# Live DJ Assist

*Using Spotify to Build a Recommendation System for DJ'ing Electronic Music*

by Paul Lindquist

# INTRODUCTION

My name is Paul Lindquist

I've DJ'ed electronic dance music for 13 years

I ran a 72,000-subscriber DJ podcast for 6 years

I've listened to electronic music for 25 years

# BUSINESS PROBLEM

For years, electronic music has been labeled by sub-genre

It's become antiquated

Minimal assistance for live DJ'ing

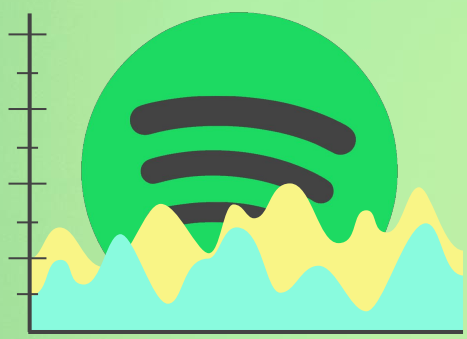
Artist playlists are predetermined and limited in scope

# OBJECTIVE

- Inspire the next song
- Use Spotify to build a recommendation system for DJ'ing electronic music
  - Live performance, tracklist preparation
- Offer recommendation options
  - Same sub-genre or across all sub-genres

*I served as stakeholder for this project*
*I represented the DJ community and avid electronic*
*music fans alike*

