MILLION SONG DATASET INTEGRATION INTO THE CLUBMIXER FRAMEWORK

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ABSTRACT

The introduction of the Million Song Dataset (MSD) [1] provides a wide range of new possibilities for researchers in the domain of Music Information Retrieval (MIR). To offer a comfortable framework to quickly start experimenting with the dataset we integrated the MSD into the Clubmixer Framework - a client-server based audio framework focused on rapid prototyping and experimenting [2]. The open-source framework especially contributes to the development of content-based querying and retrieval, collaborative filtering, music recommendation, playlist generation and music summarization.

Processing huge amounts of data such as the MSD is highly resource demanding. The distributed architecture of the Clubmixer Framework has the advantage that resource intensive calculations can be performed on more powerful server machines. Results can be presented on any other host using the Clubmixer Client user interface (see Figure 1) which corresponds to the look-and-feel of currently available audio software-players. The server can be run in interactive mode similar to a command shell. All relevant system components (e.g. media library, custom data entities, audio player, etc.) can be accessed through an API from a command line style programming interface. Thus, it is extremely easy to try out new ideas on a complete dataset. If the results are promising Clubmixer Client can be used for proper presentation or for conducting user evaluations. The Framework's communication layer is based on standard Web service technology and enables the implementation of custom client interfaces (e.g. Web based, tablet pc, mobile phones, etc.).

The standard functionality of the Clubmixer Framework [2] can be extended through plugins. The MSD plugin integrates the dataset by importing the provided metadata. Thus,

Figure 1: Clubmixer Client

it is possible browse, explore and listen to the MSD in an appealing user interface. Transparent access to data stored in HDF5 files as well as to audio samples via the 7Digital API is provided too. The MIR Plugin currently provides a basic content-based music retrieval toolset. The internal data representation is adapted to conform to the WEKA [1] data format which enables a full integration of the machine learning library. Classification tasks such as genre classification can be directly executed upon the internal media library. Example code is provided to demonstrate how to use MSD feature vectors for calculating music similarities.

1. DEMONSTRATION

The demonstration will provide interested participants the possibility to explore the framework and to try out the user as well as the command line interface. For this presentation a small table and Internet access will be required.

2. REFERENCES

[1] T. Bertin-Mahieux, D. P.W. Ellis, B. Whitman, and P. Lamere. The million song dataset. In *Proc. 12th Int. Conf. on Music Information Retrieval*, 2011.

[2] A. Schindler and A. Rauber. Clubmixer: A Presentation Platform for MIR Projects. In *Proc. 8th Int. Conf. on Adaptive Multimedia Retrieval*, LNCS, 2010.

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[1] http://www.cs.waikato.ac.nz/ml/weka/