

Network Tour of Data Science

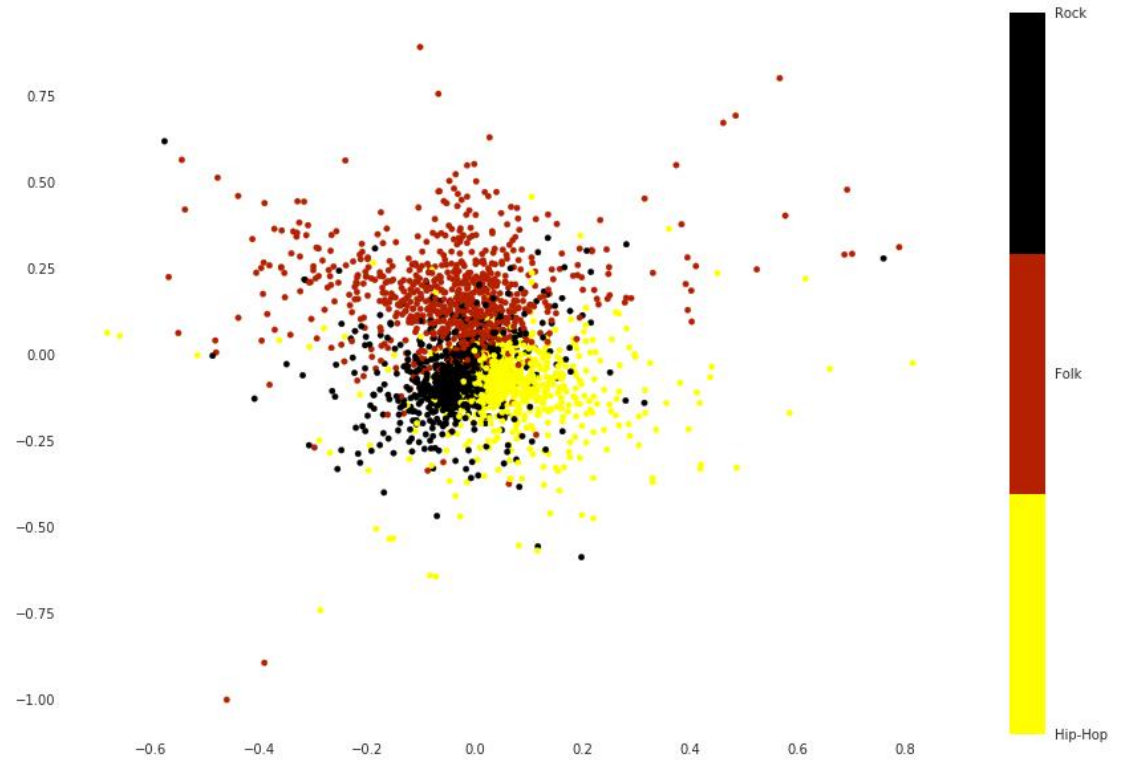
FREE MUSIC ALTERNATIVE PLAYLISTS

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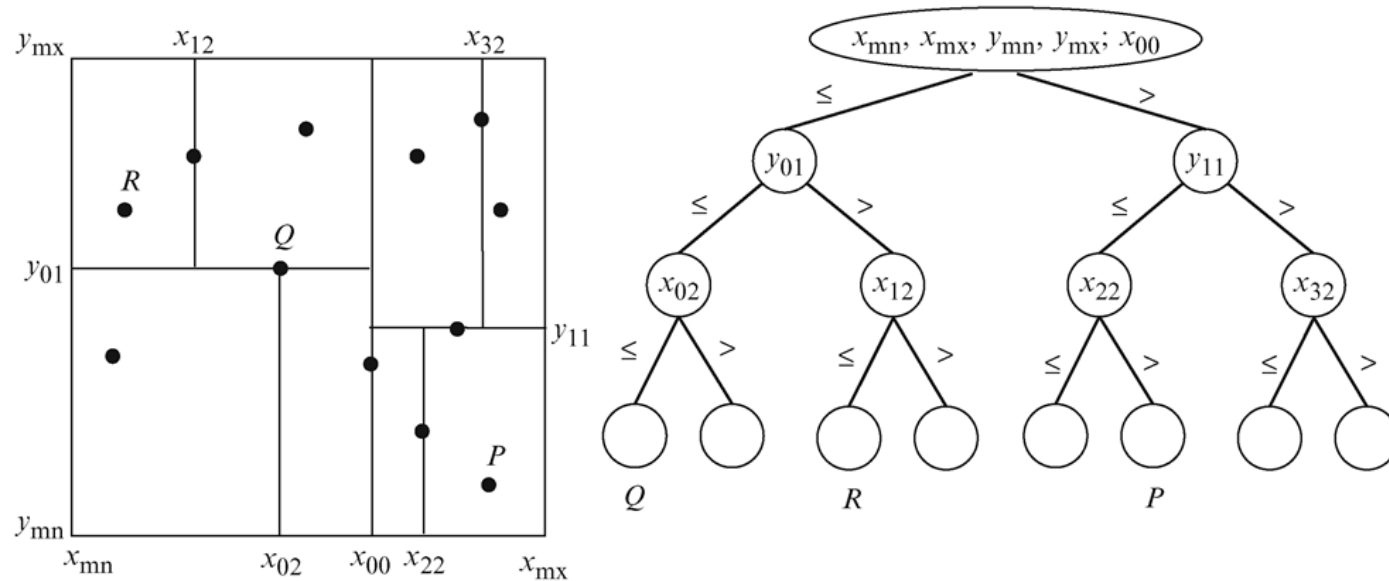
Graph Creation

