INTELLECTUAL PROPERTY IMPLICATIONS OF TRAINING GENERATIVE AI MODELS ON COPYRIGHTED WORKS: A COMPREHENSIVE LEGAL ANALYSIS

Prachi Kumari, Maharashtra National Law University Chhatrapati Sambhajinagar

ABSTRACT

The advent of Generative Artificial Intelligence (AI) has transformed creative industries and tested conventional perceptions about copyright law. Generative AI models like ChatGPT and Stable Diffusion are built on enormous datasets comprising copyrighted work, thereby creating problematic concerns regarding authorship, ownership, and infringement. This research embarks on a comparative and doctrinal analysis of the law implications of AI training on copyright materials between jurisdictions such as the United States, the European Union, and India. It considers whether doctrines like fair use, fair dealing, transformative use, and text-and-data mining (TDM) exceptions apply to AI systems. The study discovers that current copyright regimes fall short of tackling algorithmic creativity and suggests a balanced legal framework through compulsory licensing, transparency in datasets, and sui generis rights. The paper concludes that harmonized international norms are needed to protect creators' rights while promoting responsible AI innovation.

Keywords: Generative Artificial Intelligence; Copyright Law; AI Training Data; Fair Use and Fair Dealing; Text and Data Mining (TDM); Transformative Use; Algorithmic Creativity; Comparative Copyright Law; Authorship and Ownership; International Harmonization

CONCEPTUAL FRAMEWORK OF GENERATIVE AI AND COPYRIGHT

i. Introduction

Artificial Intelligence (AI) is one of the most revolutionary advancements of the twenty-first century. Its potential to mimic cognitive processes like learning, reasoning, and problem-solving has found its way into the realm of creativity with Generative Artificial Intelligence (GAI). Generative AI products generate outputs like text, music, code, and art that are reminiscent of human work. This has posed complex legal issues relating to the concept of authorship, originality of works, and ownership rights of creators who have their work utilized as training materials. The existing copyright system, which is crafted for human creativity, struggles to adapt to autonomous machine creativity and data-driven learning processes.

ii. Concept and Operation of Generative Artificial Intelligence

Generative AI is a type of machine learning model that has the ability to generate novel content based on identifying and imitating patterns within pre-existing data. These models are normally trained with deep learning frameworks, especially neural networks, which operate over large amounts of data to produce contextually appropriate output.[1]

The best examples are probably Large Language Models (LLMs) such as GPT, generating text, and image generators such as Stable Diffusion or DALL·E, generating visuals from text prompts. AI training consists of two crucial phases data ingestion and model training both of which carry substantial implications for copyright. During the phase of data ingestion, copyrighted material is duplicated, examined, and translated into the learning parameters of the system.[2] While such duplications are temporary and not affirmatively expressed, they represent acts of reproduction under the majority of copyright codes.

[1] Russell, S., & Norvig, P. (2021). *Artificial Intelligence: A Modern Approach* (4th ed.). Pearson Education.
[2] Samuelson, P. (2022). *Implications of Machine Learning for Copyright. Journal of the Copyright Society of the U.S.A.*, 69(3), 215–248.

Such technical fact brings training of AI into the potential arena of infringement unless it is justified under principles of fair use, fair dealing, or text-and-data-mining (TDM) exceptions. The next step of content creation makes authorship and ownership even more difficult since AI output can be based on thousands of protected inputs but does not have a human creative agent.

iii. The Interface between Generative AI and Copyright

Copyright law has traditionally been based on three pillars originality, authorship, and fixation. These presuppose human creativity. When AI-generated works are created independently, the role of an "author" gets blurred. The Berne Convention, TRIPS Agreement, and most national legislations including India's Copyright Act, 1957 make works originate from a human mind.[3]

These days, latest AI technologies challenge this basis. Courts and lawmakers are then faced with the question of whether outputs of AI can invoke copyright protection, and if they can, who gets to be the rights holder the user, the programmer, or the AI system itself. Some jurisdictions such as the United States and United Kingdom have responded differently: whereas U.S. legislation maintains the requirement of human authorship (as confirmed in Thaler v. Perlmutter),[4] the U.K. Copyright, Designs and Patents Act, 1988, section 9(3), assigns authorship of computer-generated works to the individual "by whom the arrangements necessary for the creation of the work are undertaken."[5]

