INTELLECTUAL PROPERTY CHALLENGES IN AI-GENERATED WORKS: A DOCTRINAL ANALYSIS WITH SPECIAL REFERENCE TO INDIAN LAW

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ABSTRACT

The rapid evolution of generative artificial intelligence has introduced a profound doctrinal challenge to intellectual property law by destabilizing one of its most fundamental assumptions: that legal protection is premised upon identifiable human authorship. Traditional copyright frameworks, both in India and globally, have been constructed on the normative foundation that creative expression originates in human intellect and personality. However, contemporary AI systems particularly large language models and generative image tools are capable of producing outputs that display originality, coherence, and aesthetic value without direct human control over the final expressive form. This development raises critical questions regarding authorship, ownership, and the very justification for intellectual property protection.

This paper examines these issues with specific reference to Indian law, situating the analysis within a broader comparative framework. It focuses on the apparent tension between the statutory recognition of "computer-generated works" under Section 2(d)(vi) of the Copyright Act, 1957 and the judicial insistence on human creativity as the basis of originality, as articulated in decisions such as *Eastern Book Company v. D.B. Modak*. The paper argues that while the statutory language appears technologically accommodating, it does not necessarily support the recognition of purely autonomous AI-generated works when read in light of evolving judicial standards. Instead, Indian law implicitly requires a threshold of human intellectual contribution, which must be demonstrated through control over expressive elements rather than mere initiation of the generative process.

Beyond questions of authorship, the paper engages with the more immediate and practically significant challenges posed by AI systems, particularly in relation to training data and infringement. The large-scale ingestion of copyrighted material for training purposes raises complex issues under the doctrine of fair dealing, which remains comparatively narrow in Indian law. Unlike jurisdictions such as the United States and the European Union,

which have developed more flexible or structured approaches to text-and-data mining, India lacks a clear legal framework governing the permissibility of such practices. As a result, ongoing and anticipated litigation is likely to play a pivotal role in shaping the contours of legality in this domain.

The paper also examines the role of trademark law as an emerging regulatory tool for addressing harms arising from AI-generated outputs, including the reproduction of protected marks and the risk of consumer confusion. It further considers the position of patent law, which remains relatively settled in its insistence on human inventorship, thereby excluding AI systems from being recognised as inventors.

Ultimately, the paper argues that the Indian legal system is at a transitional stage. While existing doctrines are capable of accommodating certain aspects of AI-assisted creativity, they are insufficient to address the full range of challenges posed by generative systems. The likely trajectory of reform lies not in the creation of entirely new intellectual property rights for AI-generated content, but in the development of a hybrid regulatory framework that combines doctrinal adaptation with policy interventions such as licensing mechanisms, transparency obligations, and clearer rules on liability. In this evolving landscape, the central task for Indian law will be to preserve the normative commitment to human creativity while ensuring that legal frameworks remain responsive to technological change.

Keywords: Artificial Intelligence, Intellectual Property, Copyright Authorship, Originality Doctrine, Computer-Generated Works, Fair Dealing, AI Training Data, Trademark Liability, Patent Inventorship, Indian Law.

I. Introduction

The interface between intellectual property law and technological innovation has historically been characterised by gradual doctrinal adaptation. From the printing press to digital reproduction technologies, each technological shift has required courts and legislatures to reinterpret existing principles rather than abandon them altogether. However, generative artificial intelligence presents a qualitatively distinct challenge. Unlike prior technologies that merely facilitated human creativity, contemporary AI systems are capable of producing outputs—ranging from literary works to visual art that appear to embody originality without direct human authorship.

This development raises foundational questions for intellectual property law. At its core, the system is premised on the protection of human intellectual labour. Copyright law, in particular, has long been understood as safeguarding the fruits of human creativity, with originality

serving as the threshold requirement for protection. The emergence of AI-generated works disrupts this premise by introducing outputs that may satisfy formal criteria of originality while lacking a human author in the traditional sense.

In the Indian context, these challenges are compounded by the wording of the Copyright Act, 1957, which recognises authorship in the case of "computer-generated works." While this provision appears, at first glance, to accommodate AI-generated outputs, its application to modern generative systems is far from straightforward. The absence of authoritative judicial interpretation, combined with the evolution of originality standards in Indian jurisprudence, creates a space of doctrinal uncertainty.

