



Copyrightability of AI-Generated Works: A Comparative Study of Human Authorship and Creative Control

Monika and Bhoma Ram Ji*

Department of Law, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan, India

monikapanghal8460@gmail.com

*Corresponding Author: Dr Bhoma Ram Ji, Assistant Professor, Department of Law, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan, India

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Abstract

Generative artificial intelligence unsettles copyright's conventional assumption that protectable expression originates in a human author. This paper compares the approaches of the United States, United Kingdom, European Union, China and India to determine when AI-related output can qualify for copyright. Using doctrinal, comparative and normative analysis, it distinguishes AI-assisted works from substantially autonomous outputs and evaluates human authorship, originality, prompts, iteration, selection and post-generation editing. The study finds broad resistance to treating AI itself as an author, but significant divergence in the treatment of human users. The United States emphasizes human-authored elements and partial protection; the United Kingdom retains a statutory rule for computer-generated works; the European Union connects originality with free and creative human choices while regulating AI through transparency duties; China examines individualized prompting and refinement; and India combines a statutory causation rule with an unresolved originality inquiry. The paper argues that copyright should follow identifiable human creative control, with protection limited to human expression, selection, arrangement or modification. Purely autonomous outputs should remain outside ordinary copyright unless legislation creates a narrowly justified alternative right.

1. Introduction

This paper asks when human interaction with a generative system becomes authorship and how leading legal systems draw that boundary. It treats copyrightability as distinct from later questions of ownership and concentrates on the human creative contribution embodied in the final expression.

The title of this study, Copyright Protection of AI-Generated Works: A Comparative Legal Study, reflects a central tension in modern intellectual property law. Copyright traditionally protects original works of authorship fixed in a tangible medium or expressed in a form capable

of reproduction. The law assumes that an author is a human person, or at least that a legal person can own rights derived from human creative acts. Generative AI challenges this assumption because the final expressive form may be produced by a system whose internal operations are opaque, probabilistic and not fully controlled by the user. A prompt such as 'create a painting of a futuristic courtroom' may result in a complex image, yet the user may not have selected every line, shade or compositional element. The legal difficulty is therefore to determine whether the user's contribution is sufficient creative authorship, whether the developer's design of the model is relevant, whether the owner of the system should acquire rights, or whether the output should remain in the public domain.

The key term 'authorship' refers to the person whose intellectual creation is embodied in the work. Copyright law does not protect ideas, facts, styles or techniques in the abstract; it protects original expression. Originality usually requires independent creation and a minimum degree of creativity, although the threshold is low in many jurisdictions. In European law, originality is often expressed as the author's own intellectual creation, meaning that the work must reflect free and creative choices of a human author. In common law systems, courts also ask whether the author exercised skill, judgment or creativity. AI complicates these tests because the system may generate expressive features that are independent of the user's specific intention.

The rise of generative AI has transformed the scale of the issue. A single user can now produce hundreds of plausible images, melodies or essays in an afternoon. The marginal cost of producing expressive output has fallen dramatically. This abundance creates a copyright paradox. On one hand, denying protection to all AI-involved works may be unfair to users who exercise genuine creativity through detailed prompts, iterative selection, editing and arrangement. On the other hand, granting full copyright to every AI output may flood the market with low-cost monopolies over machine-generated expression, thereby reducing the public domain and weakening incentives for human creators. The law therefore requires a threshold that is neither blindly anti-technology nor mechanically pro-protection.

The evidentiary problem is equally serious. In traditional authorship disputes, courts can examine drafts, sketches, notes, witness testimony and creative processes. In AI cases, evidence may include prompts, negative prompts, model settings, seed values, screenshots, editing histories, dataset information and contractual terms of the platform. Yet many users do not preserve this

evidence. Some platforms alter outputs through hidden safety filters or system prompts. Others prohibit disclosure of model architecture or training data. As a result, courts may struggle to determine whether the human contribution reached the originality threshold. This is why the European Union's AI Act and the United Kingdom's 2026 policy discussion on copyright and AI emphasize transparency, documentation, labeling and licensing in addition to conventional copyright doctrine.

2. Method and Analytical Framework

The inquiry uses a functional comparison: each jurisdiction is examined against the same problems of authorship, originality, creative control, mixed human-machine expression and evidentiary proof.

