

AN APPROACH TO UNCOVER THE ROOTS OF COMPLEX EMOTIONS

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Motivation

Emotions serve as a crucial aspect of human existence, influencing how we perceive, think, and behave.

Did you ever lose in a world of emotions? Don't let emotions leave you puzzled! Discover the colorful world of human emotions - because sometimes, it's all about picking the right shade of sentiment!

Introduction

Our model offers a comprehensive understanding of emotions by considering their positive or negative nature (Valence), the level of control or influence felt (Dominance), and the intensity of the emotional experience (Arousal).

Dataset Description

- The main source of data was decided as *EmoBank*¹ Corpus due to its unique annotations of continues VAD values
- A data set was created from the research paper *Evidence of Three Factor Theory of Emotions*² to get emotions and their VAD values

Modelling

1. Devised a framework which comprises of 3 models(Distil Bert) for predicting each of the V,A,D values seperately.
2. Upon training, the predicted V,A,D values are considered for emotion – converter which works on Mahalanobis Distance, to get the top five emotions of the sentence provided.

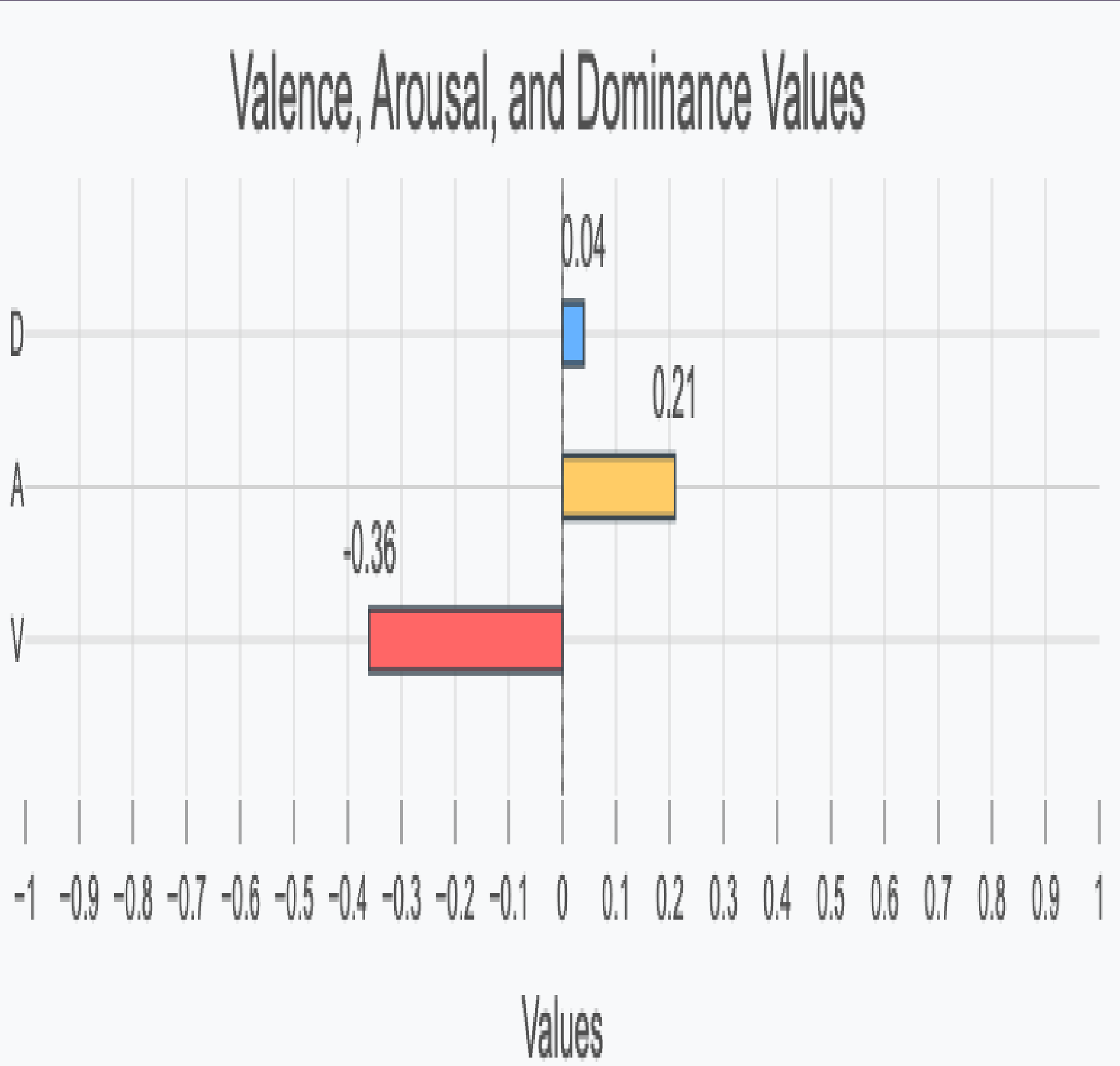
Conclusions

1. A framework was successfully devised to predict the emotion of a sentence using VAD values.
2. The predicted values were plotted in a 3D-plot to understand how the emotions have been predicted.
3. Also, Visualized how model is understanding the sentences while predicting.

