Is it a Hit?

Audio Feature Analysis

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About Me

Dermot O'Brien

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Boston University - Information Systems

Work:
Morgan Stanley - Data Management

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Bouldering, Playing Piano

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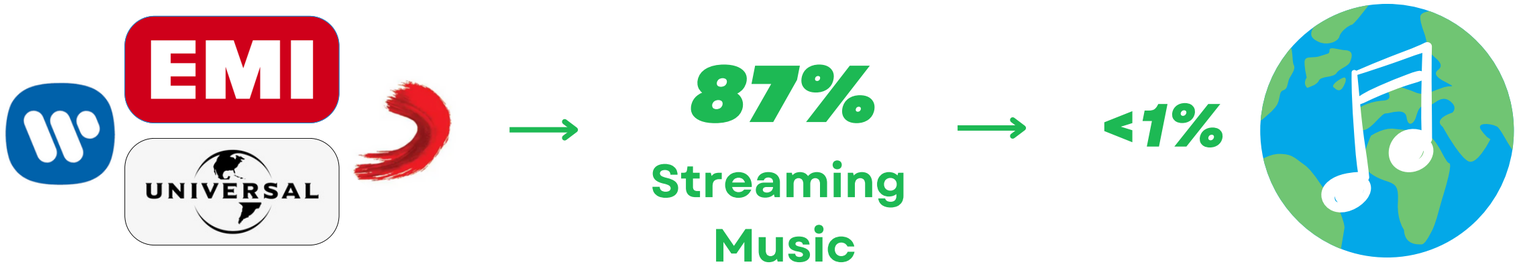
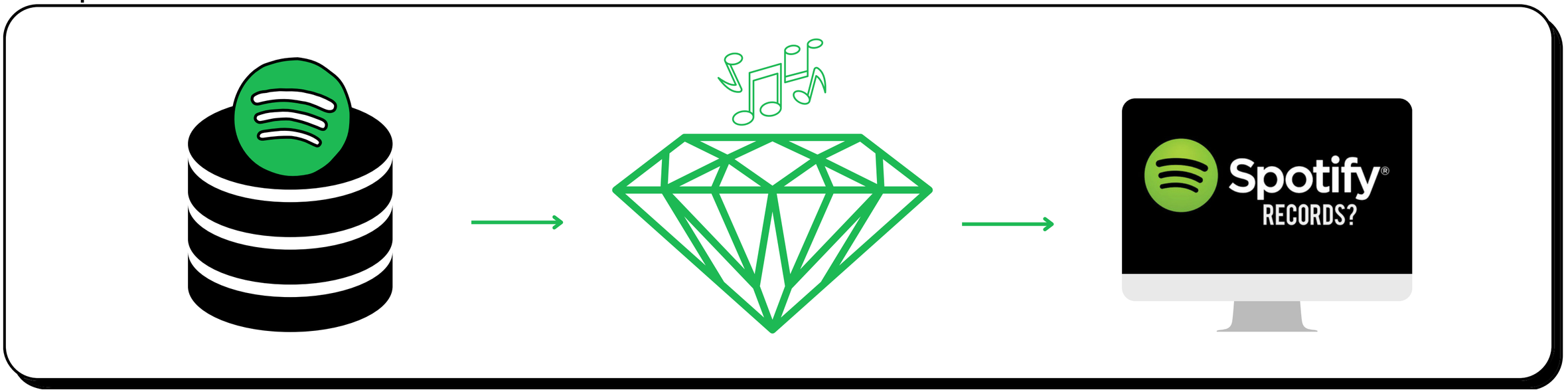
Business Opportunity



Proposal:



DATA

Features

Speechiness

Acousticness

Loudness

Liveness

Energy

Tempo

Valence

Duration (seconds)