The methodology of this study is doctrinal, comparative and normative. The doctrinal method involves analysis of primary legal materials, including statutes, cases, administrative guidance, treaties and official policy documents. These materials include the U.S. Copyright Act and Copyright Office guidance, *Thaler v. Perlmutter*, the Copyright, Designs and Patents Act 1988, EU copyright jurisprudence and the AI Act, the Beijing Internet Court judgment in *Li v. Liu*, India's Copyright Act 1957 and Pakistan's Copyright Ordinance 1962. Secondary materials such as journal articles, policy papers and expert commentary are used to interpret the doctrinal developments and identify unresolved issues.

The comparative method is functional. Instead of comparing legal rules abstractly, the study compares how each jurisdiction addresses the same practical problem: allocating legal protection where AI contributes to the final expressive output. The comparison considers four dimensions. The first is authorship: whether the law requires a human author, recognizes a legal fiction, or permits user authorship based on creative input. The second is originality: whether the output reflects independent human creativity or merely mechanical production. The third is ownership: who receives rights if protection exists. The fourth is policy: how the jurisdiction balances incentives, public domain, transparency and enforcement.

3. United States: Human Authorship and Partial Protection

The United States represents the clearest restrictive model because copyright protection is anchored in human authorship. The dominant position is that copyright protects original works of

authorship created by human beings, not autonomous products of non-human systems. This position is not merely an administrative preference of the U.S. Copyright Office; it is supported by the constitutional language of authors and writings, the Copyright Act's structure, and case law that treats human creative agency as the foundation of copyright. For this reason, AI cannot be named as an author and a work generated entirely by AI, without sufficient human creative contribution, is not registrable as a copyright work.

The U.S. Copyright Office's 2025 report, *Copyright and Artificial Intelligence, Part 2: Copyrightability*, is the most important contemporary statement of the American position. The report concludes that questions of AI copyrightability can generally be resolved under existing law rather than through immediate legislative change. Its key proposition is that the use of AI tools to assist rather than replace human creativity does not destroy copyright protection. However, copyright does not extend to purely AI-generated material or to material where there is insufficient human control over expressive elements. Therefore, the inquiry is not whether AI was used, but whether a human author made a meaningful creative contribution to the expressive form of the work.

The U.S. approach does not deny protection to all AI-related works. It protects the human-authored parts of a mixed work. For example, if a writer drafts original text and uses AI to generate illustrations, the text may be protected. If the writer selects and arranges AI-generated images with human-written dialogue in a sufficiently creative manner, the compilation may be protected, although the AI-generated images as such may remain outside protection. Likewise, if an artist inputs a human-created drawing and the expressive features of that drawing remain perceptible in the output, copyright may protect the human expression that survives in the resulting work. The same principle applies where a human modifies, edits or arranges AI-generated material to such a degree that the modifications themselves satisfy originality.

4. United Kingdom: The Computer-Generated Works Model

The United Kingdom occupies a distinctive position because its Copyright, Designs and Patents Act 1988 contains provisions for computer-generated works. Section 9(3) states that, in the case of a literary, dramatic, musical or artistic work which is computer-generated, the author is taken to be the person by whom the arrangements necessary for the creation of the work are undertaken. Section 178 defines a computer-generated work as a work generated by computer in

circumstances such that there is no human author. This statutory structure is unusual because it appears to contemplate copyright protection even where no ordinary human author exists.

The UK government's March 2026 Report on Copyright and Artificial Intelligence directly addressed this difficulty. The report records that the UK has existing protection for computer-generated works created without a human author, but it also states that this protection departs from the core rationale of copyright, namely the encouragement and reward of human creativity. The report notes that most respondents to the relevant consultation question considered that works created solely by AI should not be protected, while protection should remain available for AI-assisted works. It further proposes continued monitoring and indicates that, in the absence of evidence of ongoing value, the specific protection for wholly computer-generated works should be removed, while copyright should continue to protect works made with AI assistance.

5. European Union: Human Intellectual Creation and AI Governance

The European Union is important because it combines a traditional human-centered copyright originality standard with a modern regulatory framework for AI. EU copyright law does not contain a general statutory category equivalent to the UK's computer-generated works provision. Instead, the Court of Justice of the European Union has developed the standard that a protected work must be the author's own intellectual creation. This test is associated with free and creative choices and with the author's personal expression. As a result, wholly AI-generated outputs are unlikely to receive copyright protection as authorial works because an AI system is not a natural person and cannot make personal creative choices in the legal sense.

