OMRAS2 Metadata Project 2009

M. Mauch, C. Cannam, M. Davies, S. Dixon, C. Harte, S. Kolozali, D. Tidhar
Queen Mary University of London, Centre for Digital Music

Shared data enable researchers to reliably compare their results with others. The Centre for Digital Music (C4DM) has a tradition of providing ground truth data for research, and our chord, onset and segmentation annotations [2, 1, 3] have been used by many researchers in the MIR community. This year, we have focused on extending these resources in scope and quantity.

1 Ground Truth Annotations

Ground truth in MIR refers to metadata in the form of annotations produced and/or checked by human beings. This ground truth, for example beat locations in a pop song, can then be used to evaluate a feature extraction algorithm, or for machine learning. We publish four different kinds of ground truth data on a range of popular music, manually annotated at the C4DM. In particular, in order to support recent research integrating the analysis of harmony (chord and key) and rhythmic structure (beat, bar and section), we have annotated these features for a collection of 179 Beatles songs. The annotations exist as plain text files and RDF files.

Beat and metric position. These files contain beat positions in physical time as well as the metric position in a bar of each beat ("1" is a bar boundary), and contains pieces by the Beatles (179 pieces) and Zweieck (18).

Chord. These files contain the annotations of chord onsets in physical time using Harte's chord syntax [2]. Contains pieces by Carole King (14), Queen (20), and Zweieck (18) as well as the previously released 180 Beatles transcriptions. An additional MIDI-like version of the chords in an XML allows playback of the chords along with the original audio in Sonic Visualiser[1].

Key. This metadata consists of the onset of musical keys in physical time. The collection contains annotations of pieces by the Beatles (179), Carole King (14), Queen (20) and Zweieck (18).

Segmentation. These text files describe the onset in physical time of song structure elements (such as chorus and verse), and contains pieces by the Beatles (179)[2], Michael Jackson (38), Carole King (14), Queen (51), and Zweieck (18).

The ground truth data are available at http://www.isophonics.net/datasets, where you can also find out how to obtain the original audio, and which existing literature we used to aid the creation of the ground truth.

[1] `http://www.sonicvisualiser.org`

[2] The Beatles annotations are similar, but not identical to those published by UPF.

2 Audio Features

SoundBite is a similarity-based playlist generation tool developed at C4DM. It is currently available as an iTunes plugin, and versions for other players are under development. Whenever SoundBite analyses an audio collection for establishing similarity relations, it extracts data consisting of 40 values per track, based on the distribution of Mel frequency cepstral coefficients (MFCCs). These are stored on the client side to facilitate similarity calculations, while also being reported to a central server alongside textual metadata. The accumulated data are periodically cleaned up and matched against MusicBrainz unique identifiers [4].

The resulting dataset is publicly available in RDF form through a SPARQL endpoint at http://dbtune.org/iso. The published dataset currently consists of MFCC distributions and MusicBrainz identifiers for 152,410 different tracks by 6,938 different artists. It is expected to grow further as the number of SoundBite users increases.

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References

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