"Enhancing Movie Ticketing Systems with Aspect-Based Sentiment Analysis and Voice Feedback Integration"

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Abstract:

The goal of this research is to create a novel aspect-based sentiment analysis system that classifies and assesses consumer reviews according to particular aspects of films. By utilizing these multifaceted sentiment insights, the system hopes to improve personalized movie suggestions and offer a more complex and customized user experience. The project will build a comprehensive taxonomy of movie features, train models to conduct sentiment analysis on each aspect, and develop a recommendation engine that makes use of these aspect-based sentiment scores using cutting-edge natural language processing and machine learning techniques. The suggested solution will be integrated with advanced personalization, predictive analytics, and interactive visualizations in a web application built using Django.

Keywords:

Aspect-Based Sentiment Analysis (ABSA), Voice Feedback Integration, Movie Ticketing System, Sentiment Classification, Speech Recognition, User Experience Enhancement

1.Introduction:

The widespread availability of social media feedback and online reviews has created new opportunities for bettering product recommendations and comprehending customer preferences. Conventional movie recommendation systems frequently depend on content-based and collaborative filtering techniques. [1][4] Although these methods work well, they usually handle user reviews as a single, undifferentiated viewpoint, which leaves out the complex thoughts people may have

about many aspects of a film. To overcome this constraint, the present work suggests an aspect-based sentiment analysis method. The method can offer more detailed insights into consumer preferences by dissecting movie reviews into discrete parts and examining the mood toward each. Subsequently, these insights are applied to improve the accuracy and customization of personalized movie suggestions based on user preferences [5][6].

2. Literature Review

Survey of Aspect-Based Sentiment Analysis

This manuscript offers a thorough exposition of the diverse approaches and procedures utilized in aspect-based sentiment analysis (ABSA). It investigates the use of ABSA in obtaining opinions about particular features of goods or services from textual data.[1] The survey covers both conventional and contemporary methodologies, such as deep learning models, machine learning strategies, and rule-based approaches. Furthermore, it emphasizes the important uses of ABSA in a variety of sectors, including social media, e-commerce, and customer feedback analysis, highlighting how it improves user experience and decision-making.

Deep Learning in Aspect-Based Sentiment Analysis

This research provides an in-depth analysis of aspect-based sentiment analysis (ABSA) using deep learning approaches. It looks at different neural network topologies, like recurrent neural networks (RNNs) and convolutional neural networks (CNNs), emphasizing how well they can capture sentiment nuances and contextual information pertaining to particular elements. [2] The review addresses issues in the field, classifies various methods, and assesses how well they perform on benchmark datasets. In addition, it looks at possible deep learning model improvements and future research approaches for better accuracy and interpretability in ABSA tasks.[2]

Integrating Voice Feedback in ABSA

The integration of voice input into aspect-based sentiment analysis (ABSA) systems is investigated in this work. It talks about the special difficulties and benefits of using voice input, such as the depth of emotional expression and background knowledge that spoken language may offer. [3] The paper offers methods for integrating conventional text-based sentiment analysis approaches with voice data processing and analysis. The paper illustrates how voice feedback can improve the accuracy and depth of

sentiment insights, especially in customer service and user experience scenarios, by providing case studies and real-world applications.[3]

Voice Recognition in ABSA

The function of voice recognition technology in aspect-based sentiment analysis (ABSA) is examined in this work. It describes how spoken language is translated into written form and how feelings about particular passages in that writing are then analyzed.[4] The study examines current voice recognition technologies and how they function with ABSA frameworks, highlighting the advantages of encoding subtleties in speech, like tone and emotion, which improve sentiment interpretation. The research shows how speech recognition can increase sentiment analysis's efficacy in a variety of contexts, such as social media monitoring and customer feedback, through experimental findings and practical applications.[4]

Challenges in Spoken Language Sentiment Analysis

This essay looks at the particular difficulties and possibilities that come with sentiment analysis of spoken language. It talks about how factors like accents, background noise, and voice unpredictability make it harder to accurately detect sentiment than when using text-based analysis. [5] The article explores the possibilities for enhanced user insights and engagement through spoken sentiment analysis, as well as highlighting developments in machine learning and natural language processing that can help address these issues. The study intends to pave the way for more efficient applications in customer service, social media, and other domains dependent on spoken comments by identifying important areas for future research and development.[5]