# WHY SPOTIFY?



**172 Million**

Subscribers

**381 Million**

Monthly active users

**70 Million**

Songs

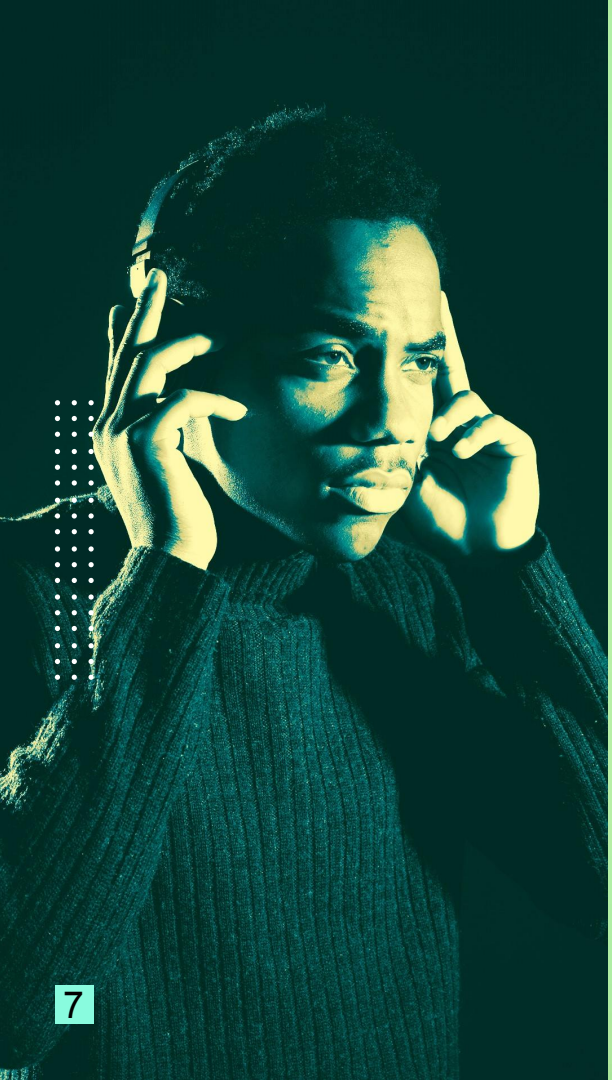
**3.2 Million**

Podcast titles

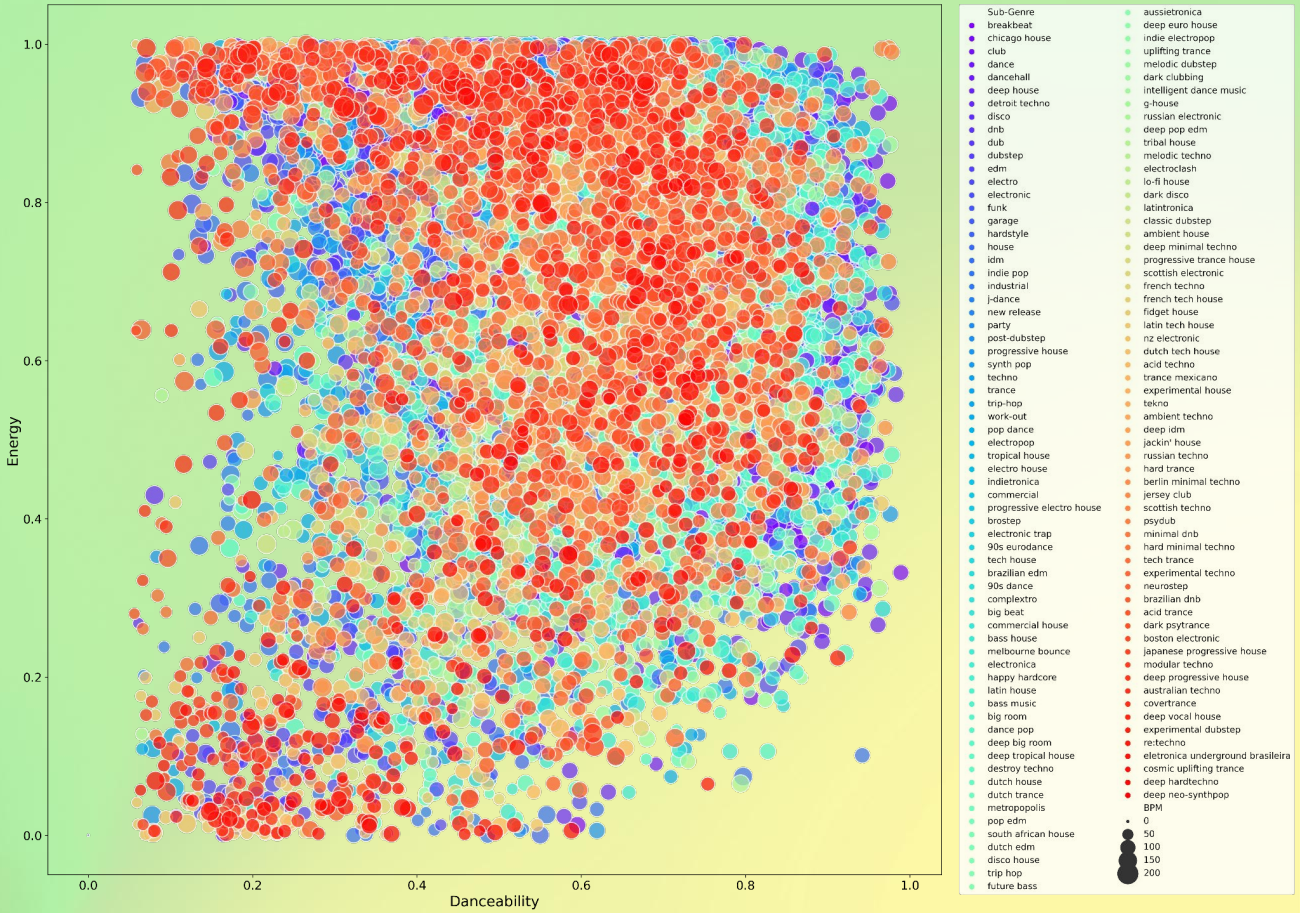
**184**

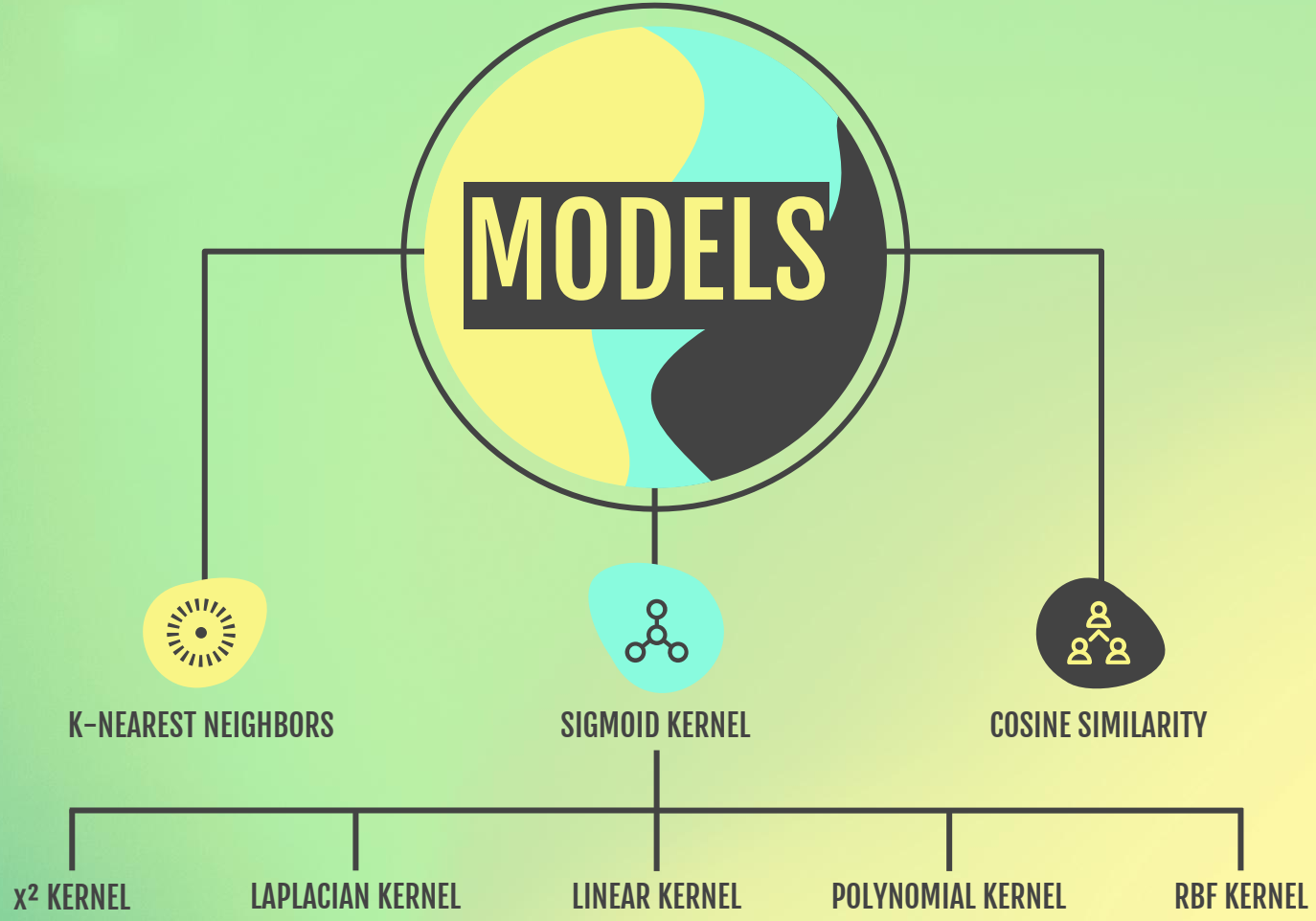
Countries and territories

# ALGORITHM-BASED AUDIO ANALYSIS



# THE DATA


Energy
Danceability
0.0
0.2
0.4
0.6
0.8
1.0
Sub-Genre
breakbeat
chicago house
club
dance
dancehall
deep house
detroit techno
disco
dnb
dub
dubstep
edm
electro
electronic
funk
garage
hardstyle
house
idm
indie pop
industrial
j-dance
new release
party
post-dubstep
progressive house
synth pop
techno
trance
trip-hop
work-out
pop dance
electropop
tropical house
electro house
indietronica
commercial
progressive electro house
brostep
electronic trap
90s eurodance
tech house
brazilian edm
90s dance
complextro
big beat
commercial house
bass house
melbourne bounce
electronica
happy hardcore
latin house
bass music
big room
dance pop
deep big room
deep tropical house
destroy techno
dutch house
dutch trance
metropopolis
pop edm
south african house
dutch edm
disco house
trip hop
future bass
aussietronica
deep euro house
indie electropop
uplifting trance
melodic dubstep
dark clubbing
intelligent dance music
g-house
russian electronic
deep pop edm
tribal house
melodic techno
electroclash
lo-fi house
dark disco
latintronica
classic dubstep
ambient house
deep minimal techno
progressive trance house
scottish electronic
french techno
french tech house
fidget house
latin tech house
nz electronic
dutch tech house
acid techno
