

Adam Zucker

The Sound of Science

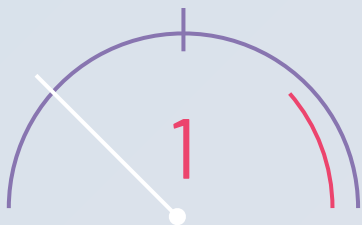
THE PROBLEM

The way humans perceive music is fundamentally emotional, but there's a place for science too!

With digital signal processing libraries like Librosa, we'll extract salient audio features from unheard music and compare it to popular music in order to connect new artists with new fans!

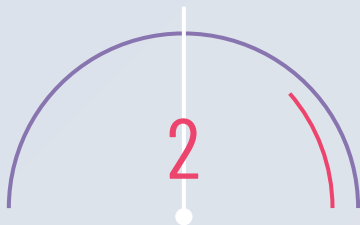


CONTENTS



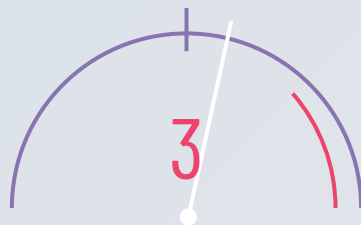
Data & Background

Spotify
Librosa
Me!



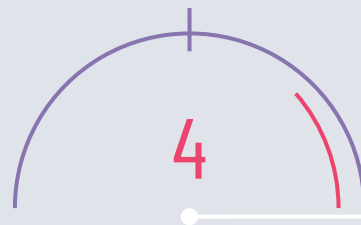
Features & Engineering

The good, the
bad, and the ugly



The Product

What music does
yours resemble?



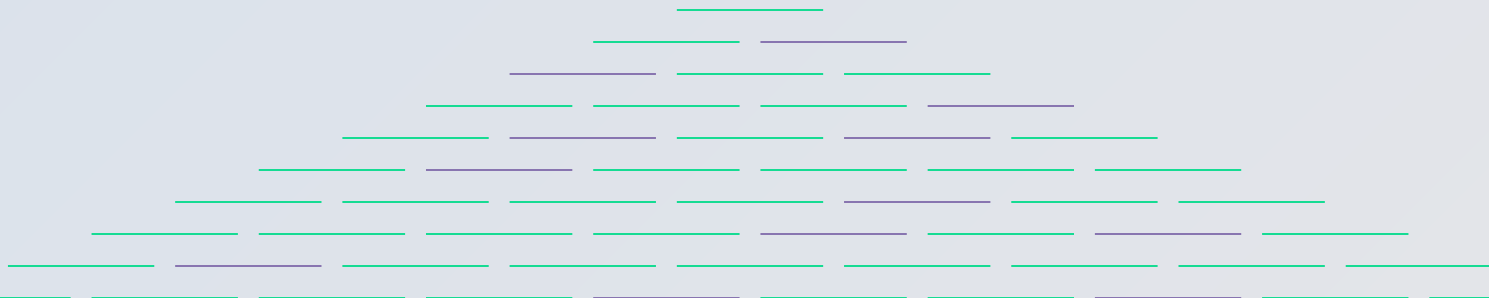
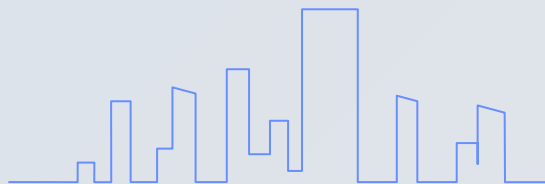
The Future

Oh the places
we'll go!

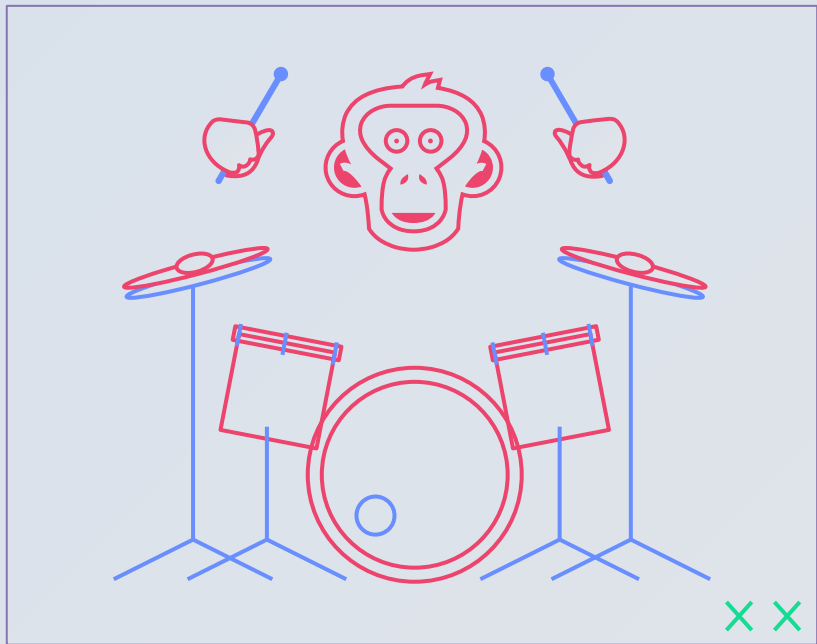
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Data & Background

Where do we start?

