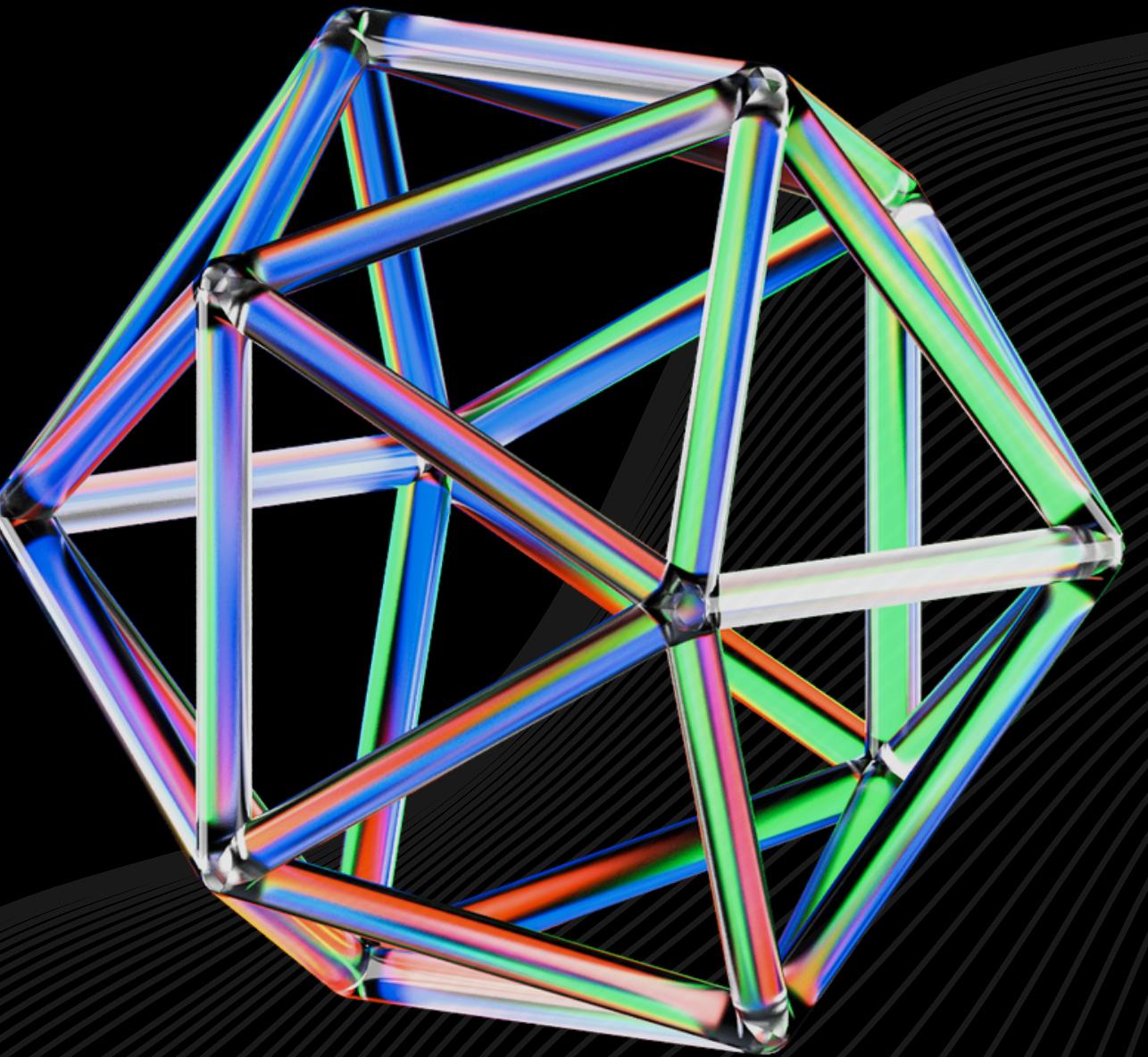
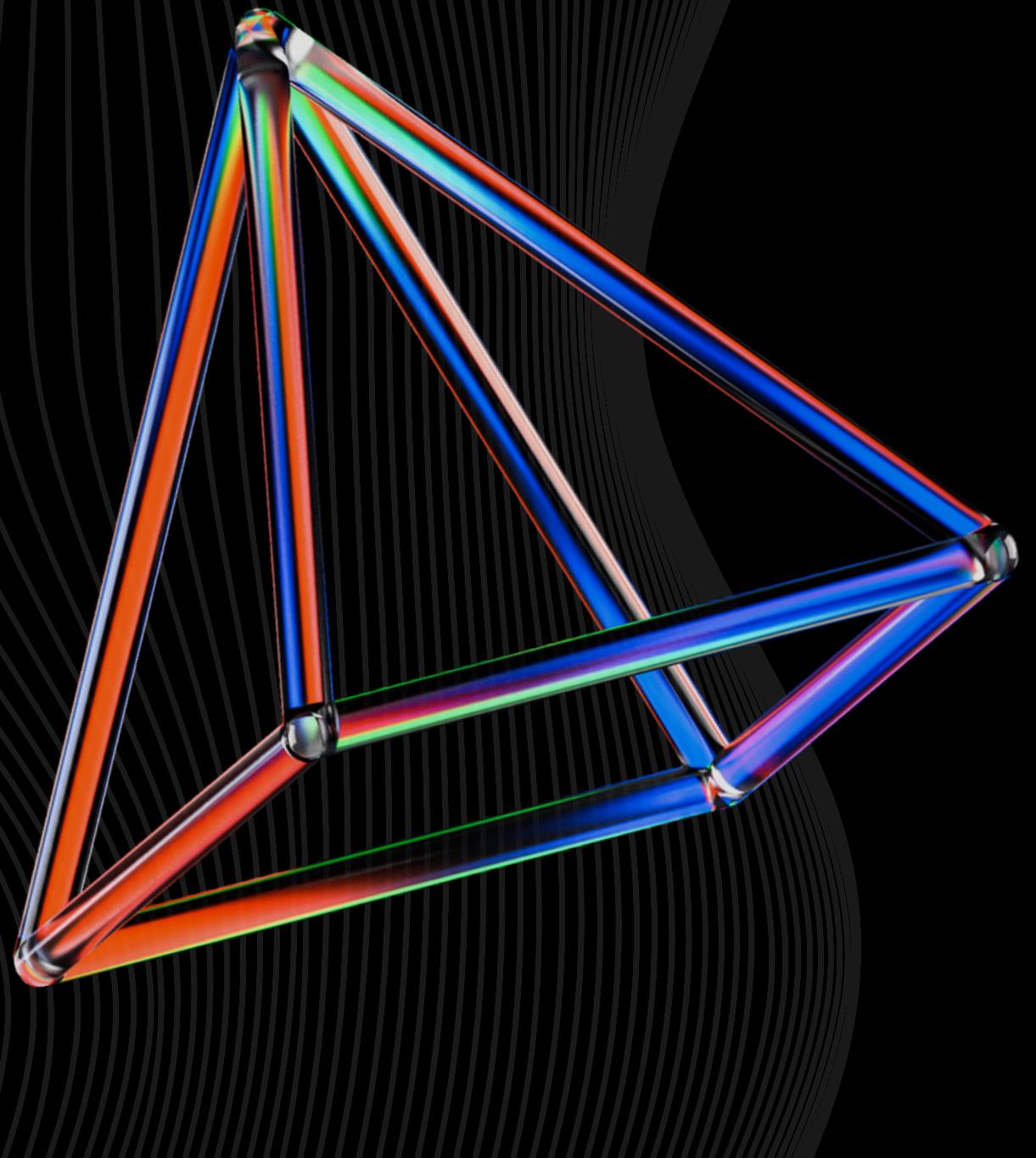


