



Sentiment Based Text Analysis on Social Media Brand Review Using Machine Learning

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Abstract –

Text Analysis requirements are increasing day by day due to expansion of application scope. Among them social media-based text is become popular in various human welfare task i.e., health care, disaster management and others. But automated accurate and reliable social media text analysis is a need of current applications. In this paper, we explored recent development on sentiment-based text analysis using social media data. Thus, first a review has been reported to identify popular area of application, feature selection techniques and classification methods. Then key issues in social media-based text analysis have been addressed. Further, a social media product review dataset has been considered for performing experimental study. The aim of this experimental study is to identify the suitable feature selection technique which is able to deal with the addressed issues. In addition, we involved some classical text classification approaches as well as deep learning technique to select the suitable technique of classification. According to our findings based on experiments the classical classifiers are less accurate in comparison with the deep learning-based techniques. In addition, the TF-IDF based features are more appropriate for classifying multi-class sentiment classification. However, the TF-IDF based features need some improvements to deal with the social media-based text analysis. Therefore, we also introduce the future extension plan.

Keywords: text analysis, text classification, text features, classifier, application, survey.

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1. INTRODUCTION

Sentiment based text analysis is a popular area of the NLP (Natural Language Processing) [1]. The text contains the feelings or emotions of the author in a text post or story. The text data leave the strong impressions on the reader's sentiments. The identification of hidden emotion in the part of text is termed as sentiment analysis. However, the sentiment-based text analysis now in these days utilized in a number of applications for example:

- In social media, sentiment analysis is performed for identifying the toxic or hate speech
- In e-commerce platform, sentiment analysis is performed for identifying the consumers feedback

Similarly, in other applications it is hugely contributing by evaluating text and obtaining the authors orientations. In this context different Machine Learning (ML) and text processing [2] are being used. However, in recent literature a significant amount of work is available for performing sentiment analysis. The available techniques are utilizing the different combinations of machine learning and text processing techniques for obtaining application centric consequences. But the suitable and effective combination of the methods

will helpful to gain the required results. Therefore, in this paper we aimed to investigate different text feature selection methods, which may provide the effective results for different sentiment-based text analysis applications.

In this paper, we are providing the following work in support of sentiment-based text analysis:

1. Providing a brief review of recently contributed sentiment analysis-based techniques
2. Identification of data datasets, machine learning algorithms, and feature sets for analyzing sentiment from text
3. Experimental investigation of combination of feature selection techniques and different classification algorithms

In this section, we provide the overview of the involved work in this paper. Next section discusses different recent contributions based on sentiment analysis in recent years. Further we provide an experimental model for performing comparative study among different feature selection techniques and classification approaches. Next, we discuss the obtained performance in different experimental scenarios. Finally, the conclusion has been made and the future extension of the work has been highlighted.