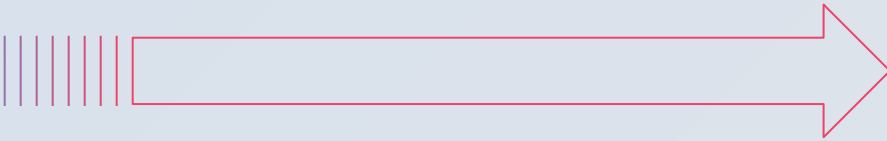


BACKGROUND

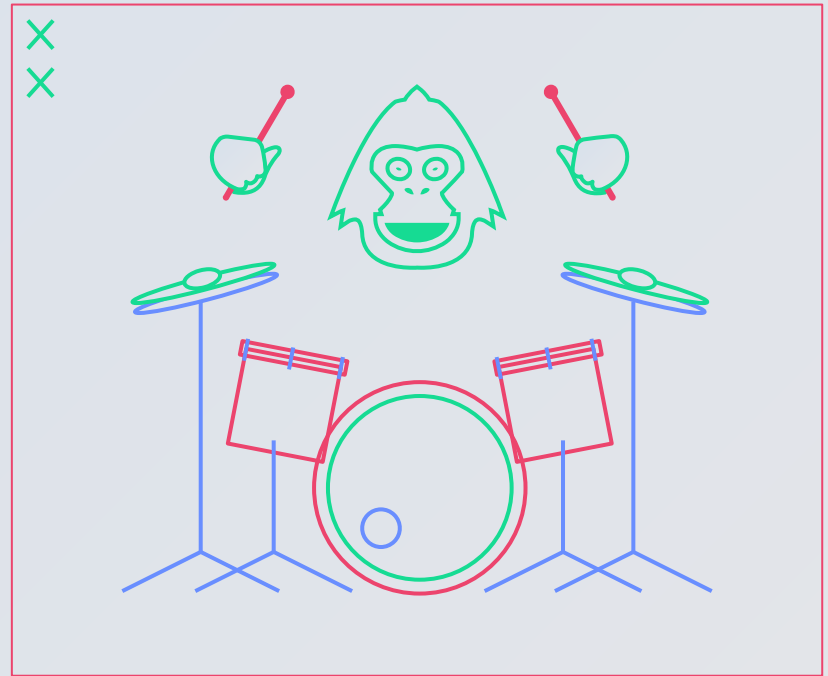


With over 15 years of experience in the music industry, first as a musician and performer, and later as a sound designer, audio engineer, and producer, I believe I'm in a unique position to address this problem.

DATA



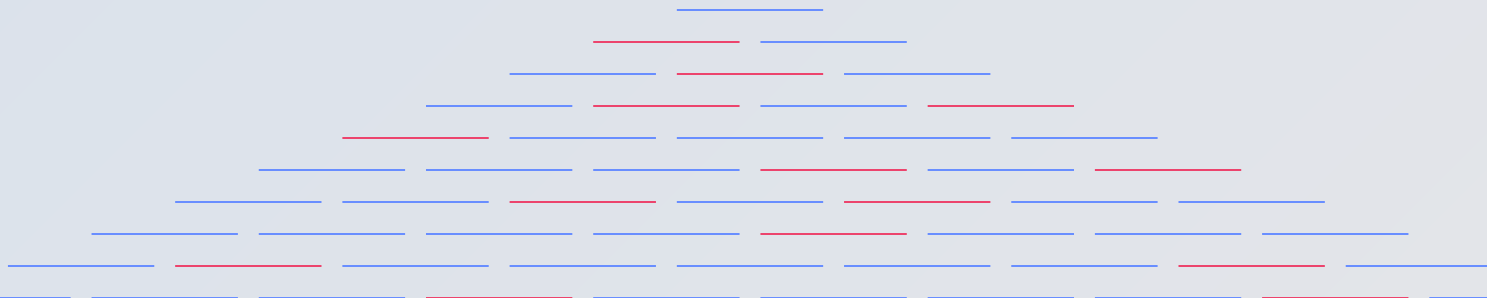
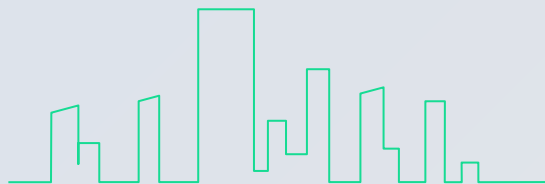
- Spotify
- Librosa
- A few good tunes
- A few good friends

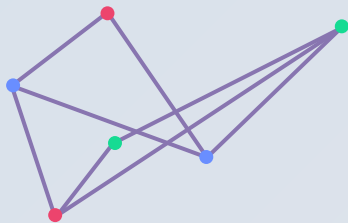


Features & Engineering

Let's take a look!

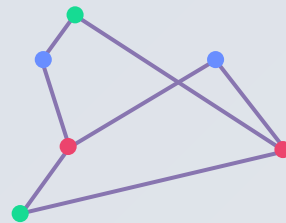
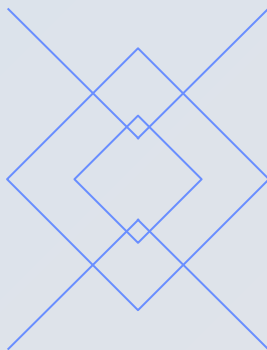
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SPOTIFY

