**GoPrac: AI Assignment**

# **Problem**

Suppose you are tasked to develop models for various types of analysis on an audio-video data. The modeling will include analysis on images, sequences, and text transcription.

Deep Learning methods have proven to work best for such analyses. In this assignment we will work on Deep Learning methods for them.

# **Pre-requisite**

Installed

1. Jupyter notebook or Google Colab.
2. TensorFlow 2x

Reference for setup: <https://cran2367.medium.com/install-and-setup-tensorflow-2-0-2c4914b9a265>.

# **Tasks**

## **Multiple Pooling in ConvolutionalNeural Networks**

[1.1] “Appendix J: Multiple (Maximum and Range) Pooling Statistics in a Convolution Network” in the book, Understanding Deep Learning. Download from https://www.understandingdeeplearning.com

Apply multiple pooling as shown in [1.1] on any image data set.

Present your findings.

# 2. **Sequence-to-sequence autoencoder for classifier**

[2.1] IMDB dataset: <https://www.tensorflow.org/tutorials/keras/text_classification_with_hub>[2.2]“Appending K: Convolutional Autoencoder-Classifier” in the book, Understanding Deep Learning. Download from [https://www.understandingdeeplearning.com](https://www.understandingdeeplearning.com/)

Apply one of the Autoencoder – Classifier hybrid models in [2.2] on the IMDB movie reviews data in [2.1]

Present your results

# **Assessment**

You will be assessed on,

1. Your ability to learn from the publicly available resources and use them to solve another problem.
2. Your ability to work with media data such as text and images.
3. Your understanding on data preparation, modeling, and its diagnosis.