The EU AI Act, Regulation (EU) 2024/1689, does not directly create copyright ownership in AI-generated outputs. It is principally a regulatory instrument concerned with risk, transparency, accountability, safety and fundamental rights. Nevertheless, it is highly relevant to copyright because it imposes duties on providers of general-purpose AI models. Article 53 requires providers of general-purpose AI models to draw up technical documentation, provide information to downstream providers, put in place a policy to comply with Union copyright law and related rights, and make publicly available a sufficiently detailed summary of the content used for training according to a template provided by the AI Office. This does not answer who owns an AI-generated output, but it changes the environment in which AI training and deployment take place.

This model has strengths and weaknesses. Its strength is that it does not distort copyright

authorship in order to accommodate AI. It keeps authorship tied to human intellectual creation while regulating AI providers through public law obligations. This avoids the need to treat AI as an author or to grant copyright to every machine output. It also gives rights holders a stronger basis to demand information about training content and to enforce opt-outs. Its weakness is practical enforcement. A summary of training content may not allow a specific author to know whether a particular book, image, article or song was used. Machine-readable rights reservations may also be technically difficult for small creators. For this reason, the EU model is a transparency model, not a complete solution to ownership and infringement.

6. China: Individualized Human Input

This process-based inquiry is demanding, but it links protection to demonstrable creative judgment instead of ownership or operation of an AI user account.

China has adopted a more flexible and case-based approach in some AI-generated image disputes. Chinese law does not contain a general computer-generated works provision similar to the UK. Nor does it treat AI itself as a legal author. Nevertheless, Chinese courts have been willing in certain cases to protect AI-generated outputs where the human claimant demonstrated sufficient intellectual input, creative choices and control over the final expression. The most important example is the Beijing Internet Court decision in *Li v. Liu*, concerning an image generated through Stable Diffusion.

In *Li v. Liu*, the plaintiff generated an image by entering prompt words into Stable Diffusion and later posted it online. The defendant used the image without permission and removed the watermark. The Beijing Internet Court held that the image could be protected as a work and that the plaintiff owned copyright in it. The court's reasoning is important because it did not identify the AI model as the author. Instead, it emphasized that the plaintiff directly set up the model as needed, entered and adjusted prompts, selected the final picture, and made intellectual investment throughout the process. The court treated the AI model as a tool and focused on whether the output reflected the plaintiff's personalized expression.

The Chinese approach differs from the U.S. approach in its treatment of prompts and iterative control. The U.S. Copyright Office is skeptical that prompts alone, even detailed prompts, provide sufficient control over expressive elements. The Beijing Internet Court, by contrast, was prepared to examine the prompt process as part of the human creative contribution. It did not say that every

prompt creates copyright. Rather, it considered the total process: prompt design, parameter adjustment, iterative generation, selection of the final image and publication with attribution. This gives Chinese courts greater flexibility to recognize protection where human choices meaningfully shape the final output.

Later Chinese commentary and reported cases show that the flexible approach does not remove the need for evidence. Courts may require proof of prompt sequences, parameter settings, editing steps, selection choices and final human contribution. A claimant who cannot prove that the output reflects human intellectual achievement may fail. This evidentiary point is very important for Pakistan. If a court recognizes AI-generated outputs case by case, it must require the claimant to show the creative process. Otherwise, copyright may be granted merely because someone clicked generate.

7. India: Causation, Originality and Administrative Uncertainty

India is an important comparative jurisdiction because its copyright statute contains language that appears, at first sight, to address computer-generated works. Section 2(d)(vi) of the Copyright Act 1957 provides that, in relation to a computer-generated literary, dramatic, musical or artistic work, the author is "the person who causes the work to be created." The provision was introduced before contemporary generative AI and does not define the level of causation or creativity required. Its apparent simplicity therefore conceals difficult questions. Does the relevant person mean the user who enters a prompt, the developer who designs the system, the employer who commissions the output, or the person who makes the decisive creative arrangements? Does the provision merely allocate authorship after a work satisfies originality, or does it also deem every computer-generated output to be copyrightable?

The phrase "causes the work to be created" should be interpreted functionally. A user may qualify where the evidence demonstrates a creative conception, detailed direction, iterative choices, selection, modification and control over the final form. A developer should not automatically own every output merely because the model was built or trained by the developer. The developer's copyright in software and other intellectual-property interests remain separate from authorship of individual outputs. Similarly, a platform's contractual terms may allocate rights between the platform and user, but contract cannot create copyright in material that fails the statutory requirements for protection.

