

Duet

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Abstract

Duet explores the relationship between sound and vision through the lens of collaborative human interaction. This piece explores the intersection between play, performance, and audience interaction. It allows the viewers to create their own visual expression in playful, experiential, and experimental ways. The computational illustration itself is an organic and colorful flower whose size and color variation responds to the audio's volume. Though the generative illustration autonomously responds to the sound, two players of the audience have full control over the color scheme, opacity, and placement of the flower respectively by using keyboard and mouse interactions.

Through collaborating and interacting with each other, they can create their

own, unique duet with the sound and generative visualization.

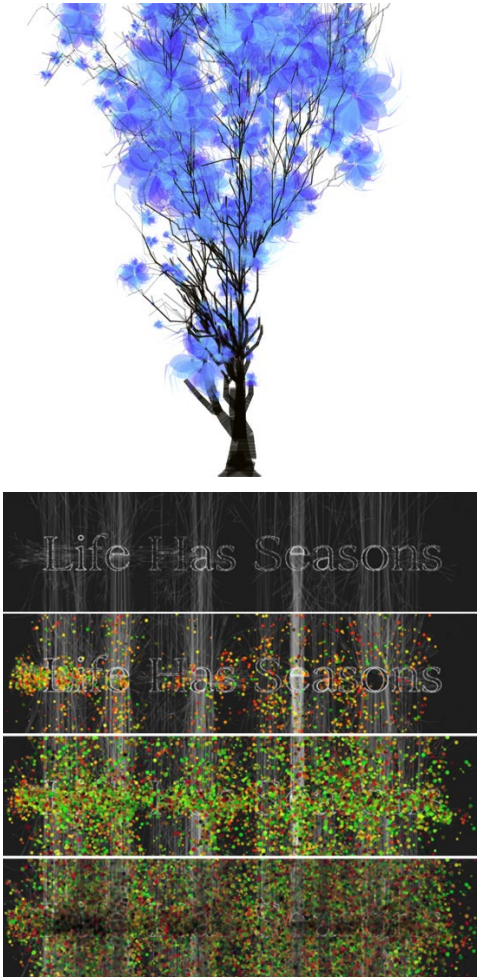
Processing, an opening-source programming language initiated by Ben Fry and Casey Reas, was used to create the generative illustration as well as sound interactions. The external Sound library for Processing was used to response to the real time sound frequency from the audio files. Gregorquendel's "Piano Fairy Tale Intro" was used as the audio for the work.

1. Background

The work reflects the author's academic background in digital media, art, computer science, and game design. It builds on previous exposure to multidisciplinary work to create an experience that is playful, innovative, and experiential. The visual style of a flower pulls on the author's ethnic background, originally symmetric and radial much like the rangoli art made during Hindu festivals.

2. Inspiration

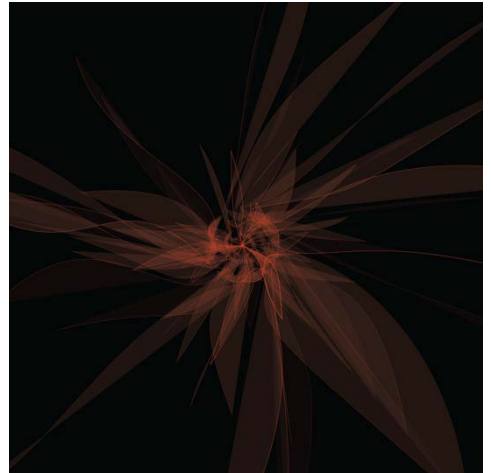
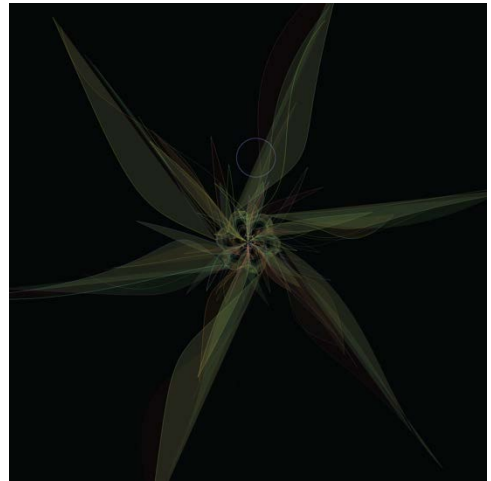
The project was inspired by Yeohyun Ahn's work in combining code and graphic design. Specifically, it is inspired by her TYPE + CODE work and Life Has Seasons, which create a colourful and evocative works through code.



