EVALUATING AUDIO DESCRIPTORS FOR TIMBRE ANALYSIS IN SINGER IDENTIFICATION PROCESS

HARSHADA W. NIKAM

GHRCEM, Department of Computer Engineering, UoP, Pune, Maharashtra, India

ABSTRACT

This paper describes a method for singer identification based solely on the vocal contents of audio signal. The proposed method is evaluated on timbral features of any audio sample and then classifies feature vector using K-means algorithm and GMM(Gaussian Mixture Model).This work is focused on various audio descriptors of the timbre to analyze which features of the sound can be most useful for singer identification process. Basic and Spectral Audio descriptors like Spectral Centroid(SC), Spectral Roll-Off, Zero Crossing Spectral Kurtosis, RMS Energy, Shannon Entropy, Brightness, MFCC, Fundamental Frequency(f0) are considered. To evaluate the performance of the Spectral Features, various experiments are performed using text independent cohort GMM and K-means Clustering Algorithm.

KEYWORDS: Music Information Retrieval (MIR), Timbre Analysis, Singer Identification, Audio Signal Processing Application, Audio Feature Vector Generation