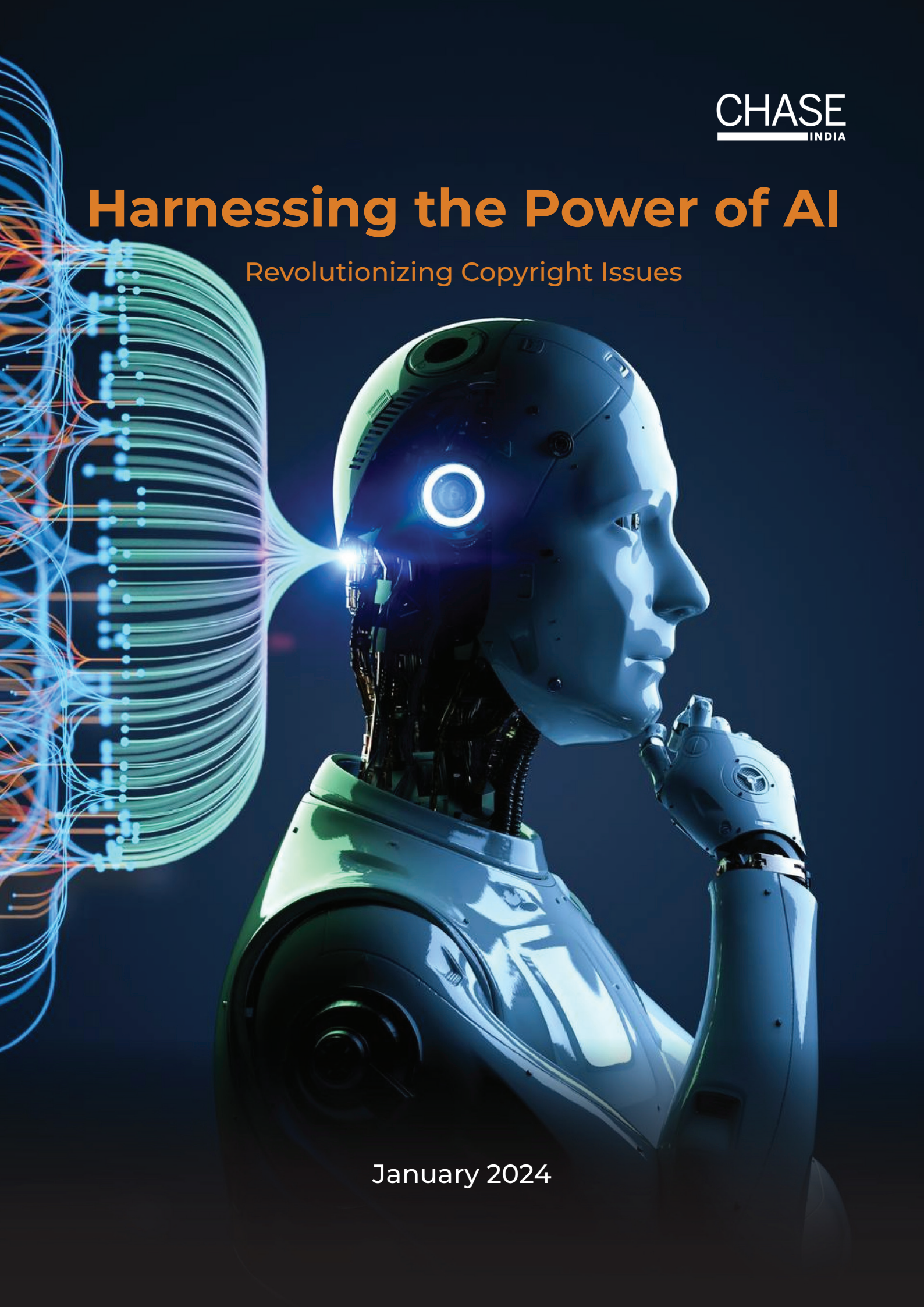


# Harnessing the Power of AI

Revolutionizing Copyright Issues



January 2024



## Executive Summary

In today's digital landscape, the intersection of Artificial Intelligence (AI) and copyright law presents both challenges and innovative solutions. The rise of AI technologies has revolutionized content creation and distribution, raising pertinent questions about authorship, ownership, and the evolving nature of copyright protection. Determining human involvement in AI-generated outcomes, the absence of explicit copyright regulations, challenges related to fair use and transformative use exceptions, and the incorporation of biases by generative AI tools are among the complex hurdles faced by policymakers and stakeholders.

