IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

SONGS RECOMMENDATION SYSTEM BASED ON HUMAN FACE EMOTION THROUGH DIFFERENT ML APPROACHES

KHAN ANAM FIRDOUS AFROZ KHAN[1], ASST.PROF. V. S. KARWANDE[2]

ME Student, Department of Computer Science & Engineering, EESGOI , India[1]
HOD, Assistant Professor, Department of Computer Science and Engineering, EESGOI,India.[2]

Abstract: The human face is a crucial component in determining the behavior and mood of a single organ. Sorting through a music collection by hand and building a playlist according to distinct emotional qualities is a laborious process. Various methods have been proposed and put into practice for playlist construction that is automated. Nevertheless, current methods are less precise, compute more slowly, and may even call for additional hardware like sensors or EEG. The proposed method, which is based on facial expression extraction, minimizes the time and work required to manually produce the process by creating a playlist. Along with system-to-person questions like "how did you go?" the system will also suggest songs based on their lyrics. As a consequence, the recommended method is able to increase the overall accuracy of the systems while minimizing the total cost and computation time required to get the results. Facial expressions are captured using an integrated camera. Determines how well computers are in identifying emotions in real-time photos. Incorporate a collaborative filter, content-based recommendation, sentiment-based music, share workload between high-end servers and mobile low-end devices, and promote user-specific data in order to alleviate overloaded problems.

Keywords: Gaussian Mixture Model (GMM) ; k-Nearest Neighbors (KNN); Convolution Neural Networks (CNN);

I INTRODUCTION

The universe is the size of the science field. Every day, new discoveries are made that, while they may not be significant or revolutionary, are still helpful and point toward a better future. Sound and graphics, two enormous fields in science and engineering, not only fascinate students but also entice them to study them in depth. Many of these discoveries have now propelled us into the present day, when it is now possible to imagine many ideas that were unfeasible even a few decades or more ago. Since snapping pictures and listening to music are now only two aspects of daily life, any advancements in these technologies' functionality are continually valued in order to enhance the user experience. Alongside technical advancements has come an improvement in the level of software sophistication. Additionally, keeping things simple is the goal. It is challenging to create intricate applications. A sophisticated, dynamic, and one-of-a-kind Android mobile application that functions differently from a typical music player is called Music Player based on Facial Expression. The application functions differently from standard software in that it creates a library of mood-based playlists by scanning and classifying the audio files on the device and Audio Features according to preset settings. Real-time facial expression recognition data from the application is categorized in order to create a mood that is then utilized to select the relevant playlist from the prior batch.Owing to the growth of the Internet sector, sentiment analysis has emerged as a key area of natural language processing (NLP). It may be used to efficiently extract latent emotions in text, which might aid businesses or organizations in making better decisions. However, the growing volume of data available to analyse presents new challenges as well as opportunities for sentiment analysis. At the same time, transfer learning has emerged as a novel machine learning technique that applies existing knowledge to address issues in other domains and produces state-of-the-art predicting outcomes. Transfer learning is a popular technique used by academics in sentiment analysis. This report summarizes the results of

recent research and focuses on sentiment analysis applications and transfer learning strategies in order to predict future trends in sentiment analysis development.

II LITERATURE SURVEY

In this research, Because of the Internet's explosive expansion, sentiment analysis has emerged as one of the most important areas of natural language processing in cloud computing research (NLP). Sentiment analysis may be effectively used to extract latent emotion in text, helping businesses or organizations make better decisions. However, as data grows, sentiment analysis will undoubtedly face new challenges as well as possibilities. Concurrently, transfer learning has developed into a revolutionary machine learning technique that produces state-of-the-art prediction results by utilizing existing knowledge to handle a range of domain difficulties. Transfer learning is widely used by academics in the field of sentiment analysis. With an eye on the direction of sentiment analysis's future development, this review summarizes the results of current research on the subject and concentrates on the techniques and uses of transfer learning in sentiment analysis. [1].

