Ganeshan Malhotra

✉ ganeshanmalhotra@gmail.com
ganeshan007
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Education

August 2017 – Present **B.E. Electronics and Instrumentation** BITS Pilani K.K. Birla Goa Campus India

Skills

Languages Python, C++, C, Java

Other PyTorch, Numpy, Git, nltk, spaCy, LaTeX, Keras

Experience

May 2020 – Present **Research Intern,** LCS2, IIIT Delhi
Working with Dr. Tanmoy Chakraborty and Dr. Md. Shad on developing a neural dialog agent to act as a counselor for young Indians. Developed an end-to-end model which responds empathetically to user's utterances.

May 2019 – August 2019 **Research Intern,** CSIR-CEERI, Pilani
Internship in the leading Research Lab of India at the Department of Cyber-Physical Systems in the Cognitive-Computing Group. Worked closely with Dr. Sumeet Saurav to develop a pipeline for the early detection of drowsiness in drivers using Deep Learning.

Publications

- R. Bajpai, A. Kulkarni, G. Malhotra, and N. Gupta, "Outage analysis of ofdma based noma aided full-duplex cooperative d2d system," in *2020 27th International Conference on Telecommunications (ICT)*, pp. 1–5, 2020

Projects

COVID-19 Detection using Chest X-rays [Code]
- A Deep Convolutional network based on Resnet-121 enhanced with BEASF and CLAHE to detect COVID-19 pneumonia using Chest X-rays.
- Achieved an accuracy of 0.657 and F1 score of 0.793 on test data.

Dialog Act Classification [Code]
- Classification of Dialog Acts Using Context Aware Attention on Switchboard Dataset.
- Utilized Utterance-level and Conversation-level GRUs and compared its model's performance with pretrained BERT based model.

Sentiment Analysis on Multi-Modal Data
- Classified memes as hateful or not using image and the text associated with it.
- Used Glove Embeddings for text and ResNet50 for images, combined the two signals using Decision Fusion Layer.

Video Classification Using Keras [Code]
- Used ResNet50 (pretrained on ImageNet Dataset) as the base model to classify videos in the Youtube Action Dataset.
- Extracted each frame from the video and Used Rolling Average for prediction to use temporal information.

Driver Drowsiness Detection
- Extracted eye state features using the dlib pretrained facial landmark detector on the UTA - Real Life Drowsiness Dataset.
- To use the temporal information, Bidirectional-LSTMs were used in the model architecture.

Relevant Courses

Neural Networks and Fuzzy Logic, Deep Learning, Machine Learning, Object Oriented Programming, Discrete Mathematics, Quantum Information Computing, Probability and Statistics, Signals and Systems, Linear Algebra, Symbolic Logic, Digital Design