Improving Personal Diaries Using Social Audio Features

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"I never travel without my diary. One should always have something sensational to read in the train." – these words of Oscar Wilde well reflect our affinity to reminisce about the personal past. Who does not like to remember "the good old times", or to browse through photo albums from past and recent times.

With the emergence of social media a growing amount of personal data that well documents a persons life is gathered. Future services could extract the most relevant moments in a user's history and automatically assemble a personal diary. In this context it is essential to relate different media items to each other. Often, available meta-data such as time or location of creation of an item is used for this purpose. In [1] we introduce a method that relates one specific sort of media items – music files – to each other by investigating their usage in a large community. The proposed *social audio features* are not restricted to relate music to music. Rather, they incorporate tagging information allowing music to be seen in a broader context, e.g. in relation to images, video sequences, or text documents. Moreover, music well expresses the emotional state of a user, which is directly reflected by the underlying tags. We believe that such emotional information is crucial to a diary.

In [1] we also introduce interfaces to access items under consideration of their relationships and tags. These interfaces are integrated into a comprehensive mobile music application (*museek*[1]). Personal diaries can profit in two ways from the work presented in [1]: (1) Techniques similar to those proposed could be used to derive more generic item spaces. More research is required to investigate this direction, which will not be further discussed here. (2) Diaries can directly profit from *museek* and the music similarity information, as will be discussed next.

Photos, videos, and conversations offer a lot of information required to build a automated diary. However, from this data, it is hard to extract the user's emotional state, which is of utmost importance in a diary. Music on the other hand

[1]http://www.museek.ethz.ch

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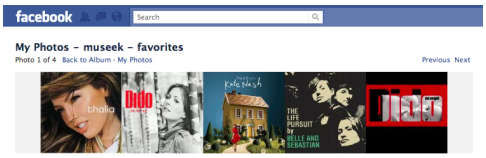

Figure 1: A album cover collage on facebook.

well expresses feelings and is thus a suitable data source to track a user's emotions. In fact, *museek* offers a smart shuffle play mode designed to select music fitting a user's mood, and a tag cloud to select music based on emotional criteria. As a result the user implicitly expresses his feelings.

Our music application records this data and makes it available to third party applications through the Android *intent* concept, by which applications can start *museek* with a specified date range or tag. As a proof-of-concept we have implemented a slide show application that displays a selected set of photos on the device and that automatically invokes *museek*, thereby requesting to play music matching the creation dates of the corresponding image files. The result in an intensified emotional connection to the pictures, as humans tend to bind feelings to music.

Furthermore, *museek* can create an online music diary by assembling the album covers of the most frequently played songs within a given month and automatically posting a collage of them to the user's Facebook profile (see Fig. 1).

Future versions of the software could also make use of the ability of *social audio features* to derive and articulate the user's mood based on the played music. They can, e.g. be used to relate time spans to each other in terms of the listened music. Additionally, they facilitate a compactly representation to save the music taste over a time frame (e.g. as a set of volumes). The relation of music to tags could be used to find music that fits a given diary entry based on tags extracted from images, texts, or videos in the diary entry, or to match events the user visited at a given day. The described properties and applications of *social audio features* underline their integral contribution in creating an automated personal diary that considers and includes the emotional state of a user based on the music listening behavior.

1. REFERENCES

[1] M. Kuhn, R. Wattenhofer, and S. Welten. Social Audio Features for Advanced Music Retrieval Interfaces. In *ACM MM*, 2010.