1. **Introduction**

Many a times we listen to a particular song and wonder if there are more songs like it, songs with similar beats, lyrics, meaning or similar feel to it. Apparently, all the songs that are similar in these senses are classified into a genre. In a genre we will be able to find songs that have similar beats, meaning, base or at the very least same origin.

Humans are never the same twice, all of a sudden, a person may develop a craving for a particular genre and satisfying him with the songs he will be pleased to listen is beneficial to both the person in question and the source from which he listens the song from be it Spotify, Youtube music, Wynk music or any other similar platform.

In real life the music databases consist of millions of songs not classified into relevant genre. Grouping the songs in relevant genre also helps in proper ordering of the music in the database. To add to this problem a song may be a combination of two or more genre.

Automatic music genre classification is a topic still in research, Convolutional Neural Networks (CNN) provide with the most satisfying base results. The typical process of an automatic genre classification system consists of three steps: 1) features such as timbre, spectro-temporal and statistical features are extracted from original audio signal; 2) some techniques are applied to select the meaningful subset of the features [1] or aggregate features [2, 3] to improve the classification accuracy; 3) a classifier based on machine learning methods is trained over the selected features to automatically classify the input music into different genres. Pons et, al. [4] propose using wider and a greater number of filters and 2 parallel O-net and P-net CNNs in the first layer of the CNN for better feature extraction more suitable for music to extract features related to rhythm, tempo etc. Weibin Zhang et, al[5] proposed two ways to improve music genre classification with convolutional neural networks (CNN): 1) combining max- and average pooling to provide more statistical information to higher level neural networks; 2) using shortcut connections to skip one or more layers, a method inspired by residual learning method. Features extracted from the CNN can also be passed in to an RNN [6] which, due to its nature preserves temporal and local characteristics and is able to give more “attention” to the local features helpful in classification. D Ghosal et al. [7] have proposed a similar method where Conventional recurrent neural network approach was used. This approach uses RNN on top of CNN which is used as feature extractor. The output of this is passed onto a classifier, which classifies based on genre.

The approach made in this paper is to implement the use of CNN and RNN to form an CRNN network to classify the genre. The dataset used for the experimentation is GTZAN dataset that consists of 1000 different songs classified into 10 different categories.

The rest of the paper is organized as follows. Section 2 consists of related works and latest advancement, Specifications about the implementation is discussed in Section 3, followed by experimental setup and results. Finally, we draw a conclusion and discuss about future work.

**6.References**

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