Music Genre Classification

Brian Pinto

Order of Events

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- Data Overview
- Features
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- Modeling
- Considerations/Conclusion

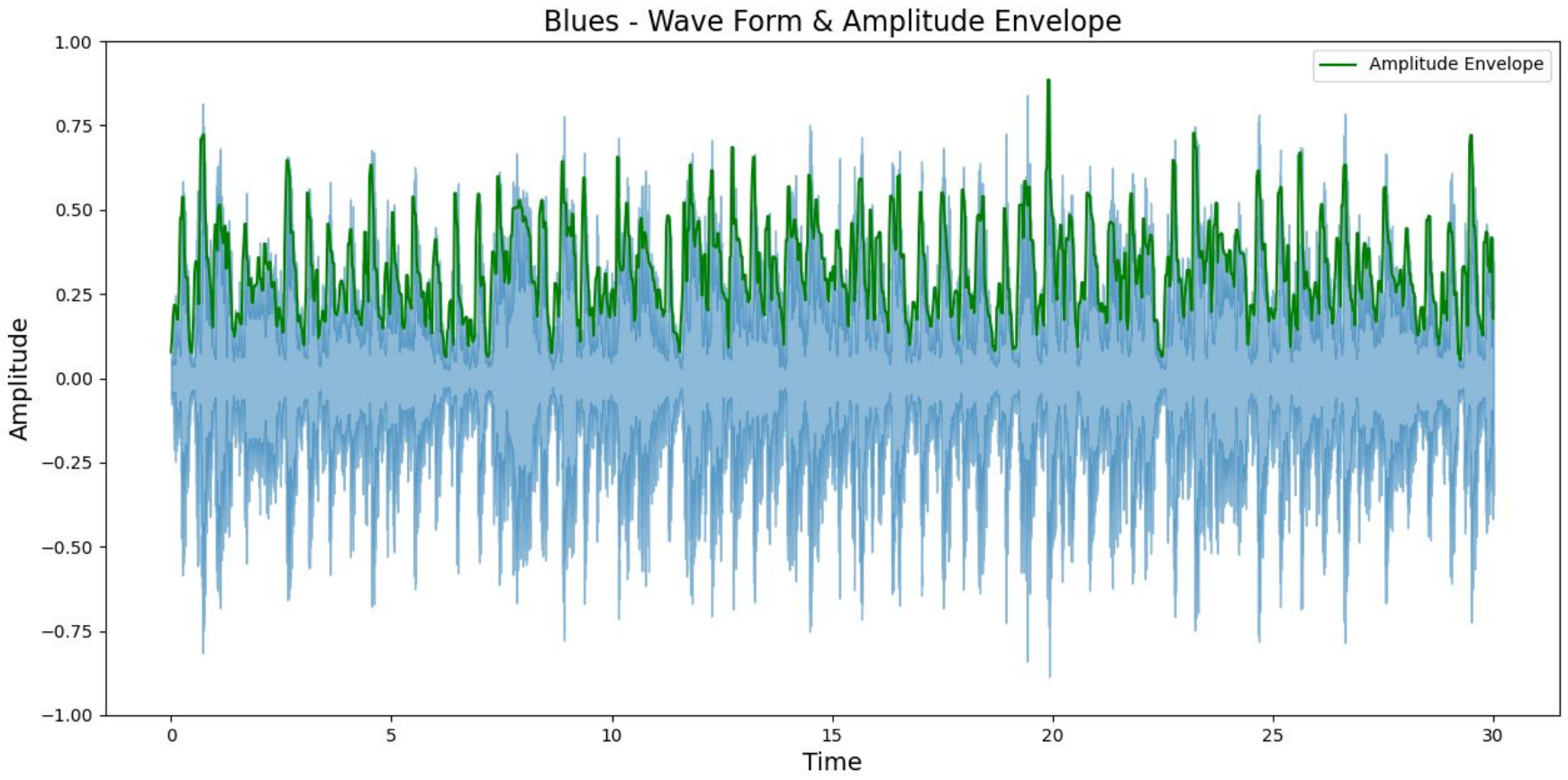
Motivation

The enormous demand for music streaming services presents a number of problems for companies that hosts large amounts of music. Each of these companies not only offers a large amount of music, they also gain new audio daily at an alarming rate.