CATS AND  
DOGS

# AUDIO RECOGNITION

JOSEP MARIA ROCAFORT  
JÚLIA GARCIA  
POL MEDINA





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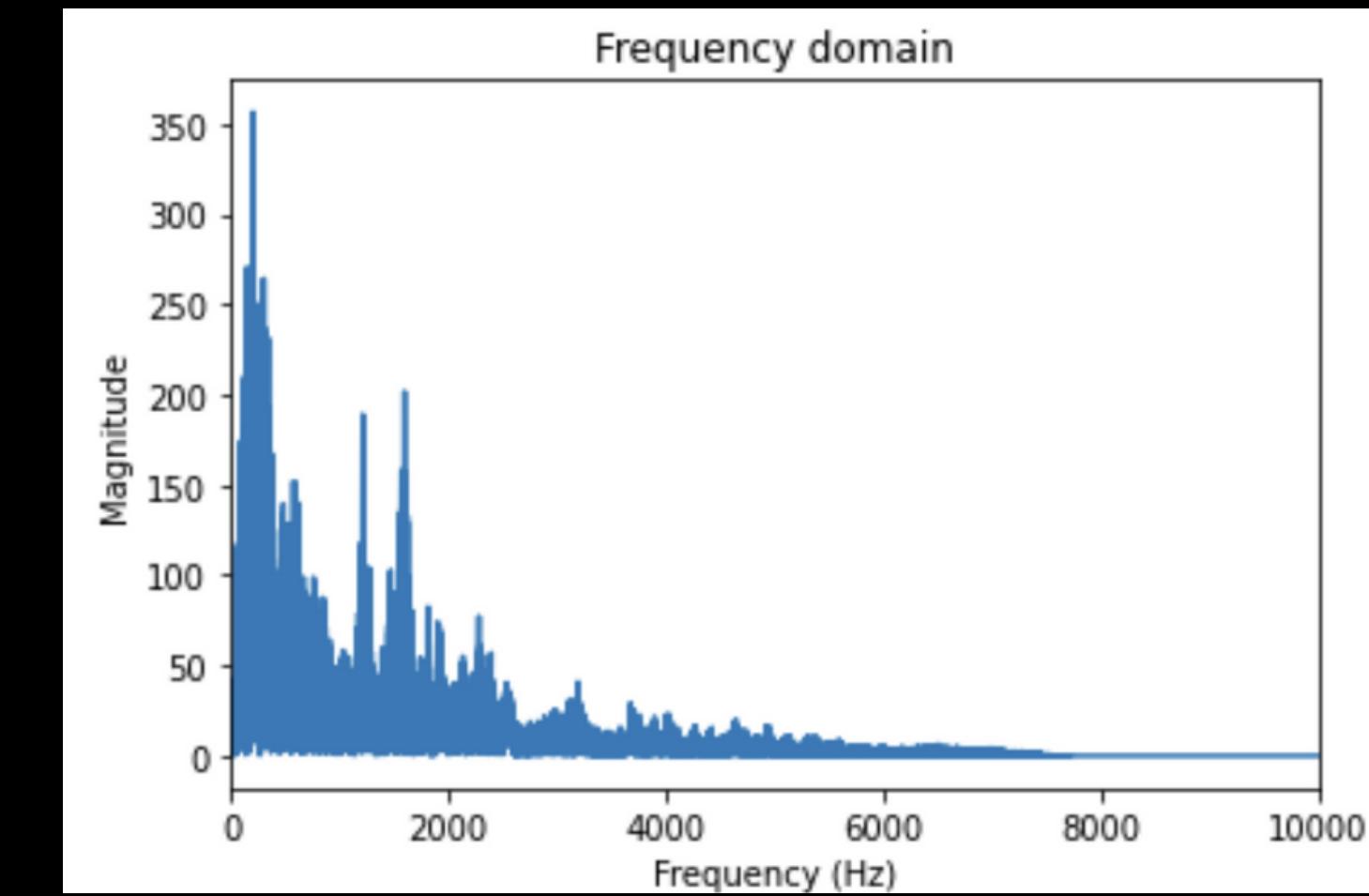
