Artist Recommendations Based on Event Data

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Motivation

- Festival line-ups and shared bills provide relationships between diverse sets of artists
- Aggregating event data → different pool of artists than recommendations based on user listening behavior?
- Get experience using APIs, different Python libraries



5 MOAS THE GOOD, THE BAD AND THE QUEEN UK

FULL POEXXXALI - SIROTKIN - LUCIDVOX KOBIANA UTPYIOTNASIBLE WABIA - SOM ПРЕСТАРЕЛЬІХ АУТИСТОВ СОЗВЕЗДИЕ ОТРЕЗОК - SUPER COLLECTION ORCHESTRA - OBCЯНКИН SEVERNEE - ЭЛЕКТРОСОН - ABTOCTOPT - SEWAGE SOUR BRIGHT FALLS - AMUNI

6 ИЮЛЯ ІСЗРЕАК

HUN KOCMETUKU-ΠΑCOW-ΑЙΓΕΛ-ΥΑΚ^{UK}
HEALTH^{US}-ΔΑЙΤΕ TAHK (!) · ALGIERS^{US}- УΤΡΟ
MACΛΟ ЧΕΡΗΟΓΟ ΤΜИΗΑ-WARMDUSCHER^{UK}
4 ΠΟЗИЦИИ БРУНО-ТНЕ CANYON OBSERVER^{SI}
DAKOOKA-ΧΑΔΗ ΔΑΔΗ · ΔΕΡΕΒЯΗΗЫΕ ΚИТЫ
ИНТУРИСТ · PINKSHINYULTRABLAST
ΚΟΜ5Α БΑΚΧ-ΗΟЧΗΟЙ ΠΡΟCΠΕΚΤ-ΚΥΜΑΤΙС ENSEMBLE
ΕЖΕΜΕСЯЧНЫЕ · ΜΟΛΥΑΤ ΔΟΜΑ · ΗΟΗΚΟΗΦΟΡΜИСΤΚΑ
ΒΑD ΖU · LOW ΚΙCK COLLECTIVE · FOGH DEPOT · БΑΚΕЙ
ΔΟΡΟΓΟЙ СЕРЕЖА-РИТУАЛЬНЫЕ УСЛУГИ · ЛУНИ АНА · ЯБЛОНЯ · СОЮЗ
ВЛАЖНОСТЬ · РЫЦАРНЫЕРЫЦАРИ · ПОЖАР · ШТАΔТ · УНИВЕРСАМЧИК
SOLO OPERATOR · АРЧАНГА

7 MOAS DEATH GRIPS US

SOPHIE^{UK}· MOHETOYKA · SHORTPARIS FONTAINES D.C. IRL· CLOUD NOTHINGS^{US} BLACK MIDI^{UK}· KIKAGAKU MOYO^{JP}· BCHFME MNOGOZNAAL · MAKYNATYPA · KATE NV SUPER BESSE · GNOOMES · MYCOP

T3U·ROSEMARY LOVES A BLACKBERRY·VERBLUDES
ΠΟΡΕЗ HA COБAKE·MAЯK·USSSY·PLOHO·HECOΓΛΑСИЕ
TSYGUN·БЕНГАЛЬСКИЕ ПОДОНКИ·ОБРАЗ·IHNABTB·SUPRUGA·NOA
TROPICAL INTERFACE·CEBEP 2046·ЛЕНТОЧКА·БРОМ·МАRZAHN·ПРУД
RATMIR VANBUUREN TARUTS·ПОСЛЕДНЯЯ ВЕЧЕРИНКА

Example of diverse line-up at Bol' Festival 2019

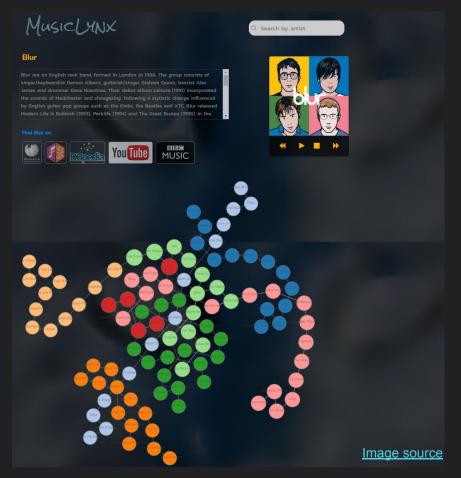
Background: Other Uses of Event Data

- "VenueRank: Identifying Venues that Contribute to Artist Popularity" (Krasanakis et al. 2018)
 - Event data from Facebook, artist information from Spotify
- "Mining and Forecasting Career Trajectories of Music Artists" (Arakelyan et al. 2018)
 - Event data from Songkick
 - Three tasks: forecasting artist success, predicting the venues at which an artist will perform,
 and joint discovery of influential artists and venues
- "Evaluating Recommender System Algorithms for Generating Local Music Playlists" (Akimchuk et al. 2019)
 - Event data from Ticketfly and Facebook

Background: MusicLynx

- Graph-based artist discovery system
- Artists linked by relationships mined from sources like MusicBrainz, DBpedia, AcousticBrainz, Last.fm, and Wikidata
- Color-coded graph for the user to explore—for example:
 - red = "Other Musical GroupsDisestablished in 2003"
 - pink = "Other English Alternative Rock Groups"
 - o orange = "Similar Artists by Timbre"

(Allik et al. 2018)



Graph of artists colored by relationship to Blur

Main Goal: Recommendation System

Deliverable

Interface where user inputs artist name, receives list of recommended artists

Basic approach

- Pull events for query artist
- Pull events occurring at venues of query artist's events
- Rank artists in resulting dataset by number of shared venues

Challenges

- Querying APIs is slow, but creating local copy of databases out-of-scope
- Combining data from multiple sources
 - Handling different metadata
 schemas
 - Matching same entities represented with different IDs
 - Using only existing API methods

Sources of Event Data

	MusicBrainz	Setlist.fm
Coverage and scope	Founded 2000 Initially collected CD information, Event entities added in 2015 As of 6 April 2020, 41,437 events ¹	Founded 2008 ² "wiki-like service to collect and share setlists" ³ As of 6 April 2020, 4,936,340 events ⁴
API	No key required Rate limits unclear—50 requests per second? ⁵	Need to register for key Default limit of 2 requests per second and 1440 max per day, with option to upgrade
Event representation	1 event object with multiple artists Few required fields (e.g., can add event without associated venue)	Separate event object per artist Stricter schema

¹https://musicbrainz.org/statistics

³https://www.setlist.fm/about ⁴https://www.setlist.fm/

Subgoals

Visualization

- Artist-venue graph?
- Map?
- Something like MusicLynx?

Data Analysis

- Explore difference in coverage, distribution of artists/venues/events by source
- For example:
 - Valhalla (200-capacity venue in New Zealand): 247 events in MusicBrainz vs. 148 events in Setlist.fm
 - Madison Square Garden: 127
 events in MusicBrainz vs. 4058
 events in Setlist.fm

References

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