Amidst these challenges, AI offers transformative potential. Advanced algorithms can facilitate content identification, automate takedown processes, provide copyright education, and streamline licensing and royalty tracking. However, the implementation of AI-driven solutions requires careful navigation of legal complexities, privacy concerns, and ethical considerations. Collaboration among international stakeholders, policymakers, content creators, and technology experts is essential to develop standardized guidelines, address biases, and ensure a balanced approach to copyright enforcement. By fostering inclusivity, promoting awareness, and upholding ethical standards, AI-driven initiatives can significantly enhance copyright protection, ensuring a fair and vibrant creative ecosystem in the digital age.



# Introduction

The influence of Artificial Intelligence (AI) extends to multiple facets of our existence, and copyright issues are no exception. As technology continues to evolve, copyright protection and enforcement face new challenges in the digital age<sup>1</sup>. However, AI offers a range of promising solutions that can positively impact copyright issues. By harnessing the power of AI, we can enhance copyright enforcement, improve content identification, streamline licensing processes, and foster a fair and balanced copyright ecosystem<sup>2</sup>.

AI's positive influence on copyright issues stems from its ability to analyze vast amounts of data, recognize patterns, and make intelligent decisions.<sup>3</sup>These capabilities enable AI to assist in various areas related to copyright, empowering content creators, copyright holders, and enforcement agencies. By leveraging AI technology, we can address longstanding challenges, overcome limitations of traditional enforcement approaches, and adapt to the ever-changing digital landscape<sup>4</sup>. It is also important to acknowledge that while AI offers tremendous potential, its implementation should be guided by ethical considerations and legal frameworks<sup>5</sup>. Balancing the interests of copyright holders, content creators, users, and the public is crucial to ensure a robust and inclusive copyright system. By leveraging AI responsibly and in alignment with existing laws, we can achieve a harmonious coexistence between technological advancements and copyright protection.

In this rapidly evolving digital landscape, it is imperative for policymakers, stakeholders, and technology experts to collaborate and explore the full potential of AI in addressing copyright issues<sup>6</sup>. By embracing AI as a tool for positive change, we can foster innovation, protect intellectual property rights, and promote a vibrant creative environment that benefits creators, consumers, and society at large.



# Challenges for Copyright in the Age of Computer-Generated and Computer-aided Outcomes

The rise of artificial intelligence (AI) including machine learning and generative AI has given birth to computer-generated and computer-aided outcomes, presenting new challenges for copyright protection. They have been detailed below:





## Determining authorship and ownership of AI-generated outcomes

Existing copyright laws often lack specific definitions and provisions addressing computer-generated and computer-aided outcomes. This further gives rise to a challenge in determining authorship and ownership of such outcomes. In cases where AI systems including Generative AI which generate novel content based on human prompting, questions arise regarding who should be attributed as the creator and owner of the output. Disputes may also arise when humans utilize AI tools to enhance or assist in the creative process.

Also, Generative AI systems can create content that resembles the works of human creators or mimic existing copyrighted works<sup>7</sup>. This raises challenges in properly attributing the work to its creator and ensuring that the integrity of the work is maintained. The ability to identify and trace the provenance of generative AI-generated content becomes critical in enforcing copyright and preventing unauthorized use or infringement.

## Absence of explicit copyright regulations:

The absence of explicit regulations addressing these scenarios can lead to legal uncertainties and conflicts between creators, AI system operators, and organizations utilizing these outcomes. Traditional copyright laws are centered around human authorship, raising questions about whether AI systems can be recognized as authors of creative works.