This paper seeks to address these issues by analysing the legal status of AI-generated works under Indian intellectual property law. It situates the Indian position within a comparative framework, drawing on developments in the United States, European Union, United Kingdom, and China. It argues that while Indian law exhibits a degree of statutory openness, its underlying commitment to human creativity is likely to constrain the recognition of purely autonomous AI outputs. At the same time, the more pressing legal challenges arise not from authorship per se, but from issues relating to training data, infringement, and liability.

II. The Indian Copyright Framework: Statutory Text and Judicial Doctrine

The starting point for any analysis of AI-generated works in India is Section 2(d)(vi) of the Copyright Act, 1957, which defines the author of a computer-generated work as "the person who causes the work to be created." This provision, introduced in the context of earlier computational technologies, was intended to address situations where no traditional human author could be identified. Its relevance to contemporary generative AI systems, however, is far from settled.

The phrase "person who causes the work to be created" is inherently ambiguous. It could refer to multiple actors within the AI ecosystem: the user who inputs prompts, the developer who designs the algorithm, or the entity that deploys the system. This multiplicity of potential claimants complicates the attribution of authorship and raises questions about the allocation of rights.

Indian courts have historically emphasised the importance of human creativity in determining

copyrightability. In *Eastern Book Company v. D.B. Modak*, the Supreme Court rejected the traditional "sweat of the brow" doctrine and adopted a standard of "modicum of creativity." The Court held that copyright subsists only where the work reflects the author's intellectual effort, thereby aligning Indian law with the originality standard articulated in Feist Publications Inc. v. Rural Telephone Service Co.1

This doctrinal shift has significant implications for AI-generated works. If originality requires human intellectual contribution, then the mere fact that a work is generated through a computational process may not suffice to attract protection. The statutory provision on computer-generated works must therefore be read in light of this requirement.

Further guidance can be drawn from *R.G. Anand v. Deluxe Films*, where the Supreme Court emphasised that copyright protects the expression of ideas rather than the ideas themselves. This distinction becomes particularly relevant in the context of AI systems, where prompts may be seen as conveying ideas, while the expressive output is generated by the system.

III. Authorship and the Problem of Human Control

The question of authorship in the context of AI-generated works represents the most conceptually difficult issue within contemporary copyright law. At its core, authorship is not merely a technical designation but a normative construct, rooted in the idea that creative works embody human intellectual labour, personality, and judgment. The emergence of generative AI destabilises this premise by introducing outputs that may appear creative, yet lack a direct and identifiable human author in the traditional sense.

Indian copyright law does not explicitly define "authorship" in philosophical terms; instead, it relies on statutory attribution under Section 2(d) of the Copyright Act, 1957. However, judicial interpretation has consistently infused this concept with a requirement of human intellectual contribution. In *Eastern Book Company v. D.B. Modak*, the Supreme Court made it clear that copyright protection is contingent upon a "modicum of creativity," thereby rejecting purely mechanical or labour-based claims to authorship.2 This formulation is significant because it shifts the inquiry from effort to intellectual input, thereby implicitly excluding outputs

[1] Feist Publications Inc. v. Rural Telephone Service Co., 499 U.S. 340 (1991).
[2] Eastern Book Company v. D.B. Modak, (2008) 1 SCC 1 (SC).

generated without meaningful human intervention.

The challenge in the context of AI lies in determining whether the user of an AI system exercises sufficient control over the final output to qualify as an author. Traditional creative processes involve a direct causal relationship between the author's intention and the expressive form of the work. By contrast, AI-generated outputs are produced through probabilistic models that respond to inputs in ways that are not entirely predictable or controllable. This introduces a gap between intention and expression, complicating the attribution of authorship.

Indian courts have, in other contexts, emphasised that originality lies in the application of skill and judgment. In *Burlington Home Shopping Pvt. Ltd. v. Rajnish Chibber*, the Delhi High Court observed that originality does not require novelty but must involve the exercise of intellectual effort.3 Similarly, in *University of London Press Ltd. v. University Tutorial Press Ltd.*, which has been influential in Indian jurisprudence, the Court held that originality requires that the work originate from the author and not be copied.4 These principles suggest that authorship is tied to the ability of the individual to shape the expressive content of the work.

When applied to AI systems, this raises the critical question: does prompting constitute sufficient "skill and judgment"? On one view, prompts may be seen as analogous to instructions given to a human assistant, in which case the prompter retains authorship. However, this analogy breaks down upon closer examination. Unlike a human assistant, an AI system does not interpret instructions through conscious understanding but generates outputs based on statistical correlations within training data. The user's control over the final output is therefore indirect and often limited.