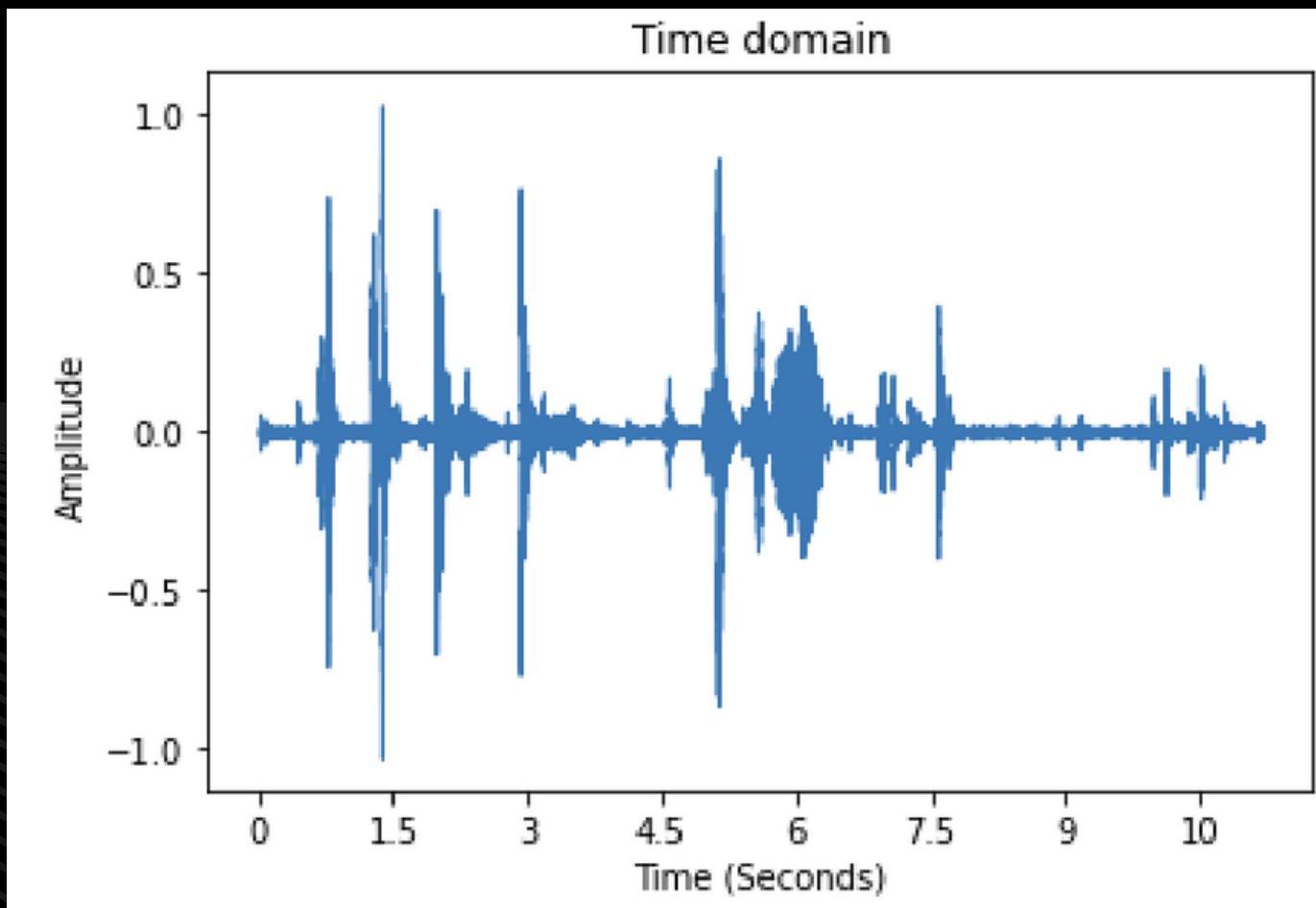
# Introduction



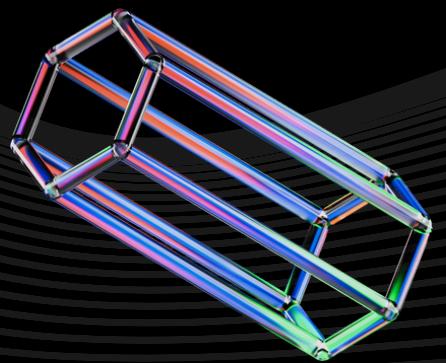
# Understanding Audios



Cats have 164 WAV files.  
Dogs have 113 WAV files.

