

Literature Review on Sentiment Analysis in Tourism

Chingakham Nirma Devi¹, Dr. R. Renuga Devi²

¹Research Scholar, Department of Computer Science, Vels Institute of Science, Technology & Advanced Studies, Chennai, Email: nirmachingakham55430@gmail.com

²Assistant Professor, Department of Computer Science, Vels Institute of Science, Technology & Advanced Studies, Chennai, Email: nicrdevi@gmail.com

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Abstract:

Tourism is growing to be a crucial source of income across globe. As a source of socio-economic phenomenon, tourism has evolved into one of the greatest and fastest growing industries of the world. The vital part to collect the data is often appearing as what the people assume. Most users express their views and opinions relating to products and services through social media. These opinions are subjective info that represents user's sentiments, feelings or appraisal associated with a similar. Nowadays, millions of people travel around the globe for business, vacations, sightseeing, or alternative reasons for their need. Tourists will currently have the opportunity from different data sources, and that create their own content and share their aspects and experiences. Through internet, tourism content shared has an extremely prestigious data that effects tourism. At present, online customer reviews on tourism meant hotels and restaurants which play an important role within the decision making while they were selecting hotels and restaurants destination.

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I. INTRODUCTION

Sentiment Analysis is the study that examines one's opinions, attitudes, appraisals, sentiments, emotions and evaluations regarding products, organizations, services, individuals, events, topics, and their comments. Its task is to identify people's opinions as positive and negative from a given text and decide whether a given text is subjective, expressing the writer's opinions, or objective, expressing.

In the field of industry, the tourism industry, where customer experience is an important for its improvement, has mostly adapted to the evolving technology and the availability of new data sources. Presently, most tourist services are

accessible on the Internet through online booking websites. Travel is one of the most familiar topics on social media, such as, on Facebook and Twitter (Neidhardt, Rümmele, and Werthner 2017; Travelmail Reporter 2013)[3]. It isn't amazing that tourism has been restructured because the beloved sector in terms of online engagement (Mack, Blose, and Pan 2008). All the activities which are based on internet leave a digital footprint [1]. Now it is suitable for investigate how tourism researchers are generating the use of those internet-based information, and whether those kinds of knowledge form a part of a brand new analysis paradigm which needs novel methodologies and has the possibilities to additional advance our theoretical understanding of tourism.

This study means the idea to survey and demonstrate the beneficial of text analytics through sentiment analysis to recognize the friendliness problems, as the connection between hotel guest experience, and their satisfaction rating. Precisely, this analysis concerns a text mining and analyze a considerable amount of client reviews extracted from Tripadvisor.com to solve customer proficiency via reviews generated by the guest and inspect its association with their contentment ratings. To develop the tourism, the sentiment analysis plays a crucial role in residents' and tourists' to express their sentiment. To extract and analyze opinions and emotions, they gathered the contained reviews which were expressed by residents or tourists. With the advancement of social media and social computing, sentiment analysis has attracted more and more attention of tourism industry. The rapid growth of social internet and mass volume of sentimental reviews online have created the automatic sentiment analysis a critical task to modern business and society. It tries to identify the sentiment contained in texts and aims to classify these texts into different categories, including positive, negative and some others. Increasing in business sentiments, which lead to higher business-related travel or increase in foreign tourist arrivals causes occupancy in markets to go up dramatically [2].

II. RELATED WORKS

According to the changes of technology which is related to the Internet, including smartphones and tablets, have remodeled the tourism industry from a stuff and direct service industry to a stiffy digitally supported and universal travel service network. To increase their idea in reference to traveling and decision making in tourism, they not only collaborate with a scope of program and online agent however they also associate with other tourists who share their experiences. Tourists who have access to online platforms to give their feedback and make approvals for other tourists [3].

To identify about the strengths and defects of different products and services we need customer generated contents that helped consumers, and find the ones that give the best fit for their requirements. However, customer generated contents due to their volume, variety, velocity and veracity, establish huge challenge for businesses as well as for customers in analyzing and deriving insights from them [4].

