

ADAPTIVE MUSIC MOOD TAGGER

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ABSTRACT

We present an adaptive music tagging system, which allows users to tag their music collections by mood. In addition, the system tracks the user's tagging behavior and alters the mood classification to classify songs in the same way that the user would. This is done through retraining of SVMs. The result is a set of SVM classifiers that are unique to each individual.

1. INTRODUCTION AND MOTIVATION

In a world where the average user's music collection can number hundreds or thousands of songs, there is a need for new ways to categorize music and organize songs automatically. This has led to research on indexing and classifying music by mood or emotion. However, music can make different people feel different things. A song that makes one person happy may make another angry, depending on each person's personality and tastes. Therefore songs need to be able to be classified in a way that is unique to a given user.

2. SYSTEM DESCRIPTION

The adaptive music mood tagger interfaces directly with a user's music player, either iTunes or Winamp, in order to get information on the song currently playing. When the program starts up, the user is prompted to select the folder where his music is stored. The program then runs through all the songs in the folder and extracts low level audio feature information from each song, such as MFCC and spectral features. From there, the user can select tags for the song currently playing: Happy, Sad, Angry, Peaceful, or the user can type his own tags (see Figure 1).



Figure 1. The layout of the tagger's user interface

The system classifies songs using support vector machine (SVM) binary classifiers. Each emotion has its own binary classifier, with one more classifier for the user tag. Each emotion classifier is initially trained using a base dataset of previously classified songs. This allows the system to show initial predictions for each song. The user can then choose to either keep the tags the system initially predicts, remove them, or select different tags.

3. FUTURE WORK

The eventual goal of this work is to collect a ground truth of unique user classifiers. To this end, this program will soon be adapted to collect user classifiers and store them in an online database or repository, along with information on each user such as age, gender, personality, and musical tastes. Eventually, this background information will be used to personalize the tagger more quickly by grouping the user classifiers by this background information and starting with a more tailored classifier when the program initially starts.

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