



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 3, March 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423



9940 572 462



6381 907 438



ijirset@gmail.com



www.ijirset.com

A Review paper on Sentiment Exploration in Marketing

Maitreyee Deshmukh¹, Vaishnavi Walve¹, Vaibhavi Tembhare¹, Muhmmad Saad¹, Prof. P.P. Pawade²

U.G. Student, Department of Computer Science and Engineering P.R. Pote College of Engineering and Management Amravati, Maharashtra, India¹

Associate Professor, Department of Computer Science and Engineering P.R. Pote College of Engineering and Management Amravati, Maharashtra, India²

ABSTRACT: Sentiment analysis, a popular area of research in natural language processing, has received considerable attention from researchers, resulting in an increasing number of research papers. Although there are many literature reviews on sentiment analysis techniques and applications, there is a lack of surveys dedicated to tracking the development of research methods and topics in this area. Furthermore, only a few surveys have used keyword co-occurrence analysis in the context of sentiment analysis. The aim of this study is therefore to fill this gap by conducting a survey that focuses on the development of research methods and topics in sentiment analysis. Using a community detection algorithm together with keyword co-occurrence analysis, this survey not only compares and analyzes the relationships between research methods and topics over the past two decades, but also identifies emerging trends and hotspots and provides valuable guidance to researchers. Additionally, this paper offers practical insights into sentiment analysis methods and topics, while highlighting technical directions, limitations, and future research opportunities.

KEYWORDS: Amazon, sentiment analysis, machine learning, multinominal, Bayesian classification, logistic regression, KNN classification.

I. INTRODUCTION

The long-term viability of businesses largely depends on their ability to satisfy client demands. In fact, the purpose of customer satisfaction is to develop brand equity, which is a crucial aspect of a company's long-term viability [1]. As a result, several businesses are spending astronomical amounts on marketing research to gain knowledge about customer preferences and wants. To build effective branding and positioning strategies, it is essential to understand how customers perceive the goods they buy based on this data. Today's commercial environment is much more complicated and the interests of other actors create a dynamic environment [2]. This dynamism of the current business environment makes organizations more dependent on an early change detection system in order to respond appropriately [3]. However, businesses need resources and time to adapt to the changing environment in which they will face risks and dangers that threaten their security and viability. When pursuing common goals and interests, companies should build complementary, synergistic, interactive and goal-oriented actions [4].

In light of this, competitive research – also known as competitive analysis – is a method of finding out how well a business and its goods or services are doing compared to other organizations that provide comparable products or services in the market. Understanding how customers feel about their competitors and why is one of the most important parts of a successful strategic competitive study. This will help determine the true strengths and limits across different business drivers. This means conducting market research to obtain information for commercial purposes. Using text analytics to perform sentiment analysis is one of the best approaches to achieving this goal.

II. RELATED WORK

Authors	Techniques Used	Classes	Additional Information
Pham and Le [1]	RNN based multilayer architecture	Keyboard, Tools	Their approach is used for analysing 174615 reviews of 1768 hotels from tripadvisor.com.
Parimala et al. [2]	LSTM framework	Keyboard, Tools	They propose a risk assessment sentiment analysis (RASA) algorithm.
Li et al. [3]	Unsupervised and Supervised learning	Keyboard, Tools	Their approach performs very well in identifying emotions in a social context.
Hassan and Mahmood [4]	CNN and RNN frameworks	Keyboard, Tools	The result shows that the approach is capable of increasing classification efficiency significantly.
Jongeling et al. [5]	SentiStrength, NLTK, Stanford.	Keyboard, Tools	The authors found that none of these tools correspond to manual labelling well.
Rani and Singh [6]	SVM	Keyboard, Tools	Extracting features through an implementation of TF-IDF approach, the sentiments are identified using two SVM models.
Jagdale et al. [7]	Machine Learning	Not specified	To classify reviews that are positive and negative.
Gupta and Joshi [8]	SentiWordNet (SWN)-based feature vectors and SVM classifier.	Keyboard, Tools	For sentiment analysis on a Twitter dataset.

