

Tastalyzer: Audiovisual Exploration of Urban and Rural Variations in Music Taste

Music Taste and Geography

Visualization of regional listening preferences allows to investigate:

- music taste differences between urban and rural areas in terms of genre distribution
- similarities and differences in people's music taste across countries or regions
- regional differences of music taste from the average taste of the whole country and from the average global taste

And how does it differ from the global taste?

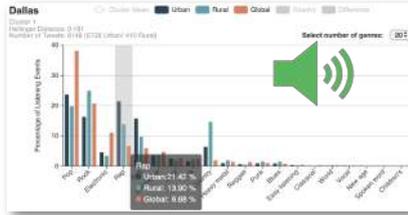
- the most representative songs listened to in a certain region

Audiovisual Exploration of Music Taste

Go explore with Tastalyzer!



select regions and visualize information on genre distribution



in-depth investigation of genre distribution, regional differences thereof, and representative examples

Methodology

Preprocessing and Data Agglomeration

- Tweets**
 - *Twitter API*, > 10 million music-related, geo-tagged tweets
 - filtering by multilingual hashtags, 01/2011 – 04/2019
- Urban**
 - *ne_10m_urban_areas* data set from Natural Earth [1] → urban tweets
 - population estimates: *LandScan* data set [2]
- Rural**
 - non-urban tweets → rural
 - regions defined by Voronoi tessellation
- Genres**
 - find genre of songs referenced in tweets by *AllMusic* [3]
 - agglomerate genre distribution for all urban and rural regions
- Clusters**
 - compare genre distribution by means of Hellinger distance
 - apply spectral clustering
- Songs**
 - the 10 most representative songs for each region, based on normalized playcounts

Use Cases

Music Taste: (a) Urban vs. Rural or (b) Region vs. Country

select on map, switch mode (a, b), spot differences in genres



Related Work

- visualization of artist location [4,5]
- sonification of listening environments and routes on a map [6]
- visualization artist and genre popularity [7]

Original Contributions

- within region: urban vs. rural comparison
- region vs. country comparison
- region vs. global comparison
- genre-based analysis of listening preferences
- sound clustering metric (modified Hellinger distance)
- graphical rendering of clusters by coloring representing cluster similarities
- most representative songs analysis (Spotify Play Button)

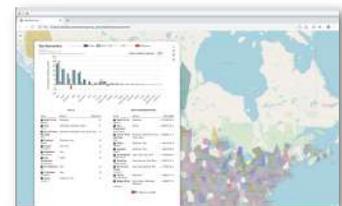
Cluster Regions Based on Urban/Rural Differences



select on map, display regions with similar differences
whole map can be colored such that color similarity implies similarity of difference pattern

Find Most Representative Songs (and listen to them)

select region in map and display
left: top-10 songs in region
right: most representative songs



[1] Natural Earth 2019. https://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne_10m_urban_areas_landscan.zip

[2] Oak Ridge National Laboratory 2019. ORNL's LandScan. <https://landscan.ornl.gov>

[3] AllMusic 2019. <https://www.allmusic.com>

[4] Sten Govaerts and Erik Duval. 2009. A Web-based Approach to Determine the Origin of an Artist. In Proceedings of the 10th International Society for Music Information Retrieval Conference (ISMIR '10), Keiji Hirata, George Tzanetakis, and Kazuyoshi Yoshii (Eds.), International Society for Music Information Retrieval, 261–266.

[5] Yves Raimond, Christopher Sutton, and Mark Sandler. 2008. Automatic Interlinking of Music Datasets on the Semantic Web. In Proceedings of the Linked Data on the Web Workshop (LDOW '08). CEUR Workshop Proceedings. <http://ceur-ws.org/Vol-369/>

[6] Sihwa Park, Seunghun Kim, Samuel Lee, and Woon Seung Yeo. 2010. Online Map Interface for Creative and Interactive MusicMaking. In Proceedings of the 2010 Conference on New Interfaces for Musical Expression (NIME '10). Sydney, Australia, 331–334.

[7] David Hauger and Markus Schedl. 2012. Exploring Geospatial Music Listening Patterns in Microblog Data. In Proceedings of the 10th International Workshop on Adaptive Multimedia Retrieval (AMR '12). Copenhagen, Denmark.