# Beni Airlines

Incorporation of speech emotion recognition in client support calls

- Dynamic feedback
- Helps to list best practices
- Identify the level of satisfaction
- Clients free of lengthy questionairies

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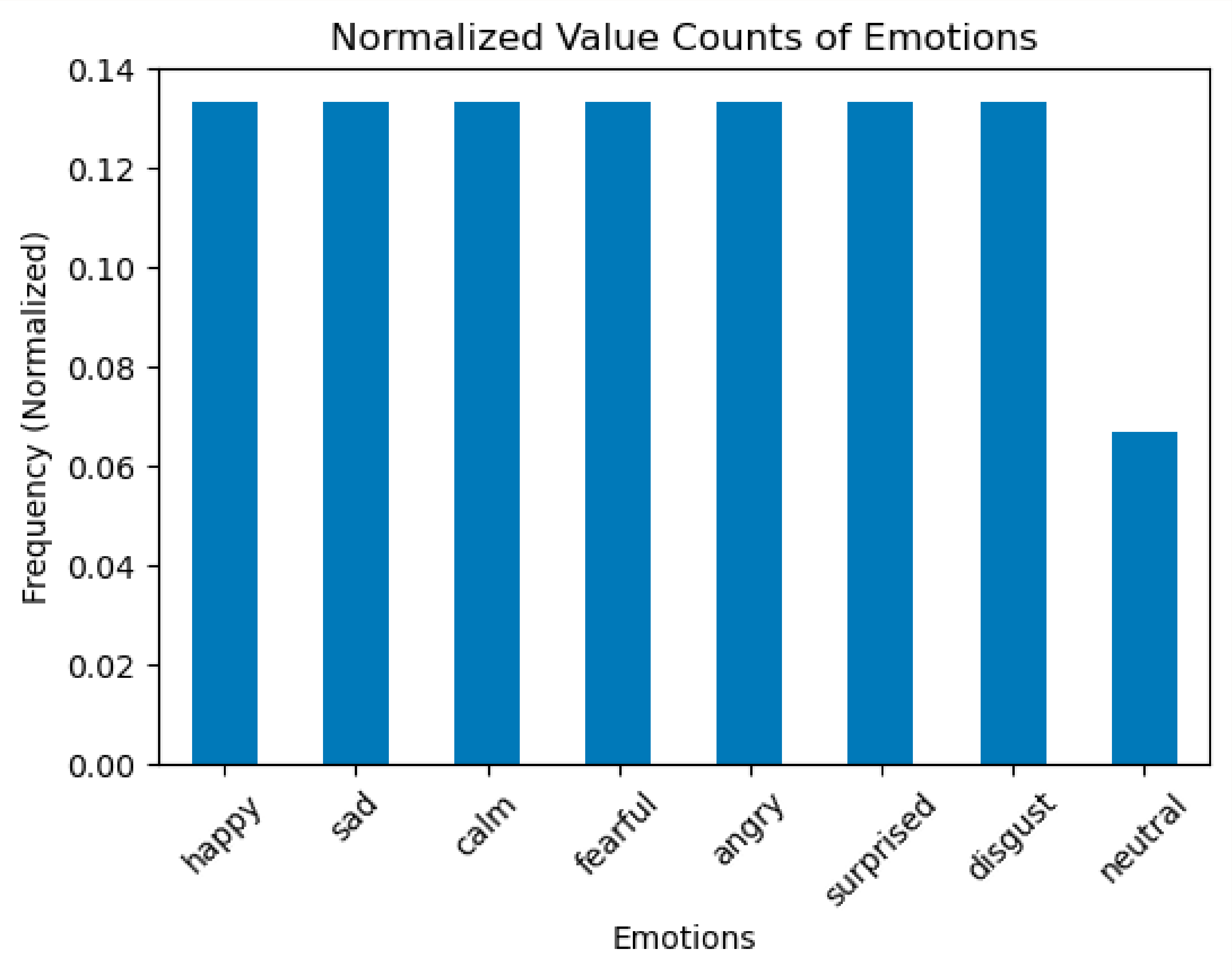
# RAVDESS dataset