Danceability

Instrumentalness

Target

Streams

Recency of Streams

METHODS

PYTHON LIBRARY
Spotipy

SCALING
Standard Scaler

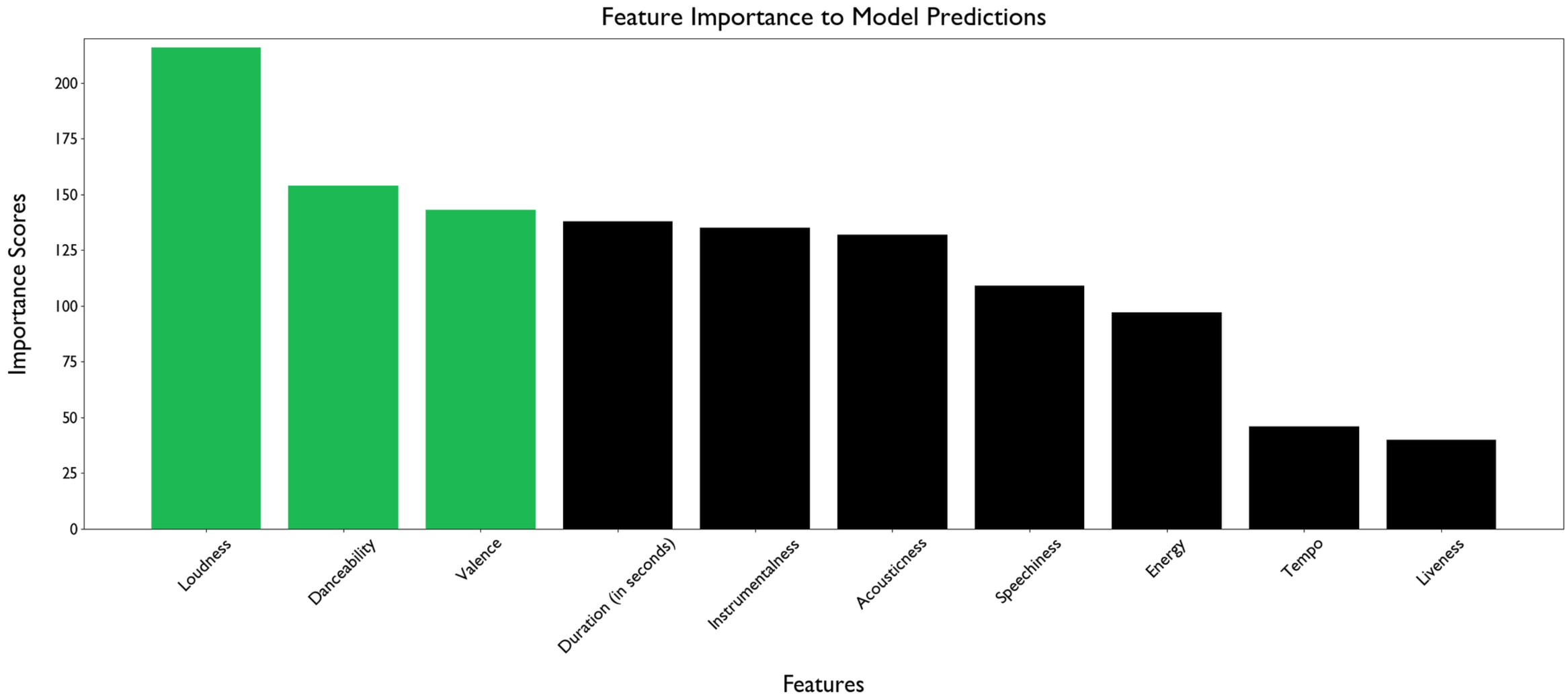
MODEL TYPE
XGBoost

Key Hyperparameters:

