

# **Thesis Project Portfolio**

## **Whiplash**

(Technical Report)

## **A.I. Art and Copyright**

(STS Research Paper)

An Undergraduate Thesis

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## **Executive Summary**

For my technical report, which was done on my capstone project for the Electrical Engineering major, I wrote about my project that was about real-time beat detection given an audio signal from an aux cord. The goal of the project is more proof of concept idea, as the group was composed of people who are all interested in music and wanted to make something music related to music for the capstone project. Thus after doing some research to find ideas that involve music as well as a situation that requires a mixture of both hardware and software design, the group ended up agreeing with the idea of creating a machine that would be able to play a drum and would be able to play alongside a piece of music that will be fed into the machine via an aux cord. Then from the aux cord, the hardware will be able to turn that analog signal into a digital signal so that the CPU (Central Processing Unit) can analyze the signal and be able to detect where the beats are to control a drumstick to be able to play along to the beat that the CPU detects.

The project was a success as the group was able to create a Printed circuit board that was able to be connected to the CPU and play along to any song that was inputted to the machine as well. The report then talks about the initial design process and how the group got to the conclusion of choosing that project. The report also goes over the timeline of the group's work and when the group was making advancements in the project. The report also includes details about the work that was done in both the hardware design as well as the software design. With this in mind that section is mentioned later in the report during the section where the group writes about the different struggles that were faced by different group members during different times of the project's progress. Including all types of struggles that were encountered during the project process and how the group overcame them, as well as possible reconsiderations that the

group would make if the group was allowed to try the project from the very beginning as well. Lastly, the report also talks about different social issues that the project would face. Issues such as the impact on the environment that the project would have given that circuit board printing takes resources to do, as well as social issues like what is the machine truly doing could be seen as another way that machines take over jobs.

In the STS paper, the topic changes from the technical project as the topic of the STS paper is about Artificial Intelligence (A.I.) generated art. Namely who should get the ownership of the A.I.-generated art? At the time of the initial research, there were no significant court cases involving the ownership of A.I.-generated art. The paper starts by giving examples of how humans and society interpret art, now the actual definition of art is difficult to explain, but the paper sets up what the definition of art will be for the rest of the STS paper. Later on, the paper will go into detail about what is copyright in the realm of visual art, specifically still images such as paintings, drawings, sketches, etc. As well as how copyright helps the artist who is creating the art.

Later the paper will mention A.I., what it is, and how the process works for an A.I. to be able to create new images when the A.I. is given a prompt by a user. This process is then questioned since the A.I. is trained on data and can be given prompts to emulate or copy the artistic stylings of a certain artist. This is where A.I. meets copyright law and then sources are used to see how the general public as well as critics view A.I.-generated art against how they view human-created art. Sources will be used to come up with potential ideas of what the consequences will be if A.I.-generated art is trained on the art of specific artists and if the user entering the prompt would legally be allowed to see the art that the machine creates as it is uncertain whether or not the original artist who's art may have been a base for the art the

machine generated was compensated for the art. The paper concludes with ideas for the future regarding A.I.-generated art and the copyright issues that it currently has and ideas that could potentially be worked on to create a system that allows A.I. to generate art as well as properly compensate the artists whose art was used to train the A.I.