In this research, Recent years have seen a significant increase in interest in deep learning because to its revolutionary contributions to speech recognition, image analysis, and natural language processing. Applying deep learning technology to recommender systems has made it a popular area of study in artificial intelligence. Unlike conventional recommendation models, deep learning enables the higher-level codification of more complex abstractions as data representations and may effectively capture non-linear and non-trivial user-item associations. In this study, we provide an extensive review of the literature on deep learning-based recommender systems. We start by going over the basic terms and ideas of deep learning technology and recommender systems. We then review the current status of research on recommender systems based on deep learning. Lastly, we talk about prospective directions for future study on deep learning-based recommender systems [2].

In this research, The growth of IoT technology and the general use and acceptance of social media platforms and applications have created new avenues for applying data analytics to extract valuable insights from unstructured data. Opinion mining and sentiment analysis (OMSA) has shown to be a useful technique for classifying public opinion into various moods and gauging the general mood in the era of big data. Additionally, a variety of OMSA techniques have been developed throughout time and applied to a range of experimental settings using a variety of data sets. With the intention of addressing both the technical (techniques and types) and non-technical (application areas) elements of OMSA, this research provides a thorough and comprehensive evaluation of the literature in this respect. Furthermore, this study discussed both technical and non-technical aspects of OMSA, such as problems in the development of its technique and non-technical issues related to its implementation. These problems are proposed as a research topic for the future [3].

In this research, In addition to case stories, the research offers fundamental knowledge on recommender systems and machine learning. More broadly, the subject of machine learning algorithms—which are employed in these kinds of systems—was covered. The article's main focus was on content filtering algorithms that took into account both the vicinity of items or people. A description is given of the benefits, disadvantages, and similarities between different algorithms along with metrics for assessing the method and determining the sample value of the assessment prediction. The project's planning phase begins with a description of the databases used, which can be seen on the Movie Lens webpage. The technology and real-world application of the aforementioned algorithms are then discussed. In order to ascertain how the algorithms work, the next part provides an examination of the results and conclusions drawn from computer simulations. At the end of the work, there is a summary, a performance evaluation of recommendation systems, a list of lessons learned, and a suggestion for more research on the topic of recommendation systems. [4].

In this research, Recent years have seen a significant increase in interest in deep learning because to its revolutionary contributions to speech recognition, image analysis, and natural language processing. Applying deep learning technology to recommender systems has made it a popular area of study in artificial intelligence. Deep learning can capture non-linear and non-trivial user-item interactions and encode more complex abstractions as higher-layer data representations, more effectively than standard recommendation algorithms. We give a detailed overview of relevant research on deep learning-based recommender systems in this paper. We'll start by going over the basic terms and ideas of deep learning technologies and recommender systems. We then review the current status of research on recommender systems based on deep learning. Lastly, we talk about possible. Finally, we discuss potential future research areas for deep learning-based recommender systems [5].

In this research, Unexpected increases in the use of social media sites have required the creation of extremely reliable and robust systems, along with a range of equipment types, to analyze the enormous volumes of data and their warehousing that are obtained from various enterprises. We are always interested in finding out what other people believe, feel, and see on a wide range of topics related to

both living and non-living things. To understand and analyze unique behavioral features and personality variations, opinion mining is necessary. It is an amalgam of all information that has been taken from all accessible sources and scenarios, which may contain words, paragraphs, hidden feelings, urban slang, and a lot of anonymous images. It is a symbol for many things in many different contexts, not simply connected subjects like sensex, politics, money, and other key terms. The majority of the websites have made it feasible to display and provide a variety of media along with their viewpoints on current affairs. Along with a wide range of other topics, they may talk about a number of philosophical subjects. As we consider the exponential growth tendency, they can express a range of perspectives on many facets of life, which has become more significant in our day-to-day activities. This study divides smart phone attitudes into three categories: good, negative, and neutral behavior. It provides an emotional analysis of these viewpoints. This is mostly achieved by classifying smart phones by examining the numerous postings made by a wide range of users according to their areas of interest. A multi-word phrase reflects a range of user attitudes and the multiple experiences and effects the product has had on them. This study classifies opinions as positive or negative based on their polarity, which is determined using a structural modeling approach and a Bayesian Interface system. [6].

