**Artificial Intelligence and Copyright Law: Navigating the Challenges of Ownership, Infringement, and Ethics in the Age of AI-Generated Content**

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**(ABSTRACT)**

The emergence of artificial intelligence (AI) technology has brought about significant changes in various facets of our existence, altering not only how content is generated but also how it is consumed. AI-generated content, such as music, art, and literature, has become increasingly prevalent, raising a range of legal and ethical challenges regarding copyright ownership, infringement, and ethics. This paper explores the interaction between AI and copyright law, examining the legal implications of AI-generated content and its impact on copyright ownership along with the ethical considerations of using AI to create content, and its implications on the copyright law. Additionally, the paper shall also examine role of AI in detecting and enforcing copyright infringement. The paper shall provide recommendations for adapting copyright laws to accommodate the challenges posed by AI-generated content. The discuss on the potential for new legal frameworks that could better accommodate AI-generated content, including the possibility of recognizing AI as a legal author is also made while considering the potential for alternative licensing arrangements that could better balance the interests of creators, users, and the public. Overall, this paper aims to provide insights into the legal and ethical complexities arising from the interaction between AI and copyright law, and to encourage further discussion and research in this important area while discussing relevant case studies like Raghav, where a work by an AI system was first given the copyright and then revoked. The challenges posed by AI-generated content are significant, but with careful consideration and collaboration, a legal and ethical framework can be developed that enable us to harness the potential of AI while protecting the interests of creators, users, and the public.

1. **INTRODUCTION:**

The era of machines is upon us, but instead of being conquerors, they come as creators. For decades, computers have been producing works of art, relying on the creative input of programmers. However, the rapid development of machine learning software has revolutionized the interaction between computers and the creative process. Machine learning algorithms can learn from input provided by programmers to generate new works of art, music, and literature. This new type of artificial intelligence is capable of making independent decisions throughout the process, similar to human thought processes. This raises questions about copyright law as it has traditionally required a human author to qualify for protection. As machines become more involved in the creative process, copyright law may need to be reevaluated to consider the implications of AI usage on copyright. The potential impact of copyright law on machine-driven creativity could have far-reaching commercial implications. Works generated by artificial intelligence, such as music, journalism, and gaming, could potentially be deemed free of copyright, leading to concerns for companies investing in such systems. Without copyright protection, their works could be freely used and reused by anyone, leading to a possible chilling effect on investment in automated systems. However, the use of artificial intelligence to handle time-consuming tasks could still be justified due to the savings accrued in personnel costs. Ultimately, the impact of AI on copyright law and the creative economy is still unknown and requires further evaluation.

1. **UNDERSTANDING ARTIFICIAL INTELLIGENCE[[1]](#footnote-1)**

According to John McCarthy, one of the founding fathers of Artificial Intelligence who coined the term in 1956, Artificial Intelligence is the science and engineering in which intelligent machines are made.[[2]](#footnote-2) The creation of any intelligent hardware or software which has the ability to replicate human behaviors, like learning and problem solving, etc is Artificial intelligence.[[3]](#footnote-3) As the name in itself has artificial (machine or man-made) so anything made by man which is capable of some sort of intelligence, i.e; taking decisions or analyzing data, etc, falls under the category of artificial intelligence. The complexities that arise in defining AI is because of the fact that it is an umbrella term which includes a wide range of machines, ranging from machines capable of thinking, reading and understanding text, identifying images, hearing sounds and understanding them, sensing their external environment and taking actions on their own or performing other cognitive tasks like humans do; to search algorithms that are used to analyze bulks of data or algorithms used to play board games or bots replying in the chat box of the customer services. Due to the variance in the functions AI can perform a direct result is that no single definition of AI has been agreed upon by the practitioners. AI might even change during different steps of the course of its task. AI has in itself a wide spectrum of technologies which range from Machine learning (ML), Deep Learning (DL), artificial neural networks, expert systems and robotics and also includes in itself logical reasoning, knowledge representation, planning and navigation, natural language processing (NLP) and perception

This (AI) model of computers is analogous to human learning and because of this reason it is often called as “cognitive computing”. In cognitive computing or machines with artificial intelligence bulks of data is processed to identify patterns, which are further used to create entirely new patterns, permitting the machines to test hypotheses and find solutions to a situation for which machine was not previously versed with.