A mixed bag

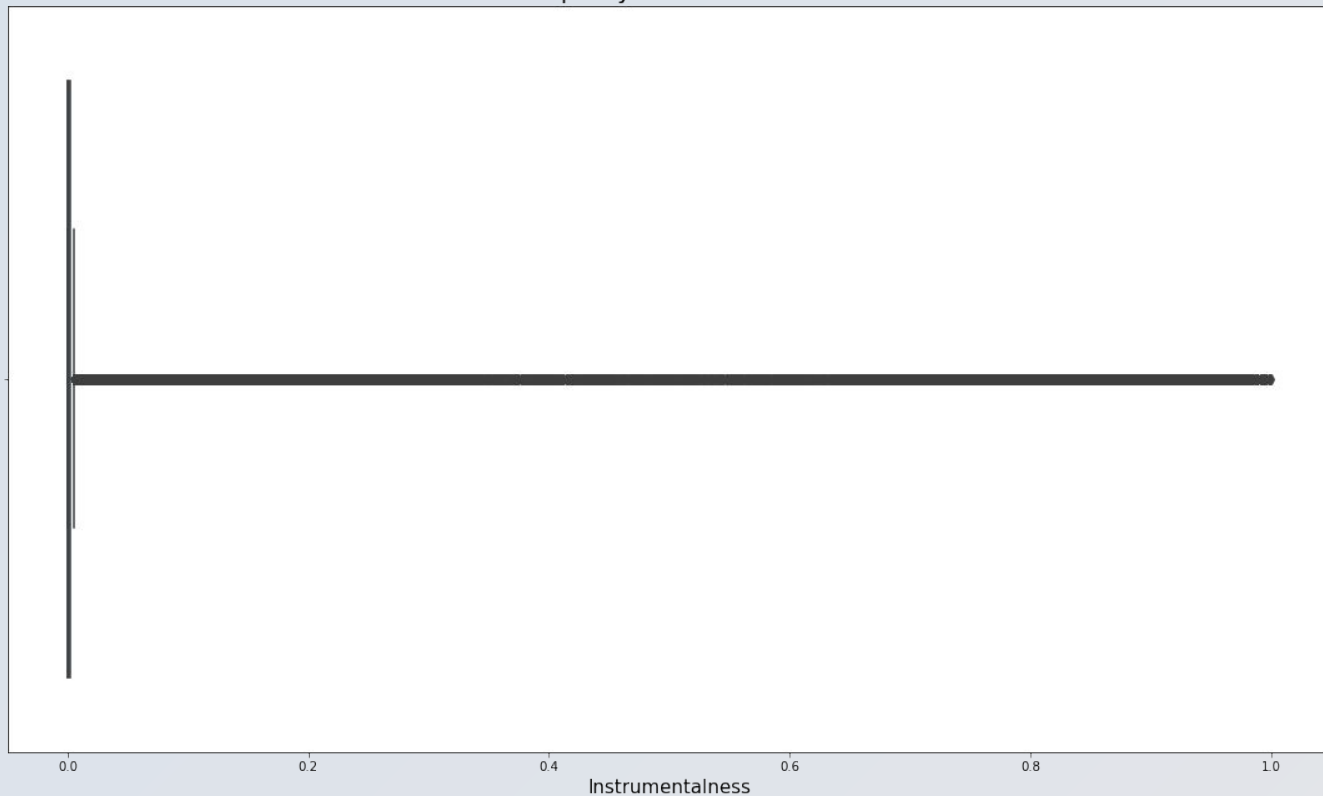


LIBROSA

Granular, scientific

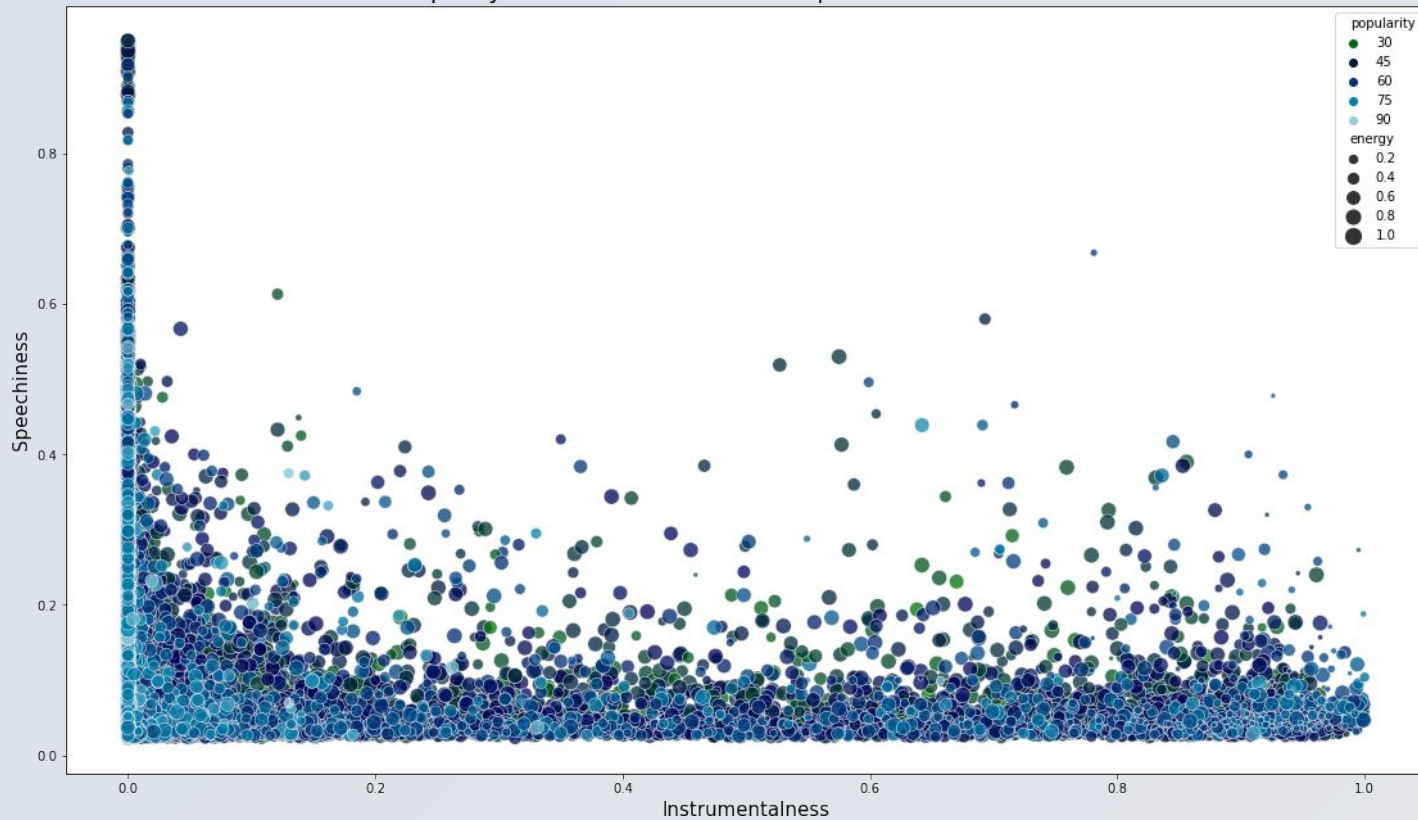
SPOTIFY FEATURES

Distribution of Spotify's Instrumentalness Feature