III. SYSTEMS ARCHITECTURE

The recommended system model architecture comprises the design The user will enter text or speech, primarily in speech format. Speech will be converted to text and sent to a server for analysis in json format. The server will then calculate emotions and search for keywords to return millions of songs that have been filtered again under the cooperation filter. Since we already have all the data, which are sorted by the most popular genres, the type of music, the year, length, singer, and feelings, we can reduce the cold start problem by first taking into account the emotions and keyword and then using the most likely extracted data, which other users listened to.

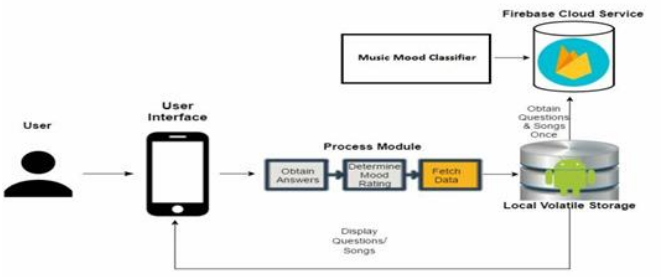

Figure No 3.1: System Architecture

IV EXPERIMENTAL RESULTS

The user will enter data in text or speech format, with speech being the most common format. Speech will be converted to text, which will then be sent to a server in json format for analysis. Emotions will also be calculated for the text, and keyword search will occur. The result will be millions of songs, which will then be filtered again under the collaboration filter, optimized to a hundred, and then sent to a mobile device where it will be sorted into 20 to 30 songs based on the user profile. The emotions and keywords are taken into consideration in the first stage, and then the most likely data from other users' listenings is collected. This will lessen the cold start issue that we have.all data already prepared that data again sorted based on the user contend or profile which consider the most listened genres , musician ,

song types , music year , duration , listen count , singer and emotions.

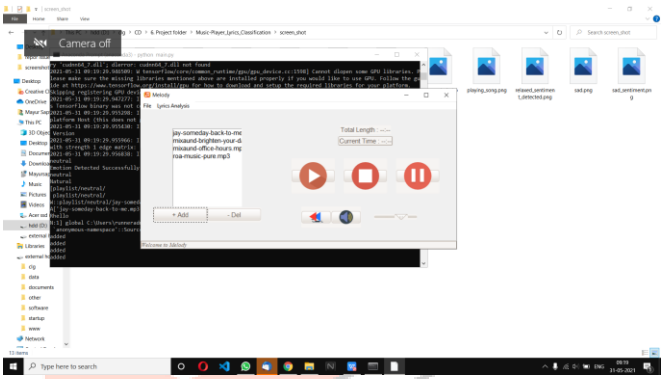

Figure No 4.1: Music Prediction result

V CONCLUSION

Since we already have comparable user data on the server, the hybrid approach of combining collaboration with content suggestions improves the suggestion and, more importantly, solves the cold start issue. Both the efficacy of a recombination algorithm and user interest are increased by user-based suggestions. Since we can instantly link emotions, we also leverage user emotions. sentiments.As technology advances, mobile devices now come with a minimum of 1GB of RAM and a speedier CPU. We use JSON for data communication, and languages like Java and Dart have built-in methods or libraries that handle JSON. This allows for the calculation and display of hundreds of results in a matter of seconds. As PHP is widely used and typically installed on servers, it was removed from the server. It does not have the same libraries as Python's numpy, but it is a very stable language with a large supporting library that is perfect for lexical emotion extraction. We will utilize MySQL to store the classified information gathered from the raw data before

we go, making keyword and sentiment searches easier. The subsequent KNN is used for categorising and cooperation.

REFERENCES

1. L. Zhang, S. Wang, and B. Liu, ‘‘Deep learning for sentiment analysis: A survey,’’ Wiley Interdiscipl. Rev., Data Mining Knowl. Discovery, vol. 8, no. 4, p. e1253, Jul./Aug. 2018.

