CLASSIFICATION OF TAMIL SONGS BASED ON SINGERS

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Music information retrieval (MIR) is a popular study area in music indexing and music retrieval system. Singer identification (SID) and classification is a subset of MIR which can be used in many applications. People have become more addicted to music where they try to find the songs based on a genre or a particular singer. The songs added with the details of singers in their tags can be filtered easily and others cannot be recognized without listening. But, most of the songs were not added with the details. The core idea of this work is to classify the Tamil songs based on singers using some of the best acoustic features that helps to efficiently identify each singer uniquely. However, the classification cannot be done using a single acoustic feature. Therefore, a set of unique features or a combination of features can be used for classification. A dataset is created in-house for six popular Tamil singers that include the samples from three male and three female singers. Approximately 50 vocal samples each for 3 seconds from 10 songs per singer with a sampling rate of 44.1kHz has been collected. The selected features namely; MFCC (Mel Frequency Cepstral Coefficient), ZCR (Zero Crossing Rate), Chroma Frequencies, Spectral Roll-off Major, Spectral Centroid, and Spectral Bandwidth were extracted after applying a set of pre-processing steps. Then the supervised learning method is applied using the multilayer feed-forward Artificial Neural Network (ANN) with back-propagation algorithm using Python. The ANN architecture was created with an input layer, three hidden layers, and an output layer. 70% of the total data were used to train the model and the rest 30% were used to test the model. The model has given 93.33% of accuracy and it significantly contributes to the classification of Tamil songs based on singers compared to other existing works. This work can be further extended to be performed on a relatively larger dataset and also can be used in MIR and SID.

Keywords: S*inger, SID, Classification, Music, Tamil songs, ANN, MIR*