

## **AI Generated Music and its Impacts on the Music Industry**

Nathan Beidle

ENGR 46099: Computer Engineering Technology Capstone

Dr. Evren Koptur Ph.D.

December 7, 2022

Throughout the course of the 20<sup>th</sup> century, music and technology have had a turbulent yet mutually beneficial relationship. The rise and fall of radio, vinyl, tape, the compact disc, and many other technologies have marked the advancement of music over the last 100 years. However, the beginning of the 21<sup>st</sup> century has already unveiled a technology far more disruptive than any of the aforementioned. Music and art created by artificial intelligence (AI) has the potential to disrupt the music and art industry far more than any other technology before it.

In order to understand the potential future positive and negative impacts of AI driven music and art creation, it is imperative to understand how AI driven content is created. An article by Vice News on the subject summarizes the process nicely, “Most AI content generators depend on datasets that are filled with original artworks, texts, or audio, and use those original works without the owners’ permission,” (Cole, 2022). In other words, for an AI to create a song it must first learn from potentially hundreds or thousands of copyrighted materials. This may seem abhorrent at first, but in a sense, AI learns how to create music much the same way regular people learn to make music, by listening to and understanding a large volume of work which influences a new creation. The problem, however, lies in trying to decide what counts as a creative influence, versus what counts as plagiarism.

This distinction between influence and plagiarism is not unique to AI, but AI has completely nuanced the topic. For example, if some piece of software was to take two pieces of art or music and merge them together, that would be clear plagiarism. However, what about a piece of software that takes 1,000 works and puts them together, or even 1,000,000 works? Where do we draw the line between merging a small amount of someone else’s creation in an unethical manner and using a large catalog of references and resources to create a new and

unique work? Sadly, there is no concrete answer as to where this line should be drawn now, leaving those who have had their creative content used by AI without a path for recourse.

While some AI tools reside in a gray area by trying to create new pieces of music from existing content, some more nefarious programs clearly live in a darker realm. AI driven software is often used to remix existing songs or augment them in some way. Some of the most popular of these AI driven tools being ones that can remove vocals or otherwise separate audio tracks in a given piece of music. Tools like these have already caught the attention of The Recording Industry Association of America (RIAA), who submitted docket no. USTR-2022-0010 to regulations.gov regarding emerging disruptive technologies in the music industry. In this list of disruptive technologies, pirating sites, video to mp3 converters, and AI based extractors/mixers are all listed together as services that harm U.S. artists, songwriters, record labels, and music publishing companies (RIAA, 2022). Many people may be surprised to find pirating and AI driven software in the same list of disruptions, but AI's rising popularity was certainly enough to catch the RIAA's attention, and for good reason.

Consider the following when it comes to an AI based track extractor: Since most of these tools are open source and/or free, anyone can download these tools and begin to use them to extract, for example, the lead guitar from a song. They could then use that track illegally in their own music and distribute it on online platforms designed for distributing royalty free music. Once distributed, other people may begin to download that song and use it rightfully believing it to be copyright and royalty free. Now, once someone or some software detects the copyright infringement, it is essentially too late. This may sound farfetched, but it essentially has already happened. Prominent YouTube musician and instructor Paul Davids describes in his video, "Craziest COPYRIGHT STRIKE from YouTube ever?!" the story of someone extracting a guitar

track Mr. Davids published and using it to create a new piece of music. In an ironic twist, Paul's original piece of music gets flagged by YouTube's copyright system due to its similarities to the plagiarized work (Davids, 2018). This type of story has become exceedingly more common as the internet's library of music continues to expand ceaselessly and as AI driven ripping and mixing tools continue to become more available to the public.

Another topic to consider with AI created content is ownership. As discussed earlier, it can often be difficult to figure out all the people responsible for a single piece of AI created content. So much so, that many governments and legislative bodies have yet to figure it out themselves. There are essentially three different options for determining who owns an AI created piece of content. The simplest and easiest option to understand is that no one owns the creation. Essentially, it is the work of an AI/non-human, and thus cannot be copyrighted. This, of course, is rather unappealing to anyone looking to use AI driven content to make money. The second option is that the engineer who created the software owns all the images generated from it. This is the first solution that more traditionally solves the issue of ownership, but has a major pitfall when it comes to open source or free software. In the case of open-source software, there could potentially be many different authors and with free software it is impossible to moderate all the images created. This leads to option three, whoever creates the image locally owns the image. This is the most traditional of all the options. Afterall, when copyrighting a photograph, the copyright is attributed to the photographer, and not the camera (Guadamuz, 2017). Yet in this instance, the creator is often the least involved of any participant. AI generated content is often made by plugging a few words into a text box, how can that qualify as a copyrightable effort?

