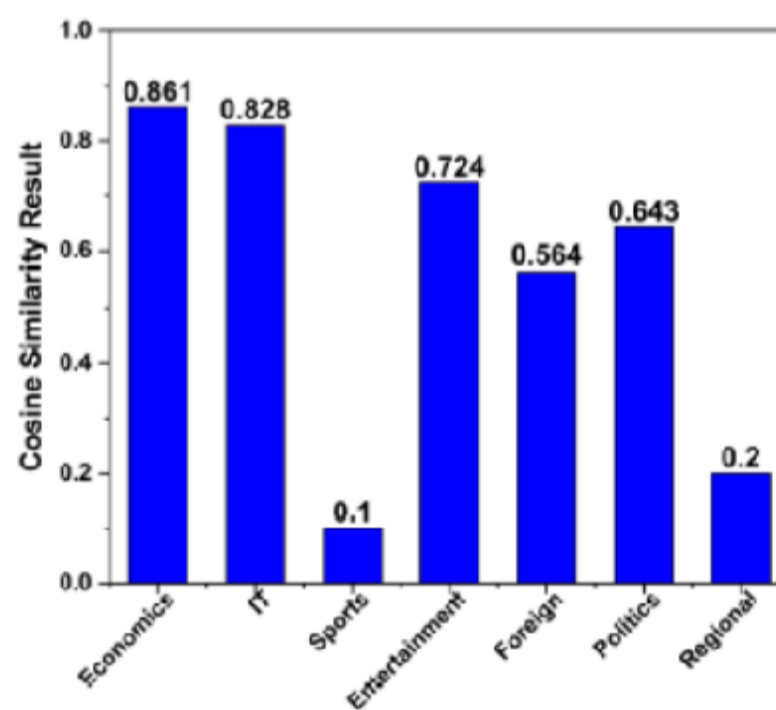




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**Original Article**

# Sentiment Analysis Framework of Social Media Text by Feature Extraction and Machine Learning Model

Kajal Mathur<sup>1\*</sup>, Paresh Jain<sup>2</sup>, Sunita Gupta<sup>3</sup>, Puneet Mathur<sup>4</sup>

<sup>1</sup>Research Scholar, Department of Computer Science and Engineering, Suresh Gyan Vihar University, Jaipur, Rajasthan, India

<sup>2</sup>Associate Professor, Department of Electronics and Communication Engineering, Suresh Gyan Vihar University, Jaipur, Rajasthan, India

<sup>3</sup>Associate Professor, Department of information technology, Swami Keshvanand Institute of Technology, Jaipur, Rajasthan, India

<sup>4</sup>Assistant Engineer (IT), RVUN, Jaipur, Rajasthan, India

**\*Corresponding Author**

Email: [info@icheindia.org](mailto:info@icheindia.org)

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## ABSTRACT

**Objectives:** This research paper aims to analyze sentiment and opinions in online resources like discussion forums, review sites, and blogs. It also compares the effectiveness of three feature extraction techniques (TF-IDF, Word2Vec, and WAM) and evaluates three machine learning algorithms (Naïve Bayes, SVM, and ANN) for sentiment classification to determine the most accurate algorithm. **Methods:** The study utilizes sentiment-rich datasets from IMDB movie reviews, Yelp reviews, and tweets. Three feature extraction techniques are applied to extract relevant features and patterns from the text. Three machine learning algorithms are implemented to classify sentiments into positive, negative, and neutral categories. Accuracy, precision, recall, and F-measure are used to assess algorithm performance. The model is updated and refined three times to ensure reliability. **Findings:** The Artificial Neural Network (ANN) algorithm outperforms Naïve Bayes and Support Vector Machines, achieving an impressive accuracy rate of 99.74% for sentiment classification. Precision, recall, and F-measure exceed 98.5% after model refinement, demonstrating the approach's robustness. The study highlights the potential of sentiment analysis in online resources and emphasizes the ANN's superior accuracy, providing valuable insights for future sentiment analysis studies. **Novelty:** This research combines three popular feature extraction techniques in sentiment analysis, compares three machine learning algorithms on multiple datasets, and achieves a remarkable accuracy rate of 99.74% with the ANN. The study demonstrates the robustness of the approach through model refinement and contributes insights into sentiment analysis in online resources.

**Keywords:** Dataset; Feature Extraction; Machine Learning; Sentiment Analysis; Accuracy and Precision

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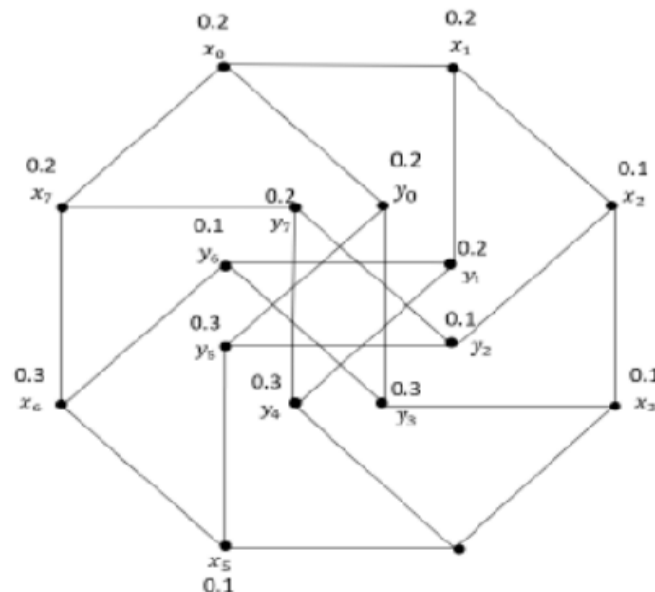
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