In the United States, for example, the U.S. Copyright Office has stated that works generated solely by AI systems are not eligible for copyright protection because they lack human authorship<sup>8</sup>. On the other hand, the European Union's Copyright Directive acknowledges that copyright protection may be granted to works created with the assistance of AI or other computer-generated processes.<sup>9</sup> These diverging approaches reflect the ongoing debate over the role of AI in the creative process and the attribution of authorship.

## Challenges associated with the application of fair use and transformative use exceptions:

The application of fair use and transformative use exceptions to computer-generated and computer-aided outcomes presents unique challenges<sup>10</sup>. Fair use allows for the use of copyrighted material without permission under certain circumstances, such as criticism, commentary, parody, or educational purposes. Transformative use refers to the modification or adaptation of a work to create something new and different. However, applying these principles to AI-generated works raises questions about the nature and extent of human input and the transformative nature of the use.

Courts also need to interpret fair use principles in the context of computer-generated and computer-aided outcomes, considering the purpose, nature, and effect of the use. For instance, the U.S. has seen several copyright cases related to transformative use in the context of AI-generated works. In the case of *Naruto v. Slater*, where a monkey took a selfie using a wildlife photographer's camera, the court held that the monkey did not have standing to assert copyright ownership<sup>11</sup>. Similarly, in the case of *Warner Bros. Entertainment Inc. v. RDR Books*, where a fan-authored Harry Potter lexicon was found to infringe on copyright, the court considered the transformative nature of the use and the impact on the market<sup>12</sup>.

### Determining human participation to claim authorship:

As far as artworks are concerned, the author is required to contribute in some manner towards the work. The mere conception of the idea with someone else (the AI) creating the actual artwork will not work in the author's favor<sup>13</sup>. This interpretation was reinforced in *Stephen Thaler v. Shira Perlmuter and The United States Copyright Office*<sup>14</sup>, wherein Thaler filed an application to claim copyright protection for an artwork asserting that it was autonomously created by a computer algorithm called the 'Creativity Machine' under a work-for-hire agreement with Thaler. While on one hand, Creativity Machine claimed ownership over the artwork, on the other hand, Thaler claimed to be the author. Eventually, the US Copyright Office rejected his claim for ownership stating that the work lacked the necessary human authorship to support a copyright claim.

### Determining 'originality' to claim authorship:

Copyright law requires a certain threshold of originality for a work to be qualified for copyright protection. With computer-generated outcomes, determining this threshold becomes more challenging. As a result, courts and policymakers need to establish guidelines to ascertain whether computer-generated outcomes meet this threshold of originality.

This was also seen in China, wherein, even though China's Copyright Law does not provide copyright protection to AI-generated artworks, in *Tencent v. Yingxun*<sup>15</sup>, the District Court held that an article written by Dreamwriter, an AI-writing system developed by Tencent fulfilled the requirements of being copyrightable. Since the article was re-published on Yingxun's website, the defendant filed an infringement notice. The Court ruled in the defendant's favor citing that despite the article being entirely AI-generated, there was enough human involvement for it to be protected under the copyright law. The Court further concluded that Dreamwriter was merely an AI tool used to represent the personal choices of the creators, thus considering human intervention a prerequisite for copyright protection.

### Adapting Copyright laws with evolving advancements:

As AI technologies continue to evolve, existing copyright laws need to adapt to accommodate such advancements. This may involve revisiting and updating copyright statutes to reflect the evolving landscape and addressing new forms of authorship and ownership. This was most recently seen in Japan wherein as per a recent judgement, the country has declared that using artistic works to train AI models does not violate the country's copyright law<sup>16</sup>. Thus, allowing AI model trainers to accumulate data without securing the prior permission of the data owner. Japan has set a precedent by becoming the first country to make a move along these lines. However, using existing artworks to "train" AI models to mimic the style and output of artists is a cause of concern since this could diminish the value of their work .

### Ownership determination in the Indian context:

Determining ownership of computer-generated outcomes is a complex issue under the copyright law spanning jurisdictions, as seen above. In the Indian context, while the Copyright Law of 1957 does not accord protection to 'computer-generated work' but instead to the author of such computer-generated works who are defined as 'the person who causes the work to be created'.