Sentiment analysis tries to spot and analyze opinion and emotions [5].

Sentiment could be an equivalent word of attitude in tourism research. The attitudes of each tourists and residents play vital roles in tourism development, since friendly interactions between guests and residents produce great impact on visitors' satisfaction [6]. Recent tourism literature has studied problems with place identity in understanding resident attitudes toward tourism [7, 8, 9, 10, 11]. These studies conclude that local people's sentiment is crucial to the sustainability of tourism development.

The sentiments of tourists are vital for the development of touristy. In [12], on the web acceptance of restaurants, the researchers experiment to recognize the impact of unsubstantiated information. Tourists' online reviews can also guide people to decide on travel agency and destination.

Since the applying of sentiment analysis in tourism has become more and more popular. With machine learning approaches, most researchers study the sentiment classification in tourism. In [13], in order to automatically classify the customer reviews as positive, negative or neutral, standard machine learning techniques naive Bayes and SVM are integrated. In [14], Zheng and Ye conduct an exploring analysis on sentiment analysis to Chinese traveler reviews by SVM algorithm. Compared to review of machine learning approaches, in tourism, there are only a few papers study the lexicon-based

approach. for example, Kang, Yoo and han [15] propose a replacement senti-lexicon for the sentiment analysis of building reviews.

In [16], tourism will increase employment opportunities for the local individuals, improves the local economy, contributes to income and customary of living, brings in new businesses and improves investment opportunities.

From the advertisement of customer reviews, opinion mining or opinion extraction, has evolved into rebellious in digital marketing world for attribution aspect of Internet. Those reviews which are being actual time interpretation of the customer emotions, those customers written text are relatively more reliable and genuine than any other source of text data.[17]

On industry of tourism and hospitality, transportation of air, framework development and progress in technical has direct influence.

Automated sentiment analysis which has been used for extracting opinions from public and various other sources for different applications in tourism, marketing and hospitality comparing with their performance to that of the human evaluator to estimate the compatibility of various types of automated classifier.[18]

There is a proposed framework of opinion mining in tourism for summarizing visitors' opinions and experiences from TripAdvisor reviews. This framework is used to classified the reviews into multiple categories and performs lexicon-based sentiment extraction in each category. [19][20]

In [21], Feldman propose five main problems for sentiment analysis as- Document-level, Sentence-level, Aspect-based, Comparative and sentiment lexicon acquisition.

Document-level sentiment analysis is the document which contains the opinion of one entity demonstrated by the writer(s) of the document.

Sentence-level sentiment analysis examines the document each sentence. Aspect-based sentiment analysis can be used when individuals have an entity of many aspects and to view for each aspect. We use comparative sentiment analysis when observers don't give a direct opinion and we try to extract the selected entity from the sentences containing comparative opinion. The main resource is the sentiment lexicon and it refers the algorithm and three main approaches i.e. manual approach, dictionary-based approach and corpus-based approach. In [22], Pang and Lee explained that online reviews and online opinions have a considerable effect on customer performance.

In tourism research, a lexicon-based approach is also used. According to Serna et.al [23] used WordNet lexical database to produce the sentiments from tweets referring to holiday periods.

Sentiment lexicon have used in a number of approaches to multilingual sentiment analysis in order to improve the performance of the classification [24].

To know about people's sentiments with regard to services and products, the sentiment to a brand on Internet is significant for some company to concern about the products quality [25].

Advancement of internet throughout the globe, comments are written by the customer in various languages. Sentiment analysis which is written in single language enlarges the risks of misplaced important information in texts which is written in other language. Multilingual sentiment analysis techniques have been formed in order to examine data in different languages. To avoid this problem, frameworks and tools for sentiment analysis for different languages are being formed [26].