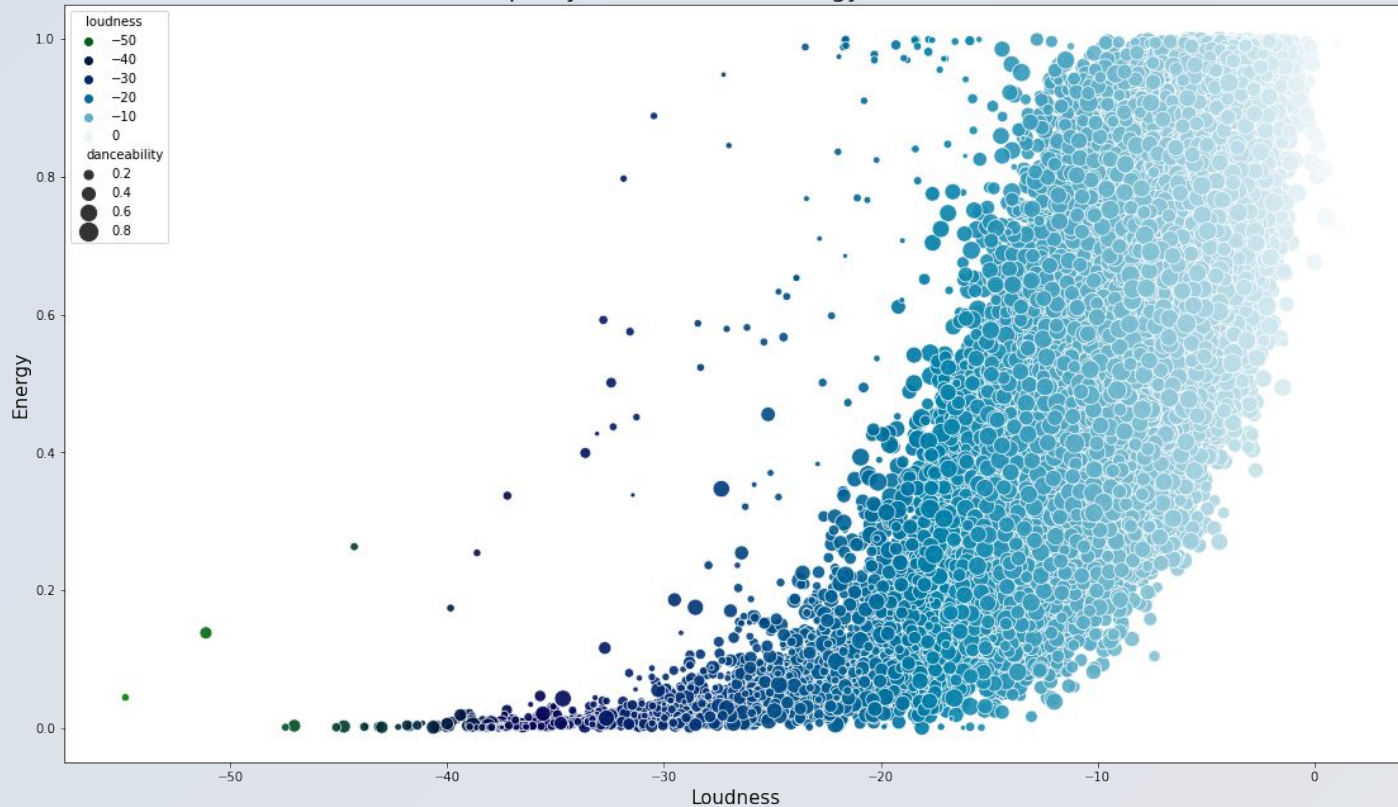
SPOTIFY FEATURES

Spotify's Instrumentalness vs Speechiness Features



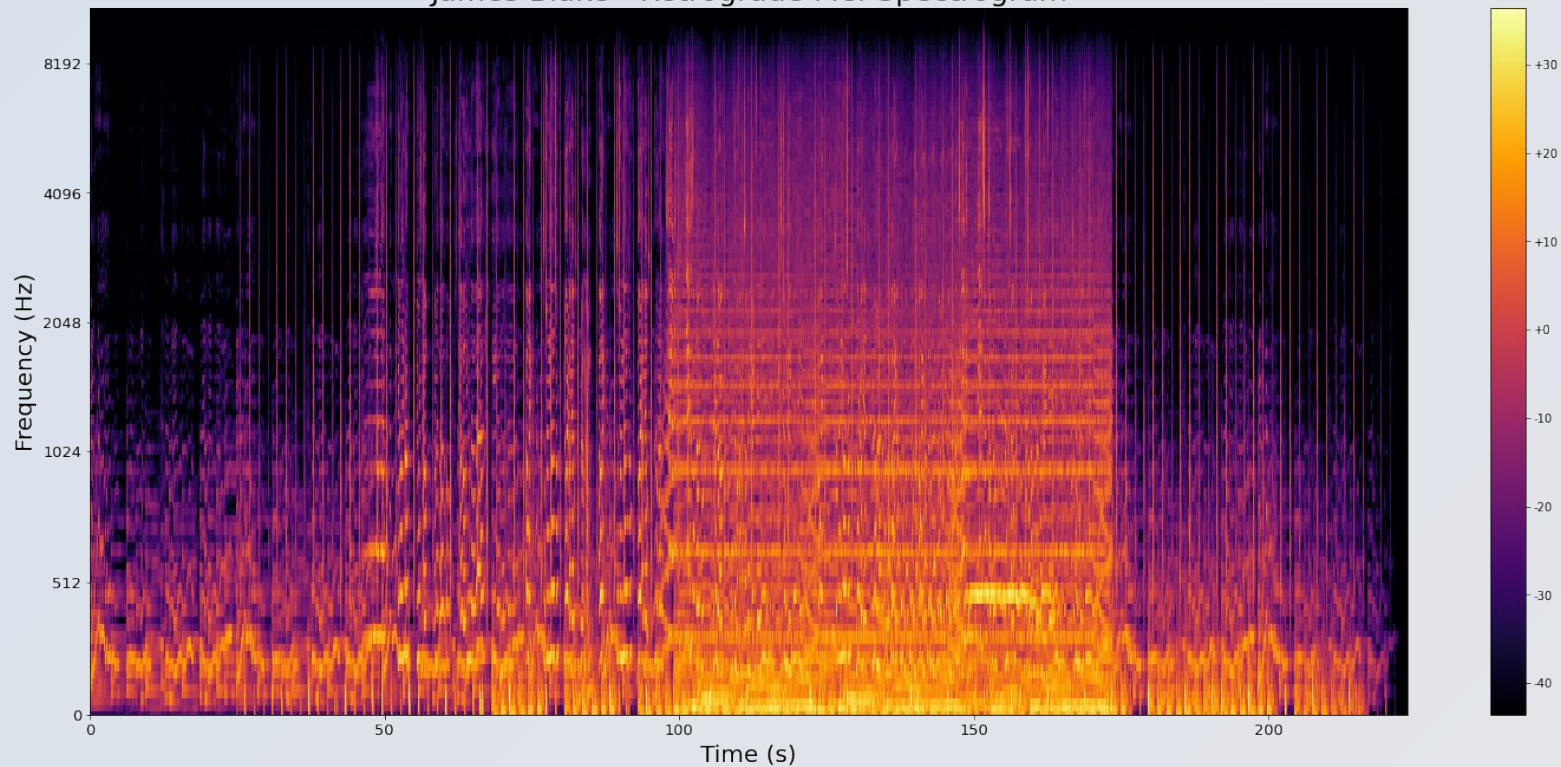
SPOTIFY FEATURES