Results

1. The model tends to focus on Linguistic features include pronouns, auxiliary verbs, nouns and linking verbs

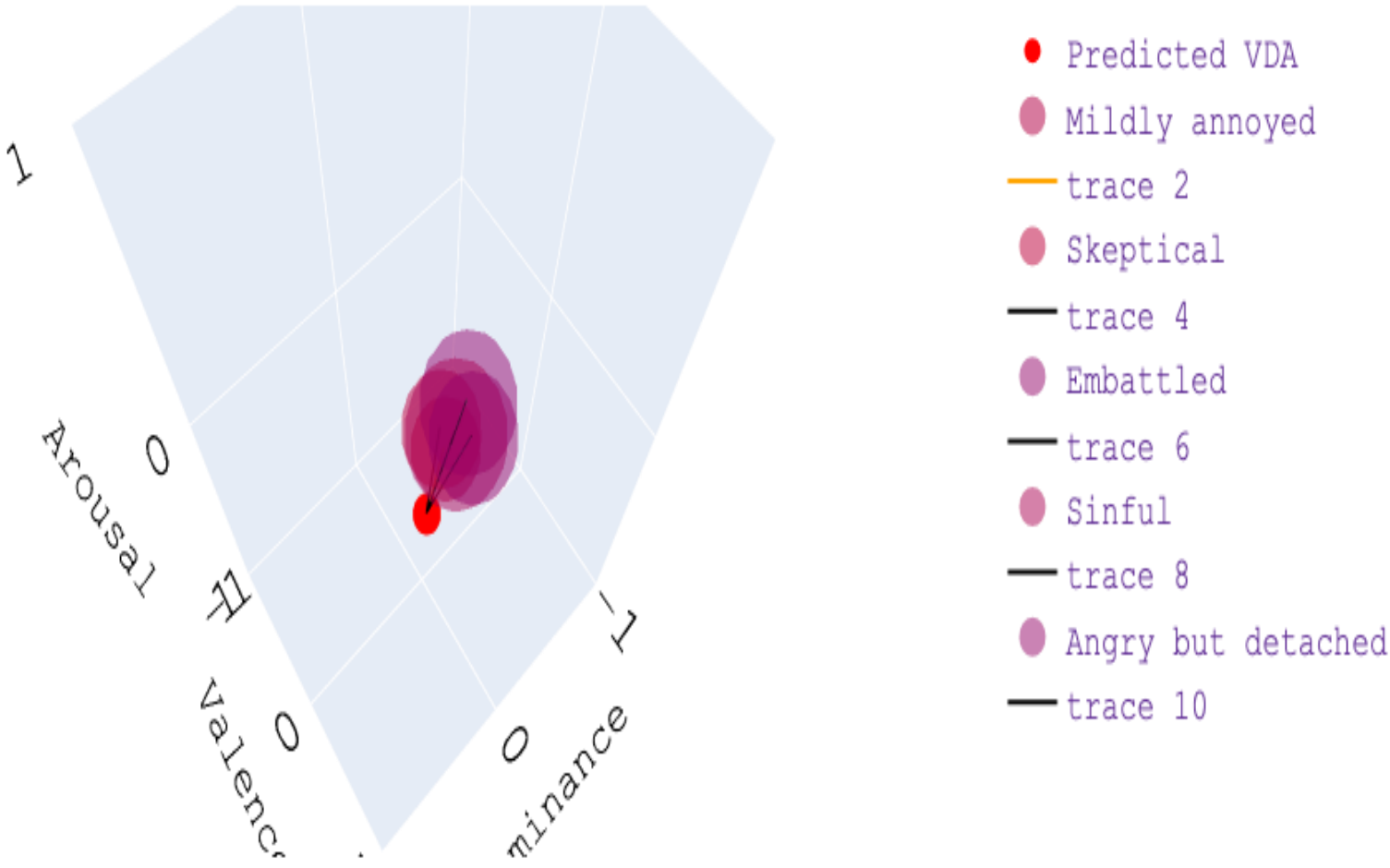
- Test Sentence : 'Evidence tampering is a crime'
- The predicted V,A,D values for the given sentence are shown in the bar plot:



Future Scope

1. Will fine-tune more on our model with different training strategies.
2. Will explore architecture which includes encoder-decoder like T5 family.
3. Will explore our frameworks performance on IEMOCAP and Go_emotions dataset for evaluation

3D Scatter Plot of Emotions



References

1. <https://doi.org/10.48550/arXiv.2205.01996>
2. [https://doi.org/10.1016/0092-6566\(77\)90037-X](https://doi.org/10.1016/0092-6566(77)90037-X)