Comparative jurisprudence reinforces this distinction. In the United States, courts have taken a categorical approach, holding that authorship requires human creation. In *Thaler v. Perlmutter*, the court denied copyright protection to a work generated autonomously by an AI system, emphasising that the Copyright Act presupposes a human author.5 Administrative guidance further clarifies that prompts, even if detailed, do not amount to authorship unless the user exercises control over the expressive elements of the output.

[3] Burlington Home Shopping Pvt. Ltd. v. Rajnish Chibber, 1995 (15) PTC 278 (Del).
[4] University of London Press Ltd. v. University Tutorial Press Ltd., [1916] 2 Ch 601.
[5] Thaler v. Perlmutter, 687 F. Supp. 3d 140 (D.D.C. 2023).

In contrast, Chinese courts have adopted a more pragmatic approach, focusing on the degree of human involvement rather than the formal requirement of human authorship. In a 2023 decision of the Beijing Internet Court, the court recognised copyright in an AI-generated image where the user had engaged in detailed prompting, parameter selection, and iterative refinement. This approach effectively lowers the threshold for authorship, treating AI as a tool through which human creativity is expressed.

The Indian position is likely to fall somewhere between these two models. On the one hand, the statutory recognition of computer-generated works suggests a willingness to accommodate non-traditional forms of creation. On the other hand, judicial emphasis on human creativity indicates that authorship cannot be attributed in the absence of meaningful intellectual contribution.

A possible doctrinal approach for Indian courts would be to adopt a "control-based test" of authorship, focusing on whether the user exercised sufficient control over the expressive elements of the work. Such a test would not treat all AI-generated works uniformly but would instead distinguish between different levels of human involvement. For instance, a user who merely inputs a generic prompt and accepts the first output generated by the system may not satisfy the requirement of originality. By contrast, a user who engages in iterative prompting, selects among multiple outputs, and undertakes post-generation editing may be said to exercise sufficient creative control.

This approach would be consistent with existing Indian jurisprudence, which emphasises the role of skill and judgment without requiring a high threshold of creativity. It would also align with comparative developments, particularly in jurisdictions that treat AI as a tool rather than an autonomous creator.

However, the adoption of such a test raises further questions regarding evidentiary standards. How is creative control to be demonstrated? In traditional contexts, authorship is often self-evident. In the case of AI-generated works, it may be necessary to rely on documentation such as prompt histories, editing records, and metadata. This introduces a procedural dimension to the concept of authorship, where the ability to prove human contribution becomes as important as the contribution itself.

Another unresolved issue concerns the possibility of joint authorship. Could authorship be

attributed jointly to the user and the developer of the AI system? While this argument may appear attractive, it is doctrinally problematic. Indian law requires that joint authors collaborate in the creation of a work with a shared intention. The developer of an AI system, however, does not participate in the creation of any specific output. The system is designed as a general-purpose tool, and its outputs are not predetermined by the developer. As such, attributing joint authorship would stretch the concept beyond its traditional limits.

A more plausible approach is to treat the AI system as analogous to a tool or instrument, similar to a camera or software program. In such cases, authorship is attributed to the individual who uses the tool to create the work. However, this analogy is not entirely satisfactory, as AI systems exhibit a degree of autonomy that distinguishes them from traditional tools. The challenge for Indian law is to reconcile this autonomy with the requirement of human authorship.

Ultimately, the problem of authorship in AI-generated works cannot be resolved through rigid doctrinal categories. It requires a nuanced and context-sensitive approach that takes into account the nature of the technology, the degree of human involvement, and the underlying purposes of copyright law. The objective should not be to force AI-generated works into existing categories, but to interpret those categories in a manner that preserves the normative foundation of intellectual property while accommodating technological change.

IV. Training Data, Copyright Infringement, and Liability

While the problem of authorship in AI-generated works raises significant conceptual questions, the more immediate and practically consequential challenges arise from the use of copyrighted material in training AI systems. Generative AI models are built upon vast datasets, often comprising text, images, and other expressive works that may be protected under copyright law. The ingestion, processing, and potential reproduction of such material raise complex issues relating to infringement, fair dealing, and liability allocation.

