Global Arts + Humanities – Fellowship Proposal 2019

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Project Statement:

"Music informs images just as images inform music."[1] But, is one more important than the other? Currently my goal is devising a correlation between the translation of data (from visuals) into sound and evaluating how the movements of the animator/musician/dancer affects the way pieces of music/visuals are created. [2, 3] The relationship between sound and audio has been an area of fascination to artists and composers throughout history. Norman McLaren, a famed Canadian experimental animator, once created an entire piece utilizing photographs of rectangular shapes fed into an analog optical sound track (storing sound onto a film strip) that simultaneously linked with his visuals.[4] Len Lye, a significant animator who painted directly onto the film celluloid, and his use of translating sound into expressive and indecisive forms, were influenced more by sound than imaginative motion.[5] The attempt at mirroring these analog techniques in audio-visual synthesis is an experimental film language within itself. And with the continuous rise of artistic expression in technological settings, this constitutes further exploration and consideration that digital animation in the realm of audio-visual synthesis needs a stronger significance in the modern era. My current project and research focus is called a "Visual Audioizer"; imagine the opposite of an audio-visualizer. When used, this software outputs sounds based on any digitized input (photo/video/live-camera). The process is real-time and can utilize any form of graphic-media as an input to the eventual visual-to-sound translation. Using this, a digital animator/user can become more aware of their motion and timing in a sonic setting. As an example: a white circle in the center of a black screen creates a Middle-C note, but while this circle begins to move left/right the frequency moves along the spectrum of sound and becomes higher/lower in its pitch. Through further exploration in the realm of graphic aesthetics of color, movement, opacity, patterns, and pictorial ambiguity, all aspects of what can be described as visually perceptible and audibly possible will play a key role in the creation of this tool.

Project Status:

With Max/MSP, an industry standard for sound and visual creation, I've begun to utilize "computer-vision" to read and output sound depending on the position of a centralized point from the bounds of clustered pixels. [6] This current project is decisive in the conceptual relationship to Audio-Visual synthesis as well as my own personal research. And in my previous sessions of my studio courses, I've created prototypes of ways that visuals can be translated to audio, rather than how audio transcribes into visuals. The interaction between them is crucial to the exploration of film language; finding a common ground that's intuitive, and possibly interactive, is the goal I've been striving for. Victor Khashchanskiy, an audio-software professional, created a program called "Bitmaps & Waves" that scans static imagery and is transcribed into greyscale

[1] Jean Detheux, "Neither Fischinger nor McLaren, Visual Music in a Different Key," https://blog.animationstudies.org/?p=346.

[2] Taylor Olsen, "Audioizer – Prototyping – 032519," https://vimeo.com/326931873.

[3] Taylor Olsen, "10-Wk Project - Visual "Audio-izer" Prototype," https://olesunstudios.weebly.com/blog/10-wk-project-visual-audio-izer-prototype.

[4] Norman McLaren, "Synchromy - Norman McLaren," https://www.youtube.com/watch?v=UmSzc8mBJCM.

[5] Len Lye, "Len Lye," https://nzhistory.govt.nz/people/len-lye.

[6] Adrien Kaiser, "What Is Computer Vision?" https://hayo.io/computer-vision/.

numerical values. [7, 8] The program takes these greyscale values and attributes them to frequencies along the audible spectrum of human hearing; the resulting output is a direct correlation to what the programs scans to an audio file. In my first attempt I began with utilizing the sound produced from Khashchanskiy's software, splitting the tracks into separate pieces, and splicing them back into a direct audio-animation relationship. [9] This interpretation of visuals to sound isn't what I was necessarily looking for, but critical in the development of my own research. Moving forward from the exploration of Victor's software, I have invested my time in learning the science pertaining to the attributes of sound. In the field of audio-visual synthesis, the program Max/MSP is an industry standard among computer scientists, musicians, software engineers, graphic artists, and academics the like. [10] I've become self-taught in this versatile program and decided to engineer its uses to my advantage. I'll be displaying a prototype during the ACCAD Open-House this coming April and analyzing how the audience interacts with the project; this will be used as information for further development.

Community Engagement:

Through this interdisciplinary engagement targeted towards the focus area of Community, Ohio State will gain more recognition of the invaluable connection between the hand of the artist, the mind of a musician, and the curiosity of the scholar. This exploration of Audio-Visual synthesis will focus on the deepening of artistic aesthetics and musical expression in the field of arts and humanities. The translation of code, to visuals, to audio, and finally to interactivity engages a broad range of academics/artists and will allow individuals to become more attuned with how they view the association of visual/perceptual motion in an unrestricted and equivocal environment. On top of this, the use of the program is not bound by ethnicity, religion, nor physical prowess of any individual – it embraces the use of diverse perspectives in the arts and sciences. It will foster new opportunities for individuals intimidated by the idea of creating animation, choreographed dances, and music, to explore. I want to make an experience that allows others to enjoy, come into with an open mind, and learn from one another in this realm of audio-visual synthesis.

Fellowship Involvement:

The fellowship will grant me an opportunity to focus on my own research and allow me to contribute/engage the community of arts and sciences. While I develop more of my skills towards the underlying science behind electronic music synthesis coupled with my understanding of digital animation, it will also allow me to address my research and development towards the issues of musicality coupled with artistic expression and data manipulation. Though my current research 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.) This fellowship will also allow me to focus more diligently with my work in the field of audio-visual synthesis; and creating this interactive software will provide innumerous insights between interdisciplinary opportunities regarding the relationship of data visualization, audio synthesis, and visual aesthetic. To finish, using motion-tracking and computer-vision, theatre/dance/animation students can collaborate outside of their respective disciplines; anyone will be able to utilize this research towards understanding their own created movements and use it as a means of extrapolating ways of finding meaning within their own work and others.

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[7] Victor Khashchanskiy, "Bitmaps & Waves," http://victorx.eu/BitmapPlayer.htm.

[8] Mila Vasileva, "Images To Sound," https://www.youtube.com/watch?v=WgZ01bAOMMU.

[9] Taylor Olsen, ""Hearing Visuals" - Testing - 2018," https://vimeo.com/311110400.

[10] Max Mathews, "Max Software Tools for Media | Cycling '74," https://cycling74.com/products/max/.

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