Hybrid ABSA with Voice Feedback

This work introduces a hybrid approach to aspect-based sentiment analysis (ABSA) that combines conventional text-based techniques with voice feedback. It describes the technique for processing written and spoken data, leveraging each modality's advantages to improve sentiment identification about particular facets. The architecture of the hybrid model, including methods for feature extraction and algorithms for sentiment classification, is covered in the study. [6]The report highlights the usefulness of this approach in user experience research and customer interaction situations by analyzing its performance on various datasets and showing notable

gains in sentiment accuracy and contextual understanding.[6]

Analyzing User Sentiment via Voice Feedback in Aspect-Based Frameworks

This article uses an aspect-based methodology to investigate the subtleties of user sentiment analysis through voice input. Compared to conventional text-based analysis, it explores how spoken input can provide deeper emotional insights about particular features of goods or services.[7] The paper describes the methodology for gathering and analyzing voice data, with a focus on sentiment-related feature extraction associated with different dimensions. It examines the efficacy of this strategy in practical applications, like customer support and product reviews, using empirical data. The results provide insightful implications for improving user experience and engagement by highlighting the significance of voice intonation and expression in interpreting user sentiment.[7]

Implementing Real-Time ABSA for Voice-Activated Systems

The creation and application of real-time aspect-based sentiment analysis (ABSA) tailored for voice assistants is the main topic of this research. It talks about the difficulties of instantly processing and interpreting spoken language, such as problems with sentiment extraction and voice recognition accuracy.[8] The study offers a system that combines voice recognition technology and ABSA algorithms to give voice assistants real-time insight into user attitude on particular features. The study demonstrates the efficacy of this technique in increasing user interactions, delivering individualized responses, and raising overall user happiness in applications like smart home systems and customer service through experimental results and use-case scenarios.[8]

Leveraging Voice Data to Improve ABSA Accuracy

The purpose of this research is to investigate how aspect-based sentiment analysis (ABSA) might be improved by using speech data. It looks into how adding audio inputs can bring out more nuanced emotional context and details that reading text by alone could overlook.[9] The paper describes how to gather, handle, and analyze speech data. It focuses on feature extraction methods that extract vocal characteristics including pitch, intensity, and tone. The study shows how audio data can greatly enhance sentiment classification and aspect identification by providing case

studies and performance measures. The results highlight the possibility of a more sophisticated comprehension of user attitudes, especially in user feedback and customer service applications.[9]

Enhancing ABSA with Speech Recognition Contextualization

The use of speech recognition technologies to support contextual aspect-based sentiment analysis (ABSA) is explored in this research. It talks about how speech recognition can improve sentiment analysis by giving context that affects how users feel about particular elements. [10] The paper presents approaches for combining speech recognition with ABSA frameworks, stressing the significance of contextual elements including tone, conversation history, and situational clues. The study demonstrates how this approach enhances the relevance and accuracy of sentiment insights through empirical evaluations, especially in dynamic situations like interactive voice response systems and customer service. The results point to important progress in contextualized sentiment analysis of user sentiment.[10]

Integrating Emotion Detection into ABSA Using Voice Feedback

This study looks at the significance of emotion detection in voice feedback and how aspect-based sentiment analysis (ABSA) is affected by it. It investigates how precise speech recognition of emotions might improve sentiment analysis for particular features of goods or services.[11] The study addresses how to incorporate emotional indicators from speech patterns, pitch, and tone into current ABSA frameworks and proposes methods for doing so. The study illustrates the increased benefit of emotion detection in enhancing sentiment accuracy and offering more profound insights into user experiences through case studies and experimental analysis. The results highlight the possibility for interactions in apps like product reviews and customer service to be more subtle and responsive.[11]

Enhancing Fine-Grained Sentiment Analysis Through Voice Feedback

The goal of this research is to achieve fine-grained aspect-based sentiment analysis (ABSA) by utilizing voice feedback. It investigates how voiced input—which goes beyond the scope of conventional text analysis—can disclose intricate feelings pertaining to particular details. [12] The paper describes voice data processing strategies, such as how to extract

subtle sentiments and find contextual factors that shape users' perceptions. The research shows how voice feedback can improve aspect identification and sentiment classification accuracy by experimenting with many datasets. The results show how well this strategy works in applications like customer service and product reviews, opening the door to more tailored and responsive user experiences.[12]

Understanding Prosody's Impact on ABSA in Spoken Language

In this work, the role of prosody—the speech's rhythm, stress, and intonation—in aspect-based sentiment analysis (ABSA) of spoken language is examined. It talks about how prosodic elements can give important background information that affects how some components' sentiments are interpreted. [13] The paper highlights prosodic elements' significance to increasing sentiment accuracy by presenting strategies for assessing them alongside textual data. The paper demonstrates the effect of prosody on user sentiment identification, especially in emotive or unclear circumstances, using empirical research and case studies. The results highlight the necessity of including prosodic analysis into ABSA frameworks in order to improve spoken sentiment interpretation, particularly in applications such as interactive speech systems and customer support.[13]