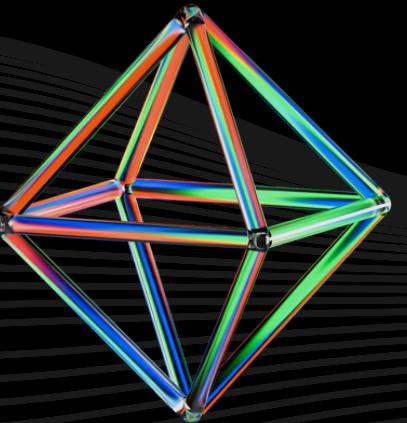


# Feature Extraction: Creating datasets



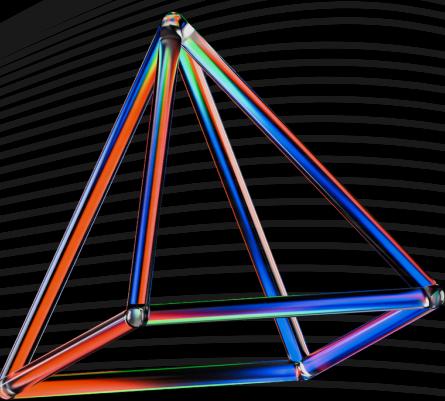
Raw  
frequencies

PCA



