

Text Emotion Recognition by Multi-Head Attention based Bidirectional LSTM Utilizing Multi-Level Classification

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Abstract : Recognition of emotional information is essential in any form of communication. Growing HCI (Human-Computer Interaction) in recent times indicates the importance of understanding of emotions expressed and becomes crucial for improving the system or the interaction itself. In this research work, textual data for emotion recognition is used. The text being the least expressive amongst the multimodal resources poses various challenges such as contextual information and also sequential nature of the language construction. In this research work, the proposal is made for a neural architecture to resolve not less than 8 emotions from textual data sources derived from multiple datasets using google pre-trained word2vec word embeddings and a Multi-head attention-based bidirectional LSTM model with a one-vs-all Multi-Level Classification. The emotions targeted in this research are Anger, Disgust, Fear, Guilt, Joy, Sadness, Shame, and Surprise. Textual data from multiple datasets were used for this research work such as ISEAR, Go Emotions, Affect datasets for creating the emotions' dataset. Data samples overlap or conflicts were considered with careful preprocessing. Our results show a significant improvement with the modeling architecture and as good as 10 points improvement in recognizing some emotions.

Keywords : text emotion recognition, bidirectional LSTM, multi-head attention, multi-level classification, google word2vec word embeddings

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