Although there is no single agreed upon definition of AI but there are certain essentials features which every AI system has, which are:

* The capability to gather data and information.
* The capability to analyze data by running it through an analytical model.
* To make decisions and take actions based upon that analysis.[[4]](#footnote-4)

Therefore to conclude, Any machine that has the ability to perform tasks like humans and can respond dynamically to changing situations around it through cognitive learning by collecting bulks of data, analyzing it and drawing inferences from the same is AI.

1. **INTERACTION OF AI AND COPYRIGHT LAW:**

Copyright is a legal concept that safeguards the original intellectual creations of individuals. In India, copyright protection is granted to works that are expressions of the author's creativity and not mere ideas. Section 13 of the Copyright Act, 1957 defines the subject matter of copyright protection as original literary, dramatic, musical, and artistic works, cinematographic films, and sound recordings. While the Act does not explicitly use the term "human," section 2(d) of the Act defines an author, and sub-clauses (i), (ii), (iii), (v) do not mention "person," but sub-clauses (iv) and (vi) do. Interpreting these clauses in the context of the fundamental aim of copyright law, which is to reward human labor, would suggest that copyright protection should not be granted to AI-generated works. However, this interpretation overlooks the broader objective of copyright law, which is to foster artistic and creative development in society. If AI is considered a legal entity or a juristic person, this ambiguity could be resolved, and the creative output of AI would still be incentivized under the current law, as AI has been producing numerous artistic and creative works. Although Section 2(d)(vi) mentions computer-generated works, AI-generated works suitable for copyright protection include the following examples: Next Rembrandt[[5]](#footnote-5), Flow Machine[[6]](#footnote-6), Text generating programmers[[7]](#footnote-7), Aviva[[8]](#footnote-8), Robot Scientists Adam and Eve[[9]](#footnote-9). Certain other examples include:

1. **"Monkey Selfie" Case (Naruto v. Slater)**: In **2018**, a U.S. federal appeals court ruled that animals, including a crested macaque named Naruto, do not have legal standing to sue for copyright infringement. This case arose from a dispute over a selfie taken by Naruto using a camera owned by a wildlife photographer, which raised questions about whether non-human entities can hold copyright.
2. **Google v. Oracle America**: In **2021**, the U.S. Supreme Court issued a landmark decision in a long-running copyright dispute between Google and Oracle. The Court ruled that Google's use of Java code in its Android operating system was a fair use and not a copyright infringement, in a case that had significant implications for the interaction between AI, software, and copyright law.
3. **Portrait of Edmond de Belamy Case**: In **2018**, a painting created by an AI algorithm called "Portrait of Edmond de Belamy" was sold at an auction for over $400,000. This raised questions about the copyright ownership of AI-generated works, as the painting was created without human intervention, and whether such works are eligible for copyright protection.
4. **"DABUS" Patent Applications**: DABUS is an AI system that has been credited with inventing new ideas and filing patent applications in various jurisdictions. In 2020, the European Patent Office (EPO) rejected two patent applications naming DABUS as the inventor, stating that an inventor must be a natural person. This decision highlighted the legal challenges in determining inventorship and ownership in the context of AI-generated inventions. Later on, the claim for patent was successful in two jurisdictions namely, Australia and South Africa.
5. **"Dancing Baby" Case (Lenz v. Universal Music Corp.):** In **2015**, a U.S. federal appeals court ruled that copyright owners must consider fair use before sending takedown notices under the Digital Millennium Copyright Act (DMCA). The case involved a video of a baby dancing to a Prince song, which was briefly taken down by Universal Music due to a copyright claim, raising questions about the obligations of copyright owners and the application of fair use in the digital era.
6. **“RAGHAV” case**- **AI program for paintings**: In **2020**, an Indian IP committee declared AI-authorship for a painting created using an AI program called "Raghav" that developed an image without human intervention. In this case, the author used Raghav, an AI tool to generate two paintings, and then combined them to create a final image. The office determined that there was human intervention involved in the process and granted co-authorship to both the human creator and the AI system, Raghav, for the final artwork under computer generated work. Earlier when AI was named as a sole creator the application was rejected.

Therefore, the situation is no more like if AI can develop artistic and creative work on its own. It is already doing that and the law need to keep pace. The major issue is of protection of this work which can be sub-divided into the two issues:

1. The issue of eligibility of copyright protection. This issue again has two facets:

• The personhood of AI

• The interpretation of the concept of originality and creativity.

