OWNERSHIP, AUTHORSHIP, AND ACCOUNTABILITY: A DEEP DIVE INTO COPYRIGHT AND TRADEMARK CHALLENGES OF WORKS CREATED BY AI

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INTRODUCTION

Adrian Elmer said "Art is when a human tells a human what it is to be human". We have for long identified art and creativity as something intrinsic and unique to human intellect. Art mimics the artists soul and personality, it is drawn from emotions and often puts across feelings and experiences which could not have been shared with the masses had it not been for that piece of art. However, we can no longer claim the monopoly over the quality of creativity. With the rapid development in AI technology, we have seen the introduction of AI-generated art to the world. A popular instance of this would be MidJourney AI which can create a work of art based upon instructions fed to it or 'Portrait of Edmond de Belamy' a painting inspired by works of Dutch artist Rembrandt, made by an AI system as a part of 'Next Rembrandt Project'.

The issues associated with such astounding AI technology are not limited to an exploration of how we perceive art and creativity under such circumstance, but have extended to legal arena as well. Intellectual property protection for creative outputs of AI is much debated, with different views within the art and legal community.

This chapter will analyze what is AI-generated work and differentiate it from AI-assisted work. The author will then examine the authorship and ownership of works created by AI in context of present international legal frameworks, and the issues faced by the current regime. The author will further approach the topic from a lens of accountability in cases of infringement of intellectual property rights.

AI-ASSISTED AND AI-GENERATED WORKS

AI systems are complicated works of technology, however to simply explain we can consider AI systems to contain four basic elements:

1. Inputs
2. Learning Algorithm
3. Training Algorithms
4. Output

AI systems refer to computer framework that can learn through a process of experimentation and failure and in which several processing units are linked together in an arrangement comparable to the links between neurons in a human brain. Neural networks use deep learning to learn from the information that is provided as input, and the training algorithm links data from inputs and learning algorithm to output. AI systems may operate within predetermined parameters or they can make decisions on their own without human input.

Generative creative AI are capable of generating their outputs such as poetry, reports or even paintings as seen above with minimal human supervision. They can also function in a manner, where they collaborate with human creators for creating new products. For instance, Chef Watson an AI system can create innovative recipes when working in collaboration with human chefs. Another example of Generative AI would be programs such as DALL-E 2, Stable Diffusion, and Midjourney that allow humans to generate works of art by using textual prompts.

Before we move forward and deeper into our analysis of the intellectual property regime, it is necessary to differentiate between AI-assisted works and AI-generated works. The degree of human engagement and creative agency determines whether a creative work is AI-generated or AI-assisted. AI-assisted works require a significant and intentional human participation at every stage of the creative process, with the AI system acting as an additional tool. Human creators take an active part, make crucial decisions and contribute inputs that significantly influence the final outcome. This dynamic conduces to a greater degree of customization and control, as the AI system

provides suggestions or modifications in an enabling role. An example of AI-assisted works would be edits or documents produced by using Grammarly.

On the contrary, AI-generated outputs demonstrate a significant degree of the AI system's autonomy. With minimal direct input from humans, deep neural networks, generative models, and machine learning algorithms direct the the creative process. The AI system works independently, creating output based on correlations and previously acquired data collected from massive databases. An example of the AI-generated works would be art created using Midjourney.

Following are the factors that can be used to differentiate between AI-assisted and AI -generated works:

1. Human Input and Control

   While in AI-Assisted works human intervention plays a significant role, with manual input and control over the creative process, wherein users actively provide input and make critical decisions. In AI-generated works human input and control over creative process is minimal.

2. Creativity Source:

   In AI-Assisted works creativity primarily originates from users or programmers. AI serves as an enabling resource, offering recommendations and enhancements to human-driven creativity rather than a primary source driving the creative output such as in AI-generated works.

3. Customization:

   In AI-Assisted works humans have a significant amount of flexibility in customizing the creative output, allowing for personalized, user-driven outcomes. Whereas, in AI-generated customization options are typically constrained by the AI system's inherent capabilities and pre-defined parameters. Users have limited control over the specific details of the generated content.

