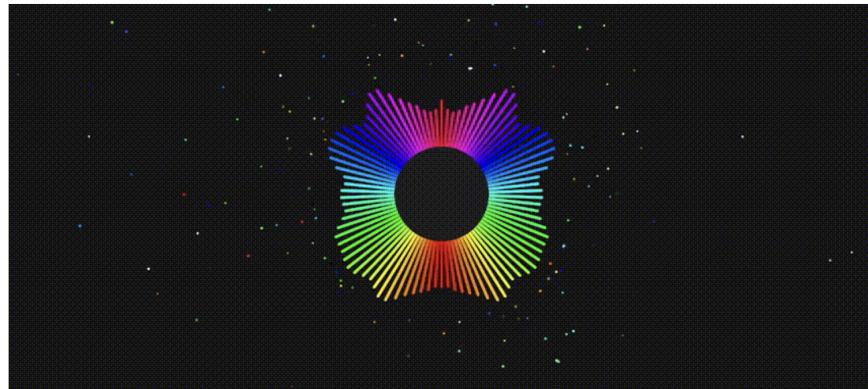


CSE 412 A4: Creative Data Visualization in p5.js (Vicky Yeh)

Link to my code: <https://editor.p5js.org/shuyiyeh/sketches/6VcwO219I>

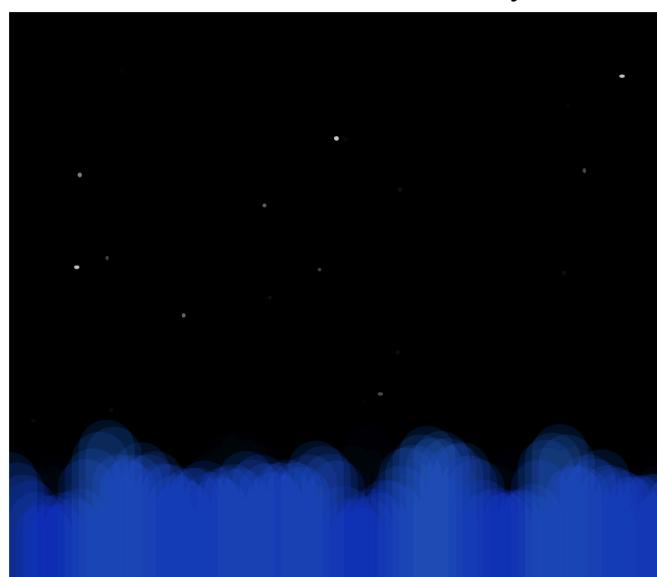
Design Research

1. This visualization extracts the waveform of the sound, representing its amplitude over time. Due to different audio signal's intensity, the length of colorful lines surrounding the circle will change the length.



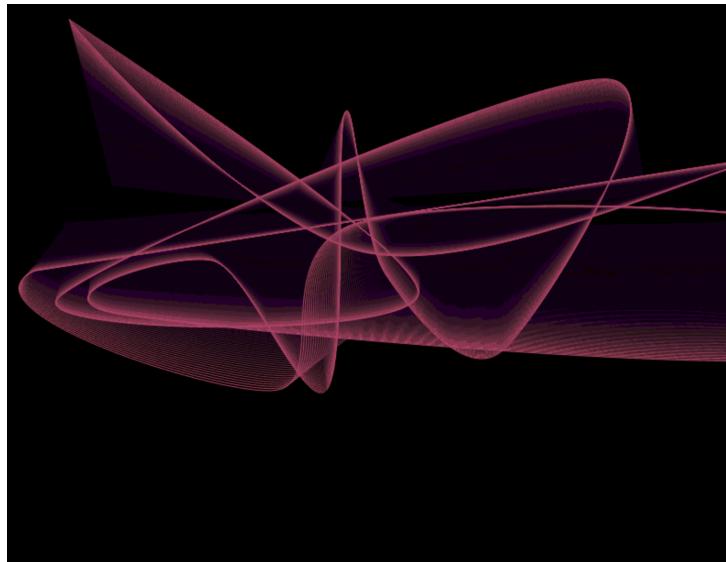
Link: <https://github.com/Ronik22/Audio-Visualizer>

2. This visualization uses the FFT waveform and spectrum of the sound to draw the continuous blue rounded rectangles. They will change the size and position due to the feature of sound. Also, if the amplitude of the sound is larger than a specific value, it will draw the random stars in the sky.



Link: <https://editor.p5js.org/js6450/sketches/XYnHHUIP7>

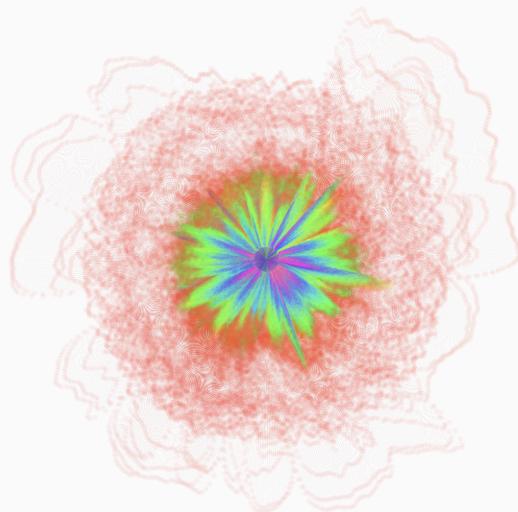
3. This visualization also uses the FFT waveform to perform the music. If the value of the waveform exceeds the specific value, it will create a new random particle and draw it onto the canvas.



