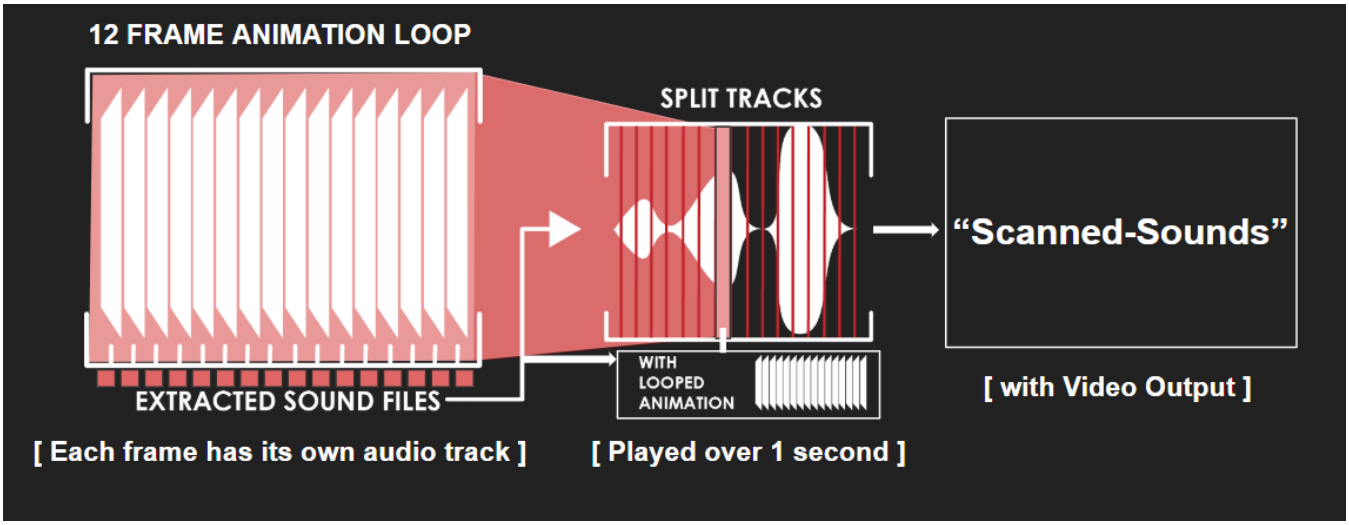
Taylor Olsen
Pre-Proposal Assignment
6400 – Maria Palazzi

Summary of Research and Purpose

- In my personal realm of skills I've played piano since the age of 8, and in media I've watched animation for countless hours. But, I've recently had an interest in how the two mediums communicate with one another. In this sense, I've felt the desire to find a way to bridge the gap between sound and movement in an intuitive and interactive way. In the previous session of Graduate Studio I created "visual audio-izer" that, when used, would output the sound of any sort of digital media (photo/video). With the time allotted these next few weeks, I will be pushing more ways for the patch to interact with the animation it is given. For example, it will be able to recognize time-based visual properties such as: opacity, movement speed, color, etc. Though it will change over the course of exploration due to testing how extrapolated values affect the sound, what I plan to achieve at the end of the 5 weeks is a patch that others will have the ability to interact and experiment with for themselves by using the IPad for interactivity. While this is happening, I'll take any sort of feedback and rework the patch if I find it as a necessary change.

Description of Prototype

- Shown below, is an example of how I initially created a synthesis of sound and animation using a program called "BW" from Victor Khashchanskiy. As the program works it's way through the photo it interprets the data like a scanner. This data is taken at the line of pixels at which an image was scanned, changes the information into greyscale imagery, and creates a sound based on the average of the greyscale that are either black/white. For every image that is put into the "BW" software, a new track is produced. My first attempt with utilizing the sound produced was to split up the tracks into separate pieces, play through each (it is a 12-frame single-second loop over 24fps) image for 2 frames with its created sound, and repeat once it gets through the 12 frame cycle. (An example I've demonstrated: link) In the end, it was a crude interpretation of what I actually wanted to happen. Below is a diagram of how I would explain this process visually.