4. Data Dependency:

   In AI-Assisted works AI tools leverage data as a reference to assist the creative process. The final output is influenced by human decision-making and input. While in AI-generated works AI systems heavily depend on extensive training data during content generation. The quality of output is strongly affected by the quantity and quality of the training data.

In the present chapter we will be focusing on AI-generated works and exploring the issues that come along with them.

ISSUES WITH AI-GENERATED WORKS VIS-À-VIS COPYRIGHTS AND TRADEMARKS

AI applications have become increasingly capable of creating works of art. This capability creates significant policy challenges for the copyright system, which has always been inextricably linked with mankind's artistic soul, as well as regards and recognition for the expression and development of human creativity.[1]

If AI-generated works are not considered qualified for copyright protection, the copyright system will be perceived as an instrument for encouraging and favoring the value of human creativity over machine creativity, after all, we have always believed that creative prowess is something unique to human intellect. However, if AI-generated works are allowed protection of such rights, the copyright system will be seen as an instrument that favors the availability of the greatest number of artistic works to the consumer and gives both human and machine creation the same weight.[2]

Art and artistic works have traditionally enjoyed intellectual property protection, particularly copyright. Intellectual property rights provide additional protection in order to "promote and foster artistic and scientific advancement"[3] Computer aided works are copyright protected under the normal preexisting copyright arrangement, due to presence

[1] Second session, *'Revised Issues Paper On Intellectual Property Policy And Artificial Intelligence* 'WIPO/IP/AI/2/GE/20/1 Rev., 7.
[2] *Id* at 8.
[3] Celine Melanie A Dee, *Examining Copyright Protection of AI-Generated Art,*1 Delphi 31, 33 (2018).

of human authorship. However, AI-generated works which are lacking in this aspect due to being wholly autonomous, are not encompassed and not protected. Thus, for AI generated works to have protection, the copyright regime would need to be expressly expanded to encompass such works.

A common argument against granting copyright protection to AI generated work is that since works independent of any human authorship generated by AI are a result of ingesting vast amounts of existing creative works, identifying patterns and mimicking them. In a sense such works are nothing more than a mashup of existing art and therefore granting copyright protection to them would not advance the goals. Furthermore, it has been said that since such works merely reinterpret the existing expressions, they do not add to the human understanding and have no spark of creativity – "*the elements that makes art true art*."[4]

Another plea against granting of copyrights to such works are based on the possible economic and cultural disruption. It has been argued that granting copyrights to AI generated works will put human authors at an economic disadvantage since AI can produce works faster and cheaper than humans can, putting already dwindling art community at a greater risk. Additionally, while such works would superficially look like art created by humans, they would lack emotions and experience. While a human artist intentionally creates art, every stroke of an artist's brush is premediated and in service of something, same cannot be said for AI generated art since they lack the experience and emotions of a human being. Work of arts help us understand ourselves, they make us empathetic and sensitive to others. Art helps us see the truth about human. This experienceis what makes the art so fundamentally important to every human society, and this experience is what is lacking in AI generated art which cannot emote like art works by humans can.[5]

In response to these arguments, those in favor of according copyright protection to AI generated work have said that the arguments of naysayers are flawed. Human creativity while based on the artist's personal experiences and emotions is not completely

[4] Mary Rasenberger, *Comments of the Authors Guild, Inc. to USPTO regarding Impact of Artificial Intelligence ("AI") Technologies on Copyrigh*t, Doc. No. 2019-23638 , 5.
[5] *Id.*

independent of influences. Artists have always relied on muses and inspirations, whether they be derived from a living entity, an already published work or nature. Art can never be created in isolation form the influences of the outside world, it has never been a creation solely conceptualized and inspired by the artist himself. This is no different from that of process of AI who can be in a similar sense be understood to be 'inspired' by the existing artwork. It cannot be said that the art generated by AI systems serve no goal of copyright protection, simply because we have limited our narrow definition of creativity to human beings.