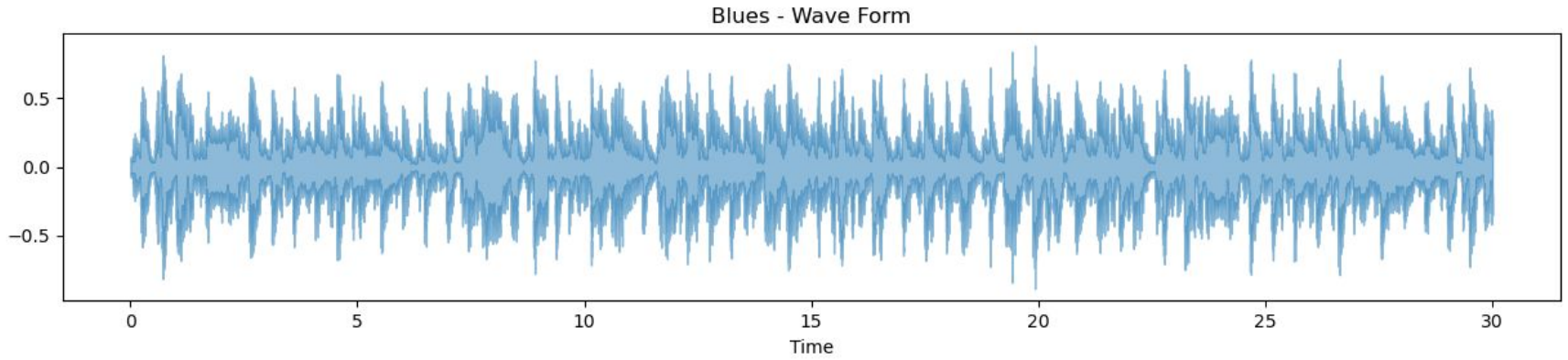
Problem Statement

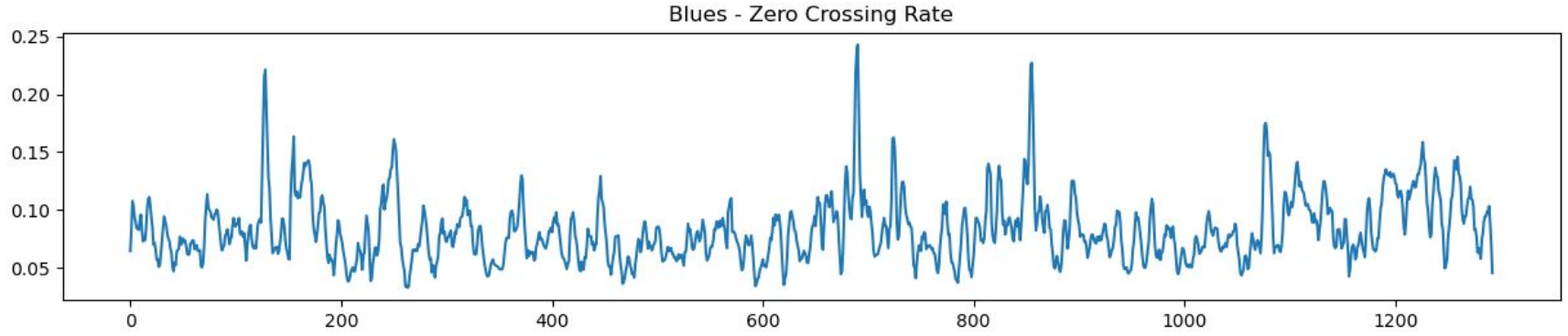
This project aims to develop music classification models with the utilization of the audio collected in the GTZAN study. The audio collection consists of 1000, 30 second music samples from 10 different genres. As part of this study, participants classified music by genre with an accuracy of 70%. The goal of this project is to build a model that exceeds this accuracy level.

