Music Genre Classification

CHRISTIAN RUIZ

CSCI 6660: ARTIFICIAL INTELLIGENCE

Introduction

- What is a music genre?
- Key musical elements: tempo, melody, key, progression, etc.
- Analysis of music genre

Subgenres

- If a genre is known…how could that help?

- What is tempo?

- Tempo as a main feature compared to other features.

Similar Applications

- Spotify and Amazon
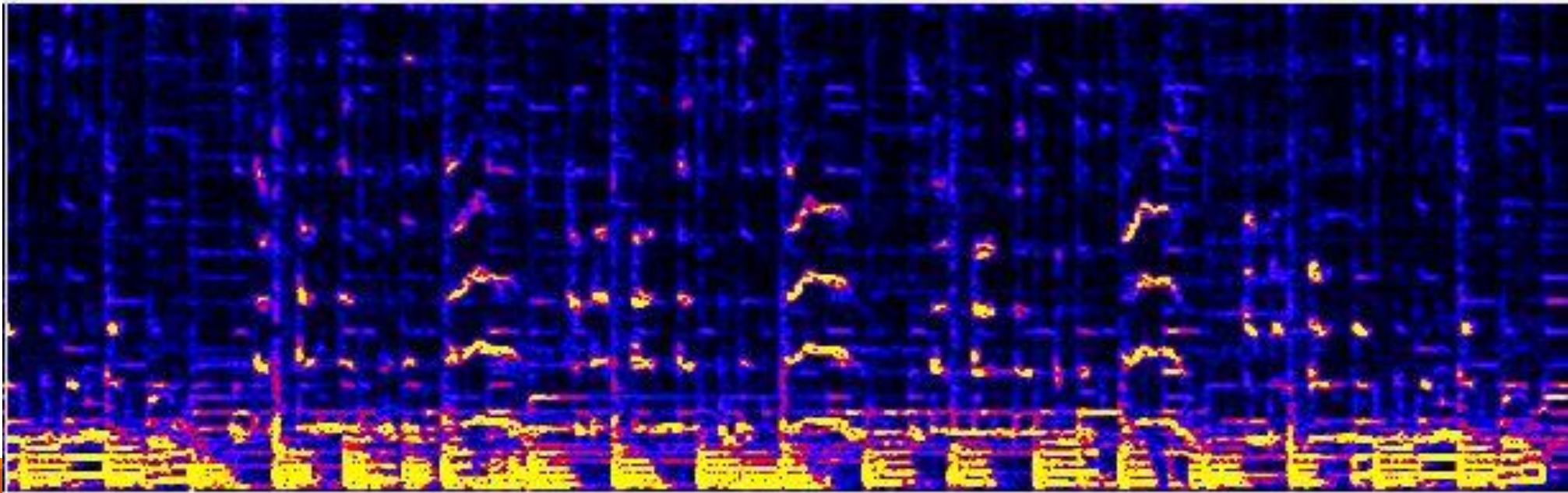- Collaborative Learning
- **HUGE** user base

Analyzing Tempo

- Audio File Data representation
- Waveform readable?
- Must translate waveform from time domain to frequency domain to analyze…
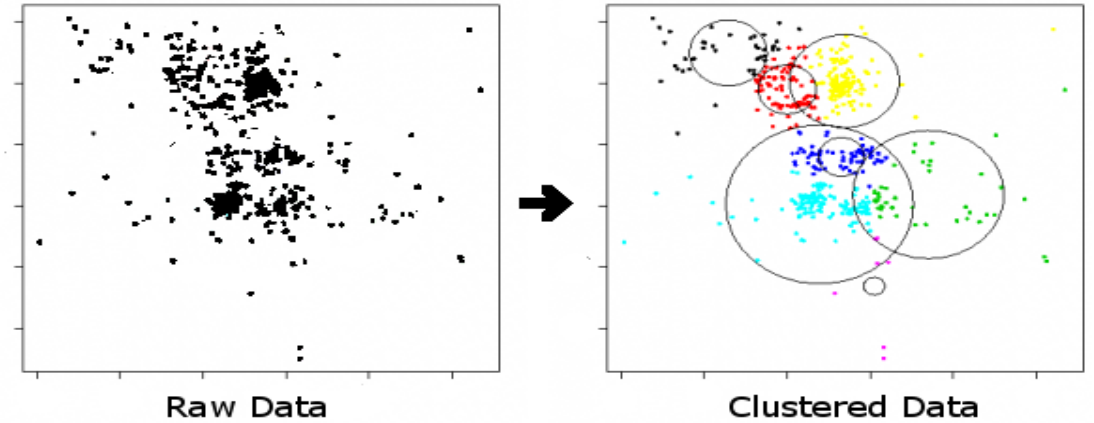
Fast Fourier Transform (FFT)