Spotify's Loudness vs Energy Features



SPECTROGRAMS

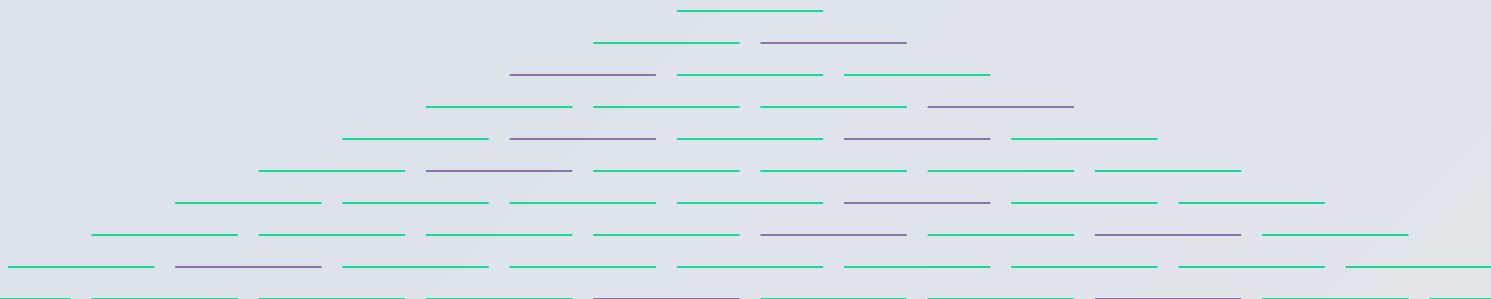
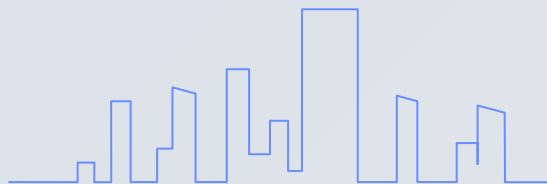
James Blake - Retrograde Mel-Spectrogram