1. Learning Rate
2. Scale Pos Weight

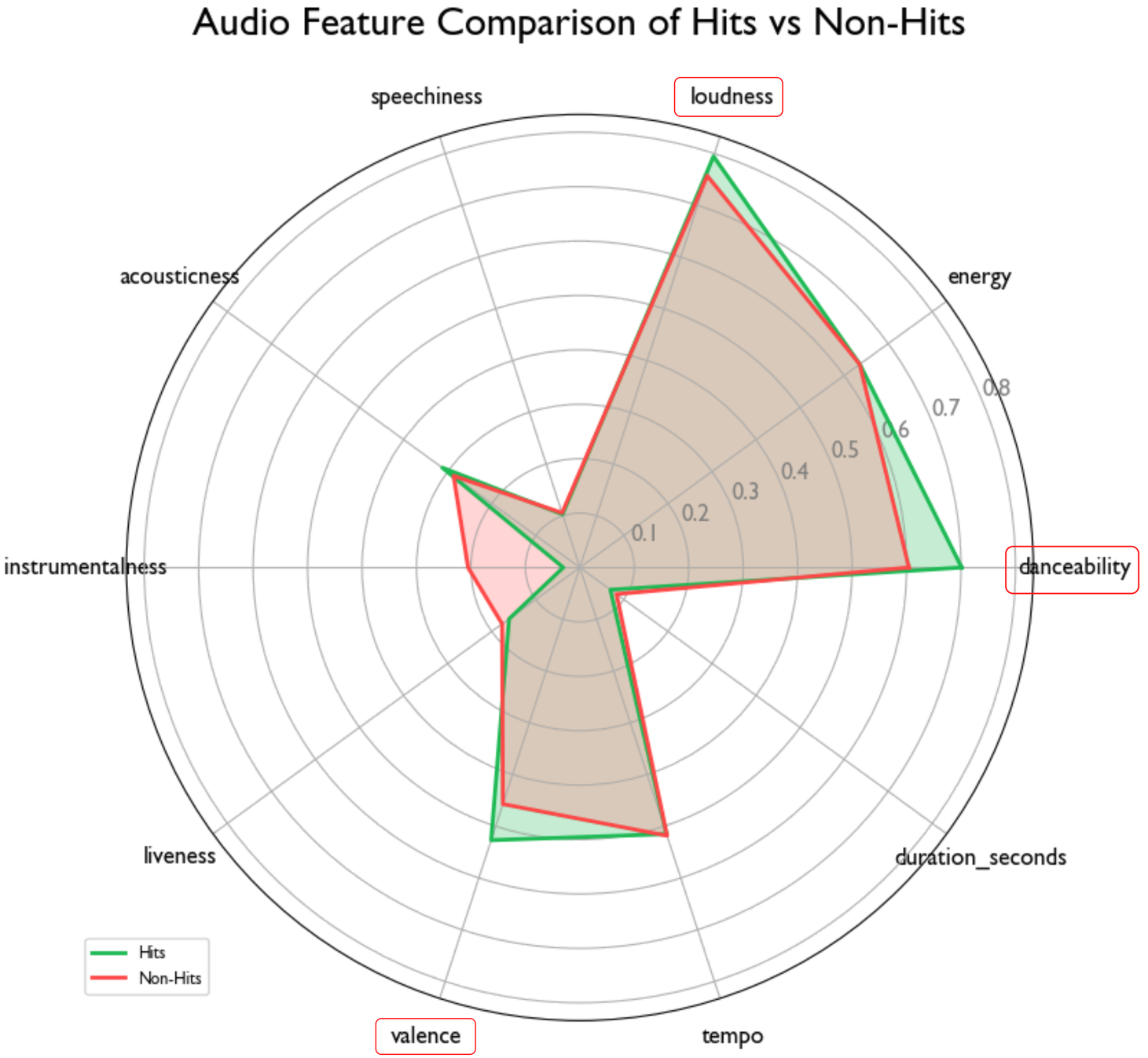
Model Results

PRECISION SCORE ~90%



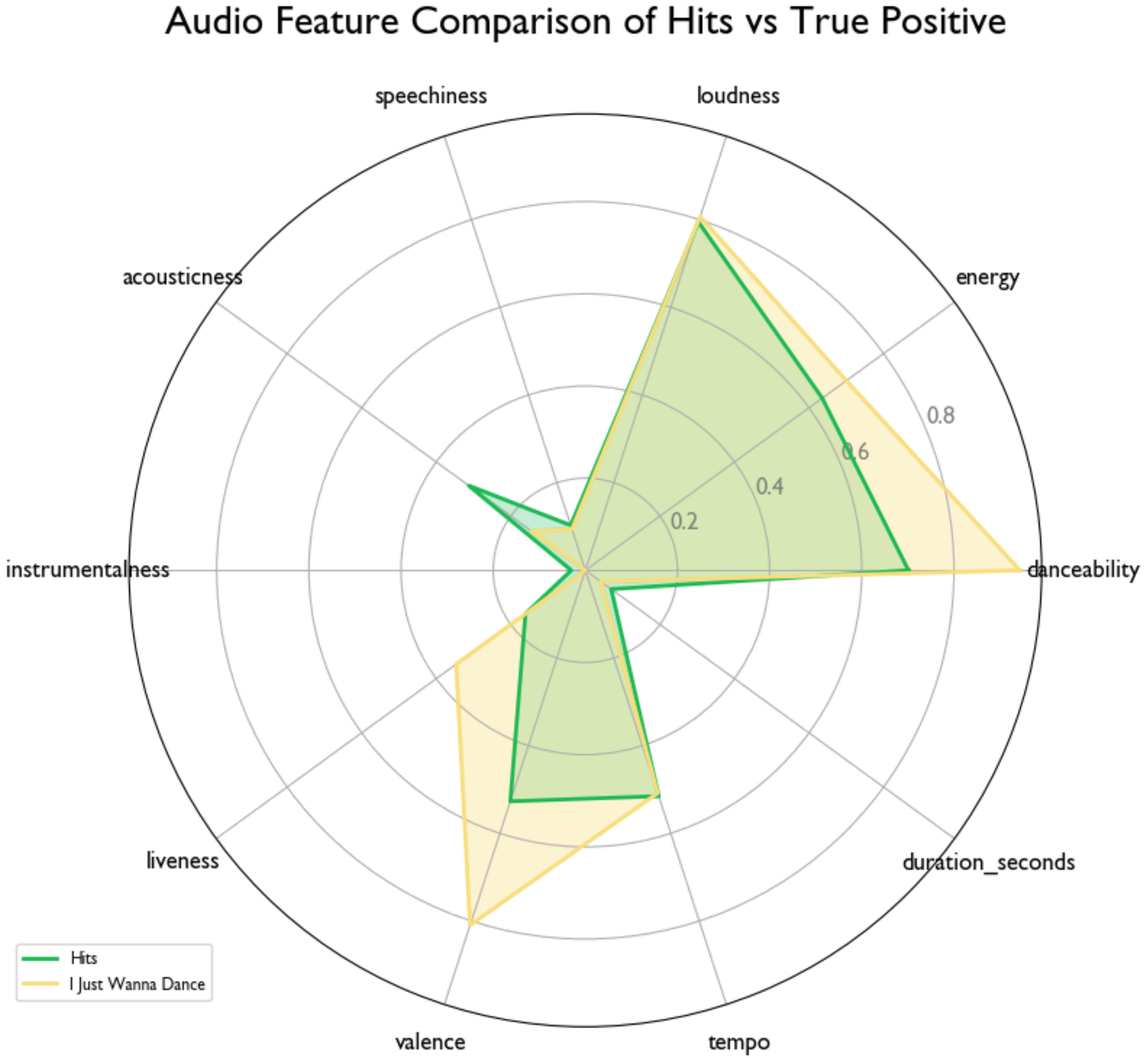
Audio Features