A tourist destination is the small places where historical site, parks, restaurants, and hotels are all available which has been interested by tourist. But

in a country, to realize the venue of the tourist destination is difficult due to newly publicized site in a short period. In order to attract the foreigner, collect a record of visitor destination is important for that country. [27]

It is feasible to study the strength of visitors around the globe by the information from the internet. World human strength around the globe is studied by Hawelka et.al. based on international geolocalisation data from the Twitter. [28]

To estimate visitors' idea of friendliness, Philander et. al show the implementation of sentiment analysis using Twitter information. [29]

In order to estimate the online dealing of products, Online reviews have been used by Chevalier et.al. [30] and its rating is indirectly affected through sentiment.[31]

In [32], message receiver may find the sender's emotions from emotion words and emoticons. However, the emotions in a message which transferred through Computer mediated communication guide the message how to operate and interpret by the receiver. [33] [34]

In [35], Pang and Lee used machine learning technique to classify better human classification on movie reviews.

In [36], Claster et.al used sentiment analysis about tourism for better guidance the officials of the country to extract their opinions. For extracting hotel reviews, Kasper and Vela [37] permitted to keep customer summarized opinion including positive and negative aspects before taking reservation of the hotel.

In [38], Ortigosa et.al identified polarity and emotions as positive, negative and neutral from Facebook. The researchers used lexicon-based approach and combined-based approach.

One of the best application areas has been the tourist-destination due to providing the required information for purchasing goods or services to the travelers and giving the knowledge about the feedback from their consumer and achievement from the competitors, which is wider indications as a Business Intelligence.[39]

In [40], according to machine learning application technique including Naive Bayes, Rocchio and Perceptron classifiers, Troussas et. al investigated students' polarity across Facebook in the circumstances of a language learning application. In [41], Blair-Goldensohn explored data from google map as input to examine customer sentiments regarding stores of departmental, hotels and restaurants.

In [42], tweets connected to smart phones are composed by Chamlerwat, that finds sentiment analysis on Twitter which detect consumers' opinions to the product features that enable customers to collect particulars about the products without interrupting further customers by putting them directly for reviews.

In [43], e-learning systems on sentiment analysis is detected by Song et.al to establish students' opinions regarding their courses, lectures and e-learning systems. This study could one of the advantages both in lectures and e-learning software developers. From these sentiments, they found polarity about their positive and negative.

In [45], a machine learning approach which include the SVM classifier is explored by Kechaou et.al for evaluating the models using precision, sensitivity and F-score to find a result of around 90%.

In [44], e-learners' emotions including Joy, love, anger, frustration, sad were identified by Tian et.al from their texts in chat system to highlighted the interests of recognizing emotions through text, that is affordable system compared to intelligent

tutoring systems which require valuable technologies and equipment.

Since the application of sentiment analysis in tourism has become more popular and most researchers studied the sentiment classification in tourism with machine learning approaches like naïve Bayes and SVM.

III. USES OF SENTIMENT ANALYSIS IN TOURISM

There are three main uses sentiment analysis technique in tourism industry:

- i) To predict the expenditure of tourists,
- ii) To analyze the tourists' profiles, and
- iii) To predict the number of tourist arrival.

A. PROBLEM STATEMENT

From a given review containing varied opinions and multiple features, the aim is to extract opinion describing a target feature and allocate it as positive or negative. It can be summarized as:

- i) Extract all the details from the review given. In the lack of any prior data about the domain of the review, this will be a list of potential features in that review which needs to be removed to get the extract features.
- ii) Extract the opinion words that mention to the target feature.
The opinion words are consisting of Adjectives, Nouns, Verbs and Adverbs. When the sentence has multiple features and distributed emotions, a naïve method does not work well.
- iii) Allocate the extracted opinion words as negative or positive.

B. METHODOLOGICAL APPROACHES TO SENTIMENT ANALYSIS

A number of researchers in tourism have analyzed the application of sentiment analysis to tourism. Machine learning and lexicon-based approach have been used in tourism related research. An overview of the methods previously used for sentiment analysis in the tourism domain is provided in Table 1.