trance mexicano
experimental house
tekno
ambient techno
deep idm
jackin' house
russian techno
hard trance
berlin minimal techno
jersey club
scottish techno
psydub
minimal dnb
hard minimal techno
tech trance
experimental techno
neurostep
brazilian dnb
acid trance
dark psytrance
boston electronic
japanese progressive house
modular techno
deep progressive house
australian techno
covertrance
deep vocal house
experimental dubstep
re:techno
eletronica underground brasileira
cosmic uplifting trance
deep hardtechno
deep neo-synthpop
BPM
0
50
100
150
200


MODELS
K-NEAREST NEIGHBORS
SIGMOID KERNEL
COSINE SIMILARITY
x² KERNEL
LAPLACIAN KERNEL
LINEAR KERNEL
POLYNOMIAL KERNEL
RBF KERNEL

# THE RESULTS


- Recommendations are within same sub-genre
- Recommendation #1 is so similar DJs have made mashups
- Reference song released in 2011
  The recommendations in 2012, 2008 & 2011
- Recommended song #3 from same artist in same year

# NEXT STEPS

- Increase data through Spotify API calls
- Build new dataset using electronic music stores (Beatport, Traxsource, Juno Download, etc.)
- Develop mobile app


| | Artists | Song_Title | Sub-Genre | BPM |
|---|---|---|---|---|
| 1 | alan fitzpatrick, patrice rushen | havent you heard fitzys half charged mix | house | 130.007 |
| 2 | albin myers | jump | house | 128.010 |
| 3 | avicii vs lenny kravitz | superlove avicii vs lenny kravitz radio edit | house | 127.999 |
| 4 | basto | i rave you original mix | house | 130.012 |
| 5 | basto | cloud breaker feat yves v basto radio edit | house | 127.974 |
