

### 1.- Summary:

First, the article starts with a brief introduction, here the author explains a little bit about the evolution of social media as a source of information and how social media analysis can be used to derive knowledge from data. Additionally, it explains that Twitter is the most useful platform in this aspect and that it will be the one selected to be the information source for the proposed model, sentiment analysis, and context-based topic mining for analysing the 2010 Australian election. Also, the article explains in a very detailed way the concepts of opinion mining and topic modelling, and how they can be used together for the process of the social media analysis.

### 2.- Summary of the data and the method utilized, as well as the possible use cases of this method.

Regarding to the data and the method utilized we can say that the data is obtained from Twitter using its Application Programming Interface (API), which allows for simple interaction with the platform. The dataset is initially pre-processed to eliminate noise like punctuation and symbols, as well as stopwords and stem words. The generated dataset is then subjected to sentiment analysis and context-based topic modeling.

The sentiment analysis method begins with the Tweet Sentiment Analysis Model (TSAM) being used to calculate sentiment and score the entity. TSAM removes just opinion-bearing words, which are terms that are typically utilized in opinion sentences to communicate subjective opinions. The Wilson opinion lexicon list is used to determine the semantic orientations of the words in order to identify the opinionated terms. Each word is given a numerical score to indicate whether it is good or negative, and these words are then classified (positive, negative, neutral).

Sentence Sentiment Scoring Function (SSSF) and Entity Sentiment Aggregation Function (ESAF) are two phases in the sentiment analysis process (ESAF). The method recognizes and extracts the polarity of every words in the Wilson lexicon list during the SSSF step. To identify the orientation of the opinion statement, all components of speech, including nouns and verbs, are employed. Based on the ratings of the individual phrases, the ESAF stage combines the entire sentiment scores for a specific item.

To extract topics from a dataset, the context-based topic modeling technique employs Latent Dirichlet Allocation (LDA). The LDA method is trained on the pre-processed dataset and produces a set of topics expressed as probability distributions over words as output. These themes may be used to divide the dataset into various clusters, each with its own subject.

Overall, the proposed social media analysis model provides a complete and effective strategy to evaluating social media data, employing sentiment analysis and context-based topic modeling to derive valuable insights. The book goes into great detail on both the data and the methods employed in the proposed model.

### 3.- Real life implications:

As we have seen in the paper, sentiment analysis and context-based topic modeling are two strong technologies that have already demonstrated significant promise in a variety of

applications. These approaches are expected to grow more advanced in the future, opening up even more possibilities. Sentiment analysis, for example, might be used to track public opinion on a variety of social and political concerns. Sentiment analysis might assist spot developing trends and give insights into how people feel about certain issues by studying social media and other sources. This might be extremely useful for corporations, governments, and other groups seeking to evaluate public sentiment.

Context-based topic modeling, on the other hand, might be used to evaluate enormous amounts of text and find essential subjects and themes. This might be extremely useful in industries like journalism, market research, and academic study. Context-based topic modeling might assist discover developing patterns and give insights into areas of interest by giving a more thorough understanding of massive amounts of text. These techniques might also be used to produce targeted content, such as tailored suggestions for online buyers or customized news stories for readers.

Sentiment analysis and context-based topic modeling have the potential to transform many parts of our life, from media consumption to decision-making. We may expect even more fascinating breakthroughs in the coming years as these approaches continue to progress and improve.

#### 4.- Future challenges:

While sentiment analysis and context-based topic modeling have promise applications in a variety of sectors, they are not without difficulties. One key obstacle is the difficulty of effectively recognizing and evaluating sarcasm and irony in text, which can dramatically alter sentiment analysis results. Another difficulty is the requirement for more advanced algorithms to manage the complexities of context-based topic modeling, such as finding subtopics and comprehending their linkages. Addressing these problems will be critical for the effective deployment of these technologies in real-world contexts as they evolve.

#### 5.- Criticism that may be made:

One criticism of the article, which is likely due to its age of five years, is that it only mentions the analysis of social media through text, whereas the world of communication is increasingly moving towards a more graphic content, as evidenced by the use of emoticons, stickers, GIFs, photographs, and so on.

Another issue is that the model is fed solely by Twitter material, which may bias the study because the profile type of a Twitter user differs from that of a Facebook or Instagram user, among others...

Finally, it is important to note that this analysis is biased because the sentiment that can be perceived in a social network may not be in line with the overall sentiment of the population, for example, because people in networks tend to be much more radical or tend to comment on what they have previously read in other comments, or the comments may have been collected from fake news that only exists in that network, or any other reason that makes the sentiment derived from a social network biased.