III. METHODOLOGY

3.1 REVIEW PLANING

If the subject under investigation has not been thoroughly researched by others, scoping reviews offer a systematic approach to a broad topic and identify research gaps. Systematic reviews will often follow a scoping review to assess the quality and accuracy of the available evidence [8,9]. This scoping study aimed to assess the level of AI-based sentiment analysis in current competitive research. All current relevant literature has been studied with utmost seriousness for our investigation. The Scopus database, structured research questions (RQs), and information gathering and analysis techniques were used extensively in the review process. In order to thoroughly evaluate research subjects, a specific subset of mandatory reporting elements was selected for scoping review. These are the RQ specs:

RQ1: How is the current state of research?

RQ2: What is the development of the major AI-based sentiment analysis approaches?

RQ3: What are the difficulties and prospects of AI-based sentiment analysis in competitive research?

3.2 RESEARCH STRATEGY

A literature survey was conducted between 2012 and 2022 to analyze the applications, approaches and future of AI-based sentiment analysis. Sources from Scopus were monitored throughout the investigation. Relevant databases have been evaluated to ensure the accuracy of the information provided here. However, not all outstanding literary works were included in the search criteria for various reasons. A total of 133 Scopus results were examined until December 26, 2022. A total of 43 were considered significant. The domain of study and research subjects influenced the way the search string was created. Inclusion and exclusion criteria were proposed and key terminology was identified to select relevant papers for review.

3.3 DATA COLLECTION AND PRE-PROCESSING

SemEval-2014 restaurant review datasets [32], Sentiment140 [16] and STS-Gold [42] were used to assess the proposed model and compare it with recent state-of-the-art methods. The Te SemEval-2014 restaurant review dataset contains 3000 training reviews and 800 entry test reviews. All reviews in this dataset have at least one aspect term annotated. Sentiment140 is a Twitter dataset with 1.6 million annotated tweets (0 is negative, 2 is neutral, 4 is positive). The STS-Gold dataset contains 2026 tweets with their ID and polarity.

Data were preprocessed before sentiment analysis (Naseem et al. 2021). We have implemented a basic data cleaning process as follows:

1. Capitalization to prevent the same word from being recognized as different words due to capitalization.
2. Removal of hashtags (#topic) mentioned usernames (@username) and all links that begin with "www", "http" and "https". Removal of stop words and short words (less than two characters). Stop words are mostly very common in the text, but hardly contain any polarity of sentiment. However, in sentiment analysis, "no" and "not" should not be given as stop words, because removing these negations would change the actual meaning of entire sentences.
3. Restriction of repeating characters from some words. Some users will write repeated characters to express their strong emotions, so these words that are not in the lexicons should be converted to the corresponding correct words. For example: "sooooo gooooo" becomes "so good".
4. Expanding contractions in tweets like "isn't" or "don't" because they become nonsense letters or words when punctuation is removed. Therefore, all contractions in tweets are expanded into their formal forms, such as "isn't" becoming "is not".

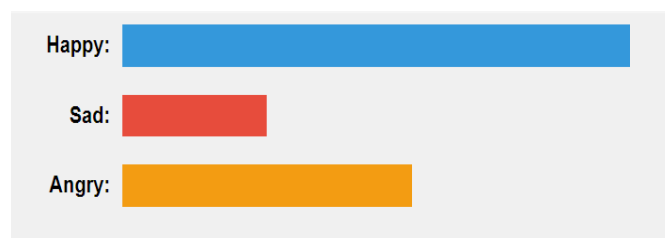
IV. LIMITATION

1. we only studied articles written in English and searched for them from the Web of Science platform. We believed that there are various articles in other languages or any other databases (e.g., Sci-hub, Scopus, PubMed, etc.) that also include sentiment analysis, but were not included in our study. In addition, the keywords we chose to search the Web of Science were mainly "sentiment analysis", "sentiment mining" and "sentiment classification". There may be articles related to our research topic that do not have these keywords. In order to track developments in sentiment analysis research, future studies could replicate this work using more precise keywords and using different literature databases.
2. Second, we selected the main keywords with high frequency for analysis, and some important keywords with low frequency could be ignored. In future work, we can analyze the changes in each keyword in detail in terms of time and thus obtain more comprehensive analysis results.