One of the most complete databases
Source: zenodo.org

24 actors x 60 audios = 1440 files
8 different emotions
2 statements

# Dataset



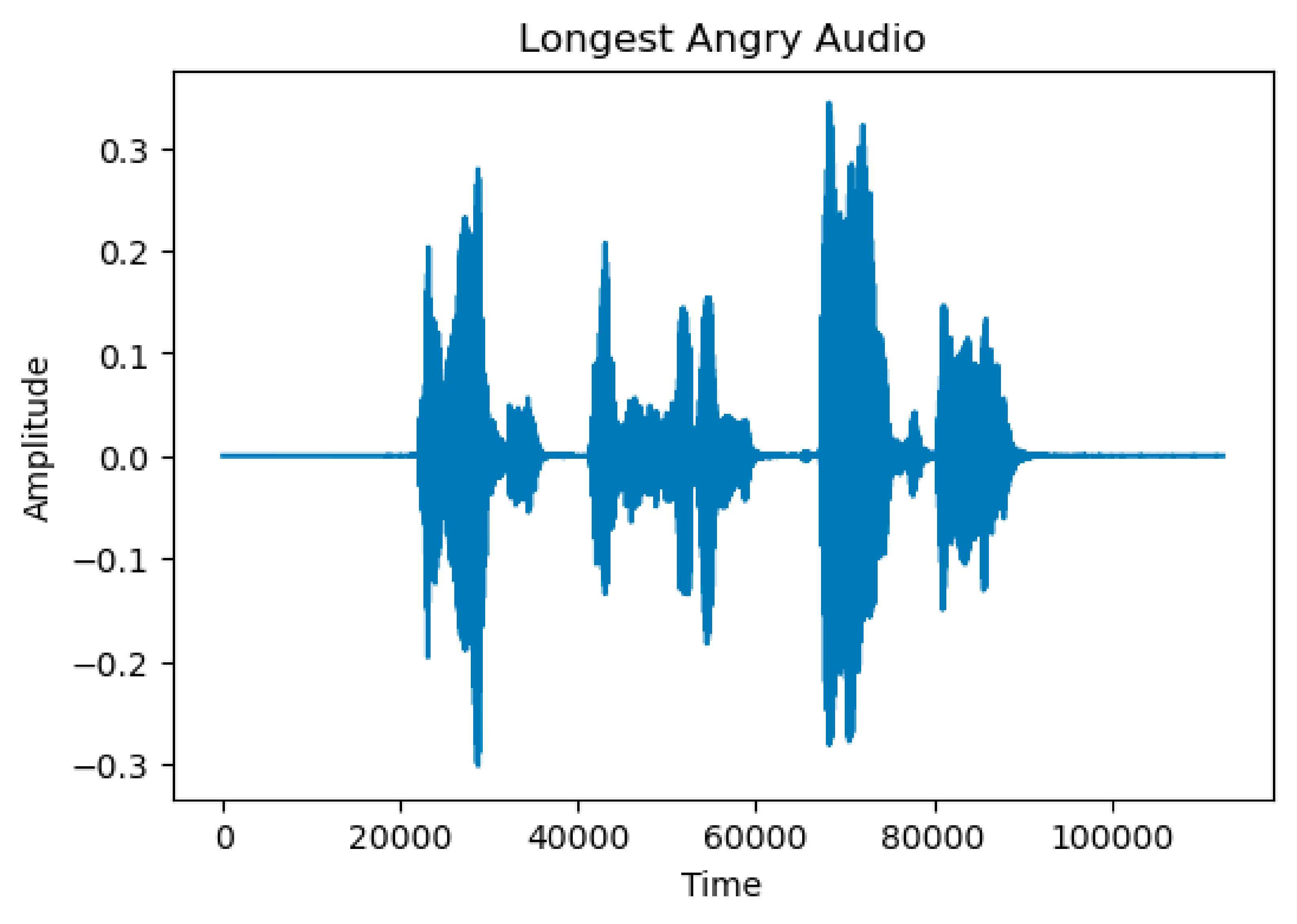
Baseline: 13.3%

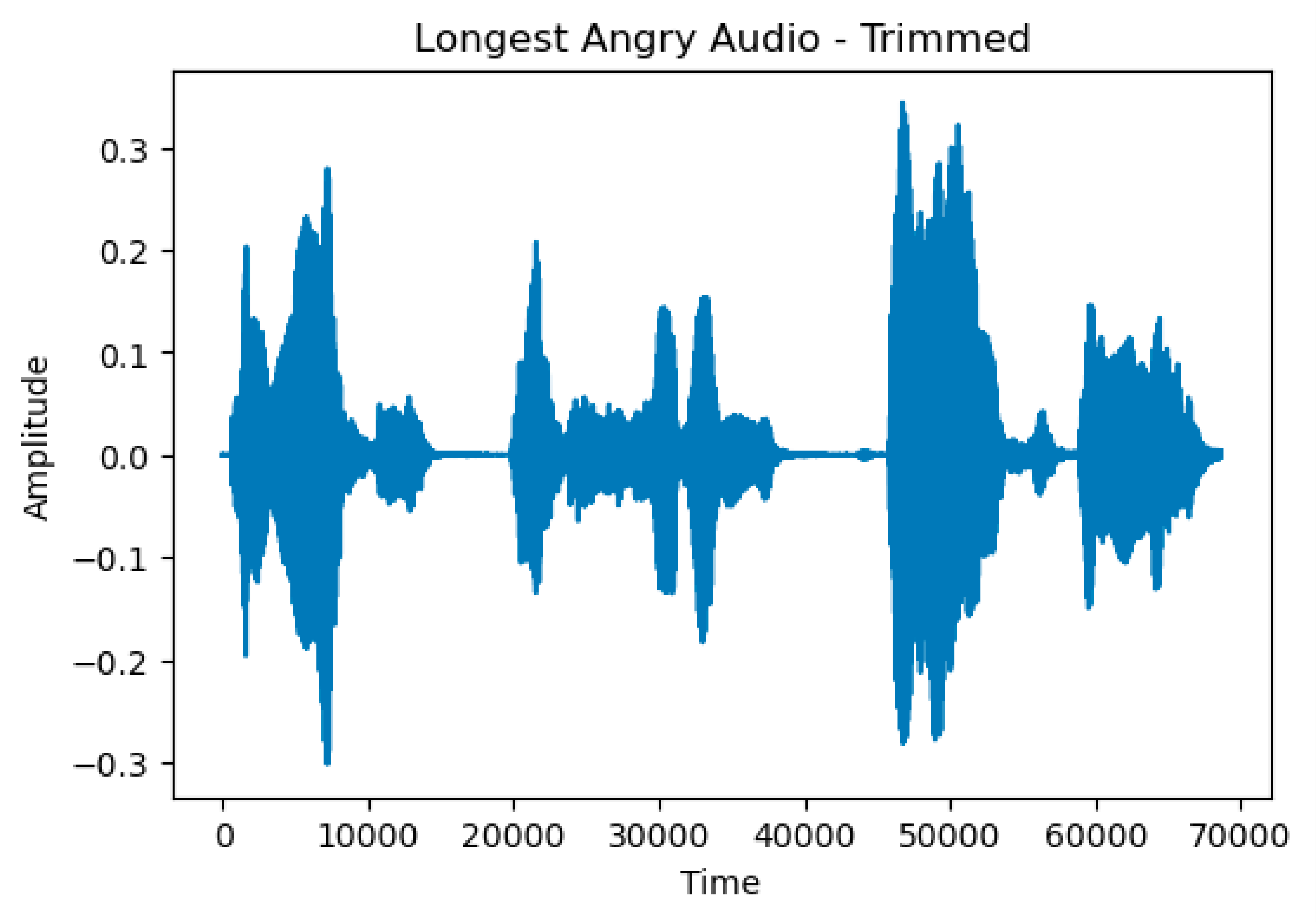
**Measurements per second:**
Sample Rate: 22050

