced Video Signal-based Surveillance* ***(AVSS-2019)****, Taiwan.*

PROJECTS

Neural Machine Translation
Delhi Technological University | ***Dr. Rajesh Rohilla*** — *January-March 2019*
- Worked on Neural Machine translation for Indian language pairs: English to (Tamil,Bengali,Urdu,Malayalam).
- My main role was to use the self attention mechanism for sequence modelling and build a network that uses word-embedding along with Byte-Pair-Encoding (BPE) to develop an efficient translation for languages which do not have much translations available online.

Radial basis function networks (RBFN)
Indian Institute of Technology, Delhi | ***Dr. Madasu Hanmandlu*** — *March-November 2017*
- Improved the performance of RBFN on classification tasks by learning its internal parameters with a new evolutionary method called *Jaya*, which is bereft of algorithm-specific parameters unlike other traditional algorithms.
- I further used the concept of information set theory to build a network that responds both to the pattern and to the uncertainty associated with it whereas the RBFN network simply responded to the pattern in the input vector.

SKILLS

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

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