Tourism researchers have used two types of online content in sentiment analysis: tourism reviews from executive websites such as Tripadvisor, Ctrip, Booking and Social media post as Twitter. A number of studies focus on tourism (Shimada et al., [45]; Claster, Dinh and Cooper [48]; Claster, Cooper, and Sallis [49]; Gindle, Weichselbraun, and Scharl [53]; Capriello et al. [54]). It also noted that some of the data source used in the reviews relate to accommodation of hotel (Tan and Wu [47]; Bjorkelund, Burnett, and Norvag [51]). Some focus on restaurant reviews (Kang Hanhoon [52]; Zhang et al. [55]). Serna et al. focus their reviews on Easter and summer holiday-related hashtags. Ye et al. used their data source in the US and Europe destination reviews. Bai X focus on Movie Reviews, News articles. In supervised machine learning approach for sentiment analysis in tourism, SVM, NB, KNN and entropy-based classifiers (Zhang et al. [55]; Bai X [50]; Kang Hanhoon [52]; Ye, Zhang, and Law [56]; Claster, Dinh and Cooper [48]; Claster, Cooper, and Sallis [49]) were employed. In tourism related research, a lexicon-based approach has also been used. Tan and Wu [47] used lexical database to extract hotel reviews from Ctrip. Serna, Gerrikagoitia, and Bernabe [23] used the WordNet lexical database to produce emotions from twitters mentioning to two holiday periods, Easter and summer.

Ref.No.	Year	Technique used	Data Source	Type of reviews	Language
Shimada et al., [45]	2011	Machine Learning	Twitter	Tourism	English
Tan and Wu [47]	2011	Lexicon-based	Ctrip.com	Hotel	Chinese
Claster, Dimh and Cooper [48]	2010	Hybrid	Twitter	Tourism	English
Claster, Cooper, and Sallis [49]	2010				
Bai X [50]	2010	Markov Blanket, SVM, NB, ME	IMDB	Movie Reviews, News articles	English
Bjorkelund, Burnett, and Norvag [51]	2012	Machine Learning	Tripadvisor.com, Booking.com	Hotel	English
Kang Hanhoon [52]	2012	NB, SVM	Restaurant Reviews	N/A	Spanish
Gindl, Weichselbraun, and Scharl [53]	2010	Machine Learning	Tripadvisor.com	Travel	English
Capriello et al. [54]	2013	Lexicon-based	Tripadvisor.com	Farm tourism reviews	
Zhang et al. [55]	2011	SVM, NB	OpenRice.com	Restaurant reviews	Cantonese
Ye, Zhang, and Law [56]	2009	SVM, NB, KNN	Yahoo travel	US and Europe destination reviews	
Serna, Gernikagoitia, and Bernabe [23]	2016	Lexicon-based (Wordnet)	Twitter	Easter and summer holiday-related hashtags	

Table1: An overview of the methods previously used for sentiment analysis in the tourism domain.

IV. CONCLUSION

Sentiment detection contains a wide variety of applications to help in classifying, summarizing reviews and in alternative real time applications. This paper focuses on the survey of techniques and approaches that promise to enable mining of implicit aspects from traveler's reviews. Tourism analysis might proceed at a great distance into a latest scope, to appreciate current development including importance in theories, wherever approaches of data driven and theory driven will bear each other. This literature review ends by recommending to tourist that their sentiment analysis is that superficial toward a new kind of research model for tourism. So, sentiment analysis is the only starting of more complicated approaches using massive data. Especially, the integration of many forms of information which contains a vast possibility for initiating expected perception which is never seen before. Various data such as data from transport, the environment, weather, etc. combine with sentiment scores to find the patterns which might never been seen and known before. Adding unlike advanced data, such as analogue shared through dissimilar social media, electronic

transaction mark, and video footage, intensified by object recognition and deep learning will give valuable information and reveal interesting insight that perform compressed to those concerned in tourism research and practice.

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