**Length:**
Longest Audio: 5.27 s (~116203 values)
Shortest Audio: 2.94 s

**Loudness:**
Maximum amplitude: 1.010
Minimum amplitude:  0.004

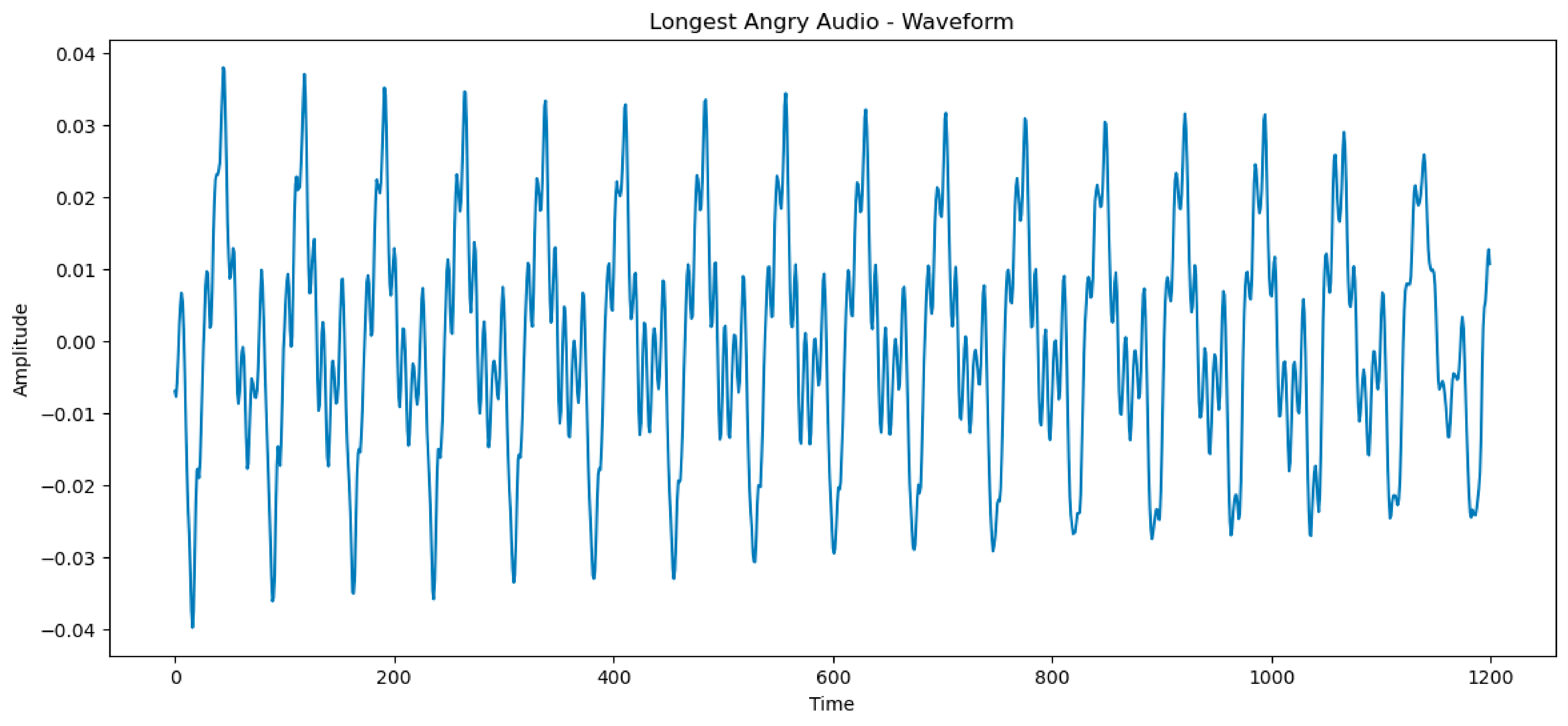
# Preprocess





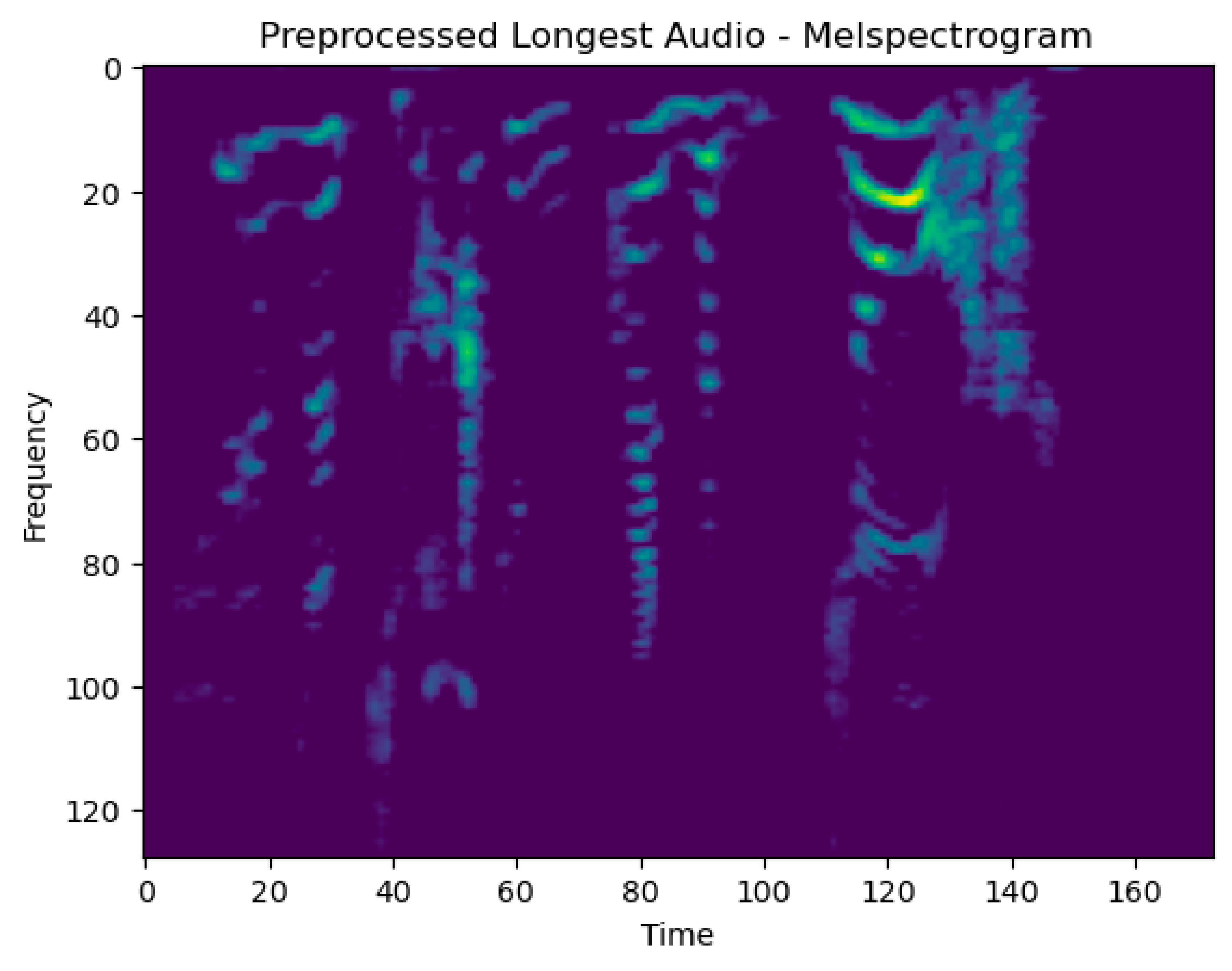
- Setting a threshold of 30db below reference to be considered as silence
  Benefit: smaller inputs, model runs faster
- Set same size for all - longer audios were trimmed, shorter were padded