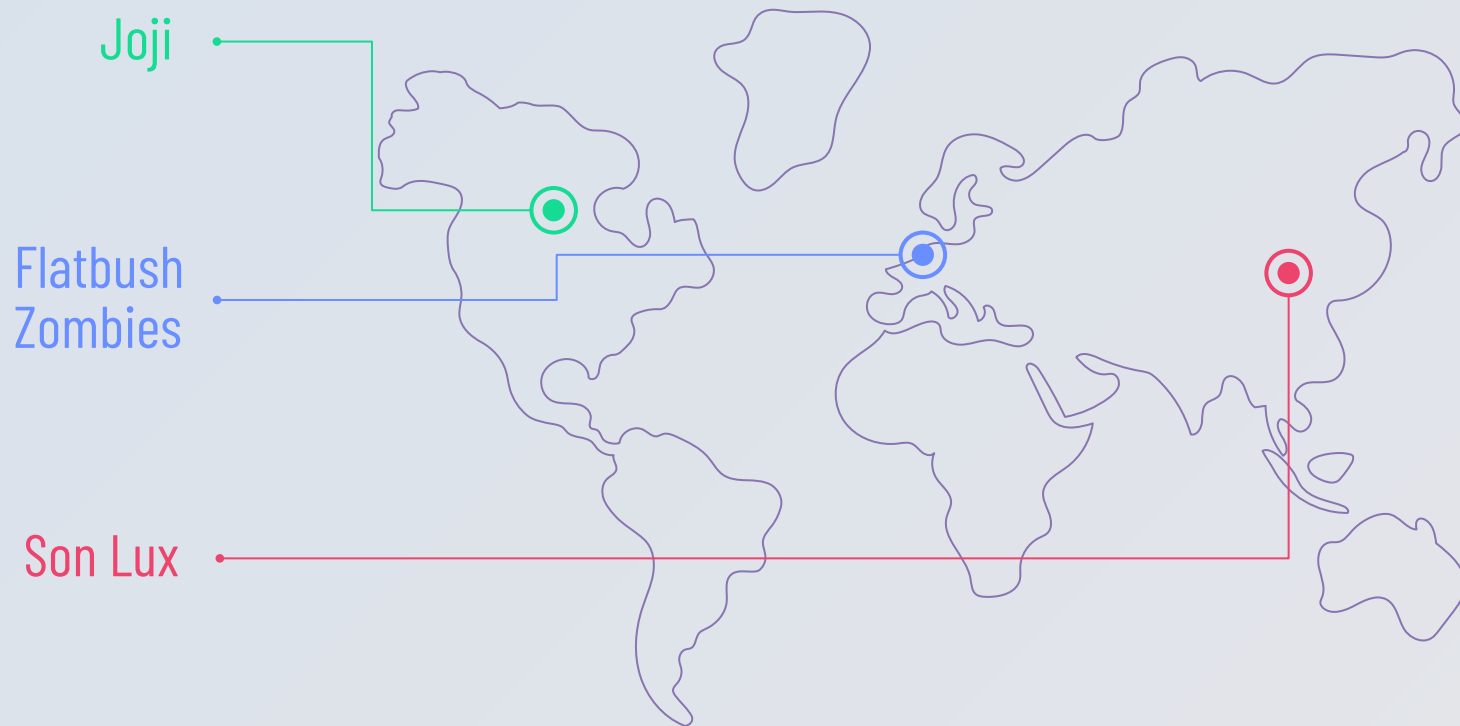
3

The Product

A recommender system
for the working musician



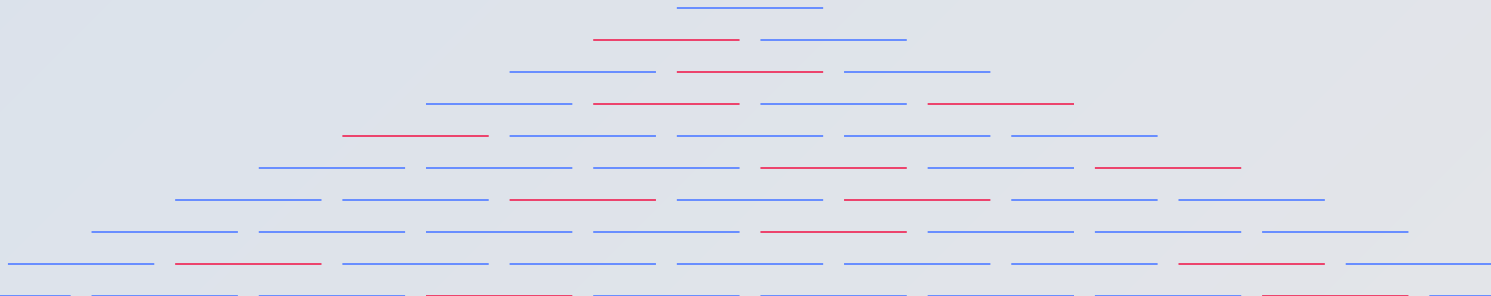
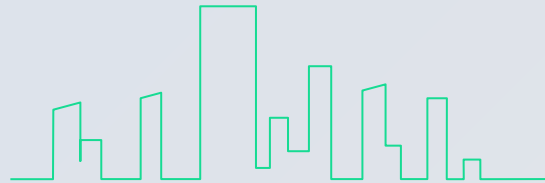
WHERE YOU FIT



