PROJECT REPORT

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@Github link : https://github.com/SubhamIO/Emotion-Recognition-in-Conversation

Title : EMOTION RECOGNITION IN CONVERSATIONS

Introduction :

Multimodal EmotionLines Dataset (MELD) has been created by enhancing and extending EmotionLines dataset. MELD contains the same dialogue instances available in EmotionLines, but it also encompasses audio and visual modality along with text. MELD has more than 1400 dialogues and 13000 utterances from Friends TV series. Multiple speakers participated in the dialogues. Each utterance in a dialogue has been labeled by any of these seven emotions -- **Anger, Disgust, Sadness, Joy, Neutral, Surprise and Fear**. MELD also has sentiment (positive, negative and neutral) annotation for each utterance.

Business Problem : Predict the Emotion given a dialogue as input.

Metric Used:

Since we need to predict 7 different kinds of Emotions , so this is a MultiClass Classification Problem.

So, metric used is - **MULTI CLASS LOG LOSS**

Data Acquisition : https://affective-meld.github.io/ - MELD Dataset

Approach :

- We will create a very basic first model first **using just the Utterance column from train, test and cv dataset ,** and then improve it using different other features. We will also see how deep neural networks can be used and end this post with some ideas about ensembling in general.

This covers:

- TFIDF
- BOW
- logistic regression
- naive bayes
- svm
- xgboost
- grid search
- word vectors
- LSTM
- Customised Ensembling

Steps Followed:

1. Data Acquisition

2. Data Loading

3. Data Preprocessing and EDA(Checks for Null values, missing values, Class Imbalances etc.)

4. Vectorisation of Class Labels and Features

5. **MODELLING:**

    1. Model 1 : TFIDF + Logistic Regression

    2. Model 2 : BoW + Logistic Regression

    3. Model 3 : Using Word Vectors(GLoVe) + XGBoost

    4. Model 4: Truncated SVD + SVM

    5. Model 5 : Multi Layered Perceptron

    6. Model 6 : LSTM

    7. Model 7 : Bidirectional LSTM

8. Model 8 : Customised Ensemble model

Observation:

Customised Ensemble model performed Best, But LSTM can be the winner if fine tuned properly and setting high epochs.

Inference Modelling:

- I have kept things simple and consolidated into single .ipynb file.
- Just load all the dependencies.
- Just go to the end of 'EmotionfromConv.ipynb' and run the Inference model and get the desired output.

Output:

Conclusion:

- We can obviously use more advanced techniques, but more than modelling ,performance depends on how we serve the data on plate to the model.