

中文摘要

音樂可以表達作曲者的意念、情感，而同樣聆聽者也會對音樂產生情緒，因此自動音樂情緒分類在音樂資訊檢索、人機互動或是音樂治療上都有重要的幫助。本文使用了階層式的分類法針對古典音樂以及流行音樂的音樂內容進行特徵萃取以及辨識，並加入歌詞情緒來比較其和音樂內容的辨識率，我們採用最近鄰居決定法則 (K-nearest Neighbor Rule, 簡稱 KNNR)、高斯混合模型 (Gaussian Mixture Model, 簡稱 GMM) 和支向機 (Support Vector Machine, 簡稱 SVM) 三種不同的分類器進行分類，實驗結果顯示不同時代的作品含有不同的情緒特徵，在分類器部分又以 KNNR 效能最佳。

此外我們也採用模糊最近鄰居法則 (Fuzzy KNNR) 來改進傳統二分法所計算出來的答案，將我們的答案歸屬至 0~1 之間的值，使我們的系統更有彈性。雖然結合歌詞和音樂內容的情緒分類還有改進的空間，但已比單用音樂內容辨識的效果佳，所以仍可視為另一種可行的新方法。

英文摘要

Music can express the emotion of the composer, and influence the emotion of the listener. Emotion expressed in music can be considered as an important characteristic of a song. Automatic music emotion classification could have significant potential in music information retrieval. This paper proposes a hierarchical classification to extract emotional features of classical and pop music, and compares recognition rates through lyrical and music content analysis in three classification methods: K-Nearest Neighbor Rule (KNNR), Gaussian Mixture Model (GMM) and Support Vector Machine (SVM). Results show music from different era will have different emotional features, and KNNR has the highest recognition results .

We also use Fuzzy KNNR to compare with the crisp version. In Fuzzy KNNR Algorithm, we generalize our answer between zero and one to make our system more flexible. We also indicate that lyrics are important in the music emotion recognition of pop songs. Though there is still much work to be done in the classification through combining lyrics and music content, it presents a significant improvement over the use of music content alone, and can be considered as a new recognition method.