India, on the other hand, has no express provisions addressing AI authorship, although the Copyright Office temporarily acknowledged an AI program called RAGHAV as a joint author in 2020 before revoking the registration.[6] This is indicative of an international ambivalence regarding whether creativity should be uniquely human or may be extended to non-human actors.

iv. The Legal Status of AI-Generated Works

The determination of AI-created works as copyrightable depends on whether such works are found to cross the threshold of originality. The definition of originality differs among

[3] Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 1161 U.N.T.S. 3.
[4] *Thaler v. Perlmutter*, No. 1:22-cv-01564 (D.D.C. 2023).
[5] Copyright, Designs and Patents Act, 1988, § 9(3) (U.K.).
[6] Indian Copyright Office, Registration No. L-94300/2020 (withdrawn).

jurisdictions. The United States uses a "modicum of creativity" test (from Feist Publications, Inc. v. Rural Telephone Service Co.),[7] while the European Union uses the idea of "the author's own intellectual creation."[8]

AI-created works, however, tend to be devoid of human intellectual contribution. The products are the results of algorithmic processing from existing information and not conscious creative work. Therefore, such works usually do not meet the criteria for protection under conventional measures of originality. There are, however, policy reasons supporting limited protection to stimulate innovation and investment into the development of AI. Some authors suggest a sui generis right covering AI-generated works or datasets to allow for fair treatment of machine creativity.[9]

v. Training Data and Copyright Infringement

The most controversial aspect is not the outputs of AI but the training datasets. These datasets often comprise copyrighted materials, such as literature, images, and audio, web-scraped from the internet. When AI models reproduce or store copies to learn patterns, these acts amount technically to reproduction under copyright law.[10]

AI creators contend that copying them is non-expressive and technologically necessary. They depend on principles such as fair use (in the U.S.) and fair dealing (in India and the U.K.) to uphold these practices. Nevertheless, these doctrines' application remains uncertain. In Authors Guild v. Google Inc., the U.S. Supreme Court determined that book digitization to enable searchability constituted transformative use because it was for a different purpose and did not replace the original works.[11] The same logic could apply to training AIs, which have analytical and not expressive purposes.

[7] *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).
[8] Directive 2001/29/EC of the European Parliament and of the Council, 2001 O.J. (L 167) 10.
[9] Gervais, D. (2020). *The Machine as Author. Iowa Law Review,* 105(5), 2053–2106.
[10] Guadamuz, A. (2021). *Artificial Intelligence and Copyright. WIPO Magazine,* (2), 15–23.
[11] *Authors Guild v. Google Inc.*, 804 F.3d 202 (2d Cir. 2015).

On the other hand, in active cases like Getty Images v. Stability AI in the U.K., rights holders argue that using copyrighted images without permission qualifies as infringement.[12] Their outcomes are expected to influence global law on AI training and copyright equilibrium.

vi. Doctrinal Analysis: Fair Use, Fair Dealing, and Text-and-Data Mining Exceptions

Three main doctrines play a central role in determining whether or not AI training is legal:

- **Fair Use Doctrine (U.S.)** – Section 107 of the U.S. Copyright Act permits limited use of copyrighted material for purposes like education and research. Four factors are analyzed by courts: purpose, nature, amount taken, and impact on market value. AI training could be fair use if the purpose is non-commercial and transformative.[13]

- **Fair Dealing (U.K. and India)** – Indian copyright law under Section 52(1)(a) has limited exemptions for private copying, research, and criticism, but its application is narrower than that of fair use in the U.S. and would therefore be unlikely to be considered a licensed activity for AI training.

- **Text-and-Data Mining (EU)** – The EU Directive 2019/790 provided specific exceptions to data mining for research institutions and commercial users.[14] These provisions are the most advanced effort to tackle AI training directly, but still subject to opt-out rights of data owners.

Doctrinally, the EU model would prove most flexible with regard to AI, balancing innovation with control. India would do well to include similar exceptions to keep pace with technology.