- Algorithm to convert a function from the time domain to the frequency domain

- Each point is a frequency value and the color indicates the power or intensity of frequency

- Patterns spotted, but also a lot of junk…

Analyzing Subgenres

Raw Data → Clustered Data

- Machine Learning: Clustering
- Find two ways of detecting the tempo
- Use these as features on a feature vector
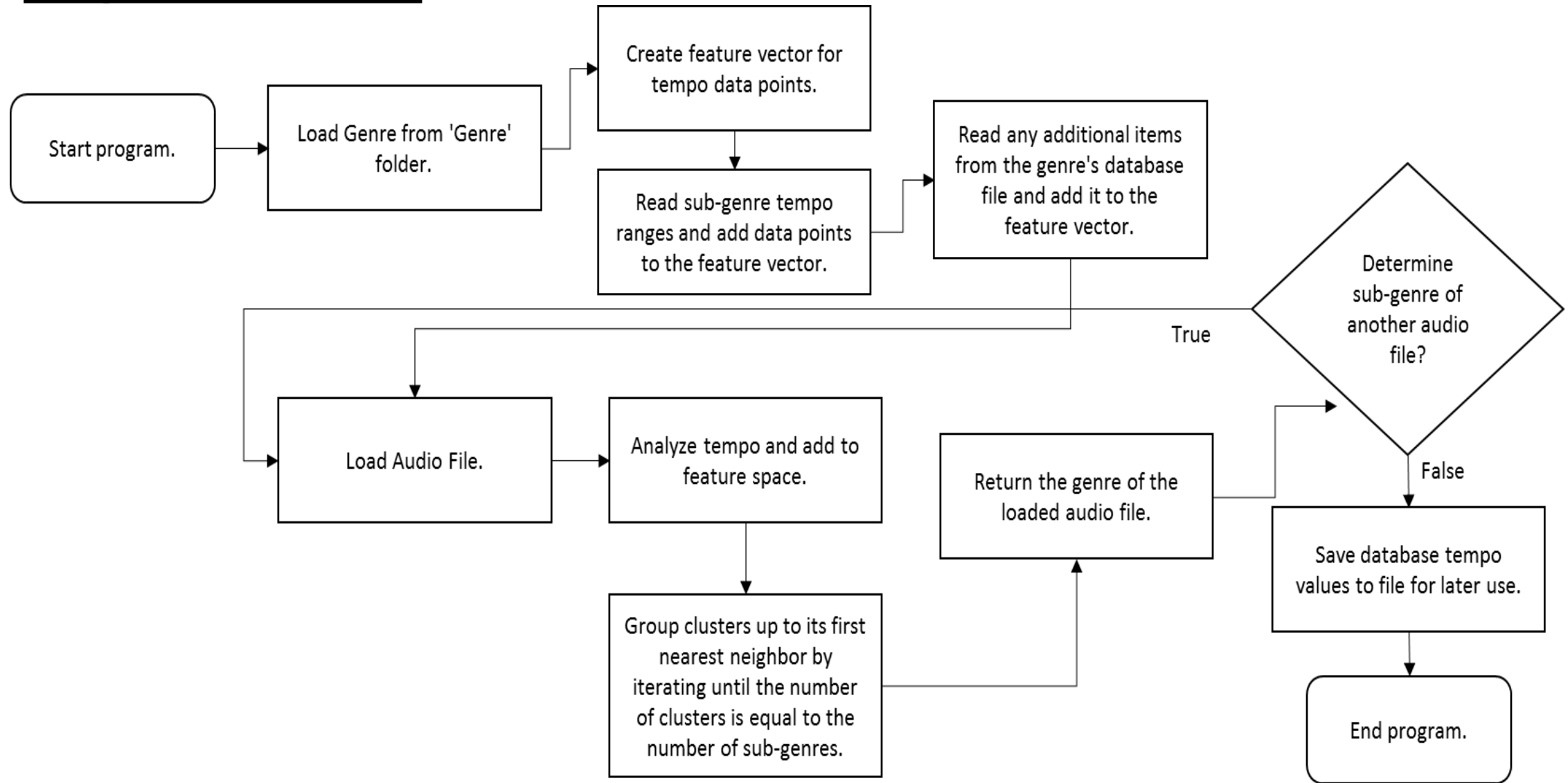- Use surveyed average tempo ranges as training data

libZPlay Library

- Avoid reinventing the wheel…

- Library to compute the FFT

- Analyzes audio to detect tempo

- Detects tempo two different ways: Peaks and AutoCorrection

Program Flowchart

Program Demo