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Music Recommendation System

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MUSIC RECOMMENDATION SYSTEM

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ABSTRACT:

A music recommendation system is a subclass of information filtering system that aims to predict a user's rating or preference for particular music. For the music recommendation system, there are different approaches. Convolutionary neural network (CNN) is one of its kind. This classifies music in different genres based on the music's audio signal beats. Collaborative filtering algorithm is used in the customized music recommendation system to combine CNN output with logfiles to suggest music to the user. It is also possible to use low-dimensional projection and audio features to identify the music genre. This system can be used in various audio devices, apps and services.

KEYWORDS:

Information filtering system

Convolutionary Neural Network

Collaborative filtering

Low dimensional projection

INTRODUCTION:

The selection of customized music is a challenging task in the field of collecting music knowledge. A custom music recommendation algorithm recommends new music to a user that is close to the music previously heard by the user[1]. Users may enjoy favorite music without

checking all details about music, such as title, singer and genre. Prediction of favorite music uses information about music, history of use, and characteristics of the genre[2].

The development of recommender systems is the result of researchers working in various fields: data mining, machine learning, marketing, information technology, analytics, human computer interaction, adaptive user interfaces, decision support systems, consumer behaviour[3]. Recommender program is a device that uses the background of tastes of users to provide them with a list of items they want to choose[4].

Genre is one of the most useful types of music metadata. For music recommendations, genre information becomes even more useful when enhanced by information on genre-similarity, or even better, dimensions of genre preference[5,6].

Background in music recommendation systems could be information about the world, information about people or information about music. Collective filtering is the most effective field of recommendation technique. The notion behind collective filtering is that similar users in the future are likely to have the same opinion about an album. In fact, this statement is valid [7,8].

LITERATURE SURVEY:

A personalized music recommendation system based on CNN approach and collaborative algorithm has been presented by author Shun-Hao Chang. He believed that the structural and hierarchical characteristics presented in these music genres ' audio signals were the cause of the differences in music recommendations[1].

Jongseol Lee claimed the Music Recommendation program to be the customized music services based on the history of use and automated classification of genres. His proposed system of recommendations using automatic genre classification increases the overall satisfaction of the user with the recommended songs[2].

Author Elena Shakirova has reviewed collaborative filtering methods and evaluation metrics in this paper in order to estimate the effectiveness of recommendation systems. They have prepared a theoretical basis for collaborative filtering techniques for a music recommendation system[3].

Xuan Zhu proposed a music recommendation system in this paper that includes classification of the music genre, classification of music emotions, and query functions for music similarity. A new tempo feature extraction method (LMFC) is presented and effectively combined with conventional timbre features by the AdaBoost algorithm, significantly improving music classification accuracy. Another optimistic path is to figure out the music signature element components that can portray the characteristics of the entire song in a specific music category. Thus, for different music clusters, we can get a more compact and diverse music signature[4].

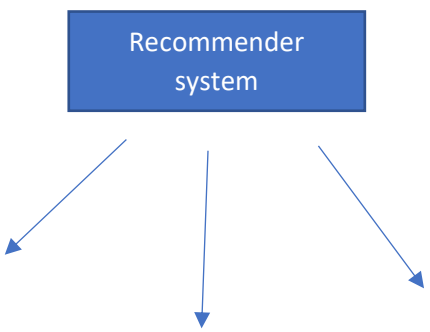
Writer Mohammad Soleymani thought a content-based approach that could position a song in the existing database and help users discover new songs is desirable. First they have created a system to identify the characteristics or influences from the music's acoustic material. They found that the combination of audio modulation features and sparse representation results in the best performance for detection of attributes They relied solely on the acoustic quality of the songs in this work. They think this is a benefit considering that there are often no tags or rich metadata associated with the new and less popular tracks. Such systems may increase the chance of serendipity or the discovery by users from the very long tail in music recommendation of interesting yet less known songs[5].

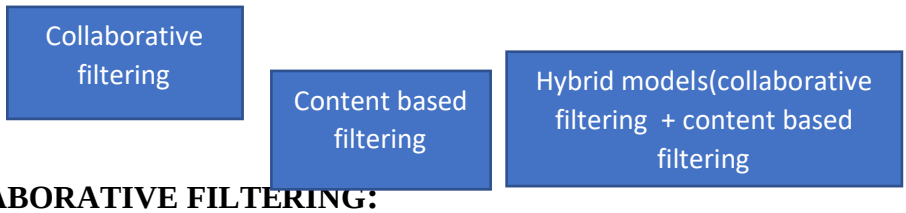
Known similarity matrices between CF users have been improved by author Vasileios Gavriilidis. Using random walks, they showed the advantages of success by adding implicit input from more users[6].

Author Anand Neil Arnold concluded by saying that once the model is educated enough to identify the marks, their hybrid RS approach will work. The accuracy remains a major downside, but by training the model it can be greatly increased. Operating on model research provides a higher predictive accuracy[7].

METHODOLODY:

Various methods can be used to obtain the correct system of music recommendations.





COLLABORATIVE FILTERING:

Collaborative filtering involves collecting information from many users and then making predictions based on some user- and item-specific similarity tests. This can be divided into models based on users and objects.

In the Item-based model, it is believed that songs that some users often listen to together appear to be similar and are more likely to be heard together by some other user in the future as well.

According to the user-based similarity model, users who have similar listening experiences, i.e. who have listened to the same songs in the past tend to have similar interests and are likely to listen to the same songs in the future.

CONTENT BASED MODEL:

Content-based filtering is another common approach when designing recommender systems. Content-based methods of filtering are based on an item description and a user preferences profile. Such approaches are best suited to situations where knowledge about an object (name, location, description, etc.) is known, but not about the user. Recommendations based on content view recommendations as a user-specific classification problem and use a classifier based on product features for the user's likes and dislikes.

HYBRID MODEL:

Many recommender systems are now using a hybrid approach that incorporates collaborative filtering, content-based filtering and other approaches. There is no reason why we could not hybridize many different techniques of the same kind.

Many studies that empirically compare the hybrid's output with pure collaborative and content-based methods have shown that hybrid methods can provide more reliable suggestions than pure approaches.

ALGORITHM:

Step 1: Get the input from sklearn.model selection

Step 2: Get the input from triplets file

Step 3: Get the input from songs metadata file

Step 4: Get the user id, song id, listen count

Step 5: Group similar songs by user id, song id, listen count

Step 6: Arrange the songs in ascending order by listen count

Step 7: Play the songs according to the interest and taste of the user

CONCLUSION:

In this paper, we have compared the techniques used in music recommendation system. It can be observed that content-based filtering outperforms collaborative consumer filtering. Objects are more similar and make more sense than differences between users.... Nevertheless, if a user never rated an object, it will not be in the recommendations list. It would be best to use a combination of different approaches.

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