

Modulation Spectral Analysis of Audio Features for Music Genre Classification

Chang-Hsing Lee, Jau-Ling Shih, 游坤明, Hwai-San Lin
Computer Science & Information Engineering
Computer Science and Informatics
yu@chu.edu.tw

Abstract

In this paper, we will propose an automatic music genre classification approach based on modulation spectral analysis of audio features. The audio features are Mel-frequency cepstral coefficients (MFCC) and octave-based spectral energy ratio (OSER). Modulation spectral analysis of every feature value will generate a corresponding modulation spectrum and all the modulation spectrums will be collected to form a modulation spectrogram. The modulation spectrogram can exhibit the time-varying or rhythmic information of music signals. The modulation spectral energy is then computed for each logarithmically-spaced modulation subband. Effective and compact features are generated from statistical values of the energies of all modulation subbands. Experiments conducted on the music database employed in the ISMIR2004 Audio Description Contest have shown that the proposed approach can achieve a classification accuracy of 83.13%, which is better than the 2nd rank of the contest.

Keyword :