| 6 | camelphat, eldarbrook | cola | house | 122.007 |
| 7 | chuckie | what happens in vegas feat gregor salto club mix | house | 130.004 |
| 8 | dave armstrong, redroche, hboogie | love has gone tonzewilli remix | house | 127.998 |
| 9 | david guetta | turn me on david guetta and laidback luke remix | house | 128.031 |
| 10 | dirty south | let it go feat rudy axwell remix | house | 127.000 |
| 11 | earth n days | just be good to me radio edit | house | 124.013 |
| 12 | gorgon city, drama | youve done enough | house | 125.057 |
| 13 | hard rock sofa | rasputin | house | 128.024 |
| 14 | hardwell | trigger | house | 128.016 |
| 15 | ripetto | no more serious faces | house | 127.991 |
| 16 | kc lights, leo stannard | cold light | house | 125.018 |
| 17 | michael woods | platinum chains | house | 127.010 |
| 18 | nicky romero | solar original mix | house | 128.006 |
| 19 | oliver heldens | gecko | house | 125.039 |
| 20 | rebecca fiona | bullets nause adrian lux remix club | house | 127.999 |
| 21 | sam gray | brighter day | house | 169.414 |
| 22 | sander van doorn | koko | house | 127.988 |
| 23 | sander van doorn | koko original mix | house | 127.990 |
| 24 | sultan shepard | call my name spencer hill radio edit feat nad... | house | 124.910 |
| 25 | thomas gold | sing2me | house | 127.984 |
| 26 | tiesto | what can we do a deeper love third party remix | house | 128.013 |
| 27 | tiesto | chasing summers miami original mix | house | 127.983 |
| 28 | tjr | whats up suckaz | house | 128.004 |

# Thank you!

Any questions?

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