Under the Indian Copyright Act, 1957, the exclusive rights of a copyright owner include the right to reproduce the work in any material form. The process of training an AI system typically involves copying large volumes of data into machine-readable formats, which prima facie falls within the scope of reproduction. The central legal question, therefore, is whether such copying can be justified under the doctrine of fair dealing or any other statutory exception.

Indian courts have historically adopted a relatively restrictive interpretation of fair dealing. In *Civic Chandran v. Ammini Amma*, the Kerala High Court laid down a contextual approach, emphasising that the determination of fairness depends on factors such as the purpose of use, the amount taken, and the effect on the market for the original work.6 While this formulation introduces flexibility, its application has generally been cautious, particularly in cases involving commercial exploitation.

This cautious approach is evident in *Super Cassettes Industries Ltd. v. Hamar Television Network Pvt. Ltd.*, where the Delhi High Court held that the unauthorised use of copyrighted music for commercial broadcasting could not be justified as fair dealing.7 The Court emphasised that the commercial nature of the use and its potential impact on the market for the original work weighed heavily against the defendant.

When these principles are applied to AI training, significant difficulties emerge. The scale of data ingestion involved in training modern AI systems is unprecedented, often involving millions of copyrighted works. Moreover, the purpose of such training is typically commercial, as the resulting models are deployed in products and services offered for profit. This combination of large-scale copying and commercial intent suggests that AI training may not easily fall within the traditional contours of fair dealing under Indian law.

Comparative jurisprudence highlights the divergence in approaches across jurisdictions. In the United States, the doctrine of fair use has been interpreted with considerable flexibility, allowing courts to assess new technologies on a case-by-case basis. Recent decisions demonstrate that the legality of AI training depends on factors such as the transformative nature of the use, the legality of the source material, and the extent of market harm. In *Authors Guild v. Google Inc.*, for instance, the Second Circuit upheld the digitisation of books for search purposes as fair use, emphasising the transformative nature of the use and the absence of market substitution.8

However, subsequent litigation involving AI systems suggests that this flexibility is not unlimited. In cases where the use of copyrighted material directly competes with the original

[6] Civic Chandran v. Ammini Amma, 1996 PTC (16) 329 (Ker).
[7] Super Cassettes Industries Ltd. v. Hamar Television Network Pvt. Ltd., 2011 (45) PTC 70 (Del).
[8] Authors Guild v. Google Inc., 804 F.3d 202 (2d Cir. 2015).

work or involves the retention of pirated datasets, courts have been less willing to find fair use.

The European Union, by contrast, has adopted a more structured approach through the introduction of specific exceptions for text-and-data mining under the DSM Directive. These provisions permit the use of copyrighted material for computational analysis under certain conditions, including lawful access and the absence of an opt-out by rights holders. This approach reflects a legislative recognition of the importance of data-driven technologies while attempting to balance the interests of creators.

India currently lacks an equivalent statutory framework. The absence of a specific exception for AI training creates uncertainty for developers and rights holders alike. While it is conceivable that courts may interpret fair dealing expansively to accommodate certain forms of AI training, such an approach would represent a significant departure from existing jurisprudence.

Another critical issue relates to the distinction between training and output. Even if the process of training is found to be lawful, liability may still arise at the stage of output generation. AI systems have been shown, in certain cases, to reproduce elements of copyrighted works, either through memorisation or through the generation of outputs that closely resemble existing works. This raises the question of whether such outputs constitute infringing reproductions or derivative works.

Indian law has addressed the issue of substantial similarity in cases such as *R.G. Anand v. Deluxe Films*, where the Supreme Court held that infringement occurs where the defendant's work is a copy of the plaintiff's work in a material and substantial sense.9 The Court emphasised that the test is one of overall impression rather than a mechanical comparison of elements.

Applying this test to AI-generated outputs presents significant challenges. Unlike traditional cases of copying, where the defendant's intent and access to the original work can be established, AI systems operate through complex processes that may not be easily traceable. Determining whether an output is substantially similar to a copyrighted work may require technical analysis of the model's training data and generation process.

[9] R.G. Anand v. Deluxe Films, (1978) 4 SCC 118 (SC).

The question of liability is further complicated by the multiplicity of actors involved in the AI ecosystem. Potential defendants may include the developer of the AI model, the platform that deploys it, and the user who generates the output. Indian law does not currently provide clear guidance on how liability should be allocated among these actors.

