

Analyzing Coherent Characteristics in Music Playlists

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Abstract

In this work we analyze a set of user-created playlists by extracting lyrics and acoustic features to identify coherent features within playlists. We find that audio features act as the major glue within playlists and lyrics features are also a powerful means in such a scenario.

Goals

- Combine lyrics and audio features for track classification
- Analyze user-created playlists to detect features that are shared among all tracks of a playlist
- Identify key-features that can be useful for recommendation and retrieval of music

Data and Methods

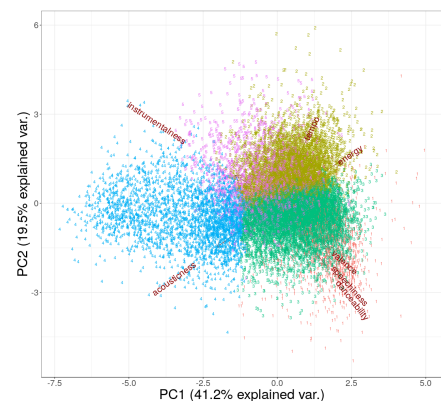
- Crawl of Spotify Streaming Platform
- Lyrics crawled from ten different lyrics platforms
- Cleaning and preprocessing
- 200,000 Tracks
- 11,500 User Playlists
- 176 Features for each track
- Binary Classification task for tracks

Findings

- Audio features are the main glue within playlists.
- Tracks can be attributed to playlists with an accuracy of 70% by using audio features.
- Slightly lower results can be obtained by combining all lyrics features.

Features

Type	#	Features
Acoustic (AU)	10	danceability, energy, speechiness, liveness, acousticness, valence, tempo, duration, loudness, instrumentality
Lexical (LX)	34	bag-of-words* (4), token count, unique token ratios (3), avg. token length, repeated token ratio, hapax dis-/tris-/legomenon, unique tokens/line, avg. tokens/line, line counts (5), words/lines/chars per min., punctuation and digit ratios (9), stop words ratio, stop words/line
Linguistic (LI)	39	uncommon words ratios (2), slang words ratio, lemma ratio, Rhyme Analyzer features (24), echoisms (3), repetitive structures (8)
Semantic (SE)	55	Regressive imagery (RI) conceptual thought features (7), RI emotion features (7), RI primordial thought features (29), SentiStrength scores (3), AFINN scores (4), Opinion Lexicon scores, VADER scores (4)
Syntactic (SY)	38	POS bag-of-words*, pronouns frequencies (7), POS frequencies (6), text chunks (23), past tense ratio



Kontakt

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