For example, in *Navigators Logistics Ltd. v. Kashif Qureshi & Ors.*<sup>18</sup>, a copyright claim was filed over a list compiled by a computer which was later rejected by the Court citing the lack of human participation. This idea was reinforced in *Tech Plus Media Private Ltd. v. Jyoti Janda*<sup>19</sup> wherein the Court concluded that authorship cannot lie in a juristic person, despite them being the copyright owner. India's interpretation of copyright law in relation to AI-generated outcome is similar to that of the USA wherein AI cannot be the sole owner of the outcome.

### **Problem of biases and incorporation of copyrighted material by generative AI tools:**

Further, Generative AI systems operate based on algorithms and training data, which can introduce biases or inadvertently incorporate copyrighted material without proper authorization. This raises questions of liability and accountability when AI-generated content infringes on the copyrights of others. Also, Generative AI can give rise to derivative works or transformative use of existing copyrighted works. AI systems can generate content that builds upon or modifies existing works, blurring the line between originality and derivative creation.

Determining the extent to which generative AI-generated works can be considered transformative or derivative requires careful analysis and legal interpretation. As per experts, by 2026, 90% of the content on the internet could be artificially created<sup>20</sup>. Keeping this in mind, it is important to understand that popular Generative AI tools are not just perpetuating stereotypes but also contributing towards the unfair treatment of specific communities. To further understand this better, an experiment was conducted using Stable Diffusion, a tool that generates images in response to written prompts<sup>21</sup>. It was asked to generate images of workers for 14 jobs – typically those considered high-paying and low-paying jobs in the US. According to the images returned by the AI tool, most high-paying jobs in the US were dominated by light-skinned workers with dark-skinned workers employed in low-paying jobs. Additionally, most occupations were held by men, except for jobs like cashier and housekeeper. Therefore, it is conceivable, based on this example, that the greatest benefit for the future of AI is to enact laws and controls that allow for the inclusion of the most amount of diverse data - to ensure that AI systems are not overly biased towards historical stereotypes.

There is an urgent need to develop a fair and representative AI technology to mitigate biases especially because as per an estimate by Bloomberg intelligence, the generative AI market could reach \$1.3 trillion in the next decade. The perpetuation of stereotypes through generative AI systems highlights the need for proactive measures to mitigate biases in training data and algorithms. By promoting inclusivity, diversity, and ethical considerations in the development and deployment of generative AI, we can harness the transformative power of AI while actively combating the perpetuation of harmful stereotypes.

Addressing these challenges requires a multidimensional approach involving international cooperation, technological innovation, legal reforms, education and awareness campaigns, and the active involvement of content creators, rights holders, policymakers, and technology companies. Striking a balance between protecting copyright and IPR and fostering innovation, creativity, and access to information remains a significant policy challenge in the evolving technological landscape.

# Recommendations

AI can play a significant role in addressing copyright and infringement issues on the internet by assisting in the following ways:





### Content identification, detection & automated takedown:

AI-based content identification systems play a crucial role in enforcing copyright by automatically identifying copyrighted material across various mediums, such as images, videos, and audio recordings<sup>22</sup>. Through machine learning algorithms, AI can analyze vast amounts of data and compare it with a database of known copyrighted works, enabling efficient detection of unauthorized use or infringement. These systems, such as content recognition technologies used by platforms like YouTube, aid in proactively identifying and managing copyrighted content<sup>23 24</sup>.

Further, AI can streamline the process of issuing takedown notices to infringing websites or platforms<sup>25</sup>. However, it should also be noted that there is a significant and reasonable risk of falsely identifying legitimate work by creators (false positives) that should be adequately mitigated for. By automating the identification of infringing content and generating pre-populated takedown notices, AI systems can save time and resources for copyright holders. These systems can also help monitor compliance with takedown requests and provide data on the effectiveness of enforcement efforts.