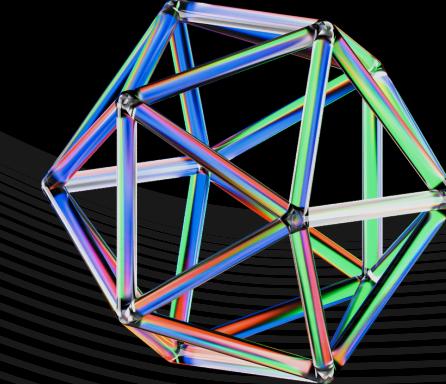
Linear frequency  
bands

PCA



Non-linear frequency  
bands

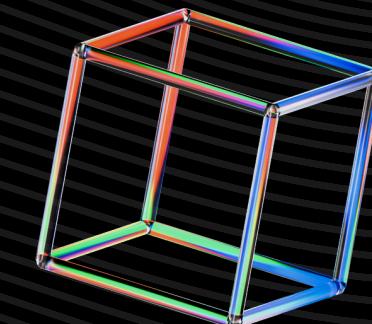
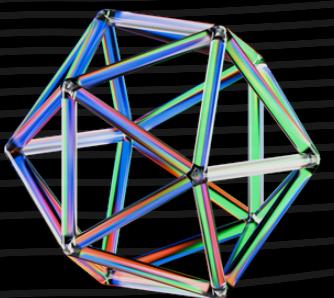
