MUSIC GENRE CLASSIFIER

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Project description:

- ➔ Music understanding (extract the musically-meaningful information from audio waveforms), automatic music annotation (measuring song and artist similarity) An extraordinary range of information is hidden inside of music waveforms, ranging from perceptual to auditory which inevitably makes large-scale applications challenging.
- ➔ Our project focuses on large-scale data mining of music information with several datasets including Million Song Dataset Bertin-Mahieux et al., 2011), 1 which consists of 300GB of audio features and metadata.
- ➔ We propose a cross-modal retrieval framework to combine the music and textual data for the task of genre classification.

Approaches:

- ➔ We wish to employ pattern recognition algorithms to classify feature vectors, extracted from short-time recording segments into genres (e.g. Support Vector Machines (SVMs), Nearest-Neighbor (NN) classifiers etc.)
- ➔ If time permits, we will try to implement the approaches mentioned in the research papers listed below.

Data sets:

Publicly available datasets to be used in our project:

- GTZAN Audio:
  http://marsyasweb.appspot.com/download/data_sets/;

The dataset consists of 1000 audio tracks each 30 seconds long. It contains 10 genres, each represented by 100 tracks. The tracks are all 22050Hz Mono 16-bit audio files in .wav format.

- ISMIR2004 Audio:
  http://ismir2004.ismir.net/genre_contest/;
  This training and development set consist each of:
  - classical: 320 samples.
  - electronic: 115 samples
  - jazz_blues: 26 samples
  - metal_punk: 45 samples
  - rock_pop: 101 samples
  - world: 122 samples
- Million song dataset:
  http://labrosa.ee.columbia.edu/millionsong/
  We will use a subset of this dataset (10,000 tracks, 1.8GB) for training and testing purposes.

Research papers:

- ➔ http://www.ee.columbia.edu/~dliang/files/FINAL.pdf
- ➔ http://goo.gl/7weSmA