### Copyright filtering and monitoring:

Copyright filtering involves the use of AI technologies to automatically scan and filter online content to identify instances of potential copyright infringement. These systems employ a combination of content identification techniques, including image recognition, audio analysis, and text matching, to compare uploaded or shared content against a database of copyrighted works or reference materials. Copyright filters flag content that potentially violates copyright laws, enabling further investigation or action by copyright holders or platform administrators<sup>26</sup>.

While copyright filtering and monitoring systems are effective tools for copyright enforcement, they may sometimes produce false positive results or fail to consider fair use exceptions<sup>27</sup>. AI algorithms can mistakenly flag non-infringing content as infringing due to various factors such as similarities, context, or technical limitations<sup>28</sup>. It is crucial to implement mechanisms to address false positives and ensure that fair use exceptions, such as criticism, commentary, or educational purposes, are adequately considered to avoid stifling legitimate uses of copyrighted material.



### Digital Fingerprints, Watermarking, Hash matching analysis:

Digital fingerprints and watermarking are techniques used to embed unique identifiers or markers within digital files to track and authenticate their origin<sup>29</sup>. AI algorithms can analyze digital fingerprints or watermarks to verify the authenticity of copyrighted content and detect instances of unauthorized use<sup>30</sup>. By comparing the digital signatures of uploaded content with reference data, copyright filters can identify potentially infringing material and prevent its distribution or take appropriate action<sup>31</sup>.

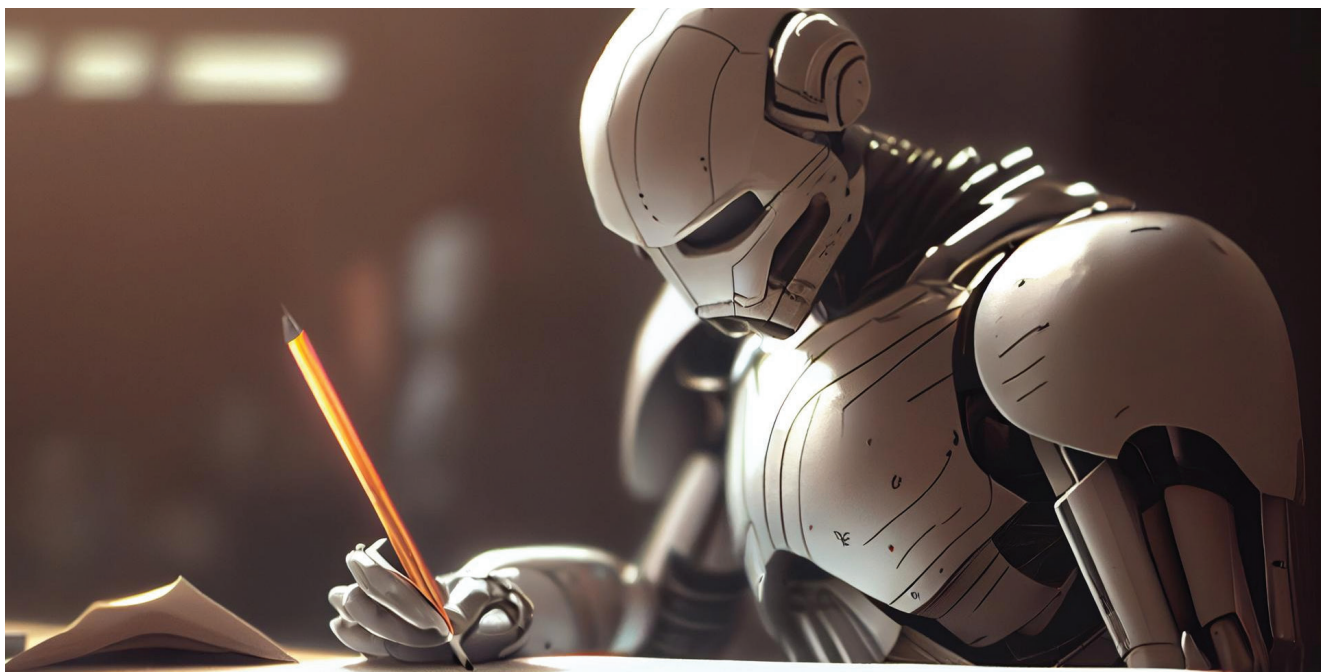
Further, AI algorithms can utilize hash matching and content similarity analysis to identify instances of copyright infringement. Hash matching involves generating a unique hash value for a copyrighted work and comparing it with the hash values of other digital files<sup>32</sup>. If a hash match is found, it indicates potential unauthorized use or distribution. Content similarity analysis employs machine learning techniques to identify similarities, patterns, or visual/audio features between uploaded content and copyrighted works, helping identify potential infringements.<sup>33</sup>