Building off this inspiration, Duet's colour scheme is randomly chosen, but vivid and saturated. The level of variation in the colour scheme is controlled by the volume of the audio and is generated in a way that it always remains visually cohesive under the generative visual system created by the author. The colours are saturated for the computer screen. This allows for the exploration of a non-traditional colour scheme that is not possible to implement or design for print.

3. Visualization

The project began with experimentation with different floral illustrations to create organic, delicate petals that fit the audio. Originally clean and symmetrical, it evolved into a flower with many layered, naturally drawn petals.

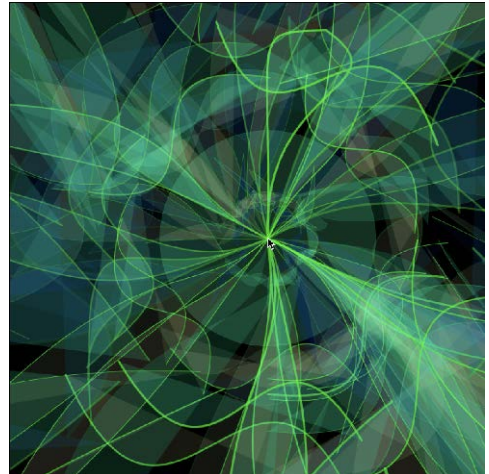
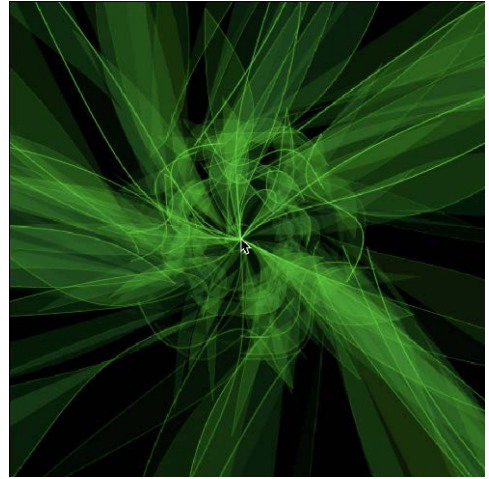
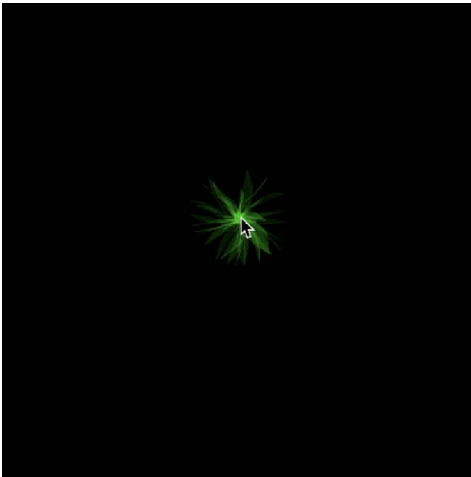


4. Sound Visualization and Interaction (Development)

Duet has multiple interactions that users can explore in their pursuit of play and a unique performance.

As shown below, the flower responds to audio volume through its size and color. The audio's volume is extracted in Processing and connected to the size and color of the flower. Therefore, the louder the audio is, the larger the flower is and the more variation in color it has.