- Distance calculation
 - Normalization
 - Type of distance : Euclidean
- Spring layout
 - 2 dimensions
- 3 genres kept
 - Rock, Hip-Hop, Folk



Including our Songs

- Recomputation
- Placement using a K-D tree



Playlist Generation Methods

- 518D space
- 2D graph space
- Heat diffusion

518D Features Distances

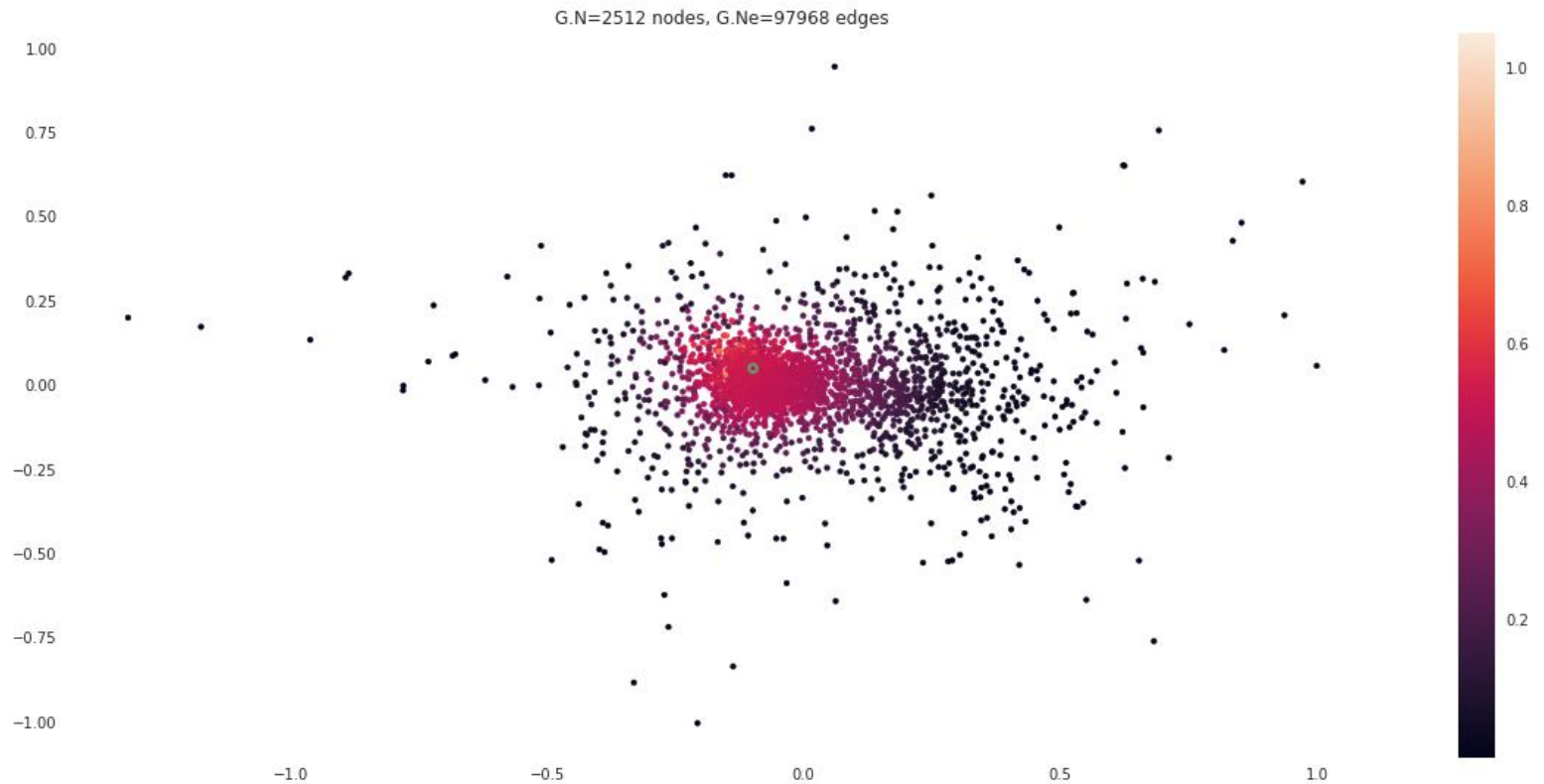
- Same distances used to calculate the adjacency matrix
- Closest nodes from each given songs
- Expectation : similar features => rhythm, height of voice, tonality... adventurous in regards to genres

2D Spring Layout Graph

- Euclidean distance between points in the 2D graph
- Again, closest nodes from each given songs
- Expectation : very targeted towards a specific kind of song and genre

Heat Diffusion

- Diffusion from each starting node
- Averaging between all contributions
- “Hottest” nodes
- Expectation : fusion between every given songs properties



Conclusion and Demo

- Good separation of genres in 2D
- Close performance of different generation methods
- Music is a subjective experience, make yourself an opinion !

Input musics



Pharaos -The Pharaos Theme



Comfort Fit - Sorry

Output musics : 518D



Pharaos - Mission Bucharest



The Impossebulls - Volume Original
Demo Instrumental

Output musics : Heat



MC Cullah - A Dangerous Game



Wann - Happy Birthday