

TAILORED TAGGER: A PERSONALIZED, ADAPTIVE MUSIC TAGGING SYSTEM

Amanda Mostafavi

University of North
Carolina at Charlotte
acohen24@uncc.edu

Cyril Laurier

Music Technology Group
Universitat Pompeu Fabra
cy-
ril.laurier@upf.edu

Perfecto Herrera

Music Technology Group
Universitat Pompeu Fabra
perfec-
to.herrera@upf.edu

Zbyszek Ras

University of
North Carolina
at Charlotte
ras@uncc.edu

ABSTRACT

We present an adaptive music tagging system, the Tailored Tagger, which allows users to tag their music collections by mood and tracks the user's tagging behavior. This allows the Tailored Tagger to alter the mood classification to classify songs in the same way that the user would, resulting in a personalized mood recommendation system. To accomplish this personalization, SVMs are retrained to correspond with the way the user tags. The result is a set of SVM classifiers that are unique to each individual.

1. INTRODUCTION AND MOTIVATION

Research on indexing and classifying music by mood or emotion is an expanding area of Music Information Retrieval. 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. The Tailored Tagger tracks the way the user tags songs and uses that knowledge to adapt its classification in a way that is personal to the user.

2. SYSTEM DESCRIPTION

The Tailored Tagger is implemented in Python. It interfaces directly with a user's music player, either iTunes or Winamp, in order to get information on the song currently playing. This allows the user to use the tagger as a natural extension of his music listening experience. When the program starts up, the user is prompted to select the folder where his music is stored. The Tailored Tagger then runs through all the songs in the folder and extracts low level audio feature information from each song, such as MFCC,

spectral, rhythmic, and tonal 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).

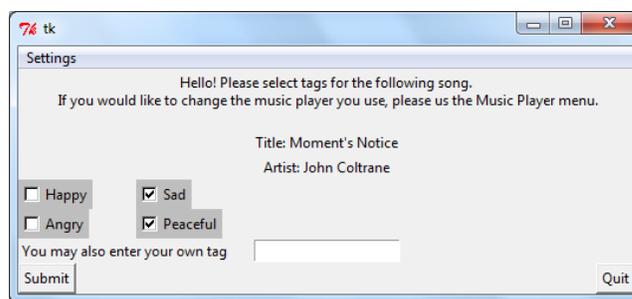


Figure 1. The layout of the tagger's user interface

The system classifies songs using support vector machine (SVM) binary classifiers, using the LibSVM implementation [1]. 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 dataset is made up of previously annotated songs from the CAL-500 dataset and Yang's HCM '07 dataset. This allows the system to show initial predictions for each song. The user can then choose to 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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5. REFERENCES

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