Listener-aware Music Search and Recommendation

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Abstract. Ubiquitous systems for music search, retrieval, and recommendation are recently receiving a considerable amount of attention, both in academia and industry. This is evidenced not least by the emergence of novel music streaming services and the respective availability of millions of music pieces, which have become easily accessible at the user's fingertips, anywhere and anytime.
In this keynote, I will report on two research directions we are currently pursuing in this context: (i) mining and analyzing social media data to improve music browsing and recommendation and (ii) exploiting sensor data for automatic music playlist modification on smart devices.
As for (i), I will elaborate on the extraction and annotation of music listening events from social media, in particular Twitter and Last.fm, on the analysis of the data with respect to artist and song popularity and "mainstreaminess" of a country or population, and on exploiting this data to adapt music recommendation algorithms to user characteristics.
For what concerns (ii), I will detail our insights into the extent to which we can predict the context-specific music taste (e.g., genre or artist) of the listener from a variety of sensor data. Furthermore, an analysis of the considered user-centric feature categories (location, time, weather, activity, etc.) and their usefulness for this prediction will be provided.
I will showcase our work using two prototype applications: *Music Tweet Map*[1] (MTM) and *Mobile Music Genius*[2] (MMG). The former is a visualization and exploration tool for music listening behavior extracted from microblogs. In addition to simple metadata-based search, it allows its users to browse music by time, location, similar artists (using a social similarity measure), artist and genre charts, and induced topics (by clustering according to tags). The latter is an intelligent mobile music player that learns in which situation or context a listener prefers which kind of music and adapts the playlist accordingly.

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[1] http://www.cp.jku.at/projects/MusicTweetMap
[2] http://www.cp.jku.at/projects/MMG