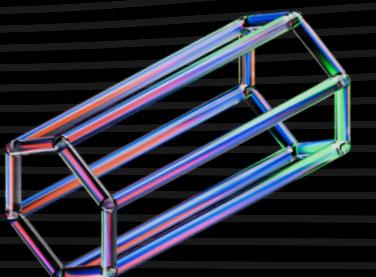
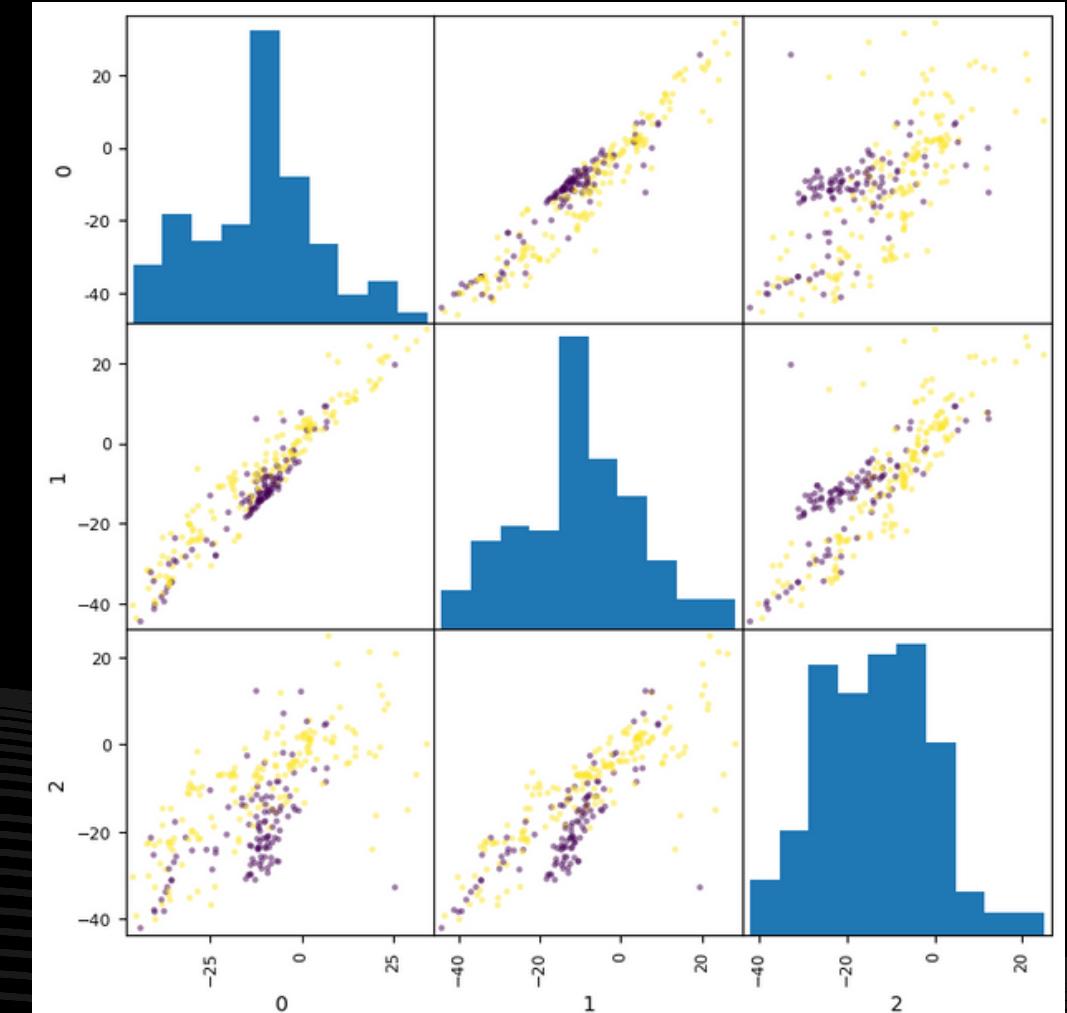
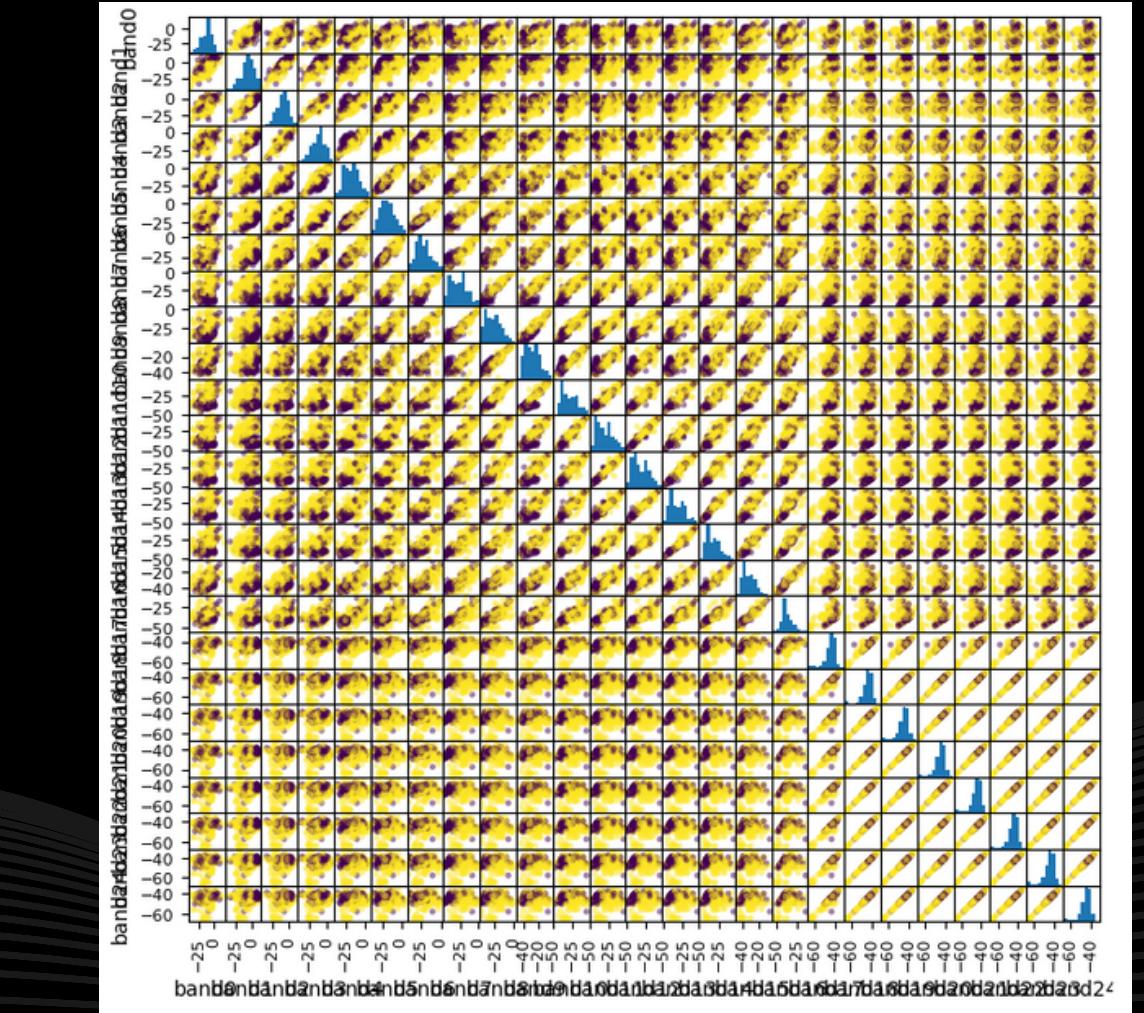
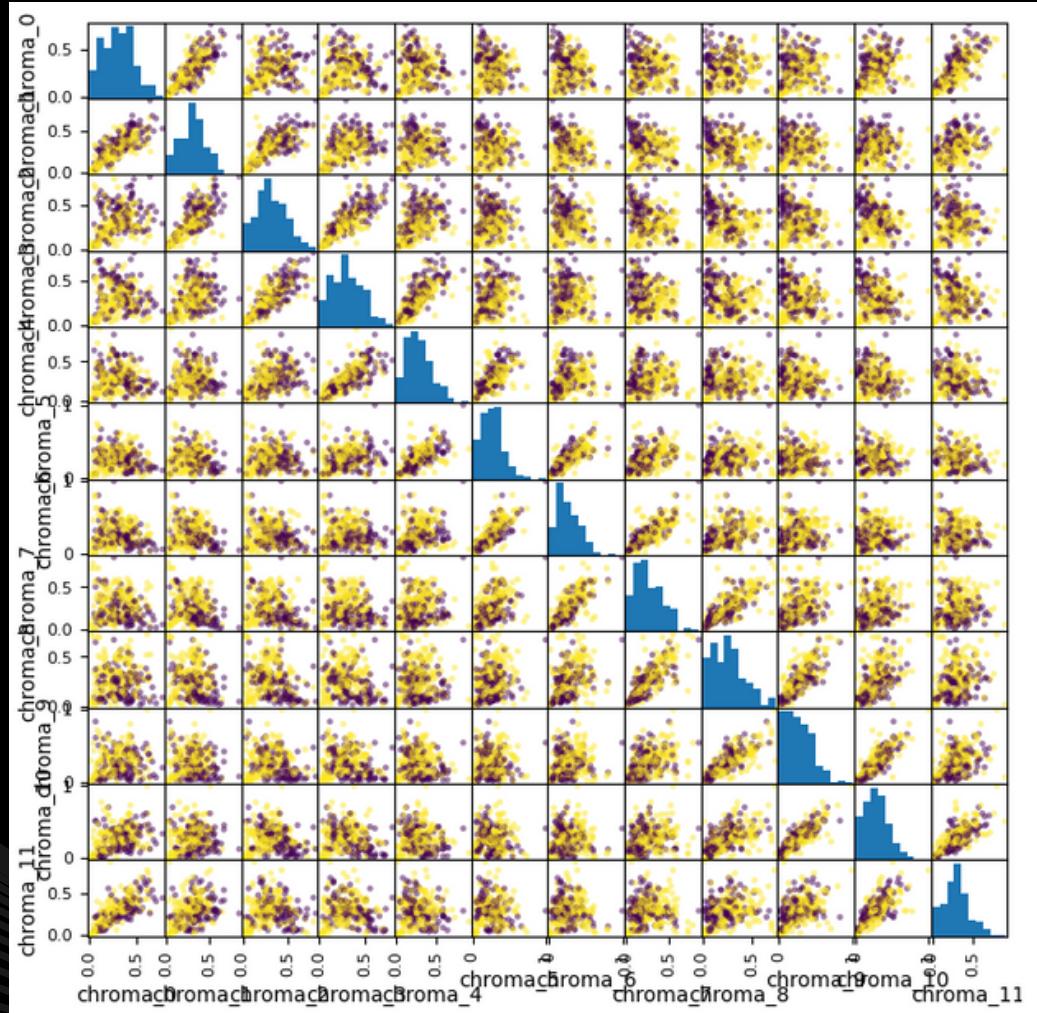
PCA



