

Matthew Lad - Comp. Sci. Senior Seminar & Project Initial Idea - 1/11/2022

For my project I propose a program which will take an audio signal as input and subsequently output an artistic representation of said audio. The emphasis of the project will be on the algorithms necessary to process audio and graphical imagery. Inspiration for the visual representation will be based on the sensory disorder synesthesia.

Those who are unaware of what synesthesia is or would like to learn more would certainly benefit from the project. Synesthesia is a disorder of the senses in which audio signals are mixed with visual signals in the brain. When listening to music, those with synesthesia see a range of colours and shapes as they hear the sounds.

I was initially approached with the idea by a friend who studies music. He is interested in researching synesthesia and wondered what it would be like to have the visuals from hearing music. I was intrigued by the computer science and mathematics behind his idea and so that led me to where I am now. I will be working with him throughout the project, but he will have more of a “consultant” role than “co-researcher.”

I plan on making use of various python or C language family libraries which analyze audio signals. An ideal success for this project would be to have a working program which creates unique visuals based on the audio signals it receives. These visuals would be based on documented synesthesia experiences. I currently do not have a plan for the visual side of the project but I will be doing research into graphical libraries and creative ways of generating visuals. In terms of expectations, I expect that the learning side of the project will be a lot larger than creating any semblance of a finished product. I hope to at least create a program that creates very simple visualizations of audio, such as colours or shapes.