### Copyright education and awareness:

AI-based chatbots, virtual assistants, or interactive platforms can provide users with information and guidance on copyright laws, fair use, and obtaining proper permissions or licenses for using copyrighted material. These AI systems can help educate users about their rights and responsibilities, reducing unintentional infringement and promoting compliance with copyright regulations.

### Copyright registration and management:

AI can simplify the copyright registration process by automating administrative tasks and assisting creators in managing their copyright portfolios<sup>34</sup>. AI-powered systems can facilitate the registration of works, generate copyright notices, and help creators keep track of their copyrighted content, licenses, and permissions<sup>35</sup>.



### Tracking licensing and royalties:

AI can aid in tracking the use and distribution of copyrighted content, helping copyright holders ensure proper licensing and royalty payments<sup>36</sup>. AI algorithms can monitor digital platforms, identify instances of unlicensed usage, and provide data for calculating and collecting royalties.

It is important to note that while AI can be a valuable tool in addressing copyright and infringement issues, it is not a complete solution. Human judgment, legal expertise, and ongoing policy development are still necessary to ensure a balanced and fair approach to copyright enforcement on the internet. While the potential benefits of AI in addressing copyright and infringement issues are significant, several challenges and considerations need to be addressed.

The evolution of AI technology<sup>37</sup> presents a challenge in addressing copyright and infringement issues, as new forms of infringement emerge such as deepfakes or other emerging techniques. Collaborative initiatives like the Coalition for Content Provenance and Authenticity (C2PA), Project Origin, and the Content Authenticity Initiative (CAI) involving technology developers, copyright experts, and policymakers are essential. Through these efforts, proactive steps are taken to ensure AI-driven solutions remain effective against evolving infringement methods. This commitment to innovation is reflected in solutions like the Authentication of Media via Provenance (Amp), demonstrating a dedication to strengthening journalism, combating disinformation, and preserving the integrity of digital content.