Another issue that arises is assignment of credit and acknowledgement of AI as a creator. As AI systems produce output autonomously, issues related to authorship and proper acknowledgment emerge. Establishing authorship in AI-generated content becomes even more so complex when human creators and AI algorithms jointly produce such content. The remedy to this problem requires reconsidering the notion of authorship and exploring substitute structures that acknowledge the roles played by AI systems and humans, as we will explore in later part of this chapter.

Furthermore, the distinction between derivative and transformative works can become hazy when AI systems produce content that mimics or replicates already-existing works that are copyrighted. In the context of copyright violations, the degree to which AI-generated output can be deemed transformative or fair use poses legal difficulties.

While not many issues have been seen with AI and trademarks, recently Getty photos case was filed in federal court in the District Court of Delaware, where plaintiff Getty Images sued Stability AI, claiming that training sets contained 12 million photos copyrighted by Getty Images. Stability AI is accused of violating copyright law, the Lanham Act (federal trademark and unfair competition law), and Delaware trademark and unfair competition statutes, according to Getty Images. Because the scraped photographs included a twisted version of the Getty Images watermark, there were also trademark problems. [6] As seen from above one of the primary issues with AI Generative content and Trademarks is that of infringement. The training data sets might contain images of trademarks and the same

[6] Getty Images v. Stability AI, Inc., Docket No. 1:23-CV-00135 (D. Del. Feb. 3, 2023).

might be reflected in the output leading to likelihood of confusion among the customers and general public. It becomes even more so relevant in cases where inappropriate content is generated using AI and passed off as trademarked goods.

AI-GENERATED WORKS AND AUTHORSHIP

Protection of copyright exists to foster a diverse artistic community, while returning value to authors so that they can lead a dignified economic life and providing the public with comprehensive, accessible access to content. It attempts to protect and compensate creators and other copyright holders for their innovation-oriented activities with a form of monopoly over a period of time. It also functions as a legal instrument against unscrupulous free-riding, which obstructs the creation of works and discourages potential developments in new literature, cultural and artistic works.

The overall rule of copyrights across all jurisdictions is that works that constitute a personal and independent intellectual invention, a certain degree of originality, and a fixation of the creativity in a form of expression are eligible to be copyrighted. AI created works are debated to fall short of two out of these three common factors – independent intellectual creation and originality.

1. Copyright in creative expression.

Copyright laws have been built on the romantic notion of the author, i.e., a human creative who creates a work from within her intellect and spirit in a way that represents individuality.[7]

Creativity is a common factor which recurs in the multiple jurisdictions in order to determine the threshold of copyright protection. Exploring, cherishing, experiencing, creating, and articulating oneself are all characteristics of creativity. In academic terms, creativity is used to determine originality of the work which is an important element for

[7] Colin R. Davies, *An Evolutionary Step in Intellectual Property Rights – Artificial Intelligence and Intellectual Property*, 27 COMPUTER L. & SECURITY REV 581, 601 .

determining whether the work is copyrightable or not, as it is a general rule of thumb that copyright only subsists in original work.

In common law jurisdictions, originality refers to the absence of duplication in the work, it is more focused on the economic aspect. Civil law jurisdictions, on the flip hand, are concerned with the personal characteristics of creators or the manner of creation. Therefore, civil law jurisdictions not only require that the work not be a copy, but also that elements of the author's personality be included, that is, that the author express himself individually through his work.[8]

Three directives in EU law contain the originality prerequisite:

1. EU Software Directive[9], which states that that if a piece of software is original in a way that it reflects the author's intellectual creation, it should be protected by copyright.
2. EU Term Directive[10] that contains a similar rule concerning the copyrightability of images.
3. EU Database Directive[11], that provides databases which comprise the author's original intellectual production due to the selection or arrangement of their contents with copyright protection.[12]

Thus, under the EU, originality demands that an author individually put some mental/intellectual effort into the work, while ensuring that such intellectual effort, even if minimal, is directed to the unique manner of expression of that work.

In Feist Publications, Inc. v. Rural Telephone Service Co., the United States Supreme Court reinforced the broader originality test and proposed a "minimal threshold of creativity." As per the Court, the required threshold of creativity is minimal and that originality requires independent creation in addition to modicum of creativity, which should be present in a work for it to be protected.

