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Text Information Systems

Project Documentation

Overview

The goal of this experiment is to explore and identify potential connections between written text and musical beats.

By connecting output values from text mining algorithms to a set of input parameters which generate musical routines, we can accomplish this goal.

The two primary technologies leveraged in this experiment are sentiment analysis and Sonic Pi. Sentiment analysis is used to measure the attitude of a text segment's author towards a topic. This "attitude measure" represents a critical input parameter in the experiment. After generating the various input parameters, we utilize a custom code generator to create Sonic Pi music.

Consider Sonic Pi, which is a "code-based music creation and performance tool", as a cross between Python and Garage Band.

Back-end Architecture

- Text Cleaning
    - Remove extra whitespaces
    - Remove unnecessary punctuation
    - Convert text to list of sentences
        - Each sentence is a list of words

- Text Analysis
    - Determine POS tag for each word
        - Convert into custom POS codes (only retain 9 of possible 34)

    - Generate sentiment score for each word and each sentence as a whole
        - "flair" library, pre-trained prediction framework
    - Determine word lengths as well as sentence lengths

- Music Generation
    - Convert each word into a musical note based on analysis results

How to Set up the Project

- Start up the backend API
    - Open the folder containing the backend code up in the terminal
    - Navigate to the api folder
    - Run “python api.py”
- Access frontend webpage
    - Open a web browser
    - Enter the url: https://ryan-berry-72.github.io/text_to_music_web/
    - Follow the instructions listed on the page