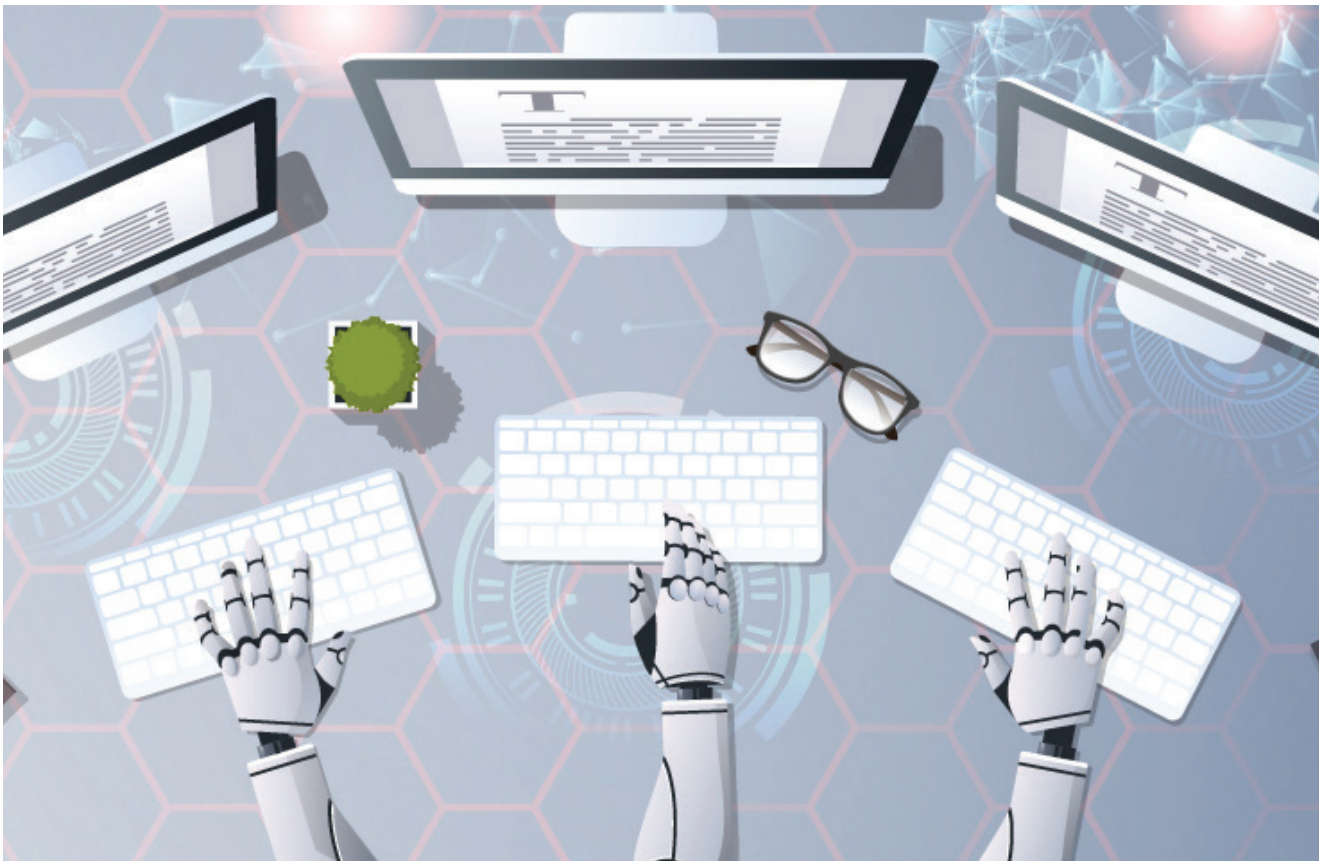




Another challenge lies in the inherent limitations and biases of AI algorithms. The effectiveness of AI in copyright enforcement heavily relies on the accuracy and reliability of these algorithms. There is a risk of false positives or false negatives, where legitimate content may be incorrectly flagged as infringing or infringing content may go undetected<sup>38</sup>. Ongoing research and development are necessary to enhance the accuracy and fairness of AI algorithms, minimizing these risks.

Moreover, AI systems should be designed to respect user privacy and data protection.<sup>39</sup> When implementing AI solutions for copyright enforcement, it is essential to ensure compliance with relevant privacy laws and regulations. Striking the right balance between effective enforcement and protecting user privacy is crucial to building public trust and acceptance of AI-driven copyright initiatives.<sup>40</sup>

Legal considerations and the evolving nature of copyright law pose additional challenges. AI algorithms must be adaptable to different legal frameworks and be aware of jurisdiction-specific nuances. Close collaboration between policymakers, legal experts, and technology developers is necessary to develop standardized guidelines and international cooperation mechanisms to address these challenges<sup>41</sup>. Ethical implications also need to be carefully considered. While AI can aid in copyright enforcement, it should not result in overzealous or automated takedowns that restrict legitimate uses or stifle freedom of expression. Balancing the rights of copyright holders with user rights and fair use exceptions is essential in maintaining a healthy and vibrant creative ecosystem<sup>42</sup>.



## Conclusion

In conclusion, AI offers significant potential in addressing copyright and infringement issues on the internet. From content identification and detection to automated takedown notices, copyright filtering, and monitoring, AI can streamline enforcement processes, protect creators' rights, and promote a more balanced copyright ecosystem. However, challenges such as algorithmic accuracy, privacy concerns, legal complexities, and ethical considerations must be addressed to ensure effective and fair implementation of AI-driven copyright initiatives. A multidimensional approach involving collaboration between stakeholders is necessary to maximize the benefits of AI while safeguarding the rights and interests of all parties involved.





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