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**Music Visualization in OpenGL**

For the Final project for this class, I would like to create some form of a music visualizer within the OpenGL environment. This project would consist of importing and analyzing audio files, as well as ‘distorting’ a 3d object depending on the frequencies currently playing within the audio. The inspiration comes from the musical visualizers built into windows media player, and similar applications that will display an animation of the music through reading the file.

The current concept I have for the project are: a shape, likely a sphere, in a centralized position within the viewport. This object will distort depending on the frequency and volume of the audio input, the frequency should determine the location on the object, and the volume should determine the intensity of the distortion. The actual distortion to the object should mostly look like the object is being pulled at from whatever location the frequency determines necessary.

I anticipate that because my project is focused on distortion, the object will be using textures that will be stretched around the sphere for the manipulation of the sphere. To help display the distortions, lights will shine at the object to help highlight the regions of the sphere where the distortions will happen.

The hardest part of this concept for me sounds like it would be applying distortions to the object that are dependent on the current input of the object, this will need to be based on an algorithm and effectively will be a ‘dynamic texture’ as it will be constantly changing depending on the frequency and volume of the input audio. I have found some libraries and tools that will assist me in the project (Those tools being FMOD, and using FFT to translate the digital audio signal into a frequency domain.)