Amplitude Envelope

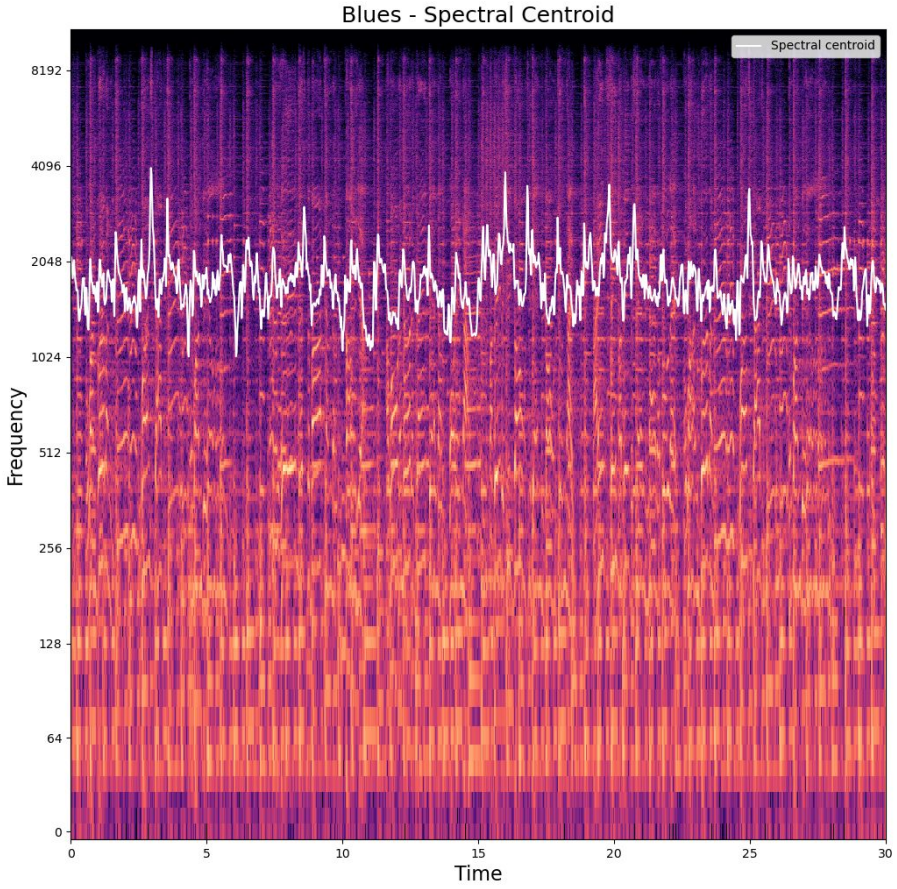


Zero Crossing Rate

