ESNED NEZIC, BA
University Communications
Spokesperson

Ph.: +43 732 2468-3010
Fax: +43 732 2468-9839
esned.nezic@jku.at

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Playlist of the Future Developed at the JKU

The Listener's Song Choices and Emotions are the Focal Point

The Institute for Computational Perception at the Johannes Kepler University (JKU) Linz is working on developing an intelligent music playlist capable of not only storing a listener's song choices and recognizing a particular taste in music, but one that can also detect the listener's emotional state and respond accordingly.

Youtube, Spotify, Deezer, and Last.fm have become an indispensable part of the global music community. Online streaming services are becoming increasingly popular as they create tailor-made user playlists, saving selected music according to the listener's personal tastes. At the moment, these services can mostly just play selected songs and videos or provide recommendations for similar types of songs. Markus Schedl (Institute for Computational Perception) and his team are working on the development of an intelligent playlist capable of not only seeking out favorite songs, but one that can also perceive where the listener is and responding accordingly.

Individual Playlist for All Tastes

This research project mines the most promising data sources. This includes gathering or diverting semantic information based on the virtual world of social networking, primarily from services such as Last.fm and microblogs such as Twitter. Project leader Markus Schedl remarked: *"One of our research areas is defining and measuring the similarity based on*

information provided on Twitter, etc. and computing social similarities. To date, conventional playlists work strongly with content based similarity. These can analyze audio signals and directly extract characteristic traits in order to calculate distance and reflect similarities in song choices. We go a step further and aim to incorporate the context more strongly." The perception of music is not only manifested through audio signals alone, there are a number of other deciding factors: Whereas one person may find that two songs with similar lyrics sound alike, another may notice similarities based more on rhythm or instruments. Dr. Schedl added: *"The content based approaches are at their limit and it is because each person perceives a song individually."*

Hashtags are Valuable Information Sources

To find out just what songs listeners deem similar, researchers are looking at microblogs such as Twitter, among other sources. The hashtags in particular are analyzed (such as #ladygaga or #nowplaying @madonna), reflecting a pattern of listener's song selections. Similarities can be calculated – and predicted – as to what songs are most popular in which parts of the world. Linking this information with user context (such as activities, the noise level at the location where the user currently is, weather, and the social environment) enables the creation of an adaptive playlist corresponding to the listener's present situation. *"The system should then be able to select songs best suited for that particular moment, thus providing optimal listening pleasure."*