2. M. del P. Salas-Zárate, J. Medina-Moreira, P. J. Álvarez-Sagubay, K. Lagos-Ortiz, M. A. Paredes-Valverde, and R. Valencia-García, ‘‘Sen□timent analysis and trend detection in Twitter,’’ in Proc. Int. Conf. Technol. Innov. Cham, Switzerland: Springer, 2016, pp. 63–76.

3. S. Alashri, S. S. Kandala, V. Bajaj, R. Ravi, K. L. Smith, and K. C. Desouza, ‘‘An analysis of sentiments on Facebook during the 2016 U.S. presidential election,’’ in Proc. IEEE/ACM Int. Conf. Adv. Social Netw. Anal. Mining (ASONAM), Aug. 2016, pp. 795–802.

4. M. Mertiya and A. Singh, ‘‘Combining naive bayes and adjective analysis for sentiment detection on Twitter,’’ in Proc. Int. Conf. Inventive Comput.Technol. (ICICT), Aug. 2016.

5 . Ruijun Liu,Yuqian Shi,Changjiang Ji and Ming Jia,"A Survey of Sentiment Analysis Based on Transfer Learning",IEEE Access,VOLUME 7, 2019 .

6. .Ruihui Mu,"A Survey of Recommender Systems Based on Deep Learning", IEEE Access,VOLUME 6, 2018.

7. Shahid Shayaa, Noor Ismawati Jaafar, Shamshul Bahri, Ainin Sulaiman, Phoong Seuk Wai , Yeong Wai Chung, Arsalan Zahid Piprani and Mohammed Ali Al-Garadi,"Sentiment Analysis of Big Data: Methods, Applications, and Open Challenges",IEEE Access,VOLUME 6, 2018.

8. Agata Nawrocka,Andrzej Kot and Marcin Nawrocki,"Application of machine learning in recommendation systems",IEEE,2018.

9. Ruihui Mu1, Xiaoqin Zeng and Lixin Han,"A Survey of Recommender Systems Based on Deep Learning",IEEE Access,2018.

10.Shilpi Chawla, Gaurav Dubey and Ajay Rana,"Product Opinion Mining Using Sentiment Analysis on Smartphone Reviews",IEEE,2017.

11. Harpreet Kaur,Veenu Mangat and Nidhi,"A Survey of Sentiment Analysis techniques",International conference on I-SMAC,IEEE,2017.

12. Libo Zhang , Tiejian Luo, Fei Zhang and Yanjun Wu,"A Recommendation Model Based on Deep Neural Network",IEEE Access,March 13, 2018.

13. Hebatallah A. Mohamed Hassan,"Personalized Research Paper Recommendation using Deep Learning",UMAP 17, July 9-12, 2017.

14.Oskar Ahlgren,"Research On Sentiment Analysis:

The First Decade",IEEE 16th International Conference on Data Mining Workshops,2016.

15. Harshali P. Patil and Dr. Mohammad Atique,"Sentiment Analysis for Social Media: A Survey",IEEE,2015.

16. Zohreh Madhoushi,Abdul Razak Hamdan and Suhaila Zainudin,"Sentiment Analysis Techniques in Recent Works",Science and Information Conference,London, UK,July 28-30,2015.

17. Renata L. Rosa, Demostenes Z. Rodriguez and Graca Bressan,"Music Recommendation System Based on User's Sentiments Extracted from Social Networks",IEEE Transactions on Consumer Electronics,August,2015.

18. Ivens Portugal,Paulo Alencar and Donald Cowan,"The Use of Machine Learning Algorithms in Recommender Systems:A Systematic Review",Expert Systems with Applications,November,2015.

19. Bhumika Bhatt,Prof.Premal J Patel and Prof.Hetal Gaudani,"A Review Paper on Machine Learning Based Recommendation System",IJEDR ,Volume 2, Issue 4,2014.