Analogies may be drawn from intermediary liability jurisprudence. In *Shreya Singhal v. Union of India*, the Supreme Court clarified that intermediaries are required to act upon receiving actual knowledge of unlawful content.10 While this framework was developed in the context of online speech, it may offer a starting point for thinking about the responsibilities of AI platforms. However, the application of intermediary liability principles to AI systems is not straightforward, as these systems actively generate content rather than merely hosting it.

Recent developments in India indicate that these issues are no longer theoretical. Litigation initiated by news agencies and publishers against AI developers suggests that courts will soon be required to address the legality of training practices and the liability for AI-generated outputs. These cases have the potential to shape the future of AI regulation in India, particularly in the absence of comprehensive legislative reform.

From a policy perspective, the current legal framework appears ill-equipped to address the scale and complexity of AI systems. The reliance on fair dealing as the primary mechanism for regulating training practices may not provide sufficient clarity or predictability. This has led to discussions on the introduction of licensing frameworks, which would allow AI developers to use copyrighted material in exchange for remuneration to rights holders.

Such a model would align with proposals currently under consideration in India, which seek to balance the interests of innovation and copyright protection. However, the implementation of such a framework raises its own challenges, including the determination of licensing terms, the identification of rights holders, and the enforcement of compliance.

Ultimately, the issue of training data and copyright liability highlights the limitations of existing legal doctrines in addressing new technological realities. While courts may attempt to adapt traditional principles to the context of AI, there is a strong case for legislative intervention to provide clearer guidance. Until such intervention occurs, Indian law is likely to evolve incrementally through judicial decisions, resulting in a patchwork of rules that reflect the

[10] Shreya Singhal v. Union of India, (2015) 5 SCC 1 (SC).

competing interests at stake.

V. Trademark Law and Output-Level Harms

Trademark law provides a relatively stable doctrinal framework for addressing harms arising from AI-generated outputs. Unlike copyright, trademark protection does not depend on authorship but on the likelihood of confusion and the protection of goodwill.

In *Cadila Health Care Ltd. v. Cadila Pharmaceuticals Ltd.*, the Supreme Court emphasised the importance of preventing consumer confusion, particularly in cases involving public health.11 Similarly, in *Yahoo Inc. v. Akash Arora*, the Delhi High Court recognised the applicability of trademark principles in the digital environment.12

AI-generated outputs that incorporate protected trademarks or trade dress may therefore attract liability, even in the absence of human intent. This is particularly relevant in cases where AI systems generate images or content that replicate well-known marks or logos. International developments, such as litigation involving watermark reproduction, suggest that trademark law may become a key tool in regulating AI outputs.

VI. Patent Law and AI-Assisted Invention

Patent law presents a comparatively settled position on the role of AI. Under the Patents Act, 1970, inventorship is limited to natural persons. This requirement has been consistently upheld across jurisdictions, reflecting the conceptual linkage between inventorship and human ingenuity.

The use of AI in the inventive process does not alter this requirement. Instead, it raises questions about the extent to which human contribution is necessary to establish inventorship. Indian law is likely to follow the international consensus in treating AI as a tool rather than an inventor.

VII. Policy Developments and the Future of Indian Law

India is currently engaged in an active policy discourse on the regulation of AI and intellectual

[11] Cadila Health Care Ltd. v. Cadila Pharmaceuticals Ltd., *(2001) 5 SCC 73.*
[12] Yahoo Inc. v. Akash Arora, 1999 PTC (19) 201 (Del).

property. Government initiatives have explored the possibility of introducing licensing frameworks for AI training data, as well as transparency obligations for AI developers.

These developments reflect a broader recognition that traditional IP doctrines may be insufficient to address the challenges posed by AI systems.

A hybrid regulatory model appears to be emerging, combining elements of statutory licensing, contractual governance, and regulatory oversight. Such a model would seek to balance the interests of creators, developers, and users, while preserving the centrality of human creativity.

VIII. Conclusion

The intersection of artificial intelligence and intellectual property law represents a moment of doctrinal transition. Indian law, while offering a potentially flexible statutory framework, has yet to articulate a coherent response to AI-generated works.

This paper has argued that the key to resolving this challenge lies in preserving the centrality of human creativity while adapting legal doctrines to accommodate technological change. Courts will play a crucial role in this process, particularly in clarifying the scope of authorship and the application of fair dealing.

Ultimately, the evolution of Indian intellectual property law in the age of AI will depend on its ability to balance innovation with the protection of human creativity. This balance, though difficult to achieve, is essential to maintaining the legitimacy and effectiveness of the intellectual property system.