Recipe for a Hit Song



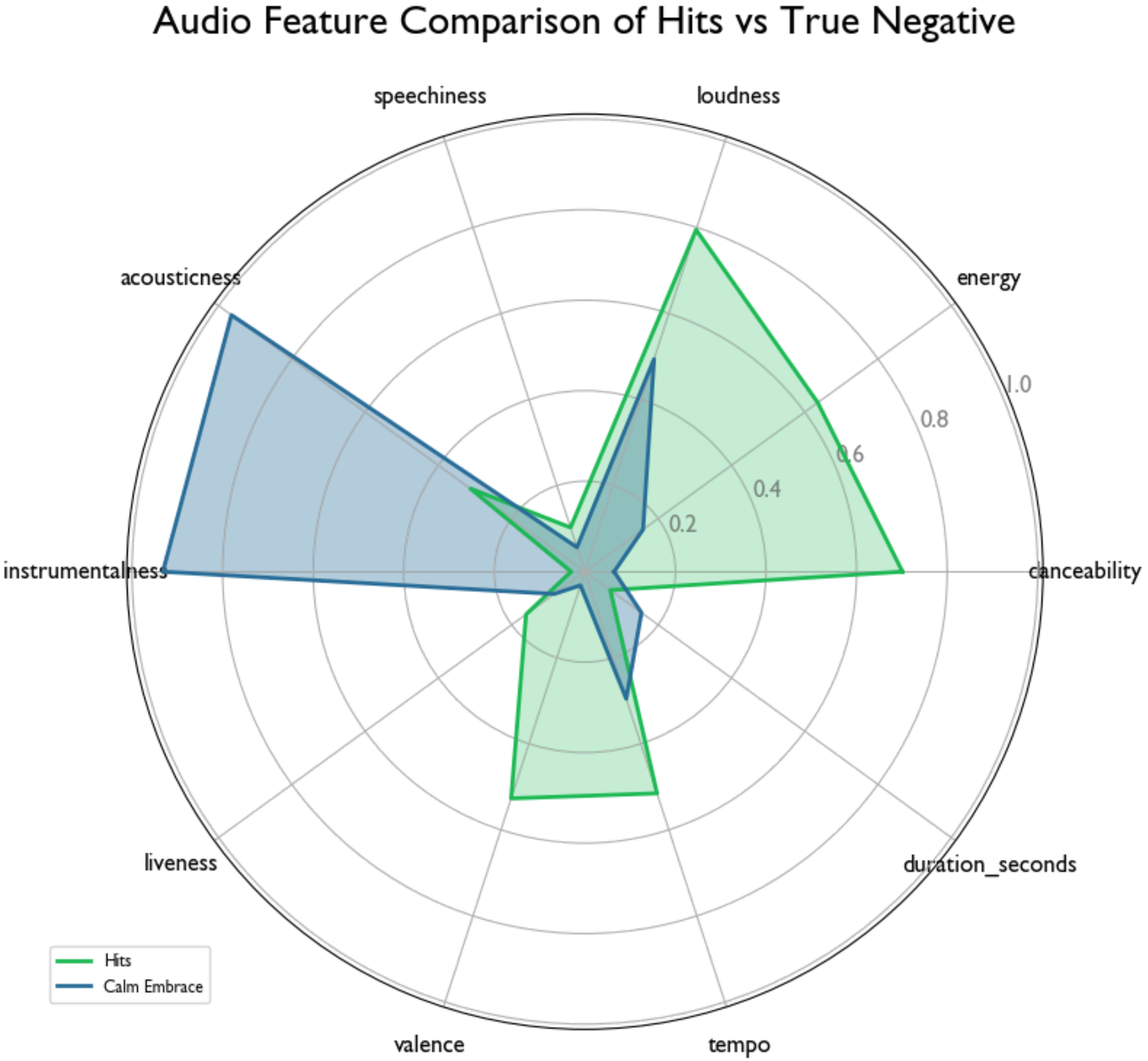
True Positive Example

'I Just Wanna Dance' by Tiagz



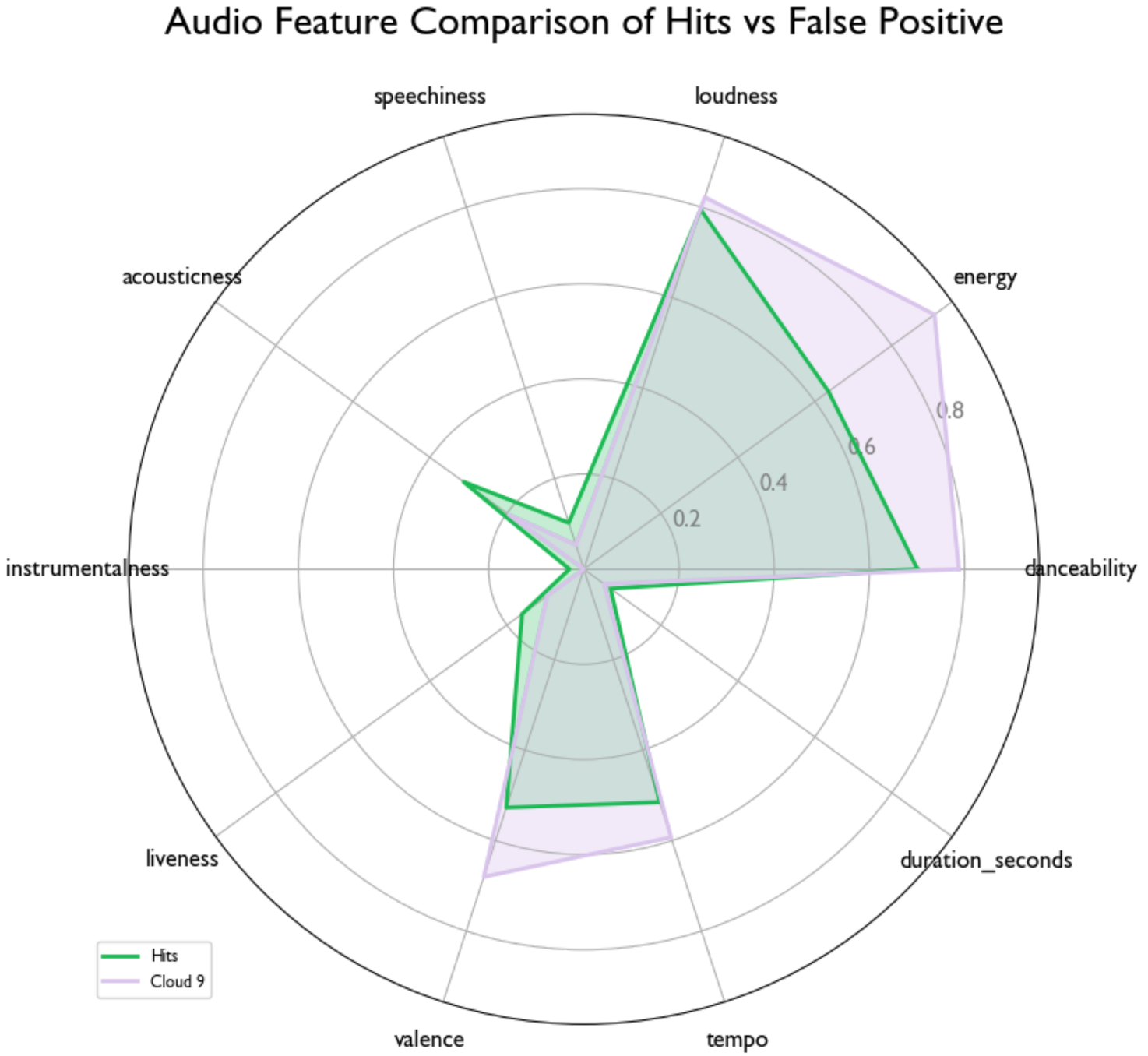