8. Comparative Evaluation

Taken together, the models do not form a simple spectrum from protection to non-protection. They differ in the legal vocabulary used to locate human creativity, in the weight assigned to prompts and iteration, and in whether uncertainty is managed through copyright doctrine, administrative guidance or broader AI regulation.

The six jurisdictions reveal five major models. The first is the restrictive human-authorship model, represented most clearly by the United States. It protects identifiable human contributions but excludes AI-only outputs. The second is the statutory-attribution model, represented by the United Kingdom and India. The United Kingdom may deem the person making the necessary arrangements to be the author of a computer-generated work, while India attributes authorship to the person who causes a computer-generated work to be created; both models require clarification when applied to probabilistic generative systems and must remain subject to originality. The third is the regulatory-transparency model, represented by the European Union, where copyright authorship remains human-centred but AI providers face documentation, copyright-compliance and training-content transparency duties. The fourth is the flexible judicial model, represented by China, where courts may protect an AI-assisted output if the claimant proves sufficiently individualized human intellectual input. The fifth is the legislative-gap model represented by Pakistan, which currently has no express AI copyright framework and must choose a balanced path through reform.

The comparative lesson is that no major jurisdiction is prepared to treat AI itself as an author. Even China, which has shown flexibility, identifies the human user as author only where the user contributes intellectual input. The difference lies in the threshold. The United States sets a relatively strict threshold and treats prompts as generally insufficient. China is more willing to examine prompt design and output selection as evidence of creativity. The United Kingdom's section 9(3) creates a legal fiction that may protect works without ordinary human authorship, but the 2026 government report questions whether this protection remains justified. The EU avoids output ownership reform and instead strengthens AI governance around transparency and copyright compliance.

The key policy balance is between innovation and human creativity. Stronger protection for AI outputs may encourage businesses to invest in AI content production, but it may also flood the

copyright system with low-cost automated works. Weaker protection may preserve the public domain and protect human authors, but it may reduce commercial certainty for AI-assisted industries. A middle path is therefore preferable. Protection should follow human creativity, not mere machine productivity. This principle is consistent with the U.S. and EU approaches, can be adapted with lessons from the UK, and can be applied flexibly using China's evidentiary approach.

9. Findings and Conclusion

The comparison supports a conditional approach: AI participation should neither automatically defeat protection nor automatically justify it. The legally relevant question is whether identifiable human choices shaped protectable expression in the final work.

The first finding is that copyright law remains primarily based on human authorship. International instruments, moral rights doctrine and comparative case law all assume an author capable of intellectual creation, reputation and legal responsibility. AI systems do not possess these attributes. The U.S. position after the Copyright Office reports and Thaler litigation is especially clear: AI alone cannot be the author of a copyrighted work. The Supreme Court's denial of certiorari in March 2026 did not create a merits ruling, but it left the human-authorship approach intact in that litigation. This confirms that the strongest global trend is toward human contribution rather than machine personality.

The second finding is that purely AI-generated works face serious difficulty in receiving copyright protection. If a user provides only a generic prompt and accepts the machine's output, the final expression is determined by the AI system. Granting full copyright in such outputs would weaken the link between copyright and human creativity. It would also create the risk of mass automated enclosure of expression. Therefore, purely machine-generated works should generally remain outside ordinary copyright, although limited sui generis protection may be considered for specific commercial cases.

The third finding is that AI-assisted works may be protected where human creativity is clearly visible. The use of AI should not automatically disqualify a work. Copyright law has always allowed authors to use tools. The decisive question is whether the human user made creative choices in conception, prompting, selection, arrangement, editing, modification or integration. Protection should extend only to the human-authored elements, not to raw machine-generated material. This finding protects modern creators who use AI responsibly while preserving the

human foundation of copyright.

The fourth finding is that jurisdictions are diverging. The United States emphasizes human authorship and case-by-case assessment. The United Kingdom has a special computer-generated works provision but is reconsidering copyright and AI policy through consultation and reporting. The European Union regulates AI through transparency, GPAI obligations and copyright-policy compliance while leaving copyright ownership largely to existing law. Chinese courts have shown willingness to protect AI-assisted outputs where human choices are sufficiently detailed. These differences create uncertainty for cross-border businesses and creators.

The eighth finding is that a balanced approach is needed. Overprotection of AI outputs may harm the public domain and human creators. Underprotection of genuine AI-assisted works may discourage innovation and digital creativity. The law should therefore protect meaningful human contribution, exclude raw machine output from ordinary copyright, regulate training data, impose transparency and consider limited *sui generis* protection only where necessary.

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