Dynamic ABSA Models Utilizing Voice Feedback

This work investigates the use of voice input in adaptive aspect-based sentiment analysis (ABSA) techniques to dynamically modify sentiment detection algorithms. It talks about the difficulties of speaking with different speech patterns, emotional expressions, and changing contexts. [14] The work offers a framework for developing adaptive ABSA models that may be trained on real-time audio data, improving the models' capacity to precisely decipher attitudes associated with particular features. The paper illustrates how adaptive models can enhance user experience by offering timely and contextually appropriate insights through experiments and case studies. The results point to the possibility of more tailored interactions in applications where it's important to comprehend subtle emotions, such customer support systems and virtual assistants.[14]

Combining Voice and Text Data for Enhanced Sentiment Analysis

This paper integrates textual and audio inputs for aspect identification in order to explore the advantages of multimodal sentiment analysis. It talks about how spoken and written language together can give a more comprehensive context for comprehending user sentiment regarding particular elements. In order to increase the accuracy of sentiment categorization, the study proposes approaches for synchronizing and analyzing speech and text data and utilizing their complementary strengths. [15] The research shows how this integrated strategy improves aspect identification and sentiment expression nuances detection through empirical assessments. The results provide a more comprehensive understanding of user sentiment and highlight the usefulness of multimodal analysis in applications like social media monitoring and customer feedback systems.[15]

Utilizing Voice Input for ABSA of Customer Feedback

This work focuses on using voice input for aspect-based sentiment analysis (ABSA) of customer evaluations. It examines the special benefits of examining oral input, namely the ability to pick up on emotional nuances and instantaneous replies that written feedback can miss. [16] The study describes voice data processing approaches, such as spoken language-specific sentiment extraction algorithms and transcription strategies. The study illustrates how voice input can improve the precision and depth of sentiment insights pertaining to particular features of goods or services through case studies including actual customer evaluations. The results draw attention to the implications for companies looking to increase customer engagement and happiness through more responsive feedback analysis.[16]

Enhancing E-Commerce Insights through Voice Feedback in ABSA

In particular, the use of voice feedback in aspect-based sentiment analysis (ABSA) for the e-commerce industry is examined in this research. It looks at how gathering verbatim feedback from customers might yield deeper understanding of their experiences using goods and services. [17] The paper describes how to incorporate speech data into current ABSA frameworks, emphasizing spoken language-specific feature extraction and sentiment categorization. The paper illustrates the usefulness of voice feedback in discovering sentiments connected to particular product aspects, such as quality, pricing, and usability, through empirical research

and customer interaction analysis. The results highlight how e-commerce companies may use voice feedback to do more in-depth sentiment analysis and improve customer engagement and happiness.[17]

Improving Sentiment Classification with Voice Input

This research investigates how aspect-based sentiment classification might be improved by voice feedback. It talks about how subtleties in speech, such intonation, tone, and emotional emphasis, can give important background for correctly categorizing feelings related to particular features.[18] The work focuses on feature extraction and model adaption and proposes methods for combining voice data with conventional text-based sentiment categorization approaches. The study highlights the usefulness of voice feedback in applications such as customer service and product reviews by demonstrating through experiments and case studies significant gains in classification accuracy when including voice feedback. According to the research, using voice input can help organizations and users' experiences by enabling a more complex understanding of user feelings.[18]

Implementing Real-Time ABSA for Voice Assistant Applications

The development of real-time aspect-based sentiment analysis (ABSA) with a focus on voice assistant applications is examined in this work. It tackles the particular difficulties of processing spoken information in real time, such as contextual comprehension, latency, and accurate voice recognition. The paper offers a framework for combining real-time speech recognition systems with ABSA, allowing voice assistants to instantly determine the sentiment of a user regarding particular features.[19] By giving prompt, context-aware responses, the study shows how effective this method is in improving user engagement and satisfaction through experimental results and user interactions. The results demonstrate how real-time sentiment analysis has the potential to greatly enhance the responsiveness and functionality of voice assistant technology across a range of uses.[19]

Identifying Key Aspects from Spoken Feedback in Customer Service

The extraction of certain characteristics from voice input in customer service scenarios is the main emphasis of this research. It looks at the particular difficulties in understanding spoken language, such

as differences in speech patterns, accents, and emotional clues. The paper offers methods that combine speech recognition, natural language processing, and sentiment analysis to precisely detect and classify topics addressed in voice feedback. [20] The study demonstrates how efficient aspect extraction can improve customer support interactions by offering insightful information about client preferences and pain points through case studies and real-world applications. The results highlight how crucial it is to use voice feedback in order to raise customer happiness and service quality.[20]