These questions about plagiarism, copyright, and ownership need to be resolved as AI generated art and music rapidly progresses, even passed the point of human abilities. AI have

long since been able to best humans at logical games such as chess and go, but will they ever best us at art, something considered for thousands of years to be uniquely human? The short answer is yes. In fact, it already has. In August of 2022, Jason Allen submitted a piece called “Jason Allen via Midjourney” to the Colorado State Fair’s annual art competition, where it happened to win first place. Jason was not subtle about his use of AI in the creation of the piece. His transparency is even reflected within the title, which names the AI tool he used to create his piece, Midjourney. The artwork itself is wonderful and difficult to describe featuring a detailed but almost ambiguous golden room with three or four people, a few adornments, and an unignorable massive globe window that appears to peer into some sort of divine background world other than ours. An abstract piece of art by human standards made eerie due to its inhuman creator. On its own it is clear why the piece won; it is a masterpiece. Yet this did not stop a large wave of backlash from raining down upon Mr. Allen. Artists and opinionated social media users quickly chastised Mr. Allen for his inhuman submission, but Mr. Allen maintained he had not broken any rules and thus won fair and square (Roose, 2022).

While the winning and losing of any single competition or tournament is trivial when it comes to the macro impact of AI technology, it is historically the marker that distinguishes when AI has progressed passed the limitations of human abilities. AI does not regress or get worse at what it does, it only gets better. Grandmasters and world champions in chess are magnitudes behind in skill level compared to AI and have been for decades. Soon musicians and artists may find themselves in the same predicament.

The method for resolving all these issues revolving around AI generated music and art is simple; countries need to update both international and national copyright laws to include provisions regarding AI generated content. In addition, consideration must be taken when

distinguishing between tools that simply rip content from other creators vs tools that create unique works, with knowledge that they are essentially different applications of the same machine learning concepts. Ownership of AI generated works needs to be clearly defined as well, though the solution to this is less obvious. The current system where AI content is in an ownerless and uncopyrightable gray area is unacceptable. Perhaps the best solution is to initially leave all the rights for AI generated content in the hands of the engineers who create the AI driven software, who can then choose to allow the users rights to images they generate locally. A decision must be made on whether AI should be allowed access to learn from copyrighted material without the copyright holder's consent. Lastly, action needs to be taken against software that utilizes AI to transform tracks in ways unintended by the author. The time for this legislation is now as AI generated content begins to break into the main stream and once again best humans at our own game.

## References

- Cole, S. (2022, October 21). *Record labels say AI Music Generators Threaten Music Industry*. VICE. Retrieved November 29, 2022, from <https://www.vice.com/en/article/pkgxqz/record-labels-say-ai-music-generators-threaten-music-industry>
- Davids, P. (2018, July 3). *Craziest COPYRIGHT STRIKE from YouTube ever?! [Video]*. Youtube. [https://youtu.be/YvH77m\\_3MVU](https://youtu.be/YvH77m_3MVU)
- Guadamuz, A. (2017, October). *Artificial intelligence and copyright*. Artificial Intelligence and copyright. Retrieved November 25, 2022, from [https://www.wipo.int/wipo\\_magazine/en/2017/05/article\\_0003.html](https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html)
- Roose, K. (2022, September 2). *An a.i.-generated picture won an art prize. artists aren't happy*. The New York Times. Retrieved November 25, 2022, from <https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html>
- Recording Industry Association of America. (2022, October 7). *RIAA Submission to Comment Request for the 2022 Review of Notorious Markets for Counterfeiting and Piracy*. raa.com. Retrieved November 25, 2022, from <https://www.regulations.gov/comment/USTR-2022-0010-0013>