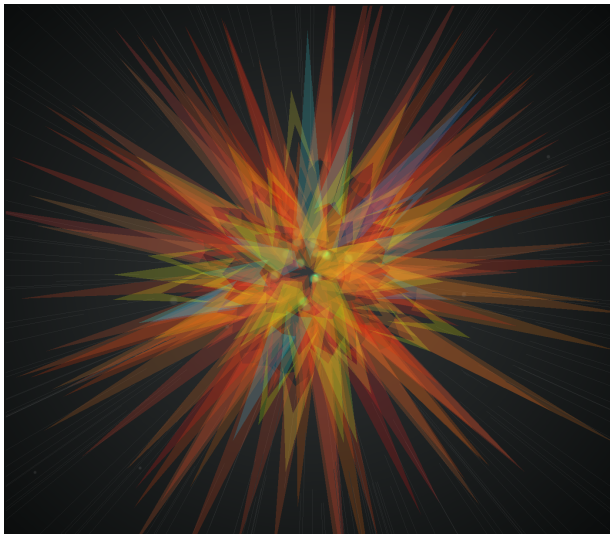
Bloom - Generative Flower

Our project is a generative art piece that evolves based on audio input. It uses a beat detection algorithm to spawn petals, which vary in size, position, and colour based on volume. The algorithm reads the audio data and generates an array of volume values every few frames. These values are then averaged so the algorithm is not overly sensitive to changes in the audio. An initial beat threshold is then set, and the algorithm checks whether the current volume surpasses it. If it does, the algorithm sets the threshold to the current volume and counts a beat. If no beat is detected, the threshold will lower itself automatically by a gravity constant.

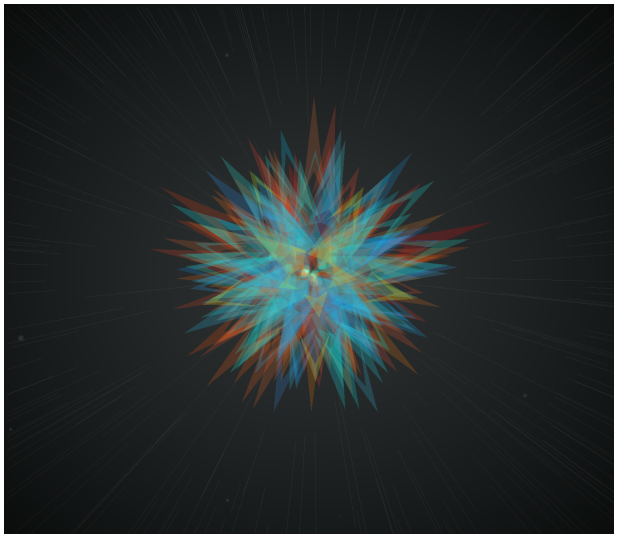
The program also checks for the lowest and highest beats to determine the range of volume for each song. It becomes smarter the more it listens to a song, as it collects more data to analyze. In this way, the algorithm is dynamic and flexible enough to work on a variety of different songs. High volume beats spawn long, reddish-orange petals in the background; medium volume beats spawn blue petals in the midground; low volume beats spawn short, yellow petals in the foreground. Additionally, the beat controls the petal's rotation. When the beat is stronger, the petal's rotation increase, and when it is weak, the rotation is more subtle.

Particles in the center of the screen use a glowing texture and an additive blending mode. They increase their velocity based on the beat. When the particles reach their boundaries, they re-spawn at the center of the flower. A loop around the center of the screen distorts to the time-domain data of the song and scales according to the volume. A series of lines around the border of the screen also zoom in and out to the beat of the song, and another set of particles wander around the screen.

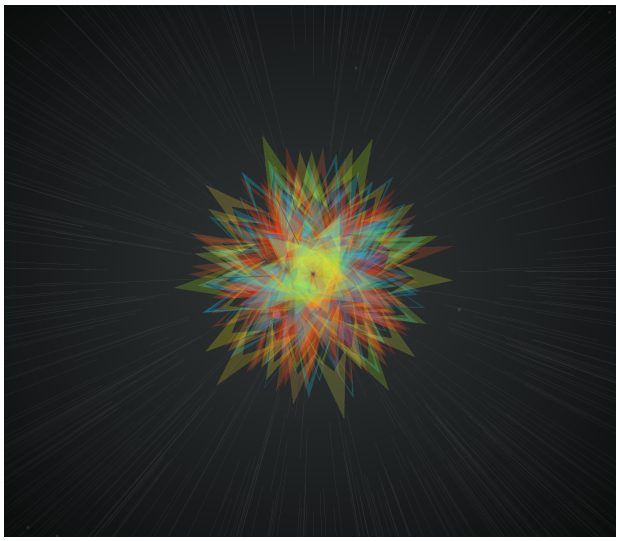
Intro - The XX



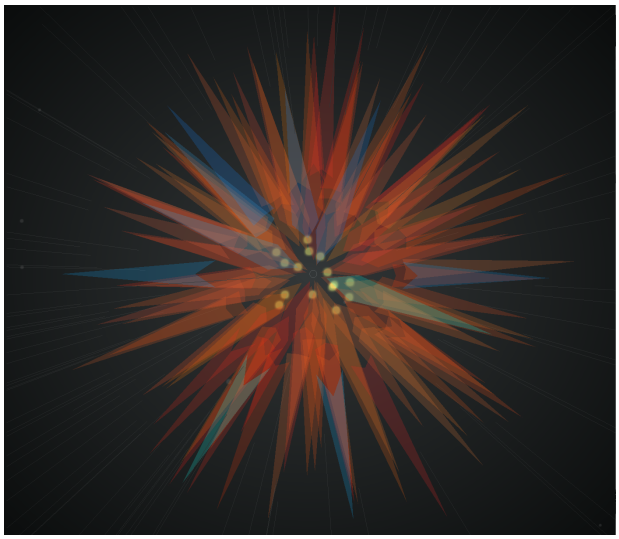
The Nutcracker - Tchaikovsky



Ljósið - Ólafur Arnalds



Hustle - Unknown



In-progress sample output