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[9] Directive 2009/24/ EC, art 1 (3).
[10] Directive 2006/110/EC, art 6.
[11] Directive 96/9/EC, art 3 (1).
[12] ROBERT P MERGES AND SEAGULL HAIYAN SONG, TRANSNATIONAL INTELLECTUAL PROPERTY LAW TEXT AND CASES 308 (Edward Elgar Publishing 2018).

In Re Trademarks Cases, the US Court stated that: While the word writings may be liberally construed, as it has been, to include original designs for engravings, prints, [etc.], it is only those that are unique and based on the mind's creative powers. The protected publications are the result of intellectual labor, manifested in the form of literature, prints, etchings, and the like.[13]

Al-generative systems are capable of demonstrating independent creation and modicum of creativity, fulfilling the criteria of originality. The modicum of creativity required is often misinterpreted as inventiveness. It is essential to note that only 'a spark or minimal degree of creativity' is the degree of creativity required in copyrighted works. The low standard simply warrants that 'there is a minimal amount of material in the work that goes beyond being a concept, a fact, or other basic building block.' The low threshold of originality, which blends the fact or process of creation with sufficient human creativity, makes at least theoretical room for expansion of copyright protection to non-human creators.[14]

2. Intellectual and Independent creation of the author.

The term 'Intellectual and independent creation' warrants that the work should be a result of conscious thought and not merely of a mechanical process. It also warrants that such work must be original for it to be copyrightable. Across, the globe various jurisdictions have construed this requirement in different manners. For instance, US only allows humans to be considered as authors, while in UK, CDPA allows computer-generated works to be copyrightable.[15]

In EU, the standing of CJEU in the Infopaq International A/S v Danske Dagbaldes Forening makes it clear that only original works are copyrightable and such originality must reflect the "author's own intellectual creation."[16] Which can be understood to imply that such author will necessarily will have be a human for the work to be considered as her own

[13] In re Trade-Mark Cases, 100 U.S. 82, 93–94 (1879).
[14] Margot E Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, 51 UCD L Rev 589, 601 (2017).
[15] Copyright, Designs and Patents Act, S 9(3) (1988).
[16] Infopaq International A/S v Danske Dagbaldes Forening, 4 C-5/08 6.

intellectual creation, as until now only humans have been thought to have the ability for intellectual creation.

In the aforementioned case, the CJEU construed the phrase "author's own intellectual creation" to mean that the author was free to make creative decisions and that the work carries her or his unique stamp. The author's personality and "personal touch stamp" can be interpreted to suggest that there is a requirement for a human creator of the work, insofar as personality can only be described as a human attribute.

In Football Dataco, the CJEU stated that there would be no space for free and creative choices where the work was restricted by technical variables, regulations, or constraints - much like a creative AI, whose "autonomous creations" still rely on technical rules and programming by a human.

In Australia, the verdicts in Ice TV, Phone Directories, and Acohs highlight the importance of authorship in determining whether a work is protected by copyright, and it refuses to assign copyright to items that were computer generated and lacked (totally or substantially) human participation.

For an AI to be considered creative it needs to aim to produce solutions that are not replications of previous solutions. In order to be considered creative, they must involve judgement, self-criticism and minimum randomness. However, currently such capabilities are limited in AI systems. The inability to change through self-criticism and judgement also means that the AI has constraints to its creativity.

It is disputed whether awareness and experience of AI should be translated into a human-like type of consciousness for the purpose of defining creativity, in the sense of the AIs being aware of its creative ability and experiences in the same way a human would be. Some researchers do not include this type of awareness in the definition of creativity, while others use this lack of awareness to point out that computers can never be really creative.

Besides intelligence, AI also presupposes autonomy. Autonomy implies that the work produced by the AIs results from it acting alone, independently from the constant input of a human operator.[17]

In the case of Asia Pacific Publishing Pte Ltd V Pioneers & Leaders (Publishers) Pte Ltd ("Asia Pacific Publishing")[18], the issue was regarding copyright infringement in tables published in a horse racing magazine. Although, it is not directly related to AI, the present case law is important because in here the Singapore court of appeals lays down the following two principles relating to authorship in copyright -

1. There can be no "original work" that can receive copyright protection until the work's creator is identified as a human author.
2. Only a human being qualifies as an author. This limitation makes sure that an eternal monopoly will not unfairly keep the work from entering the public domain.