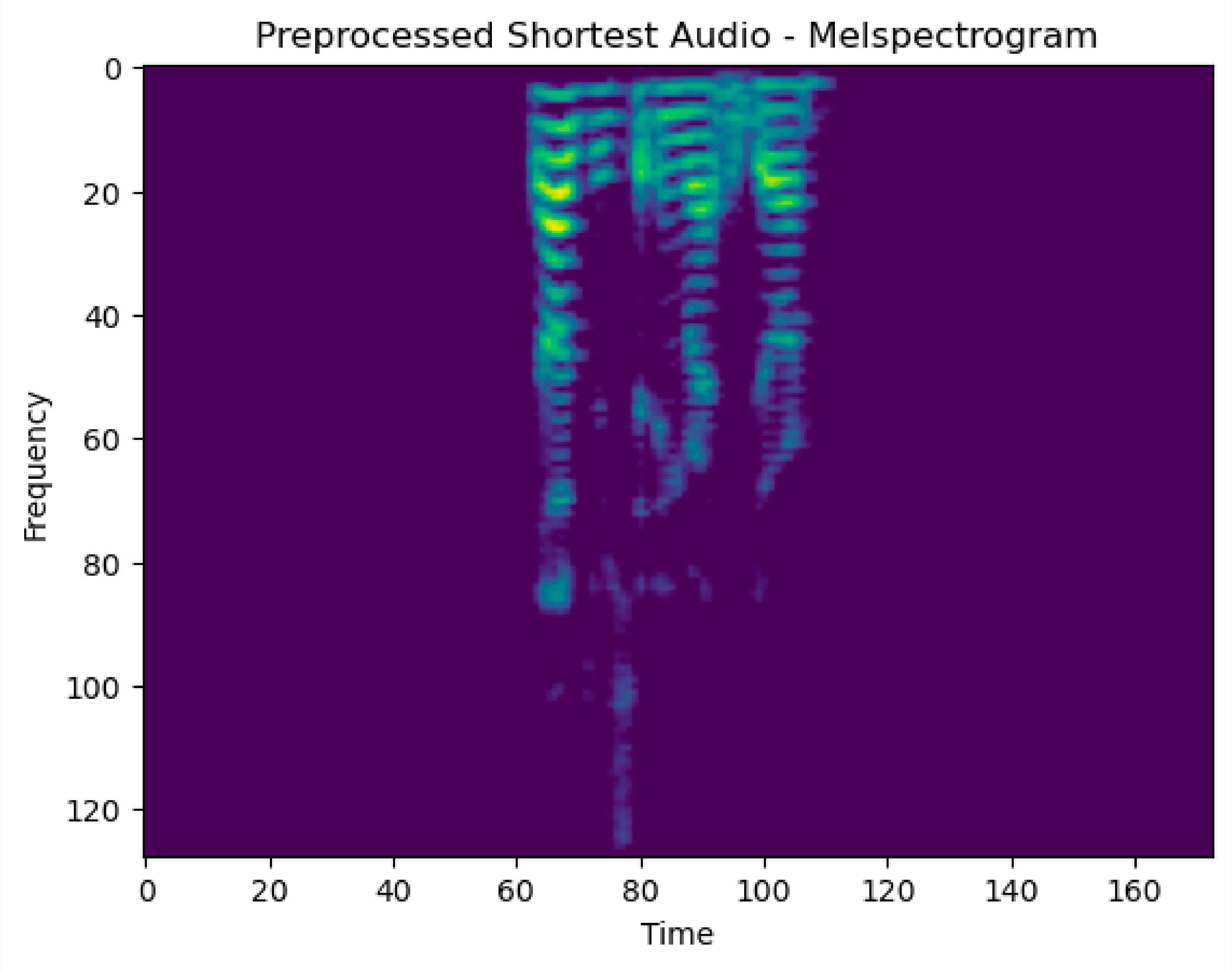
# Preprocess



Sounds are many frequencies with different amplitudes varying along time

# Melspectrogram





Melspectrogram: takes into account how humans perceive frequency

Amplitude to dB: how humans perceive loudness

# Model

**Convolutional Neural Network**

- Normalization Layer
- 2 Convolutional 2D Layers
- MaxPooling
- Dropout
- Flatten
- Dense
- Dropout
- Dense

Accuracy: 60% in validation data

# Limitations and Recommendations

- Further incorporation of different datasets
- Further incorporation of different emotions
- There are differences even when considering only words and excluding keywords, showing their concerns are different
- Subjective evaluation of emotions - people express and sense emotions differently

# Any questions?