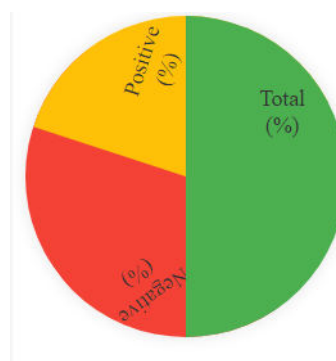
V. FUTURE SCOPE

The paper aims to accurately perform sentiment analysis from the point of view of a consumer review summarization model for capitalists. We have outlined several research issues and possible solutions to the problems encountered when conducting sentiment analysis for raw online reviews. Using the hybrid feature extraction method proposed in this paper, the input pre-processed reviews can be transformed into meaningful feature vectors, enabling efficient, reliable, and robust sentiment analysis. The results show that compared to individual methodologies; the hybrid approach significantly improves sentiment analysis performance. We also compared the performance of the proposed model with recent state-of-the-art methods for F-1 measurement, accuracy, precision, recall, and AUC evaluation. All five evaluation parameters were found to be significantly improved. The HFV+LSTM model's future directions include

- (1) applying sentiment classification results to extend the proposed model for consumer review summarization,



- (2) investigating the proposed model's performance using diverse datasets, and



- (3) exploring more NLP techniques to make the model language independent

VI. CONCLUSION

One of the most important elements of good strategic competitive research is understanding the perceptions of competitors and their reasons. This will help identify the true strengths and weaknesses of different parts of the business. This includes conducting market research to obtain data for business use. One of the best ways to achieve this goal is to use text analytics to perform sentiment analysis. Sentiment analysis creates a report by comparing how



consumers perceive a brand's products or services to those of its competitors. Brands can use this insightful data to positively differentiate themselves from the competition. Businesses are starting to use AI-based sentiment analysis as a key tool. It helps to better understand customer perspectives. It is also useful for understanding the thoughts and feelings of employees.

Most of the time it is used to understand customer reviews, service issue severity, social media references, etc. It could be argued that sentiment analysis will soon be used to explore people's feelings more deeply. It will help computers better understand the emotions expressed in messages, comments and feedback. Companies will thus be able to better personalize their responses. The aim of this study was to review the literature on AI-based sentiment analysis to help new researchers stay abreast of advances in the field and provide suggestions for improving the quality of future research.

REFERENCES

1. Afzaal M., Usman M. and Fong, A. (2019) "Tourism mobile app with aspect-based sentiment classification framework for tourist reviews", IEEE Transactions on Consumer Electronics, Vol. 65 No. 2, pp. 233-242.
2. Liang B., Su H., Gui, L.; Cambria, E.; Xu, R. "Aspect based sentiment analysis via affective knowledge enhance graph convolutional networks". Knowl.-Based Syst. 2022, 235, 107643.
3. Bhat, M.; Qadri, M.; Noor-ul Asrar Beg, M.K.; Ahanger, N.; Agarwal, B. "Sentiment analysis of social media response on the COV-19 outbreak". Brain Behav. Immun. 2020, 87, 136–137.
4. Rani, S.; Singh, J. Sentiment analysis of Tweets using support vector machine. Int. J. Comput. Sci. Mob. Appl. 2017, 5, 83–91. 21. Jagdale, R.S., Shirsat V.S., Deshmukh S.N. "Sentiment analysis on product reviews using machine learning techniques". In-Cognitive Informatics and Soft Computing; Springer: Singapore, 2019, pp. 639–647.
5. Mehraliyev, F., Chan, I.C.C. and Kirilenko, A.P. (2022), "Sentiment analysis in hospitality and tourism: a thematic and methodological review", International Journal of Contemporary Hospitality Management, Vol. 34 No. 1, pp. 46-77, doi: 10.1108/IJCHM-02-2021-0132.
6. Di Domenico, G.; Sit, J.; Ishizaka, A. Nunan "Fake news, social media and marketing: A systematic review". J. Bus. Res. 2021, 124, 329–341.
7. Mujahid, M.; Lee, E.; Rustam, F.; Washington, P.B.; Ullah, S.; Reshi, A.A.; Ashraf, I. "Sentiment analysis and topic modeling on Tweets about online education during COVID-19". Appl. Sci. 2021, 11, 8438.
8. Jianqiang, Z.; Xiaolin, G.; Xuejun, Z. Deep convolution neural networks for twitter sentiment analysis. IEEE Access 2020, 6, 23253–23260.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details