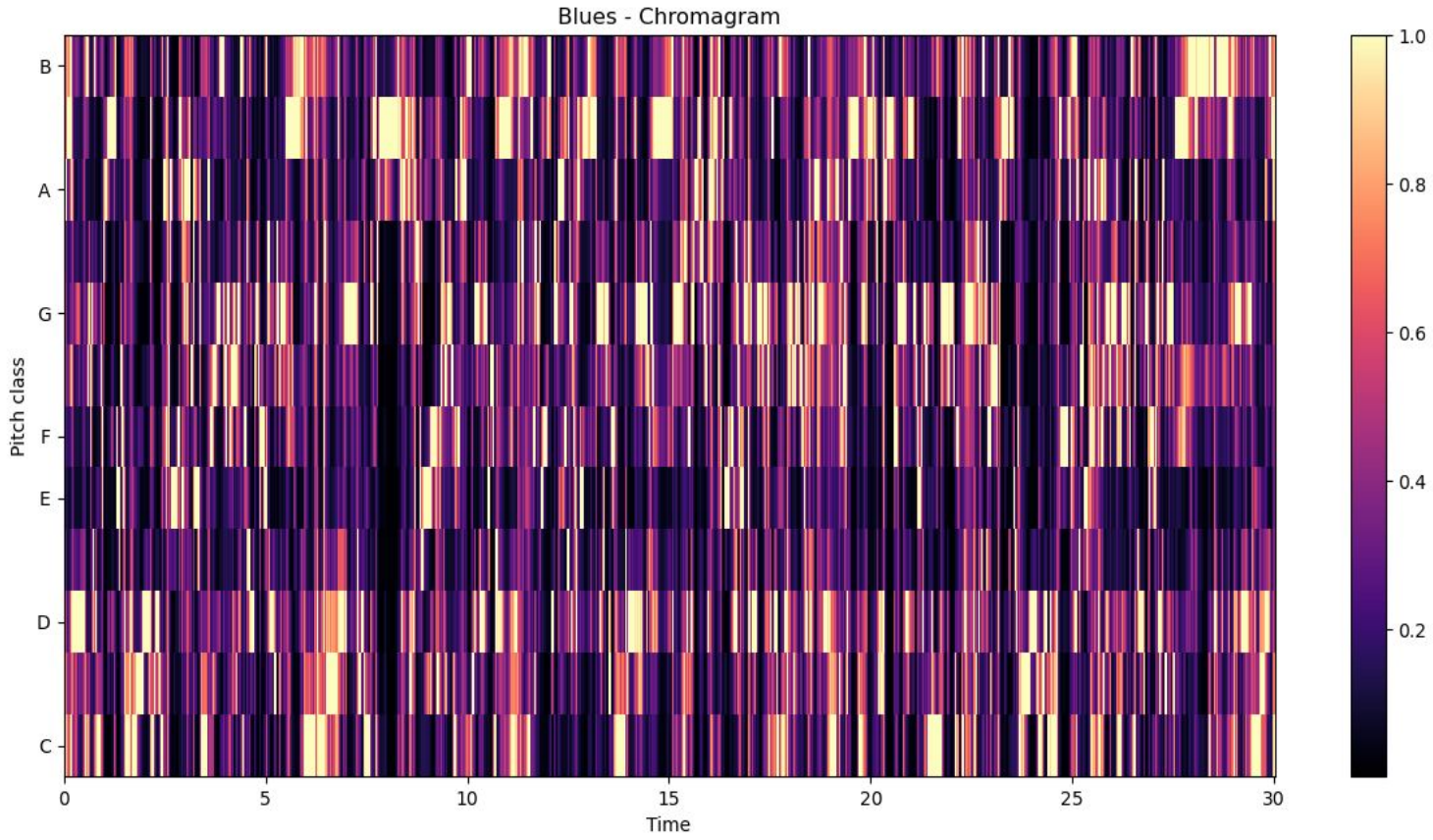




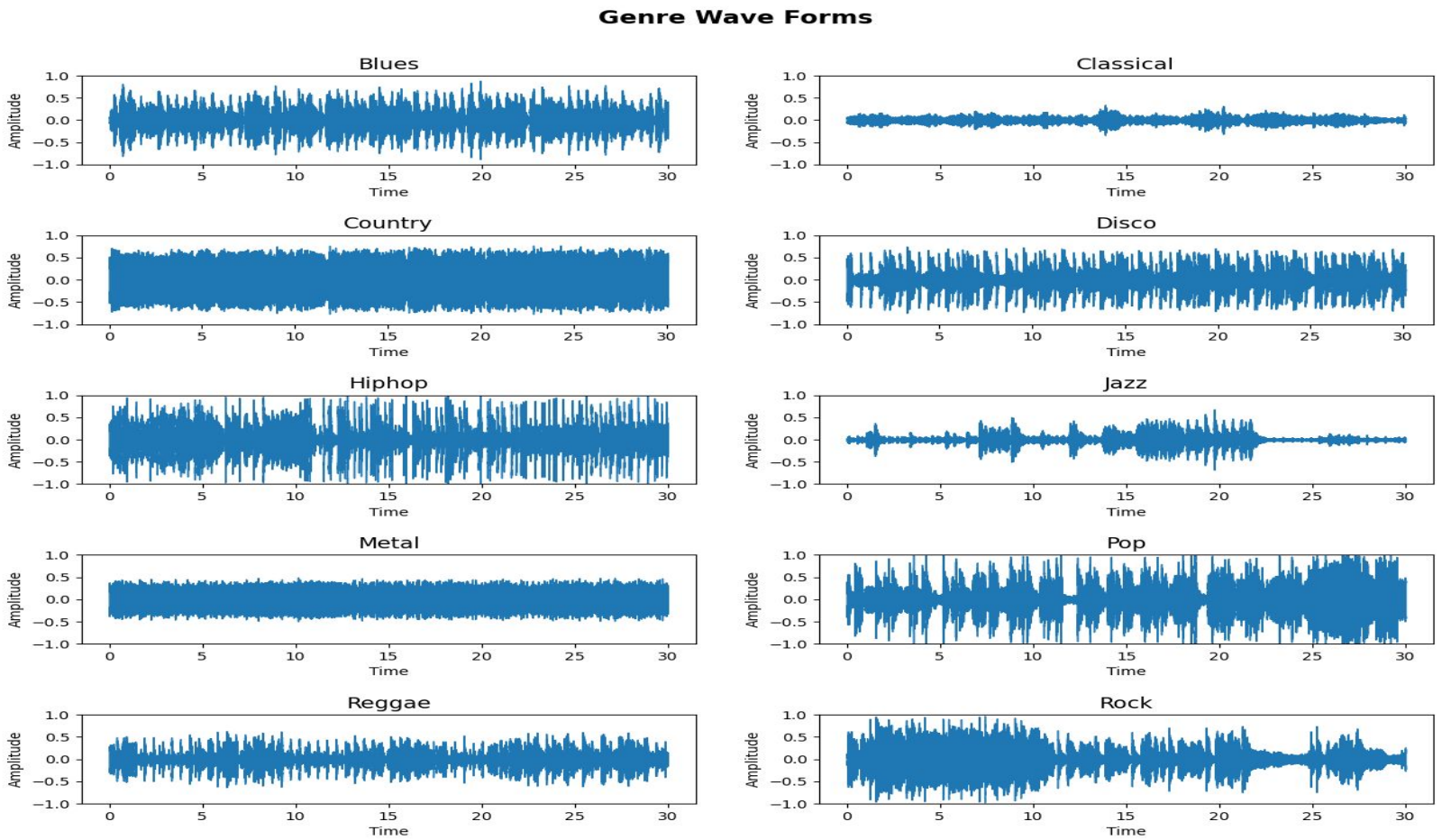
Spectral Centroid



Chromagram


Blues - Chromagram
Pitch class
B
A
G
F
E
D
C
0
5
10
15
20
25
30
Time
1.0
0.8
0.6
0.4
0.2

