**LITERATURE SURVEY**

**1) Musical Genre Classification of Audio Signals.**

**AUTHORS:**  Tzanetakis, George & Cook, Perry.

Musical genres are categorical labels created by humans to characterize pieces of music. A musical genre is characterized by the common characteristics shared by its members. These characteristics typically are related to the instrumentation, rhythmic structure, and harmonic content of the music. Genre hierarchies are commonly used to structure the large collections of music available on the Web. Currently musical genre annotation is performed manually. Automatic musical genre classification can assist or replace the human user in this process and would be a valuable addition to music information retrieval systems. In addition, automatic musical genre classification provides a framework for developing and evaluating features for any type of content-based analysis of musical signals. In this paper, the automatic classification of audio signals into an hierarchy of musical genres is explored. More specifically, three feature sets for representing timbral texture, rhythmic content and pitch content are proposed. The performance and relative importance of the proposed features is investigated by training statistical pattern recognition classifiers using real-world audio collections. Both whole file and real-time frame-based classification schemes are described. Using the proposed feature sets, classification of 61% for ten musical genres is achieved. This result is comparable to results reported for human musical genre classification.

**2) Automatic Music Genre Classification using Convolution Neural Network**

**AUTHORS:** S. Vishnupriya and K. Meenakshi

Music Genre classification is very important in today's world due to rapid growth in music tracks, both online and offline. In order to have better access to these we need to index them accordingly. Automatic music genre classification is important to obtain music from a large collection. Most of the current music genre classification techniques uses machine learning techniques. In this paper, we present a music dataset which includes ten different genres. A Deep Learning approach is used in order to train and classify the system. Here convolution neural network is used for training and classification. Feature Extraction is the most crucial task for audio analysis. Mel Frequency Cepstral Coefficient (MFCC) is used as a feature vector for sound sample. The proposed system classifies music into various genres by extracting the feature vector. Our results show that the accuracy level of our system is around 76% and it will greatly improve and facilitate automatic classification of music genres.

**3) Musical genre classification using support vector machines.**

**AUTHORS:** Xu, Changsheng & Maddage, Namunu & Shao, Xi & Cao, Fang &

Tian, Qi.

Automatic musical genre classification is very useful for music indexing and retrieval. In this paper, an efficient and effective automatic musical genre classification approach is presented. A set of features is extracted and used to characterize music content. A multi-layer classifier based on support vector machines is applied to musical genre classification. Support vector machines are used to obtain the optimal class boundaries between different genres of music by learning from training data. Experimental results of multi-layer support vector machines illustrate good performance in musical genre classification and are more advantageous than traditional Euclidean distance based method and other statistic learning methods.

**4) Music Genre Classification and Feature Comparison using ML**

**AUTHORS:** Zhengxin Qi, Mohamed Rahouti, Mohammed A. Jasim, and Nazli Siasi

An essential feature of the music is the genre, which can be considered a high-level description of an individual piece of music. In this sense, genre as a music feature is similar to typical descriptive features from the ML perspective. Although a genre can be understood as a principal component of a piece of music, the process of breaking it down to meaningful representation is a grand challenge. Identifying the genre with lower-level features is a key part of music genre recognition (MGR), which is an important field of research in music information retrieval (MIR). Understanding how to describe music genres in a quantitative way can be useful in analyzing the music for use in music recommender systems and the general understanding of music. This research aims to compare and analyze the feasibility, performance, and understandability of features used to describe music by predicting the genre using machine learning (ML) techniques. Using the mel-frequency cepstral coefficients (MFCC), a popular audio feature extraction method, key features from GTZAN, and human-understandable features from Spotify, this paper demonstrates a trade-off between classification accuracy, understandability, and interpretability of the features.

**5) Music Genre Classification for Indian Music Genres**

**AUTHORS:** Kumaraswamy, Balachandra & Shukla, Tushar & Swati, & Satyam,

Kumar.

Due to the enormous expansion in the accessibility of music data, music genre classification has taken on new significance in recent years. In order to have better access to them, we need to correctly index them. Automatic music genre classification is essential when working with a large collection of music. For the majority of contemporary music genre classification methodologies, researchers have favoured machine learning techniques. In this study, we employed two datasets with different genres. A Deep Learning approach is utilised to train and classify the system. A convolution neural network is used for training and classification. In speech analysis, the most crucial task is to perform speech analysis is feature extraction. The Mel Frequency Cepstral Coefficient (MFCC) is utilised as the main audio feature extraction technique. By extracting the feature vector, the suggested method classifies music into several genres. Our findings suggest that our system has an 80% accuracy level, which will substantially improve on further training and facilitate music genre classification.