2. The issue of the authorship to such work.

3. The issue of ownership of such work.

4. The issue of infringement.

All these issues overlap each other to a great extend and cannot be separated from each other. For example: if and only if the work is to be copyright protected then only the issue of authorship and ownership applied and copyright protection can only be given if the authorship of AI is accepted. Also ownership and authorship cannot be studied separately. Therefore, for convenience these issues are studied in conjunction.

For determining the issues of eligibility of copyright protection to an AI generated work it is to be considered that as for now AI doesn`t have any personhood attached to itself and to be subject to any right or own any property the first and foremost important factor is the legal personhood to be attached. The current copyright laws in India do not provide a comprehensive framework for granting rights to AI in the creation of intellectual property. India has traditionally emphasized the need for human involvement to qualify for copyright protection. Nevertheless, the landscape is evolving, with the case of an AI system, DABUS, being granted a patent, signaling a broader potential for AI's recognition in the creative and intellectual property realm.

The current scenario calls for granting AI a legal personhood not only for the purpose of determining the authorship and ownership but for also settling the issues of infringement of copyright by an AI. Section 51 of the Copyright Act 1957, deals with the cases when copyright infringed. Analyzing the provision it can be said for sure that copyright in a work can only be infringed by a "person". Given that AI's legal status remains unclassified as a distinct legal entity, the question of liability for any AI-induced infringements becomes a significant concern, posing challenges in assigning responsibility for such infringements. Even though the infringement can be quite possible and very often too, reason being the fact that AI learns from the data and sometimes this data might be copyright protected (example: a database). Therefore, in cases where AI didn`t had the appropriate permission and it used that data to create and output of economic importance it can be very well an infringement of copyright which is outside the scope of doctrine of fair use. AI can also be used to copy and distribute copyrighted works, leading to potential copyright infringement. For example, AI algorithms can be trained to generate copies of copyrighted works, such as articles, images, or music, without proper authorization. This raises questions about the liability of AI systems and their operators for copyright infringement. Should the AI system itself be held liable for copyright infringement, or should the responsibility fall on the human operators who control and use the AI system? DRM refers to the use of technological measures to protect copyrighted works from unauthorized access, copying, or distribution. AI systems can potentially bypass DRM measures, leading to concerns about potential copyright infringement. On the other hand, AI systems can also be used to implement DRM measures to protect copyrighted works from unauthorized use or infringement.

Since AI has no legal status of its own, therefore, the issue of giving AI – authorship rights and making it liable in case of infringement of copyright, may become weak unless a proper channel and chain can be established to create liabilities for the acts of AI.

Therefore, it is pertinent to recognize AI as a legal person.

The other issue associated with the eligibility of an AI generated work is the question of creativity and originality. When considering work produced by AI, it's essential to recognize that AI's creative process is inherently tied to the content, parameters, and the extent of information that its software program permits it to access. AI operates within the confines of its programming to generate results. It has the ability to explore and analyze existing information, whether publicly available or copyrighted by others. Essentially, AI lacks the capacity to generate entirely original content; instead, the work it produces is often an adaptation or a modified version of existing information found in the public domain. Consequently, granting AI separate recognition and distinct copyright protection may potentially result in infringements upon the copyrights held by other creators.

To assert copyright ownership or authorship for AI, especially in cases involving literary, dramatic, musical, or artistic works, the created work must demonstrate originality and meet the aforementioned criteria for originality. Nevertheless, there is an ongoing debate surrounding whether AI can truly produce original content. According to the Copyright Act of 1957, literary works encompass compilations, and given that AI relies on pre-existing information and the parameters defined in its programming, the work it generates could potentially be considered a compilation, thus eligible for copyright protection. However, counterarguments suggest that the content produced by AI may be viewed as a mere collection lacking the human elements of skill and judgment traditionally associated with original authorship.

Licensing and contractual issues related to AI-authored works may also pose legal challenges. Determining the terms and conditions of licensing agreements, including the scope of use, attribution requirements, and royalties, can be complex when AI is involved in the creative process. Contractual agreements may need to address issues specific to AI-authored works, such as data ownership, system updates, and termination clauses.

AI generated work also have International and Jurisdictional Challenges. Copyright laws and regulations vary across jurisdictions, and determining the legal status and protection of AI-authored works can be challenging in an international context. Harmonizing copyright laws and regulations related to AI-generated works across different jurisdictions may be complex, and issues related to cross-border use, enforcement, and disputes may arise.

