**By: Vivek Thakur (15mi424), Komal Mehra (15mi413)**

In this paper self-attention enhanced Recurrent Neural Networks for the task of sentence classification are proposed. The proposed framework is based on Vanilla Recurrent Neural Network and Bi-directional Recurrent Neural Network architecture. These architectures have been implemented over two different recurrent cells namely Long Short-Term Memory and Gated Recurrent Unit. This paper implements the architectures with Self-Attention, attention and without attention using static and non-static word vectors obtained from Mikolov’s pre-trained word2vec model.

Sentence classification is a broad term which includes several important text classification tasks like language detection, intent detection, emotion detection, sentiment analysis among others. A large chunk of data that we experience is textual. Text data requires taking into account both the semantic and syntactic information for classification. With the approach of deep learning, Natural Language Processing (NLP) has accomplished new dimensions. It empowers our machines to analyze, comprehend and determine meaning out of texts.

Text classification, being the contextual task, requires the architecture to develop as much strong context as possible. But, we shouldn’t rely only on the architecture to frame the context for classification. Therefore, we use word embedding, which is known to preserve the syntactic and semantic information of the text, as input to RNNs instead of the cliche one-hot vector which suffers from the curse of high dimensionality with the increasing size of the input vocabulary.