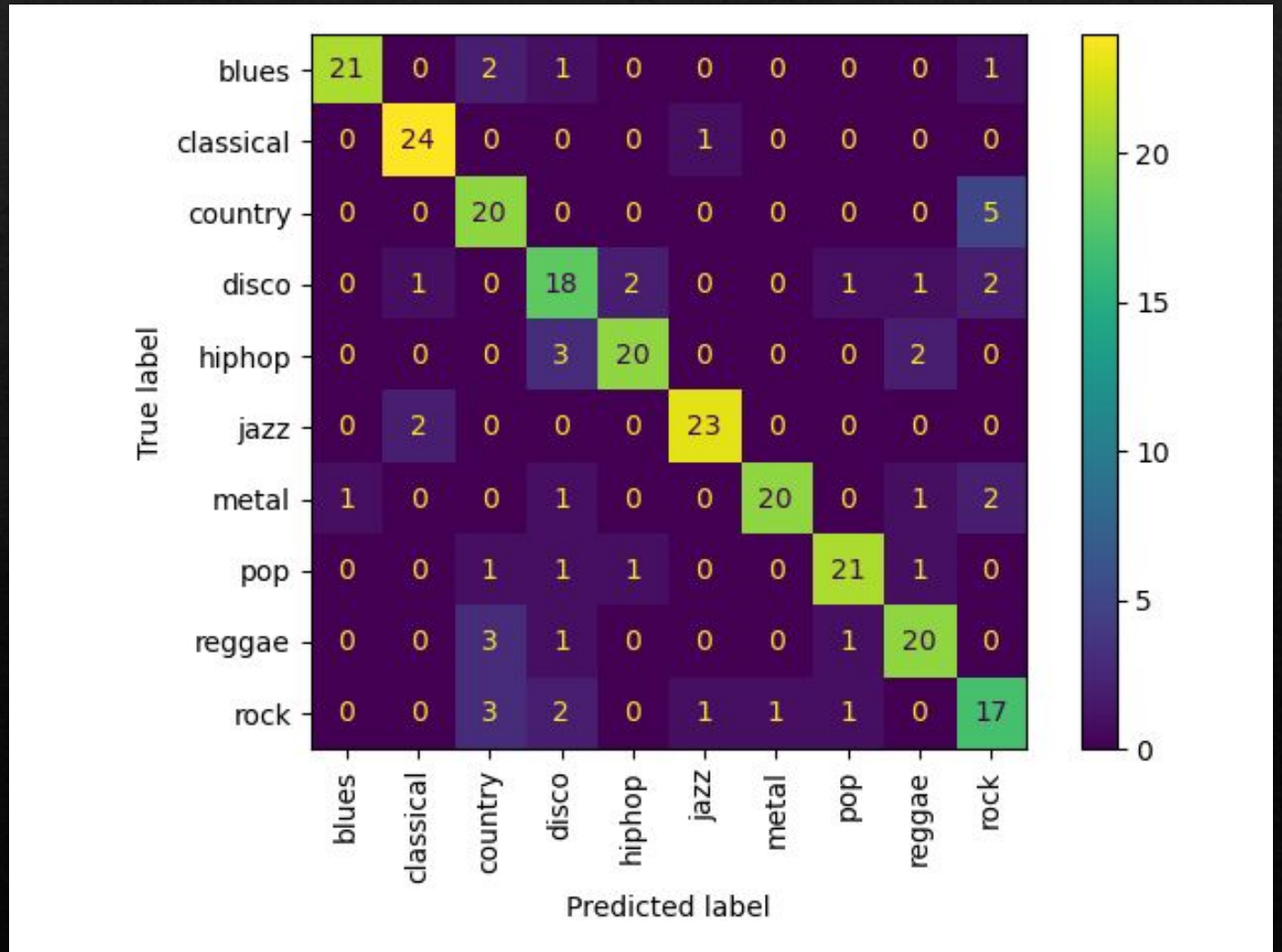
Wave Form Comparison



Model Metrics

Model	Training Accuracy	Testing Accuracy
Linear Discriminant Analysis	.93	.82
Stacking Classifier	.95	.82
Voting Classifier	.94	.79
Linear Support Vectors	.87	.77
Ridge Classifier	.89	.77
MLP Classifier	1	.77
Logistic Regression	.89	.76
XGBoost Classifier	1	.74

Confusion Matrix



Considerations & Conclusion

- Model Performance – Feature Engineering and Tuning
- Limited Size and Representativeness of Data Set
- Relationship of Genres