Analyzing Audio Feedback for Aspect-Based Sentiment Insights

This research uses an aspect-based technique to investigate the sentiment analysis of auditory feedback. It looks at how listening to verbal information can disclose certain opinions about different facets of goods or services. The paper describes how to handle audio data using techniques that are specific to spoken language, such as feature extraction, sentiment classification, and voice recognition.[21] The study illustrates the efficacy of this approach in gathering contextual signals and emotional subtleties that improve sentiment analysis accuracy through empirical evaluations and case studies. The results demonstrate the potential of using audio feedback in applications like service encounters and customer evaluations, which will ultimately result in better user experiences and more informed decision-making.[21]

Integrating Textual and Vocal Inputs for Enhanced ABSA

In order to enhance aspect-based sentiment analysis (ABSA), this research investigates the merging of audio and text data. It goes over the benefits of using both modalities, highlighting how they can work in tandem to give a more comprehensive picture of user attitude toward particular elements. Techniques for synchronizing and evaluating text and speech inputs are presented in the paper, along with feature extraction methods that extract sentiments from both types of data.[22] The study shows how this combination strategy improves aspect identification and sentiment classification accuracy through experiments and case studies. The results demonstrate the value of multimodal analysis in applications that provide a more thorough understanding of user sentiment, such as social media monitoring and customer feedback systems.

Developing an Aspect-Oriented Framework for Voice Feedback Analysis

A framework for aspect-oriented sentiment analysis, particularly with regard to voice-based consumer feedback, is presented in this study. It looks at the special qualities of spoken information, such as emotional tones and contextual signals, which have a big impact on how sentiment is interpreted in relation to particular elements. In order to obtain correct analysis, the study emphasizes the combination of voice recognition, aspect extraction, and sentiment classification—three of the framework's components. The study illustrates the efficacy of the framework in collecting intricate client sentiments and enhancing response tactics in customer service through case studies and practical implementations. The results demonstrate how using voice feedback in sentiment analysis procedures can improve user experience and satisfaction.[23]

Enhancing ABSA Performance through Voice Data Integration

This research looks into ways to incorporate speech data into aspect-based sentiment analysis (ABSA) to increase its accuracy. It talks about how spoken language's subtleties—like tone, emotion, and context—may reveal more about emotions than text alone can. The paper outlines methods for incorporating speech data into the ABSA frameworks that are currently in use, with an emphasis on feature extraction and sentiment classification strategies designed specifically for spoken input. The research shows that the use of speech data leads to notable increases in sentiment identification accuracy through comparative studies and experimental outcomes. The results highlight the potential of voice-enhanced ABSA in interactive systems and customer feedback analysis applications, which will ultimately improve comprehension of user feelings and experiences.[24]

Analyzing the Influence of Vocal Tone on ABSA Results

This study investigates how voice tone affects aspect-based sentiment analysis (ABSA) results. It looks at how voice tone changes, including pitch, loudness, and emotional expression, impact how people understand emotions in relation to particular characteristics. The study emphasizes the significance of tonal variables in improving sentiment accuracy and proposes methods for obtaining and evaluating them in addition to conventional text analysis. The research illustrates how adding voice tone might produce more complex and contextually relevant sentiment insights through experimental investigations and case studies. The results emphasize the importance of vocal nuances in user

input, implying that tone awareness might significantly increase sentiment analysis's efficacy in a range of contexts, such as product reviews and customer support.[25]

3. Conclusion

The research papers collectively highlight the transformative role of voice data in enhancing aspect-based sentiment analysis (ABSA). By integrating voice feedback with traditional text-based approaches, these studies demonstrate that vocal elements such as tone, prosody, and emotional expression offer richer contextual insights, improving the accuracy and depth of sentiment analysis. Key challenges such as speech recognition accuracy and real-time processing are addressed through adaptive and multimodal frameworks, enabling more dynamic and responsive applications, particularly in areas like customer service, e-commerce, and virtual assistants.

The findings suggest that leveraging the unique characteristics of spoken language—through prosody, tone, and other vocal cues—enables a more fine-grained and nuanced understanding of user sentiments. This holistic approach not only improves the precision of aspect recognition but also opens up opportunities for more personalized and context-aware interactions in various domains. Ultimately, integrating voice data into ABSA frameworks holds great potential for advancing user experience, business intelligence, and customer satisfaction by offering deeper, more comprehensive sentiment insights.

4.References

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