**Term Paper**

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**Copyright and AI-Generated Works**

**Introduction**

In early months of 2019, the distant future got one step closer to becoming a reality when Warner Music signed Endel, and algorithm, to a record deal. Endel’s product is somewhat unconventional in a music sense as its purpose is to “promote things like focus and relaxation” (Deahl, 2019). This means that the “music” generated is more similar to a soundscape with layering of different notes and white noise. Because of this, Endel refutes the claim that they are competing with musicians given they don’t produce music (Deahl, 2019). However, this record deal represents something larger, that AI-generated works are on a collision course with human-created works. As this issue becomes ever more prevalent, an inevitable debate that will arise is if the works that these algorithms create should be under the same copyright protections as their human-created counterparts are.

The idea of a man-made intelligence mimicking the behavior of a human has been floated around for ages, dating back to science fiction back in the 1860s (Flood, 2020). Though reality may not be exactly as fiction pictured, Artificial Intelligence (AI) is very much here. At its core, AI is any system capable of displaying some semblance of human intelligence. These include tasks such as "recognition, decision-making, creation, learning, evolving, and communicating” (Flood, 2020). Generally, AI functions on a system of inputs and outputs. For example, within a system that detects if some sequence of words is sarcastic, the system might need prior knowledge about what words mean, example sentences that are sarcastic and those that are not, or past experience on sequences that have been correctly or incorrectly classified. This way, our system “learns” and can better classify sequences as time goes on, thus mimicking human intelligence. The field of AI as a whole has progressed past just the recognition and classification problems and into creation. This is where the debate at hand comes into play, since algorithms now have the ability to create works such as art, music, writing, etc. A large part of what makes the careers of those who create these works sustainable is the idea that their creations can be sold and more importantly, cannot be copied. This is where copyright law comes in. “A copyright is an exclusive and legitimate right that is given to a creator or author to write, print, publish, film, record or perform any musical, literary, or artistic content or material” (Malek, 2015). Furthermore, it gives legal ownership of any produced works to the creator or creators for aa predetermined period of time. Legal ownership over these works means that no one else can adapt, copy, or distribute that work without permission from the owner. The gatekeeping of this work is extremely vital for the livelihoods of creators, as they are able to sell their works and in some cases can be invested into so that they continue to create, like a singer getting signed to a record deal in the music world. With copyright law, creators have incentive to create and incentive to continue to create. Without it, these professions could never be profitable.

To expand on the idea of copyright, it is important to also note the essence of it, meaning what the purpose or soul of copyright is. One important concept to note here is the concept of creativity. Creativity with respect to copyright has generally, at least implicitly, always involved the idea of human consciousness (Bridy, 2012). If we continue with this definition, no machine can ever achieve it. The opposition to this argument, as we will further discuss later, is that the human brain itself is akin to a machine. With respect to types of creativity, a bi-partite framework has been proposed which distinguishes two senses: “psychological creativity (P-creativity), which entails the production of novel ideas that are novel for the individual mind that produced them but not novel in absolute terms, and historical creativity (H-creativity), which entails the production of ideas that are novel for the whole of human history” (Bridy, 2012). Copyright law itself lends itself heavily to P-creativity, while H-creativity lends itself more to patent law. Overall, in the arguments made about in support of and against copyright for AI-generated works, what we see as creativity is no doubt important.

**Arguments in Support of Copyright for AI-Generated Works**

There are a few arguments in support of copyright for AI-generated works. One of the main arguments is that for many of these works to be generated, it involves some element of human intervention. Whether that be writing the code or setting the boundaries that the AI system must work within, setting the idea that computers “make some kinds of creativity practically feasible, but they do not make anything newly possible” (Grimmelman, 2016). If we treat technology as simply a tool beholden to creators that make their creative process easier, it would be hard to deny copyright in this case. Proponents of this view make the comparison of technology’s hand in the creative process as a program such as Adobe Illustrator that might be of aid for some creator in the construction of their work. Because some kind of human intervention is required, bordering on the definition of human creativity, it for this reason that many believe in supporting copyright for AI-generated works.

One argument is one that has already been alluded to, which claims that the difference between AI and a human is small. Some even reduce the human brain to be called a “meat machine”, since if we take writing as an example, both humans and machines process existing works, extrapolate rules from their examples, and then apply those rules to the task of composition (Birdy, 2012). Proponents of this argument say that we perform similar to the way AI performs. Just as AI learns from examples it is given, humans similarly learn from things they see. AI produces within the defined bounds it is given, just as humans intuitively understand these bounds. As a result, it could then be argued that AI shares somewhat comparable creativity to humans and that copyright can be applied without discrimination.

Another argument approaches the issue from a monetary point of view. With the current trajectory of AI and clear benefits it has and will continue to bring, it is something that needs continual improvement and development. However, in order to do this, the industry as a whole needs investment. However, without the value that holding copyright has, it is possible that the cash flowing into supporting AI development may only be a fraction of what it could be. If we are to truly realize the potential that AI can have on various industries and aspects of society, then there should be efforts to incentivize its development, which allowing copyright can help with (*Artificial Intelligence Call for views: Copyright and related rights*, 2021).