It is therefore clear that even though when examined through the lens of traditional copyright laws AI-generated art can fulfill the criterions of fixation and to an extent that of creative expression, it falls short of 'independent intellectual creation' criterion due to the preexisting requirement of human authorship. Therefore, they cannot be protected under existing copyright system with AI as an author under pre-existing copyright regime.

However, this is not to say that such AI-generated works do not deserve copyright protection. There is a need to explore alternative frameworks under which such works can be granted protection.

There are two frameworks under which such works can be protected, they are:

1. Work Made for Hire
2. Deemed Author

Work Made for Hire

[17] John R. Searle, *Minds, Brains and Programs*, 3 Behavioural & Brain Sciences 417, 420 (1980).
[18] Asia Pacific Publishing Pte Ltd v Pioneers & Leaders (Publishers) Pte Ltd, [2011] 4 SLR 381.

Under this framework AI systems will be treated as employees that work for human users/programmers or firms. Thus, the creative works produced as an output of such Generative-AI would be treated as works produced during the course of employment.[19]

When a piece of work is created for hire, the employer or another individual on whose instance the work was created is deemed the author, and owns all of the rights included in the copyright unless the parties have specifically agreed differently in an agreement signed by them. In a similar manner, in AI Generated works the one who causes the work to be made would be considered the author and owner of the work.

However, one of the issues that arises is that of a contractual agreement between the parties. In case of AI's no such direct contractual agreement can be made, as AI has no will of its own nor is a legal person who can give such assent. While this issue might be resolved by a licensing agreement between the creator of the AI and user, it will still fall short if the Copyrights board refuse to acknowledge the work based on lack of human involvement as was done in the case of application filed by Dr. Thaler wherein the Review Board of United States Copyright Office rejected his application made under the above discussed model due to lack of a human author.

Another issue that might arise is that of big firms or companies, and even individual mass-producing AI generated works at an unimaginable rate and flooding the market, harming the very essence of Copyright protection i.e., promotion of creativity. The programmers can also double-dip into the protection offered by copyrights by not only copyrighting the AI code itself but also the works subsequently generated by the AI.

However, while this model has its pitfalls it is clear that employing such a framework will encourage the development of the AI industry and offer human users control and ownership of AI-produced works, while making them responsible for such works produced.[20]

Deemed Author

[19] Shlomit Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era – the HumanLike Authors Are Already Here – a New Model*, 4 Mich St L Rev 659, 705 (2017).
[20] *Id.* at 725.

Under this framework, Generative-AI can be regarded essentially as an instrument that optimizes creative output while having no intrinsic impact on intellectual property rights. This way of thinking is consistent with the notion that AI should be handled simply as other technical tools that can improve creativity and productivity. The IP in the works created by such AI would consequently vest in the human creators or inventors of the AI.[21] To put it simply, under this framework, the authorship and ownership of the creative work would be attributed to a human.

There can be two parties under this framework who can be attributed with authorship and ownership of such created work-

1. Users of the AI
2. Programmers or Inventors of the AI

A case can be made in support of granting the user authorship and ownership, based on the fact that the user intended and envisioned the creation of the work. The user may have put in the necessary prompts for the AI to generate the image, chosen and applied artistic ability in selecting the work out of those produced by the AI, and produced something that programmer might not have envisioned or foreseen. Therefore, even if their contribution is minimal to the creative process undertaken granting the user ownership and authorship of the work will encourage them to use the AI and create new works. [22]

On the flip side, it can be argued that the programmer that creates the AI has the most substantial intellectual and creative role to play in the creative output generated by the AI. It is essentially the inventor's idea that is being expressed as they train the AI on curated data sets, set parameters on the basis of which the AI operates and produces work, as well as bring it into existence. In actuality, the creative input of the programmer is crucial to the majority of computer-generated artworks. Allocating the authorship and ownership rights

