

# Analyzing Coherent Characteristics in Music Playlists

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With the advent of music streaming platforms, the way users consume music has changed fundamentally [2]. Users stream music from large online music collections and listen to music using a variety of devices [4]. Platforms like Spotify<sup>1</sup> naturally also provide means for creating personal playlists, where users manually curate tracks to collections for, e.g, certain occasions, moods or activities. Recently, data for quantitatively studying listening and organizational habits of users regarding playlists on music streaming platforms have become available as those platforms provide public user playlists.

In this work, we set out to analyze characteristics that act as the glue for playlists—those features that are shared among the majority of tracks contained in a user-generated playlist. In other words, we aim to find characteristics that are similar within a specific playlist and which can be interpreted as key criteria defining it. Therefore, we utilize a multimodal approach for characterizing a track by analyzing the audio signal as well as the corresponding lyrics [1, 3]. For the former, we rely on high-level features like tempo, instrumentality or valence of a given track, whereas various lexical, linguistic, syntactic, semantic and structural features are considered to quantify lyrics.

For our analyses, we gather a novel representative dataset containing user-created playlists and extract the proposed features to represent individual tracks. In total, our dataset contains more than 200,000 tracks, 11,500 playlists created by nearly 1,000 users and a total of 176 features for each track. By modeling these analyses as a classification task on a per-playlist basis, we show that acoustic features act as the major glue between tracks contained in the same playlist. In other words, we find—and somehow underline the intuitive assumption—that users primarily compose their playlists by the way a music piece sounds rather than how lyrics are composed. Nevertheless, our experiments also show that features extracted from lyrics contain significant information to attribute tracks to playlists with good accuracy, without relying on audio content.

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<sup>1</sup><https://www.spotify.com>, accessed July 2017

Finally, we believe that these findings will advance playlist recommender systems and music classification approaches as we provide insights into the composition of user playlists on inherently social streaming platforms from a multimodal feature perspective.

## References

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