

AI & ML Capstone Project

09th October 2020

Topic: Music Genre Classification

Sound/Audio signals can be represented in the form of various parameters such as frequency, bandwidth, roll-off and so on. Using various python libraries, we can perform feature extraction for these audio signals. These features can then be processed and further used to perform classification.

In this project, we will use GTZAN dataset

<https://www.kaggle.com/andradaolteanu/gtzan-dataset-music-genre-classification> which consists of 10 genre with 100 songs each, all having a length of 30 seconds. Given this dataset, our task is to:

Take two songs from each of the genre and visualize them and also find their spectrogram.

- a) Create a dataset by extracting feature for each of the songs in GTZAN dataset. For our task, we will specifically use the following features: Mel-Frequency Cepstral Coefficients, Spectral Centroid, Zero Crossing Rate, Chroma Frequencies and Spectral Roll-off.
- b) Given total 1000 examples, perform K-Means-Clustering on the dataset to cross verify that the optimal number of clusters are 10 (one for each genre).
- c) Divide the dataset into two parts: 90% train and 10% test i.e. for each genre use 90% of the dataset as train and the remaining as test dataset.
- d) Perform classification using any of the four classification algorithms and compare the accuracy obtained. Study the architecture of the model used and describe the reason for the model with best accuracy.