Finally, there are a couple more future-focused and related arguments that focus on the welfare of both humans and AI. Laëtitia Coguic at the Illinois Institute of Technology goes as far as to claim that computers should be allowed personhood, such that they gain specific and limited rights (Coguic, 2021). This idea has come around because of the idea of protecting humans’ welfare. Specifically, tackling an issue that copyright laws was already meant to deal with, which is the “authenticity of the work” (Coguic, 2021). With AI-generated works, there is a very good possibility that any consumer might be unaware of its origins. It is argued that in allowing AI to gain personhood and the protection from copyright law that goes along with it, “consumers would be able to know that whatever work has been made by an Al” (Coguic, 2021). In this way, the transparency protects consumers just as product manufacturer labels do for normal products. It allows consumers to be able to be aware of and choose whether to, for example, buy some product made by an AI or stray away from it for that very reason. In the same vein, it is argued that AI’s welfare needs to also be protected, as the impact of AI on various industries means that AI should be “preserved from any future potential bad intended Al” (Coguic, 2021). If we allow AI to achieve this personhood and rights to copyright law, it “would allow us, humans, to evolve and develop such technology and being able in advance to treat future issues that may arise” (Coguic, 2021).

**Arguments Against Copyright for AI-Generated Works**

Similarly, there are several opposition arguments for allowing copyright for AI-generated works. One of the largest problems that comes with allowing copyright is how it affects the community of creators in both the world of arts, writing, and music. One recent example was when a man named Jason Allen won the Colorado State Fair’s contest for emerging digital artists by generating the art piece from an AI algorithm, walking away with the $300 prize (Roose, 2022). Though this may be on the small scale, the concept holds. AI-generated works have the potential to sap potential profit meant for creators. On a large scale, one can imagine a scenario where some algorithm is well-trained and advanced enough such that they can produce music optimized to the largest group of listeners. If this is the case, popular mainstream artists will naturally get fewer listens, and the struggling or up and coming artists that don’t earn much get even less. Across all creative fields, it’s conceivable that this trend can and will be seen in the future if copyright is allowed for AI-generated works.

Another very important opposing argument has to do with the idea of creativity, as we have already mentioned, and how AI in its current state cannot be considered creative given its non-humanness. Many are more negative about AI and its ability to exhibit anything close to human cognition, instead reflecting the opinion that “the mere fact that AI technology has the ability to surprise us and even those who programmed and trained it does not necessarily amount to creativity and deserve authorship” (Zurth, 2021). This is because the necessary data required to train on in addition to the dependency on human instruction results in the illusion of creativity. Essentially, the process of creation in AI systems is dependent on things given to it “whereas the human creative process is not confined” (Zurth, 2021). With regards to the aforementioned P-creativity, this view avoids considering the proverbial mind in some AI system as something worthy of the label itself. Therefore, this argument states do not yet have the ability to produce creative output, meaning their works do not deserve the right to be copyrighted.

Another important point to consider in this argument is how liberally allowing copyright in this case could result in the proliferation of monopolies (Zurth, 2021). This is largely down to the sheer speed and batch size in which AI can produce works. For example, let’s say there is an algorithm that can produce new pieces of digital artworks, specifically logo templates. Even if it can push out 100 new artworks per day conservatively, it would still be vastly more efficient that any human could imagine being. If each of these AI-generated logos were copyrighted, we run the risk of creating a copyright troll, an entity that hemorrhages copyrights for the purpose of making money through strategic litigation (Zurth, 2021). Even though artworks have extreme variation, at some point there will be a situation where some human artist might create some logo that will inevitably have some likeness to some work already AI-generated. Therefore, we’ve essentially created a logo monopoly. Though Patrick Zurth admits that government intervention would likely preempt this issue, it does serve as a reminder to be cognizant of the fact that “intelligent machines could drive the number of IP rights to a level far beyond our current imagination” (Zurth, 2021).

Lastly is an argument somewhat synonymous with the monetary consequences of copyright for AI-generated works: the supersession of human creation. Comparatively, this argument is much more philosophical. In combination of the weeding out done monetarily, the eventual perceived superiority of AI products and the resulting “vesting protection in AI products might discourage human artists from creating” (Zurth, 2021). This argument pleads that copyright should remain focused on retaining its main purpose and that the diversion to other tangential topics could be bad for society.

**Copyright Law in Other Countries**

Though this topic is relatively new, some countries have made their preliminary decisions on whether AI-generated works do in fact have the ability to hold copyright. The United States currently is not clear on their requirements for copyright on works involving a non-human element (Recker, 2022). This was tested by a man named Stephen Thaler who created an algorithm that “repurposes pictures to create images seen by a synthetic dying brain” (Recker, 2022). He submitted a work the algorithm generated for copyright from the United States Copyright Office (USCO). However, USCO ruled that the work lacked the proper amount of human authorship needed to obtain a copyright claim. This matches US copyright law which says that works that are protected have “the fruits of intellectual labor” and are “founded in the creative powers of the human mind” (Recker, 2022). Though US copyright law does not explicitly define the rules and regulations for non-humans, the precedence set by previous cases indicate that the existence of non-human expression results in the denial of copyright protection.