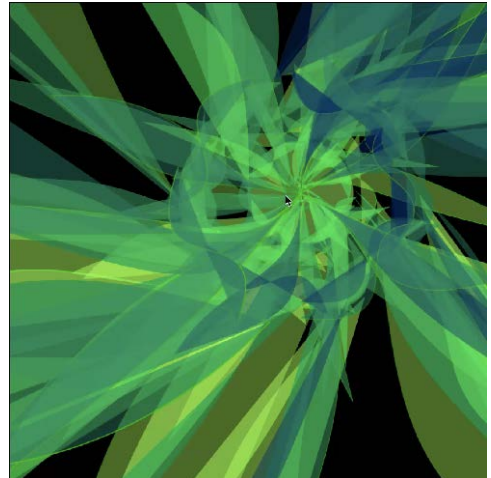
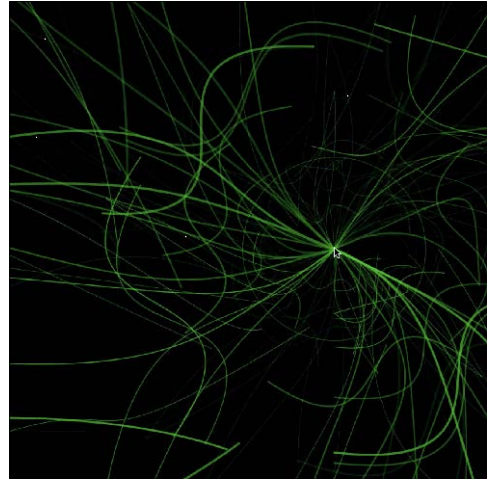
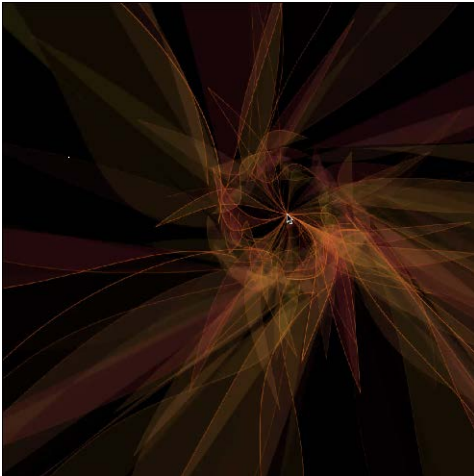
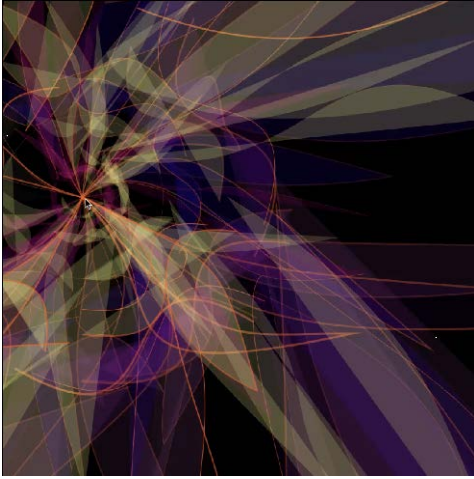
This set, repetitive behavior is something that can be passively consumed or acted upon with the physical interactions available to the audience.



Using a mouse, the user can drag the flower around on the screen. Using a keyboard, they can change the color scheme and opacity of the flower. The keys 'r', 'g', and 'b' add red, green, and blue to the color scheme respectively. The key 'f' generates a new random color scheme. Finally, the keys '[' and ']' increase and decrease the opacity respectively.

The use of both mouse and keyboard allows for multiple people to take charge of the visuals and work together to create a new performance.

This play and experimentation can turn the normally passive act of watching a performance into an active, engaging memory. When the audience take part in the performance, they create their own unique variations and experiences, building upon the human need for play.

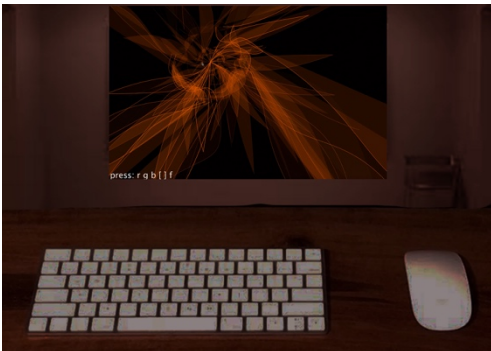


5. Conclusion

Duet is an art, design, and technological project that crosses the boundaries between digital media, game, graphic art, and sound. It suggests a new and innovative way of visual communication that integrates sound and the viewer's interaction. Duet can be extended to applications such as interactive posters, generative typography, and motion graphics, allowing for a greater range of visual communication to be shared.

The next steps for the project are to create an immersive environment where, in a dark gallery, the audience is invited to interact with the sound interaction through a keyboard and mouse. This immersive environment would create a nonjudgmental, semi-anonymous experience where people can freely interact with the work.

[3] Yeohyun Ahn, Life Has Seasons,
<https://www.yeohyunahn.com>, 2010



A presentation of Duet can be found at this link: <https://vimeo.com/618357806>

References

- [1] Gregorquendel, Piano-Fairy Tale Intro, <https://www.gregorquendel.com>, January 2021
- [2] Yeohyun Ahn, TYPE+CODE Series, <https://www.typeandcode.com>, September 2020