True Negative Example

'Calm Embrace' by Esa Plant



False Positive Example

'Cloud 9' by Beach Bunny



Limitations

01
Limited data

02
Generalizes music

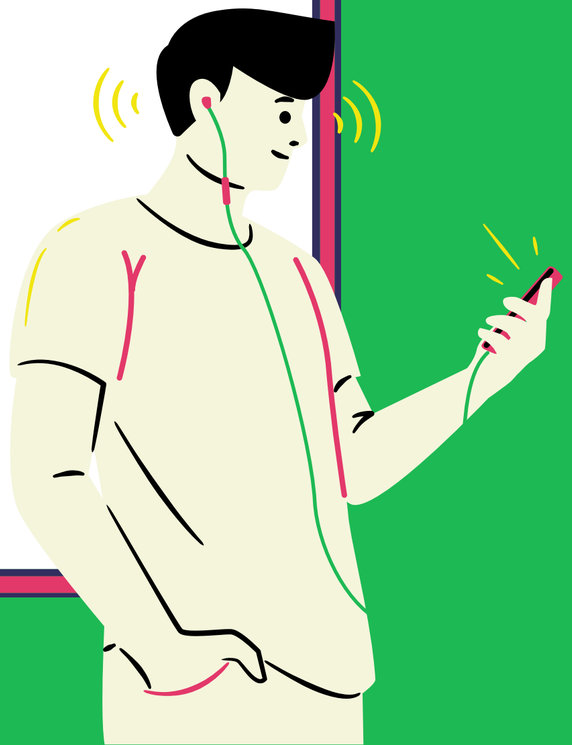
03
Quantifying the unquantifiable

Next Steps

01
Train model on more songs

02
Genere specific models

03
Explore more features



Recommendations

1.

