

1) What is the problem that you are attempting to solve?

I would like to categorize music/songs by genre (classical, pop, country, etc.) using the features of a sample sound file (.wav)

2) How is your solution valuable?

It could be used to create groups of songs similar to Pandora music stations that group songs by genre and other characteristics, used by music lovers to create personalized playlists.

3) What is your data source, and how will you access it?

The source for the training data would be:

<https://www.kaggle.com/andradaolteanu/gtzan-dataset-music-genre-classification>

This is a Kaggle dataset that contains 1000 sound files (.wav) that are converted into image files (.png) using spectral analysis, categorized by genre. It also has a data file that contains other characteristics of the sound files. I will find other sound files as a test set to attempt to determine what genre they belong to.

4) What techniques from the program do you anticipate using?

I will be using deep learning techniques such as neural networking (CNN), TensorFlow and Keras to analyze the image files created from the sound files. I will also use unsupervised learning techniques such as K-Means to categorize the data by genre. The librosa library will be used to convert the sound files to spectral image files

5) What is the biggest challenge that you anticipate facing?

I have found from reading several articles that categorizing music by genre is a difficult task. I will need to make my data modeling and analysis very precise to determine the differences in music features between each genre.