It's important to address ethical challenges in the context of AI and copyright law to ensure that AI-generated works are created, used, and shared in a responsible, transparent, and ethical manner, taking into consideration the potential social, cultural, economic, and environmental impacts of these works. Adhering to ethical principles and guidelines, promoting transparency, fairness, inclusivity, and accountability, and staying updated with evolving ethical frameworks related to AI and copyright law:

1. **Attribution and Recognition**: Determining proper attribution and recognition for the contributions of AI in the creative process can be challenging. AI systems may generate works that are highly sophisticated and creative, yet the contributions of the AI system may not always be acknowledged or recognized. This raises ethical questions about the appropriate attribution and recognition of the AI's role in the creation of copyrighted works, and the potential for lack of transparency in the creative process.
2. **Equity and Access**: AI-authored works may raise ethical concerns related to equity and access. AI technologies may be expensive to develop and implement, which can result in disparities in access to creative tools and resources. This may raise questions about fairness, inclusivity, and access to the benefits of AI-generated works, particularly for individuals or communities with limited resources or marginalized backgrounds.
3. **Bias and Discrimination**: AI systems are trained on data, and biases in the data can result in biased outcomes in the AI-generated works. This can raise ethical concerns related to bias and discrimination in copyrighted works, including issues related to race, gender, religion, and other protected characteristics. Ensuring that AI-authored works do not perpetuate or amplify existing biases and discrimination is an important ethical consideration.
4. **Transparency**: The lack of transparency and explainability of AI systems used in the creative process can raise ethical concerns. Understanding how AI systems generate creative works, and how the decisions and choices are made, can be challenging. This can raise questions about accountability, fairness, and trust in the creative process, and the need for transparency and explainability in AI-generated works.
5. **Human Autonomy and Control**: Ethical concerns may arise when AI systems play a significant role in the creative process, potentially diminishing the role of human autonomy and control. This can raise questions about the appropriate balance between human creativity and AI-generated creativity, and the potential loss of human agency in the creative process.
6. **Social and Cultural Impacts**: AI-authored works can have social and cultural impacts that raise ethical concerns. AI systems may generate works that challenge societal norms, cultural values, and ethical standards. This may raise questions about the potential social and cultural impacts of AI-generated works, including issues related to cultural appropriation, representation, and societal values.
7. **Environmental Impact**: The environmental impact of AI-generated works can also raise ethical concerns. The computational resources required to train and operate AI systems can have significant energy consumption and carbon footprint, contributing to environmental degradation. This raises questions about the environmental sustainability and responsible use of AI in the creative process.
8. **Intellectual Property Rights**: Ethical challenges may also arise in the context of intellectual property rights for AI-authored works. Questions about the ownership, control, and sharing of AI-generated works, including issues related to open source, data ownership, and licensing, can raise ethical considerations about the equitable distribution of benefits and responsibilities in the creative process.
9. **Accountability and Responsibility**: Determining accountability and responsibility for AI-authored works can be challenging. When an AI system generates a copyrighted work, questions may arise about who should be held accountable for any legal, ethical, or moral implications arising from that work. This raises ethical concerns related to the allocation of responsibility and accountability among the human programmer, the user, the entity that owns and operates the AI system, and the AI system itself.
   1. **Legal Responses around the Globe:**

It is vital to consider the following judgments at this point:

Feist Publications v Rural Telephone Service Company[[10]](#footnote-10), Eastern Book Company & Ors vs D.B. Modak & Anr [[11]](#footnote-11), Burrow Giles Lithographic Co. v Sarony [[12]](#footnote-12), Bleistein v Donaldson Lithographing Co.[[13]](#footnote-13) , Alfred Bell & Co. v Catalda Fine Arts [[14]](#footnote-14), Naruto et al v. Slater[[15]](#footnote-15) Shenzhen Tencent v. Shanghai Yingxun[[16]](#footnote-16) Nova Productions v Mazooma Games[[17]](#footnote-17), Acohs Pty Ltd v Ucorp Pty Ltd[[18]](#footnote-18), C-5/08 Infopaq International A/S v Danske Dagbaldes Forening[[19]](#footnote-19) are notable legal cases.