Spotify Records?

Use model to identify talent for your own record label

2.

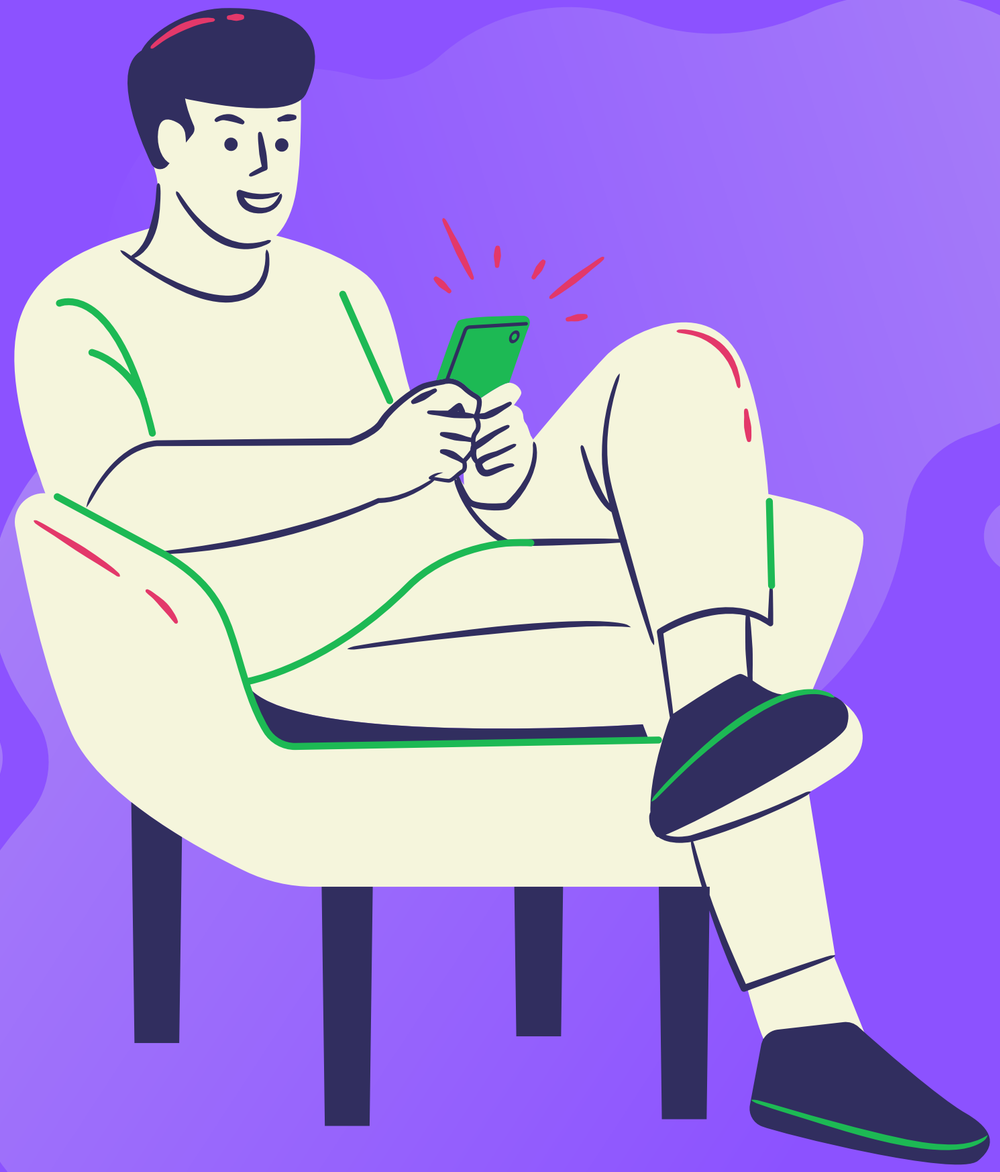
Resource Allocation

Invest time and money into 'hidden gems' identified by model

3.

Important Audio Features

Focus on songs with high scores for Loudness, Danceability, and Valence



Thank You

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