The Future

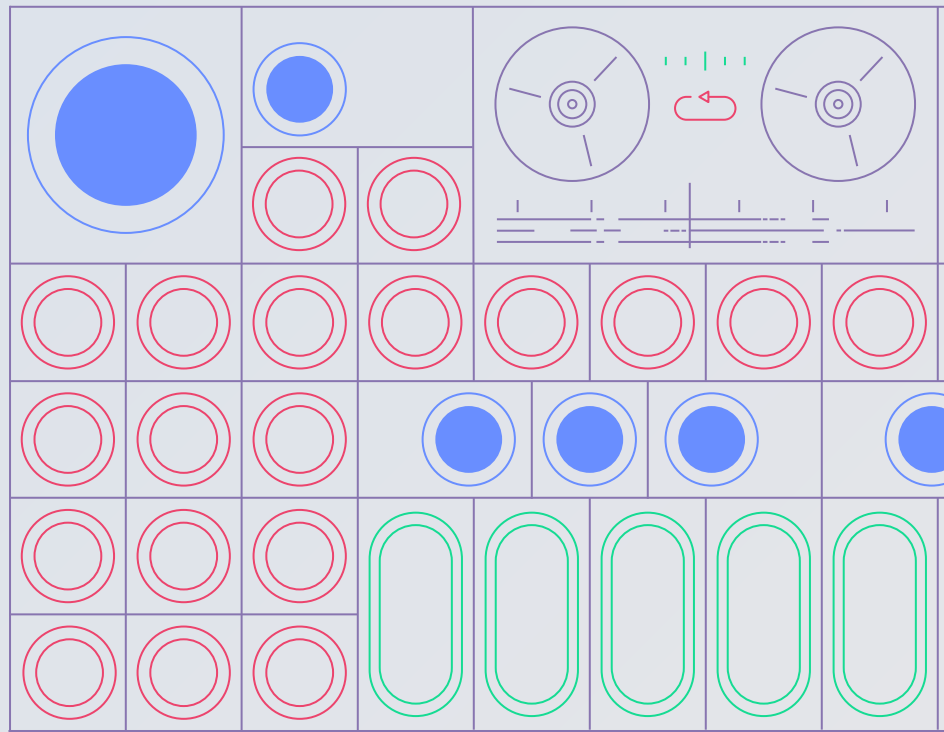
Where are you going?

4



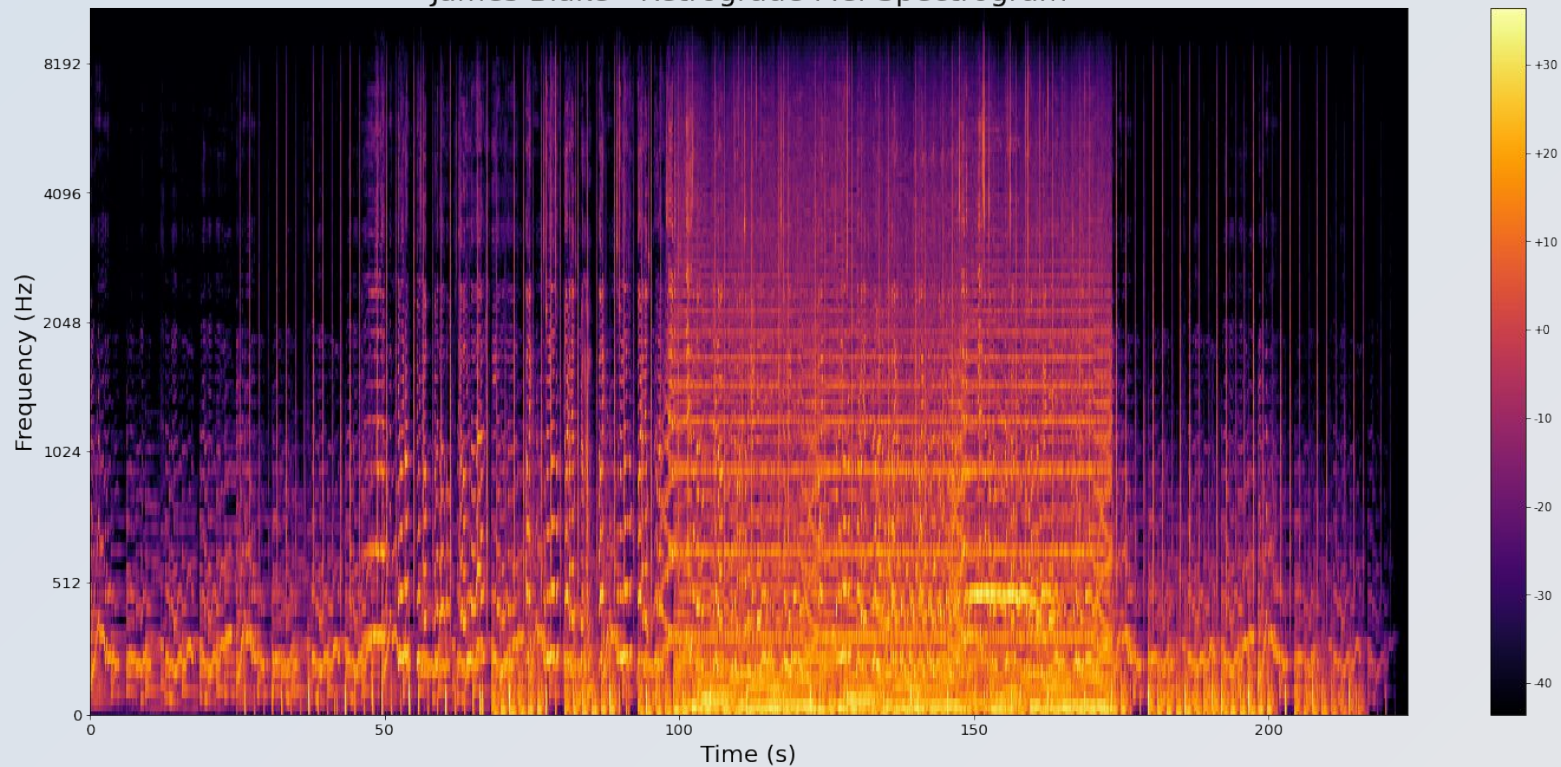
WHAT'S NEXT?