The different opinions expressed in these judgments have created a great deal of ambiguity. However, it should be noted that if compilations having some degree of originality is protected then why not a work by an AI. Moreover, there should not be a general notion that there isn`t any creativity or originality in the work of an AI, it should be decided from case to case like in the ordinary cases of copyright subsistence.

Copyright entails the unique privilege granted to the originator of an artistic work, allowing them to duplicate that work. In the realm of copyright, authorship is jointly determined by the "author" of the work. In instances where an AI system serves as a tool under the control of a human creator, the human operator utilizing the system is regarded as the author. For instance, if an individual uses speech-to-text software on their computer, they are recognized as the author of any documents generated by the system.

Three significant international agreements that hold relevance in Indian copyright law include the Berne Convention, the WIPO Copyright Treaty, and the TRIPS agreement. While these agreements do not provide an explicit definition of authors, they do make multiple references to this term. The Indian Copyright Act, 1955 defines author under/sec 2(d) of the Act, The sub-clauses (i),(ii),(iii), (v) doesn`t uses the word indicating any human entity. Sub-clauses (iv) and (vi) does uses the word “person”. The Act does not define the word person so if reference is made to the General Clauses Act we know that this word person can be interpretated to include a legal person. And if AI is accepted to have a legal personhood then all the complications can be made away.

There are objections to acknowledging AI as the Author of Copyright due to the complexities involved. To effectively assess the challenges associated with granting AI authorship of a work, it is essential to ascertain whether the Indian Copyright Legislation can accommodate AI as an author. Let's examine a few scenarios to evaluate the compatibility of AI with the current Copyright laws.:

1. Pursuant to Section 17 of the Copyright Act 1957, author of the work is recognized as first owner of the work. However, in certain situation, under an agreement the rights of ownership are transferred to the employer or the person on whose instance the work is created. Therefore, in case of AI, the transfer of ownership will be difficult to establish as the AI cannot execute or authorize its creator or any other person, to become the owner of the work.

2. Pursuant to Section 57, the special rights of the author may also be disputed. The special rights of author, known as moral right, includes right to paternity (right to be associated and recognized with the work) and right to integrity (right to restrain or claim damages against any act which may be prejudicial to author's honour or reputation). Therefore, if an AI is recognized as an author of the work then these rights may become redundant, as AI may not be able to ascertain whether any act has affected the honour or reputation of the original work. The rights enumerated as moral rights have more of emotional and human feelings attached to the work, and therefore, these rights may not be suitable for enforcement by AI.

3. In accordance with the current copyright regulations in India, the creator of the content possesses an inherent entitlement to receive royalty, and this entitlement cannot be voluntarily relinquished. Consequently, in cases where the authorship of the work is attributed to AI, several questions arise. These include determining the party responsible for setting the royalty rate, establishing the mechanism for disbursing royalty to AI, and if AI has the capability to set the royalty amount, deliberating whether the amount should be subject to a reasonability assessment.

4. Enforcing accountability for any creation by AI poses considerable challenges. Take, for instance, a situation where AI generates content that is defamatory, obscene, or contrary to public morals. In such cases, there are limited options for taking action against AI, primarily involving either removing the content from the public domain or, in extreme circumstances, shutting down the AI system. However, AI-generated negative content can potentially inflict significant harm, and without a framework for holding AI accountable, it becomes problematic to confer authorship rights upon AI.

But all these arguments losses essence if the legal personality of AI is developed as indicated in chapter III of this dissertation, i.e. granting AI a hybrid legal personality which should be equivalent to that of a minor with the creator or developer or whosoever caused AI to be developed be the guardian of AI and directly responsible to pay either from the assets of minor or of himself as the case may be when a civil liability arose. The basic fundamental thing is that AI should be given a legal personality but its rights duties, and how the liability shall devolve on AI and the people associated with it, etc should be outlined in detail through statutes differently for each case, like IPR, Contract, etc. we need a detail law, the very first step of which is recognizing a legal personality of AI.

Therefore to held conclusively it can be said that AI should be given legal personhood to protect the work generated by AI under the copyright law otherwise there will be great repercussions ranging from legal to economical.

* 1. **FINDINGS & SUGGESTIONS:**

1. The basic fundamental thing is that AI should be given a legal personality but its rights duties, and how the liability shall devolve on AI and the people associated with it, etc should be outlined in detail through statutes differently for each case, like IPR, Contract, etc. we need a detail law, the very first step of which is recognizing a legal personality of AI.

