Cornell University

CS 4621 Practicum Project Proposal

A♯ – Music Visualizer

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1 Summary

Our group proposes to create a Music Visualizer called A♯ (A Sharp) which goes beyond the interpretive scope of current visualization software. We find that the typical music visualization does fine at looking good alongside the music, but fails to go beyond and provide actual interpretation or insight into the song.

As Edward Tufte said in his book *The Visual Display of Quantitative Information*, "At their best, graphics are instruments for reasoning about quantitative information" (Introduction). The job of a music visualizer, therefore, is to provide the user with enough visual information to interpret, on a higher level, the characteristics of the sound which is being visualized. If possible, the visualization could be considered a summary of the song, and even a crude alternative.

2 Software description

- Application that takes a song file and outputs a video file to accompany it
- We should think about this, maybe we want to input a song, have it do preprocessing, and then immediately play the video?
- Perhaps also take midi input as a warmup (this is a good idea)

3 Application in Graphics

Two areas that well cover and graphics techniques that well use (video rendering)

4 Software Architecture

Code in python Modules Sound file analyzation Model for representing different parts of sound Timbre, key/emotion, amplitude Controller acts as abstraction layer between model and view View (graphical representation) Software representation of the visualizer Renderer Actually render (and play?) the video of the visualization

Also breakdown of work

5 Milestone

What well have completed for the milestone

Proof of concept - getting data from sound file and outputting it in some manner Basic Architecture