***Attention based Dense LSTM for Emotion Recognition*** *By Ruchika Sancheti*

**Overview:**

Emotion recognition in conversations is a necessary step for several applications, including opinion mining over chat history, social media threads, debates, understanding consumer feedback in live conversations, and so on.To enable the model to make use of temporal information of speech, LSTM network becomes the first choice

But LSTM usually takes the output at the last moment as the final output, while the emotional saturation of speech is not equivalent in different periods, especially, the silent segments of speech contains less emotional information. Therefore, the attention mechanism is applied into the output of LSTM

**Objective:**

Aim is to create a model that can recognize the emotion amongst [ joy, sadness, anger, fear, surprise, love ]

**Procedure followed:**

*Data collection:*

The dataset was obtained from Kaggle website

*Data Preprocessing:*

* Converted sentences to words using split(" ")
* Tokenized the words using Tokenizer()
* Applied padding(post) to normalize the sequence

*Modelling;*

1. LSTM
2. Embedding layer that takes in vocab size, embedding dim and sequence length=maxlength
3. Dropout layer-to avoid overfitting
4. LSTM -with bidirectional wrapper
5. Attention vector

Speech signals contain many silent segments that have less emotional information . Therefore, weights can be added to the time dimension of the LSTMs output to distinguish the difference between outputs of layers.It consists of Dense layer(Activation-softmax)

1. We take dot product of LSTM and attention vector. Final layer -consists of dense layer with embedding dimension and output from attention layer as input

*Output visualization:*

Text: i still feel apprehensive about some of my secondary school mates and have distanced myself away from them

A screenshot of a cell phone

Description automatically generated