2. Works associated with AI can be acknowledged as a distinct category of creative output.

3. In instances where AI generates a work with human involvement, the following distinctions can be contemplated:

* Owner of the work: The human contributor providing creative inputs.
* Author of the work: The AI system itself.

4. In cases where AI autonomously produces a work without any human intervention, the following designations can be contemplated:

* Owner of the work: The individual who possesses the AI system.
* Author of the work: The AI system itself.

Considering the options outlined above, the raised concerns can be addressed in the following manner:

1. Authorship can be attributed to AI, but for this to happen, the Copyright Act must acknowledge AI as a distinct entity or classify AI-generated work as a separate category.
2. The responsibility for work produced by AI lies with its owner, who is also liable for any infringements resulting from AI-generated content.
3. Content generated by AI, free from human intervention, may be categorized as a product of skill and judgment. This is because AI operates based on predefined parameters and codes, and its creative process can be attributed to AI itself. Given the evolving technology and the growing prominence of AI-generated content, it is advisable to establish a framework for recognizing and delineating the rights and limitations of AI-created work in relation to other copyrighted material.
4. It's important to acknowledge that current AI technology is not entirely autonomous.
5. Additionally, it is worth noting that distinguishing between machine-generated and human-generated works can be challenging. Further exploration of how to address this issue and consideration of joint authorship may be beneficial.
6. We need to engage in a more extensive dialogue about the concept of originality in the context of AI-generated content. This discussion should focus on whether we should acknowledge AI-generated content as genuinely original or classify it as non-original copyrighted material, similar to the treatment of films, sound recordings, broadcasts, and typographical arrangements.
7. The utilization of data in AI processing must be examined concerning copyright and moral rights.
8. There should be an exploration of the potential for private agreements to be established either above or below any policy decisions related to the ownership of copyright in AI-generated content.

To address this, some propose that knowledge of AI contribution should remain in the public domain. One solution could be for each person or company to declare their contribution when using AI, or forsoftware to automatically calculate their contribution. This way, credit or financial benefits could be given based on the amount of work contributed.

* 1. **CONCLUSION:**

Two opposing views have emerged regarding the copyright ownership of AI-generated content. The tech sector argues that users should have the copyright, while the creative sector believes that AI-generated content should not be subject to ownership at all.

If copyright law shifts towards recognizing AI as the author and the developers as the owners of the output, it could result in a few powerful AI companies holding massive influence. These companies may end up owning vast amounts of copyrighted materials, such as songs, published works, visuals, and digital assets. This could potentially lead to a nightmarish situation where most new works are generated by AI and owned by businesses.

1. . Mansi Shukla in Artificial Intelligence And The Modern Market: A Legal Assessment, pp 166-177 of Cyber Security Laws in Information Technology Era: Challenges and Implications. [↑](#footnote-ref-1)
2. . McCarthy, J. 2007. What Is Artificial Intelligence?. <http://jmc.stanford.edu/articles/whatisai/whatisai.pdf> [↑](#footnote-ref-2)
3. . Liu, S. Artificial Intelligence (AI) worldwide - Statistics & Facts. Statista.

   <https://www.statista.com/topics/3104/artificial-intelligence-ai-worldwide/> [↑](#footnote-ref-3)
4. 3. Casey, Kevin. (2020). Artificial Intelligence in the Trademark World

   <https://www.stradley.com/-/media/files/publications/2020/10/ip-appeal-fall-2020.pdf> [↑](#footnote-ref-4)
5. The Next Rembrandt is a 3D printed painting generated by a facial recognition AI algorithm that uses scanned data from known paintings by Rembrandt. The algorithm used 168,263 fragments from Rembrandt's works stored in a database to create a portrait with 148 million pixels. The 3D printing process analyzed high-resolution photographs and depth images of Rembrandt's paintings to generate a new painting that possesses the statistical properties and personal touch of Rembrandt's work. The resulting painting is not a copy or a modification of an existing one, but a new creation. [↑](#footnote-ref-5)
6. The Flow Machine is capable of extracting patterns from a music database and generating new musical pieces in the selected genre or artist's style. However, it requires considerable fine-tuning by musicians to achieve an acceptable final output. This process involves incorporating additional tracks, composing, writing lyrics, and mixing the music. [↑](#footnote-ref-6)
7. Various text generating programs have utilized a neural network that is trained to comprehend written language and generate sentences in a particular style such as imitating the language used in Wikipedia articles or reproducing dialogue resembling Shakespeare's works. [↑](#footnote-ref-7)
8. Aviva is capable of composing soundtracks for films, video games, commercials, and any type of entertainment. [↑](#footnote-ref-8)
9. Adam and Eve are systems capable of independently carrying out experiments in Molecular biology, guided by an AI algorithm that generates hypotheses about.