Frequency in  
chromatic pitches

PCA

# Exploring Data

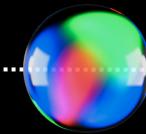


# Model Training

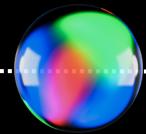
- Which algorithm works better?
- Are all datasets useful?



Logistic  
Regression



Support Vector  
Machine

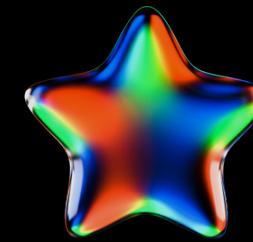


k Nearest  
Neighbors



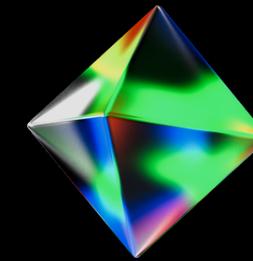
Naïve  
Bayes

# After Model Training Analysis



## BEST ALGORITHM

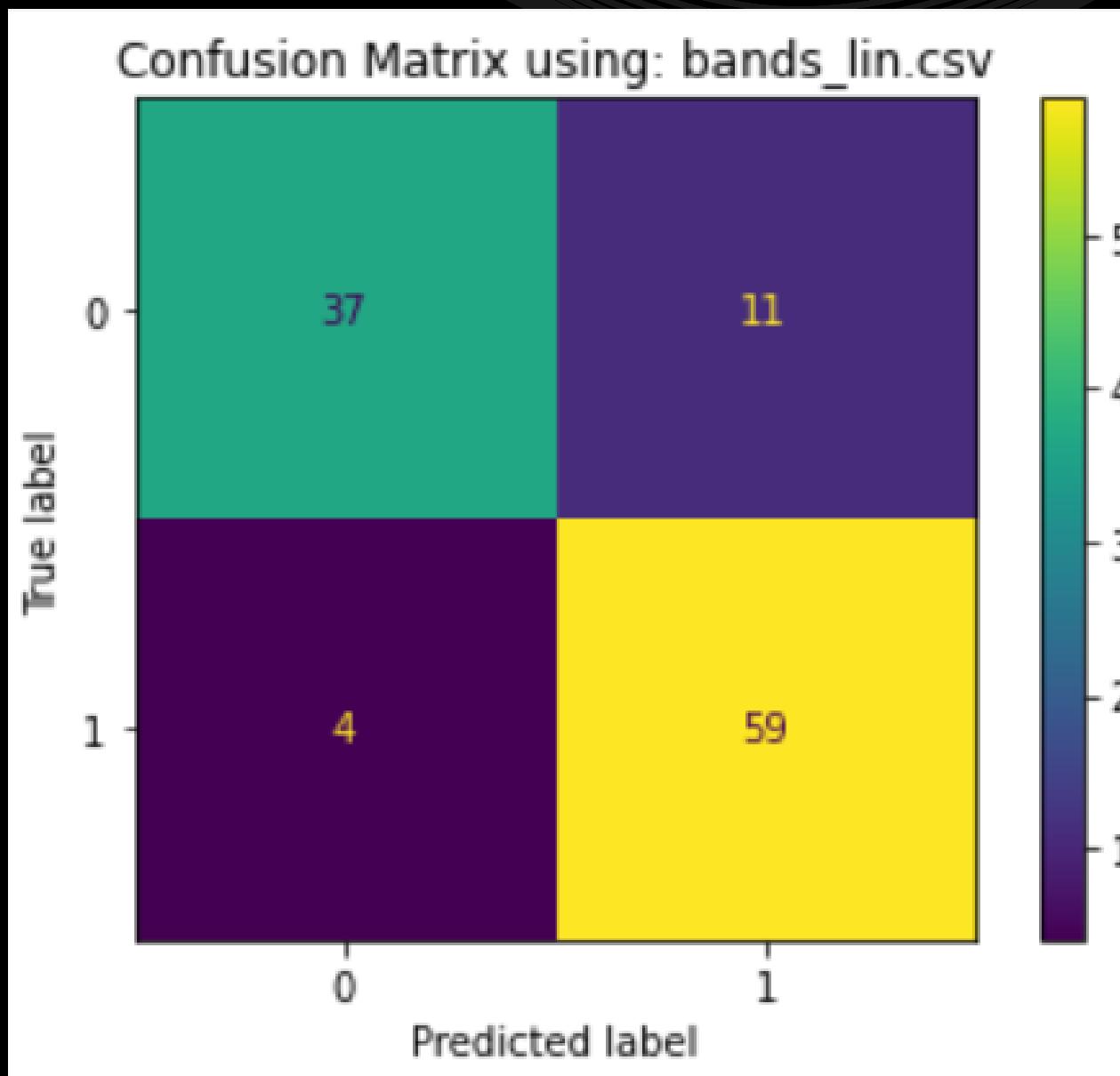
The algorithm with better results was Support Vector Machines (SVM).



## BEST DATASET

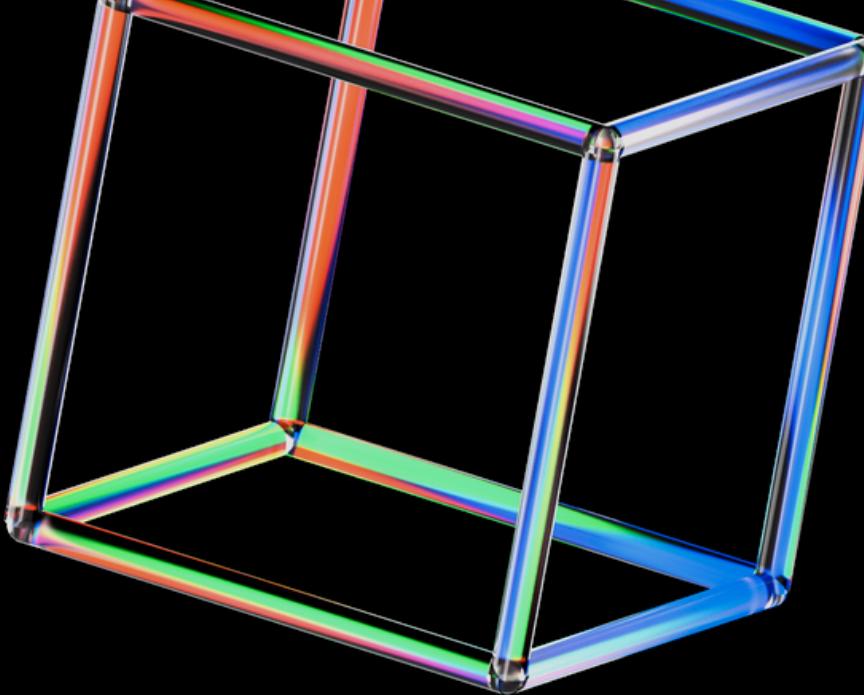
The dataset with better results was Linear Frequency Bands.

# Results



	precision	recall	f1-score	support
0	0.90	0.77	0.83	48
1	0.84	0.94	0.89	63
accuracy			0.86	111
macro avg	0.87	0.85	0.86	111
weighted avg	0.87	0.86	0.86	111