- Reliable metrics
- Building my own dataframe
- A robust recommender
- Global listening trends and demographic data
- A user-facing app

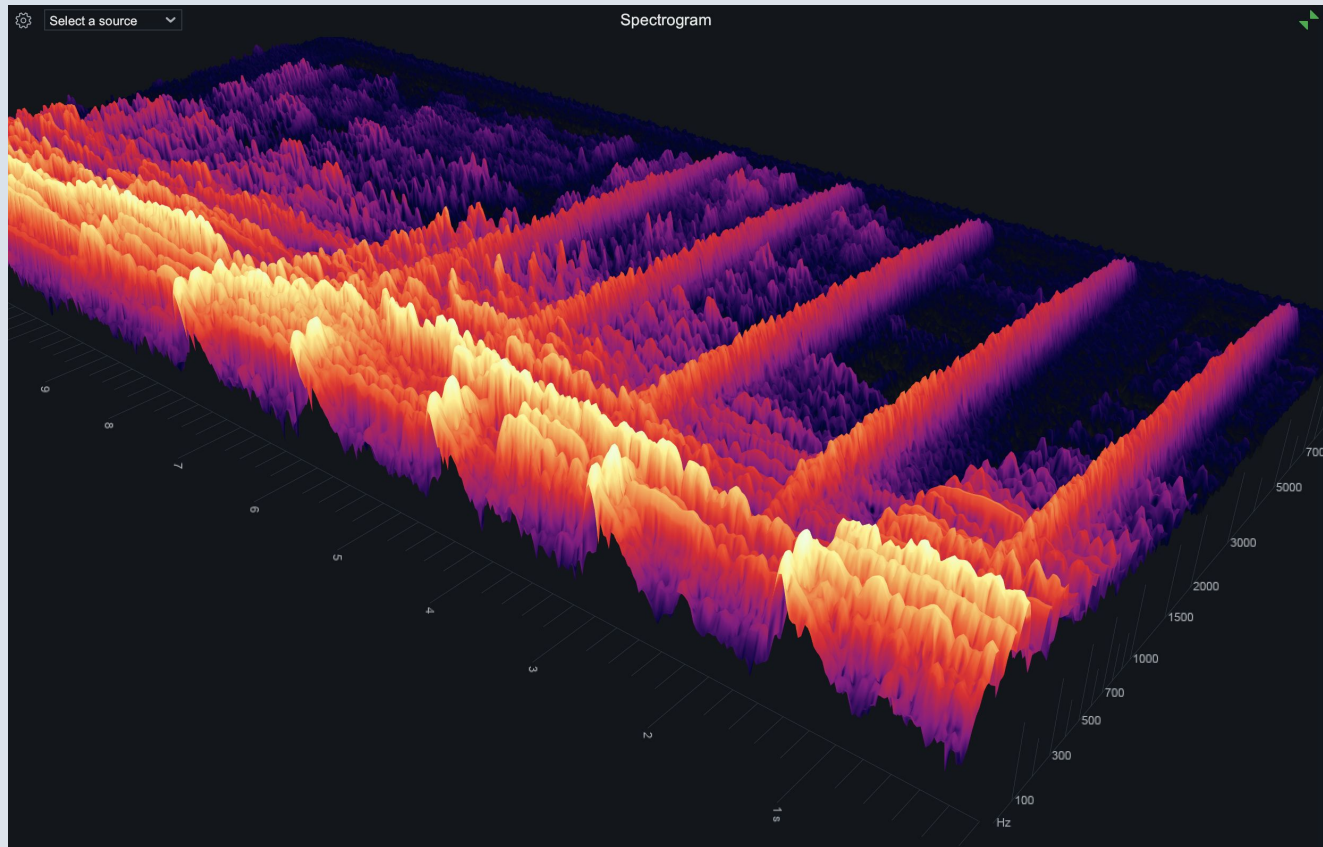


SPECTROGRAMS

James Blake - Retrograde Mel-Spectrogram



SPECTROGRAMS



CONCLUSIONS

Musical Metrics

Quantifying music takes science and intuition

Deep Learning

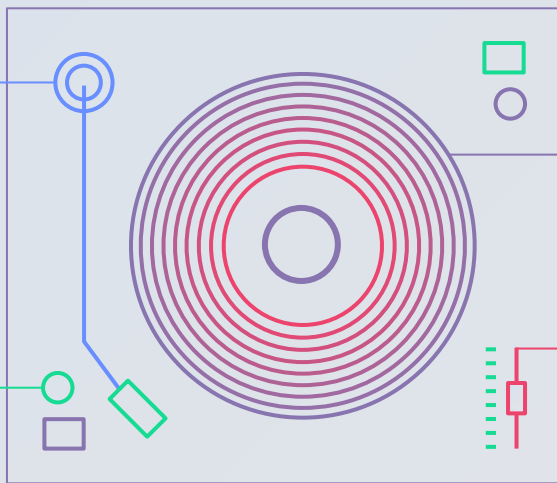
Processing HD spectrograms as image data in CNNs and RNNs

DSP

The ever-improving landscape of digital signal processing

Time

Above all, development will take time



Thanks!

Questions?

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