[21] Deepak Somaya & Lav R. Varshney, *Ownership Dilemmas in an Age of CREATIVE MACHINES*, 36 Issues in Science and Technology 79, 82 (2020).
[22] P Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 University of Pittsburgh Law Review 1185, 1204 (1986).

to AI inventors in the creative output would better align the inventors' incentives with the final value that AI generates.[23]

One of the key considerations to take into account while allocating the 'deemed authorship' is the proximity to the creation of the work. A user who establishes the specifications of creation by instructing a software program would be deemed closer to the act of creation than a programmer who is responsible for writing the source code.

INFRINGEMENT OF COPYRIGHTS AND TRADEMARKS BY AI-GENERATED WORKS

AI software is rarely the work of a single person. A team of developers is generally employed by a company that develops AI. Once the device is sold, end users and consumers may have significant control over the AI and the input data given into the system. As such, there are several individuals who can be held accountable when AI infringes. This generally encompasses the final user, the manufacturer, or the developer/programmer.[24]

One of the ways to approach the culpability in infringements by AI-generated works is by looking at it through the lens of Principal-agent relationship. The principle is represented by an agent, wherein the agent functions as a subordinate of the principal, while maintaining the agent's own legal identity.[25] An agent can operate on behalf of the principal with actual or perceived authority over third parties. When an agent does so, the principal may be held accountable for the agent's activities under respondeat superior principles. Therefore, applying the same rules to the relationship between user and AI system we are deeming such AI to be agents of the human user or the legal entity which is making use of the AI system.

Additionally, there are few factors which can be considered while deciding on the culpability in cases of Ip infringement, they are as follows:

1. Proximity to result

[23] Somaya, *Supra* note 20, at 82.
[24] BONADIO, ENRICO, DINEV, PLAMEN AND MCDONAGH, LUKE, RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND ARTIFICIAL INTELLIGENCE (Elgar, Cheltenham, UK, 2022).
[25] Deborah A. DeMott, *The Contours and Composition of Agency Doctrine: Perspectives from History and Theory on Inherent Agency Power*, U. Ill. L. Rev. 1813, 1816 (2014).

This factor will take into account who intended the work to be generated. If there was intention to generate infringing works, then the same may be taken into account.

2. Control and Supervision

   If the user had significant control over the AI's behavior, such as setting parameters, defining objectives, or participating in the content-generating process, they may be held more accountable.

3. Terms of use

   This can be an effective way for the programmers to protect themselves from culpability in such cases. It must be taken into account whether the inventor of the AI system has mentioned or disclaimed against using the system for creation of the infringing material. On the contrary, a lack of disclaimer or such terms of use can also make the inventor/programmer of the IP an accomplice in infringement.

We are barely scratching the surface of the legislative and policy when it comes to AI-generated art. The issue with AI generated works is that, while in theory the AI can be called the author of a work in actuality most of the jurisdictions will fail to recognize such authorship rights in AI due to it being a non-human entity. Additionally in the current scenario, AI are yet to be able to create works completely autonomously, since the input data and program parameters are still selected by the humans and therefore such AI artists do exercise some degree of creativity and have some interest inn AI created works.

While most countries recognize computer generated works and have laws for protecting such works, they fail to recognize AI works independently of humans and are generally reluctant and in most cases against granting of protection to such works.

With the traditional concept of copyright laws well-developed and focused on the notion of human authorship, it is the need of the hour to develop a new system for protection of works generated by AI. Merely, extending the current system of copyright protection to AI-generated works will not provide a holistic and appropriate solution to the problem, instead there should be focus on development of new system, which defines such works and sets new standards for protection of works generated by AI System. Since there is minimum interference by humans in such system, and most AI Systems today function

with black box phenomenon, under such circumstance new regulations and standards will have to develop for imposing liabilities as well as conferring rights with respect to such works. Therefore, what we need today is not an extension of a pre-existing system of protection but a new well-rounded instrument which defines, sets standards and limitations, and protects such AI-generated art work.