   [↑](#footnote-ref-9)
10. In the United States, the Copyright Office has declared that it will “register an original work of authorship, provided that the work was created by a human being.” This stance flows from case this law only which specified that copyright law only protects “the fruits of intellectual labor” that “are founded in the creative powers of the mind.” [↑](#footnote-ref-10)
11. The Hon'ble Supreme Court of India in observed that "To claim copyright in a compilation, the author must produce the material with exercise of his skill and judgment which may not be creativity in the sense that it is novel or non- obvious, but at the same time it is not a product of merely labour and capital. The derivative work produced by the author must have some distinguishable features and flavour." and therefore it is a requirement for any compilation or derivative work to show Skill and Judgment. [↑](#footnote-ref-11)
12. In this case, the central inquiry revolved around whether copyright protection could be extended to a photograph. This legal proceeding carried significant significance due to its exploration of the distinction between mechanical and creative processes. The judicial examination in this case deliberated on the feasibility of affording copyright safeguards to the outcome generated by machinery, ultimately concluding that purely mechanical outputs lack inherent creativity. Consequently, if a similarly stringent criterion were to be applied to artificial intelligence systems, it would prove challenging to confer copyright protection upon the content they generate. [↑](#footnote-ref-12)
13. In this case, a clear distinction was drawn between human-created works and those generated by artificial means. Justice Holmes, in the majority opinion, emphasized the distinctiveness of human personality as a prerequisite for copyright eligibility. The court articulated its stance by emphasizing the term "something irreducible", underscoring that copyright protection could only be extended to creations stemming from human creativity. [↑](#footnote-ref-13)
14. In this particular case, the court adopted a more lenient stance in the context of granting copyrights. The court ruled that in order for a work to be considered original, it must not be a complete replica or a direct copy of other artistic works. Moreover, the court asserted that even unintentional variations could be claimed by an author as their own. Consequently, this judgment provides a basis for asserting copyright over content generated by AI systems, as it establishes that such creations are not copied. This decision helps clarify the longstanding uncertainty surrounding the protection of AI-generated works. However, the absence of a definitive stance also has implications for copyright holders. [↑](#footnote-ref-14)
15. The 2014 version of the Human Authorship Requirement arose partly due to a prominent public discussion regarding non-human authorship, which originated from the "Monkey Selfies" case. The widely recognized Monkey Selfie dispute, involving PETA and David Slater, ultimately favour Slater by applying the concept of humans as inventors when considering copyright claims. [↑](#footnote-ref-15)
16. The People's Court of Nanshan District in Shenzhen, China, made a legal determination that a piece of content generated by AI software called Dreamwriter should be entitled to copyright protection. This article carried a disclaimer specifying that it was "automatically generated by Tencent Robot Dreamwriter." Nevertheless, the court recognized a level of originality in the article's expression and presentation, meeting the criteria for copyright safeguarding. As a result of this ruling, Shanghai Yingxun Technology Co Ltd. was ordered to compensate Tencent with damages amounting to 1,500 yuan (equivalent to US$216.02) for the unauthorized utilization of the said article. [↑](#footnote-ref-16)
17. In an English legal case, the Court of Appeal was tasked with determining the authorship of a computer game. The court concluded that the input provided by a player "lacks artistic characteristics and involves no artistic skill or effort." [↑](#footnote-ref-17)
18. In an Australian legal case, the court ruled that a creation generated with the involvement of a computer could not receive copyright protection as it did not originate from a human source. [↑](#footnote-ref-18)
19. In this particular case, the Court of Justice of the European Union (CJEU) made a declaration emphasizing that copyright is exclusively applicable to original works, and originality should be an embodiment of the "author's unique intellectual creation." Typically, this concept implies that an original work must mirror the author's individuality, thereby underscoring the necessity of human authorship for the existence of a copyrighted work. [↑](#footnote-ref-19)