# Final analysis



**Testing new audios:**

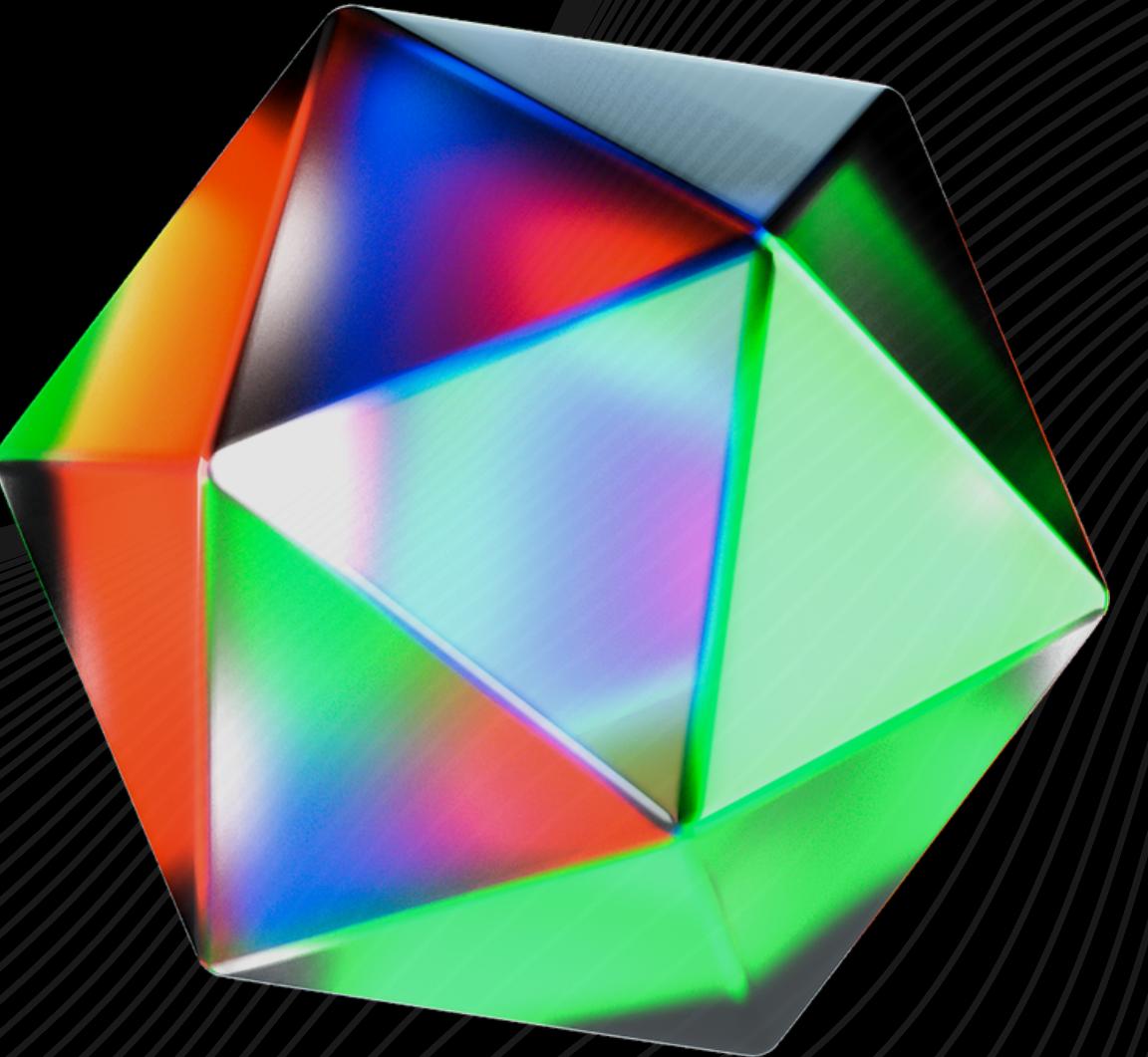
- **Random audio files from internet.**
- **Audio files recorded by us.**

# GOOD NEWS!

All input audio files were  
correctly classified.

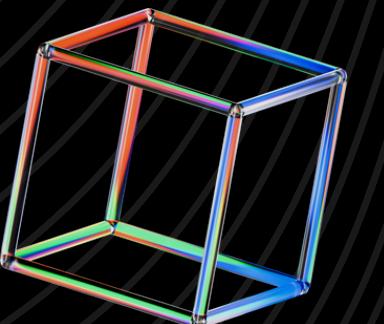
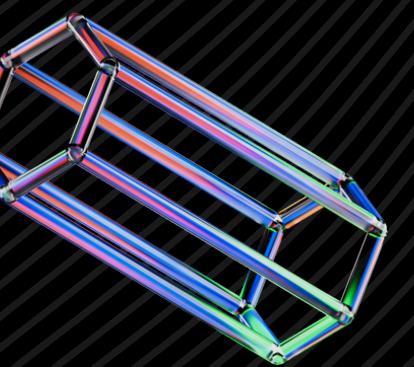
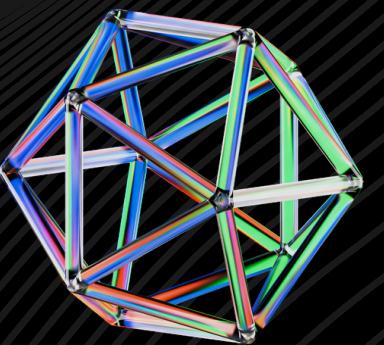
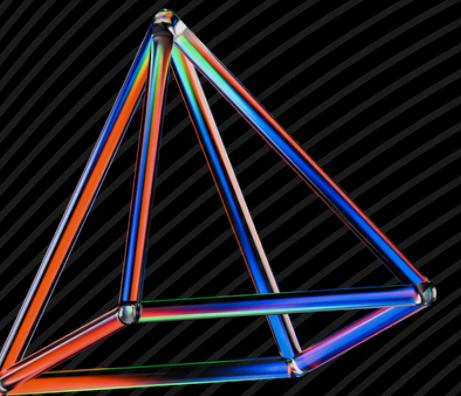
# Conclusions

- Good results
- Great learning
- Room of improvement





**Live Example**





**THANK YOU!**