Link:

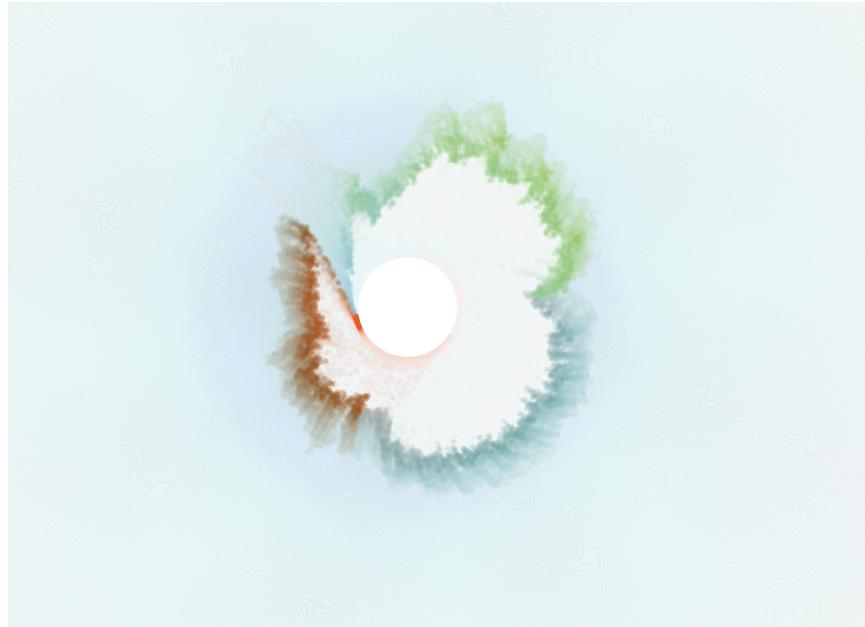
https://github.com/ChihYungChang/p5js-learning/blob/main/P5_Music_Visualization/001_RandomCurve/preview.gif

4. This visualization uses a spectrum of FFT to show the image. With the change of the amplitude of spectrum, the color and transparency of the line will be different. And all the shapes are created surrounding the center.



Link: <https://js6450.github.io/audio-viz/index.html>

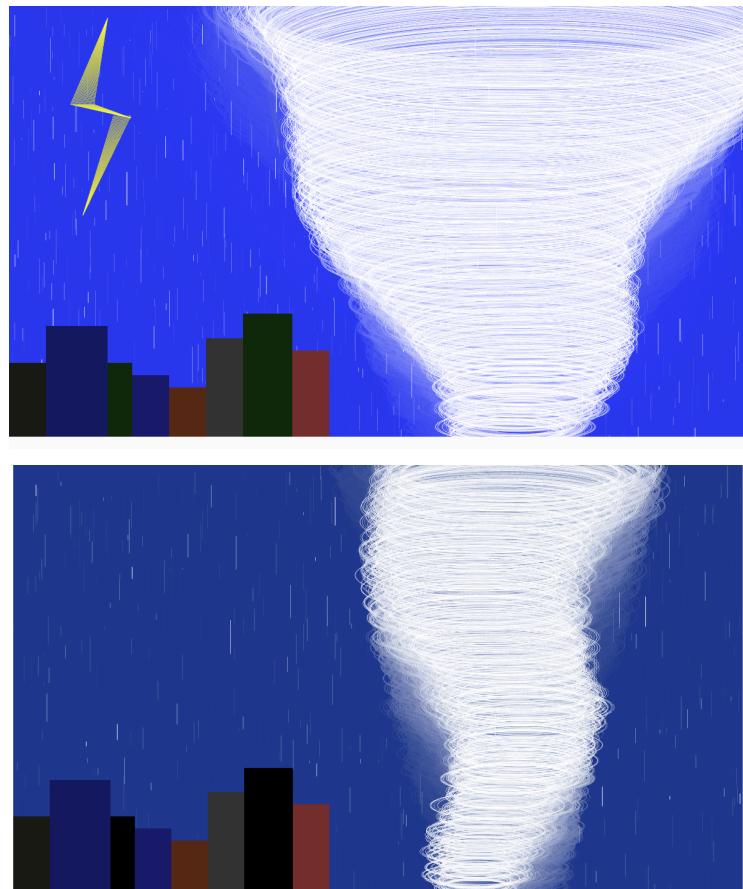
5. This visualization shows effect by applying frequency spectrum on a rotating circle. Different colors represent different frequency ranges, and the length of line indicates the magnitude of each frequency.



Link: <https://js6450.github.io/fftCircle.html>

My Audio Visualization

Screenshot:



Link:

<https://editor.p5js.org/shuyiyeh/sketches/6VcwO219I>

Description:

My visualization is a scene depicting severe weather, including a tornado, heavy rain, and lightning. The tornado continuously moves back and forth while rotating. By adjusting the amplitude of the sound, the `getLevel` function will detect the loudness, making the tornado increase or decrease in size. Also, the sky color will alter by the level of amplitude.

I also utilize the `fft.analyze` function to sense the frequency of the sound. When the sound reaches a specific frequency or higher, two lightning will appear, accompanied by flashing houses with random color. Additionally, rain also varies in density and quantity based on the amplitude of the input sound, resulting in differences in rainfall intensity.

Learning Reflection

From this assignment, I learn that although p5.js is a user-friendly visualization software, it still contains numerous functions that require a large amount of time to be familiar with. After exploring for many hours, I finally created this interesting picture. The strength of the visualization lies in the fact that by simply changing the amplitude and frequency, this picture will exhibit drastically different appearances, as many aspects of the image such as sky, tornado, lightning, and house all changes. However, the scaling of the amplitude is a difficult task because it is hard to map it onto a suitable range. Without correct mapping, the scene will not present itself perfectly. I am also aware that there are still many parts that could be improved by applying different features of sound, like peak detection and time. If I have enough time, I would like to try more functions on it to make the scene more varied.