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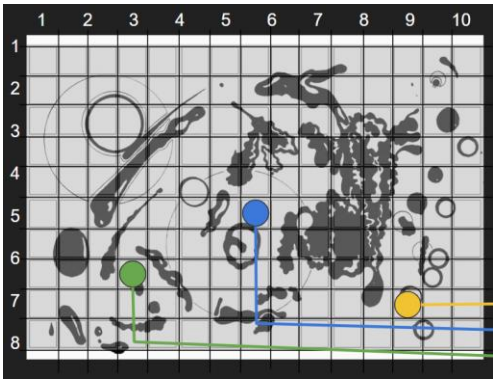
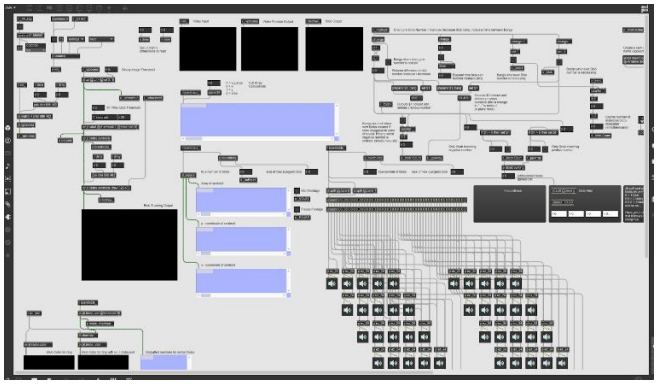
- Currently with Max/Msp/Jitter, I am able to tell the computer (and similarly to the "BW" software) to read and output sound in real-time depending on the position of a centralized point from the bounds of clustered pixels. Though it only recognizes pixel-based positions (based on x/y coordinates) and translates the numbers to sound, I'll be exploring how to use different modes of this "computer vision" based on attributes mentioned in the summary (color, speed, placement, etc.). As I go through the process of learning more about the underlying science behind sound creation, and dealing with understanding electronic music synthesis, the project will develop and grow in terms of musicality and artistic expression. At this point, that is where I want to focus my skills the most: finding the correlation between how the translation of data (from visuals) will be interpreted into sound, and evaluating how the hand of an animator/musician affects the way a pieces of music/visuals are presented. Below is an example of how my patch would recognize shapes based on a grid that was translated into a matrix within Max/Msp. As the imagery is fed into the patch: it turns each frame into a black and white pixelated image that is then translated into a matrix of numbers, outputs the centralized x/y coordinate for any recognized cluster of either black/white pixels, then scales these numbers to MIDI notes or to frequencies, and finally outputs sound based on the current frame the patch is analyzing. *If completed to a point of clean interactivity and positive feedback from peers, I also want explore complexities in looping animations and create a piece of music solely based on what shapes/forms I end up animating.*





- This step in the process of my research feels crucial because of the exploration of an otherwise little-known process regarding image to sound. The program itself is in a prototype state, and I would like to see it come to a point where I feel confident showing others who aren't familiar. In the end, I believe there is also a possibility that I can make a patch that is referenced in the blind/deaf community was a mode of entertainment or communication. Through this process as well, I would like the patch itself to become more user-friendly and easy to interact with I might end up having it become a mobile application/web-accessed page.

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Reference Contextual Background

- Working with looping animations as well as non-objective forms was the best way to determine how sound would be affected in the final program output. I found a few references online on how past animators such as Norman McLaren would create sounds in his animations. He would "draw" the sounds onto the film itself that coincided with the imagery on the same frame. Though this is basically "making" sounds, to myself it is not a true translation from imagery to sound. This is because he isn't actually using the animated imagery as the sounds that would be made, but rather using this imagery as a basis to what his mind interpreted what he assumed the sound a certain shape would create. An example of this is elongated shapes would sound shrill and high, while large shapes that take up space on the screen would be loud, low, and resonant. He would manually put in the marks for a specific frame on the sound strip. Most of the time it was just small brush strokes that would create little blips of sound for each frame, but later went on to have long connected strokes on the sound strip for uninterrupted sounds that followed smooth animation.

  Example found here: (link)

- A more recent individual who has been exploring this medium of image to sound is Jerobeam Fenderson. He uses an Oscilloscope and Max/Msp as well as Ableton live to "draw" shapes using sound. What he does is take sin/cos values of sound and stretches them out until they're only recognizable as a line. He then takes these lines and creates imagery based on the frequency, amplitude, envelope, vibrato, etc. this allows him the ability to add multiples of his own sounds, and adjust and repeat in the way he wants. In this case, I still think that this isn't the best way to represent image to sound. The aesthetic of these explorations are so technical and on-beat, that the effect feels oddly satisfying knowing how in-sync the sound and visuals have come to be created. But, it's very close in the sense that the visuals are only evident due to the initial sound produced. So: what we hear is bent and formed into what we see. For myself, I want the reverse: what we see/animate is purely what we hear.

  Example found here: (link)

Making Methods

- Skills I will rely upon:
  - Traditional Animation techniques
  - AE / Premiere / Photoshop / Illustrator
  - Maya
- Skills that we be developed:
  - Max/MSP/Jitter
    - Data retrieval and dispersion
    - Sound manipulation and data collection
    - Video/Sound output as a saved file
    - Interactivity in the program (?)

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Weekly Production Calendar

Week Number	Production Notes
1	--Define what I want the patch to do and how it will happen ----Figure out if I want to attempt creating animation along-side with the patch itself. --Find resources online about how to make this happen --Begin testing new patch information --Work on Framework and research
2	--Work with testing sound and how this will be affected by change in values --Test more data retrieval and find efficient ways of CPU/GPU usage.
3	Patch Check in: --If the project seems like it will take longer than the 5 weeks, I will ultimately have to change this calendar --If not, keep moving forward and continue with testing. --Playtesting
4	--Determine the state of the patch --Is it working? Is it to a point where I can make changes? --IPad functionality
5	--Patch clean-up --Adding user-friendly interactions --Testing animations (if done) to see how the patch interacts with the visuals --Interface design and bug fixes