The United Kingdom’s approach to copyright in this case is vastly different from the approaches from most countries, as they do protect AI-generated works for up to 50 years from the creation date, even if they do not have a human creator (*Artificial Intelligence Call for views: Copyright and related rights*, 2021). It also describes the author as the “person by whom the arrangements necessary for the creation of the work are undertaken” (*Artificial Intelligence Call for views: Copyright and related rights*, 2021). This was done out of desire to be the first country in the world to take such steps to be forward-thinking and deal with the rise of this new groundbreaking technology.

Copyright law in Ireland is defined by the Copyright and Related Rights Act 2000 (Act 2000). To qualify for copyright, a work must meet three conditions. It must be original, tangible and fixed, and fall under a valid category of works (Flood, 2020). Originality is one of the biggest obstacles. Though, given Ireland’s relaxed definition of originality, AI-generated works would likely pass. The biggest hurdle is then the idea that there should be a human author. Given that Irish law does not give “scope for an AI to be deemed a natural person or a legal person in the same way a corporation is a legal person”, works authored fully by AI should not be supported (Flood, 2020). However, Irish law still views AI as simply a tool in creation. The old age in this act is shown as it does not address the fact that AI can now act without direct human involvement. The general confusion in Irish copyright law is extremely evident and indicative of the fact that work needs to be done in this area to clarify the law. “There is no point in being reactive when there is the potential to be proactive” (Flood, 2020).

**Analysis/Conclusion**

The nuance and small details that exist in various cases of AI-generated works no doubt make it hard to create law that both protects creators and propels development of such a budding and vital industry of AI. Generally, it seems you can fit the these works into three categories: Human-guided, AI-assisted, and AI-generated. However, it is naïve to think that one general law can properly deal with all these cases properly, much less the whole spectrum of works in between. This is what makes creating a cohesive analysis of all sides of the argument so difficult. However, the following seeks to try and analyze them.

With regard to supporting arguments, one that is contentious and convoluted is the idea that AI cannot do what it does without human intervention. This may be true for more elementary types of AI, but for varieties of the bleeding-edge, the need for humans is slowly diminishing. The issue becomes where to draw that line. How much influence or input is enough to satisfy copyright? When does the machine become the author instead or the human who started it? These are some of the questions that need answering in pursuit of some kind of law that can benefit the most parties. Another argument that is incredibly interesting is the idea that human thought process is not much different from a machine’s. There are counterpoints that blast this point stating that human creativity is deeply rooted in life experiences, things seen, and intangibles like inner thinking. This could be correct, but it seems hard to cast certain doubt that AI cannot mimic these things, especially in the future. How is data used to train models vastly different from the experiences that humans have? They both represent the idea of memory. Can underlying connections made within models result in a structure that can replicate some form of consciousness or thinking, if not now but in the future? Lastly, the argument of transparency in generated works is incredibly important. Though this solution is not leak proof, attempting to prevent people from taking works produced by algorithms and claiming it as their own original work is no doubt vital. One then might not be able to generate some random song using some algorithm and pass it off as their own for profit.

With regard to opposing arguments, the clear and obvious argument is how copyright could result in less money going to human creator and cause joblessness. Given how AI has begun to replace menial jobs like cashiering all the way up to radiology, it seems reckless to allow this to also affect creative fields. However, it does not seem like refusing copyright will necessarily stop this from happening. Even free works left in the public domain, potentially indistinguishable from human works, may still have an affect on creators, albeit likely less. Another compelling argument is the idea that allowing copyright could create monopolies and copyright trolls. This argument is incredibly important as what its describing could be responsible for pushing many people out of creative fields. As mentioned before, the sheer speed as to how machines can generate works is unfathomable and unmatchable by humans. It does not seem fair for a number of machines to be pumping out hundreds of works per day, obtaining ownership of their likeness while a human may take a week per work. That is a rate that is unsustainable and is likely to result in hellish consequences for creative fields.

It is also incredibly interesting how various nations have begun to approach this copyright issue. Though given its recency, most are not yet clear on their direction nor are mostly detailed or nuanced. Given that we have a couple of clear diverging approaches, it remains to be seen how policies will change and adapt as new cases continue to appear and test the law.

Overall, the solution seems likely to be somewhere in the middle. This may be in the form of some limited copyright with different rules. The exploding field of AI is not something that will be stopped, regardless of the legislation that may try to hinder it. One way or another, it will affect everyone both negatively and positively. It is understandable to see underdeveloped law given the newness of this issue, but “the trajectory of modern copyright law has not matched the trajectory of modern computer technology”, and that needs to change (Denicola, 2016). The field of AI and technology is dynamic so “we must remain abreast of these developments, think about them, and seek to understand them” (Forrest, 2018). It was not long ago that reality now seemed farfetched. As AI advances ever more quickly, more research needs to be done and more thought needs to be put into creating copyright law that seeks to stay anthropocentric yet promote further development of a technology that will be ever-present in all lives.

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