

Application of Opinion Mining and Sentiment Analysis

Nilam Deepak Padwal¹

Research Scholar

Bharati Vidyapeeth (Deemed University), Kolhapur.

Dr. Sampada Gulavani²

Associate professor, MCA

Institute of Management, Kolhapur

Bharati Vidyapeeth (Deemed University), Kolhapur

Dr. Rajesh Kanthe³

Director

Bharati Vidyapeeth(Deemed University), Kolhapur.

Abstract: An important part of information gathering is to find what peoples think. With the large and growing availability of opinion-rich resources like blogs, forums, e-commerce, social media websites, etc, have a huge collection of people's views on their websites. Users' opinions thoughts views reviews and experiences are valuable information used in the decision-making process. To determine the feelings and emotions opinions among the thinks is a quite challenging task, which Creates research on opinion mining and sentiment analysis. This paper represents the process of opinion mining and sentiment analysis with their various challenging applications. Future research is planned in opinion mining and sentiment analysis.

Keywords: Opinion mining, Sentiment Analysis, Tweet, Challenges, application.

Introduction:

Human Emotions and opinions play an important role. People's opinions on social media like Twitter, MySpace, and YouTube are shared and communicated with services like sharing blogs, and reviews .opinions regarding all the global entities can be expressed through the people in the form of natural language. Social media provides all information to make the decision. For decision making people's opinions extracted and analyzed are evaluated for products or any services. Many manufactured companies noticed it through feedback. The data available to mine the opinion from is magnificent, So that many research on the analysis of sentiment expressed on social media.

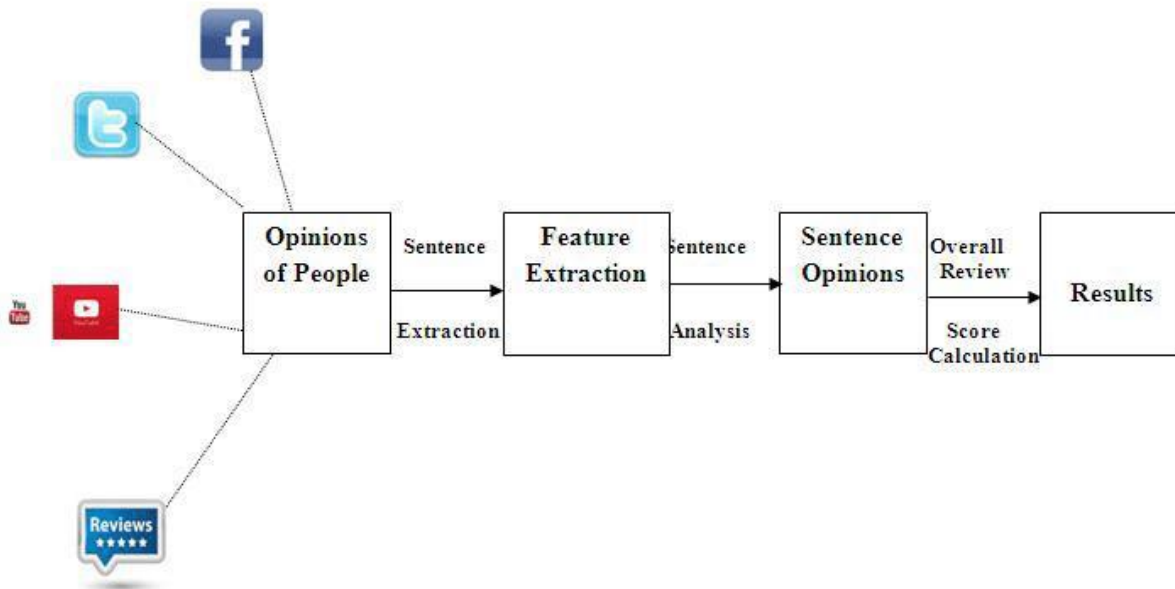


Figure 1: the process of opinion mining and sentiment analysis.

The above figure shows the basic process of opinion mining and sentiment analysis. It shows a simple flow of system like people are interested in others' opinions about products or services after analyzing such opinions through blogs and reviews would be easier to take a decision making. All the content is an almost unstructured manner which is available in natural language, so processing such huge data and its tools to extract the people's sentiment is an automatic process. So the research domain is named opinion mining and sentiment analysis.

This paper includes the future scope and challenges of opinion mining and sentiment analysis.

Opinion mining can be defined as "computational linguistics that focuses on extracting people's opinion from the web which also encourages the user to contribute and expressed their opinion" through blogs, videos, social networking sites, etc. such a huge amount of information would be analyzed. Opinion mining extracts and analyzes public moods and views.

"Given a set of evaluative text documents D that contain opinions (or sentiments) about an object, opinion mining aims to extract attributes and components of the object that have been commented on in each document $d \in D$ and to determine whether the comments are positive, negative or neutral". Opinions reflect the sentiments about the entities and events (facts). Research focus on text processing mining, information retrieval, web search, text mining, and processing mining task. Post related to reviews of services, discussions in groups, and blogs is collectively called generated content.

Featured based opinion mining:

A positive document not exactly means the customer likes all things; similarly, negative means dislikes all things. To obtain the detailed aspect go for the feature-based opinion mining.

