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Ensemble Based Emotion Detection Model for Multi-Social Platforms

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ABSTRACT

In recent years, there is an exponential growth in public generated data such as image, video and text, this is due to the rapid emanation of diverse social media users. This available textual data is frequently adopted and significantly important for extracting information such as user's sentiments, and emotions. Considering the complexity and large amount of textual data, the adoption of various machine learning (statistical models), and deep learning model (neural network) for the analysis of emotion has not yet attained optimum accuracy. Recently, Transformer based Architecture (BERT) are achieving state of art accuracy. Hence, this study adopts an ensemble based model using BERT-Large, LSTM and SVM for detecting user's emotion. The experimental evaluation carried out resulted in an optimum accuracy of 93%.

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Keywords: *emotions, ensemble, social media, BERT-large, SVM, LSTM*

1 INTRODUCTION

In recent year, due to the emanation of various social media platform such as WhatsApp, Facebook, Instagram, and twitters, has resulted to large amount of public available text corpus or dataset (Chiorrini et al., 2021). Considering the fact that social media user tends to feel more comfortable expressing their feelings or opinions during chatting session, hence social media data is tag to be more realistic or rich in emotional context (Chiorrini et al., 2021). Its identify that open contribution or opinion of customer feedback on a particular product can facilitate the quick identification of issues or improvement that is essential for better customer services. Recently, researcher has focus on various techniques that is capably of analyzing user sentiment and emotion in written form automatically. This approach is known has sentiment analysis or emotion analysis (Denemark, 2011).

Furthermore, the analysis of sentiment is described as the process of automating, identifying and deducing user opinion from a written or documented text, this also involve classification of user opinion into either positive, negative or neutral sentiment (Zhang et al., 2018). While emotion analysis is a type of sentiment analysis but with a wider range of classification class, it involves identifying

due to greater number of possible emotions (classification class) (Chiorrini et al., 2021).

Emotions plays a crucial role in every forms of human communication, which often influence an individual perception of an experience, topic or event User (customer) opinions and feedback on various products, online or offline can be collated, via various mediums such as comments, reviews, message forums, and polls. The gathered data can take the form of either audio, video or text (Minase et al., 2019) (Bartneck et al., 2017). However, the analysis of human emotion from textual data is a field of study uses natural language processing (NLP), computational linguistic and text analysis to extract subjective information from source materials. The detection of emotion using natural language processing is a sub domain of sentiment analysis which primarily focuses on extracting emotional information of the user (writer) from text data. Emotion detection aims to pinpoint specific emotions such as happiness, sadness, love, and fear (Albu & Spinu, 2022).

Ensemble methods involve the combination of two or

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