- 1) **Identifying the object features:** For Ex. "The Picture quality of this camera is amazing", In this statement object feature is-picture quality. A supervised pattern mining method is proposed. From this statement, we can understand that we used unsupervised methods, which find the frequent noun and noun phrases as a feature.
- 2) **Determine the opinion orientation:** This task determines whether the opinions on features are positive, negative, or neutral, in the above statement picture quality is Positive.
- 3) **Grouping synonyms:** The same object feature can be expressed with different words, and groups the synonyms together.

Sentiment analysis can be defined as" which can be determined the subjectivity, polarity and polarity strength from the piece of words. It judges the opinion of the customer and finds the positive or negative sentiments. Sentiment deals with people's opinions. Sentiment analysis is also called opinion mining as a field of studying people's opinions, sentiments, attitudes, and emotions towards the entities such as products, services, organization, individual issue, events topics, and their attributes. Sentiment analysis is sometimes called opinion mining. Sentiment analysis, opinion mining, feature extraction, sentiment mining, subjectivity analysis, emotions analysis, review analysis, etc, come under the umbrella of sentiment analysis or opinion mining.

Inception and rapid growth of sentiment analysis are coinciding with social media. Research in sentiment analysis is not only an important impact on NLP, management, sciences and political issue, economics, but social sciences are also all fields affected by people's opinions.

Sentiment analysis is investigated mainly on three levels:

- 1] **Document Level:** At this level of analysis assume that each document expresses an opinion as a single entity (single product) and the whole opinion in the document is classified in positive or negative sentiment. It does not compare multiple entities
- 2] **Sentences Level:** This level analysis is related to subjectivity classification-which distinguishes sentences, called objective sentences-express the factual information from sentences. Subjective sentences- expressed the subjective views and opinions.
- 3] **Entity and Aspect level:** This level performs finer-grained analysis which is also called feature level-feature-based opinion and summarization. The aspect level directly looks for exactly what people's liked and disliked, the opinion itself. Opinion consists of sentiments and targets, it being identified of its limited use.

Recent trends:

In the last couple of years, sentiment analysis increased its significant use. Nowadays various social media have large data to be used in natural language format so machine learning, opinions mining streams on which research would be dependent. For making the various decisions making, devising the business strategies, data analysis is a necessity from various sources. It's having indefinite but discriminate data.

So the past few years opinion, emotions, and sentiment are the same qualities that can be reflected in the content of social media.

Applications:

Web search targeted towards reviews. In a product or services assessment analyzing users' opinions or reviews so is highly important to discover what people thinking about a certain trademark. It covers a vast range of applications in several fields. The major applications are as follows.

- 1) **Purchasing product or services:** While purchasing any product or service, peoples are evaluates the other's opinion and experience about the product so they can compare and complete the brands without an extern concern. Customers tend to gather as much information as possible about the product they want to buy. The opinion mining and sentiment analysis extract huge unstructured people's opinions analyzed it and present them in a structured manner. It would be like review related search engine.
- 2) **Quality Improvement in product or services:** opinion mining and sentiment analysis Collect the critic's opinions and also favorable opinions about the product and they will improve the quality of products and services.
- 3) **Marketing Research:** As an application in business and government intelligence, sentiment Analysis technique utilized in marketing research for the trend about product or services with and recent attitude of people towards the new government policy, it would be easy to analyze the information which is contributed.
- 4) **Recommendation System:** By classifying people of opinion into positive or negative, we can analyze the system and gives recommendation or non-recommendation to the particular product or services.
- 5) **Detection of Flame:** It automatically detects the arrogant words, the hateful language used in various social websites, means of communication, augmenting to the recommendation a system that avoids lots of negative responses, detection of web pages having sensitive information. All this is monitored by sentiment analysis. Its application for sub-component technology.
- 6) **Opinion Spam Detection:** The Internet services for all the people but some the people used the services and misguide people so avoid this situation categorized them as spam and not spam content respectively.
- 7) **Policy Making:** From taking the point of view of citizens for any particular policy which helps to introduce new policy-making this may be very friendly to the user that can happen through sentiment analysis.
- 8) **Decision Making:** opinion mining and sentiment analysis analyze the people's opinions and Experience is useful for the decision-making process. Other applications include areas like political question answering, a summary of points, and improving extraction by discarding petty information, human citations, etc. These are an application that exploits the relationship between word meaning and its argument and can better determine the sentiments, emotions, and opinion of their holders.

Conclusion:

The explosion of usage of social networking sites for reviews, blogs, and emotions has helped various technologies and also find out meaningful opinions and sentiments about people's opinions. As it involves the natural language processing to understand texts as a human is a key challenge in this field when it comes to machine-ability. So extracting the knowledge from opinions expressed on social media could prove the many advantages for many fields like marketing, business analytics, knowledge base companies, or institutions. In this paper, we have covered the flow of the process and all challenges faced by opinion mining and sentiment analysis. Many more challenges like sarcasm detection, online communication, chat rooms, newsgroups, etc. Are areas in which research work going on which overcome the current problems and eliminate the challenges.

Future Research:

The available methods, algorithms, and devising solutions make opinion mining and sentiment analysis efficient.

The future challenge domain is scientific paper review.

- 1] Usually classes are unbalanced because there are strong bias towards negative opinions.
- 2] Different usually vary in terms of No. of assessments.
- 3] Normally there is no clear correlation between positive and negative opinions with the final evaluation made by the reviewer.

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