[12] *Getty Images v. Stability AI*, No. IL-2023-000002 (High Ct. of Justice, U.K., pending).
[13] U.S. Copyright Act, 17 U.S.C. § 107 (1976).
[14] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market, 2019 O.J. (L 130) 92.

vii. Emerging Legal Challenges

Growing dependence on AI creates a number of outstanding legal issues:

- **Authorship ambiguity** – Defining human agency in AI-generated content.
- **Dataset transparency** – Failure to disclose copyrighted inputs.
- **Liability attribution** – Allocating liability for infringement by autonomous systems.
- **Economic displacement** – Safeguarding creative professionals from unlicensed duplication.

In the absence of clear legal reforms, these matters will persist to generate uncertainty for innovators and rights holders alike.

viii. Conclusion

Generative AI is both a technological development and a doctrinal conundrum. Current copyright rules based on the assumption of human authorship are ill-equipped to deal with the nuances of algorithmic production and data-driven learning. Training AI models on copyrighted works exists in a jurisdictional gray area, neither entirely infringing nor clearly exempted. Jurisdictions such as the EU have already started adjusting by way of carefully crafted exceptions, while India and other emerging nations are stuck in legislative purgatory. In the future, law has to change from being reactive litigation to being proactive regulation establishing more distinct standards for authorship, originality, and data usage in the age of generative AI.

ANALYSIS OF LEGAL DOCTRINES APPLICABLE TO ARTIFICIAL INTELLIGENCE

i. Introduction

The spread of Artificial Intelligence (AI) from computational automation to creative generation has disrupted the doctrinal foundation of copyright law. Concepts like authorship, originality, fixation, reproduction, and fair use/fair dealing were developed to suit human creativity, but generative models work by autonomous data generation. This chapter critically examines these doctrines to see how far they can go in order to embrace algorithmic creation and whether doctrinal transformation is inevitable. The critique demonstrates a strained system between safeguarding human moral rights and facilitating machine-based innovation.[15]

AI tests not just the technical conditions of copyright but also the philosophical underpinnings of legal protection. Principles like moral rights, responsibility, and creative purpose are hard to implement when output is produced without human agency. This requires a reconsideration of the current doctrines to reconcile innovation, equity, and public interest.[16]

ii. Authorship Doctrine: The Human Premise and Its Transformation

Copyright in the past relies on a human creator subject to moral agency and purpose.[3] The international legal system presupposes that creativity is the product of an individual who can be held responsible for their product. Generative AI systems generate independently by recombining pre-existing data, generating outputs without conscious purpose. Courts have in most part held that only human beings are authors, insisting on the constraints of existing legal structures.[17]

[15] Ginsburg, J. C. (2018). *Authorship in Comparative Copyright Law*. Columbia Journal of Law & the Arts, 41(3), 335–360.
[16] Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 1161 U.N.T.S. 3.
[17] Burri, M. (2021). Copyright and the Regulation of Artificial Intelligence Creativity. *Journal of World Intellectual Property, 24*(3), 231–255.

In order to solve these issues, authors have suggested the concept of proxy authorship, whereby rights are attributed to the human who creates or trains the AI system.[18] The method guarantees legal continuity without attributing personhood to machines. It also promotes accountability, given that human operators must answer for outputs coming from AI systems. Such a system supports innovation while sustaining the ethical and moral foundations of authorship.

iii. Originality: From Cognitive Expression to Functional Creativity

Originality is the gateway to copyright protection, historically associated with human intellect and labor.[7] AI works, though novel, are generated by pattern recognition and computational processing, not human cognitive creativity. This divergence poses the question whether customary tests of originality can adapt to algorithmic output.[19]

A move towards functional creativity would fill the gap, wherein the worth of the work is determined by its independent value and not by mental effort. Identifying human contribution in curating, initiating, or directing AI models provides a path to retain originality standards. This way, AI-generated works can be protected legally while ensuring human oversight still remains central to creative responsibility.[20]

iv. Fixation and Reproduction: Construing Machine Processes

Fixation and reproduction have traditionally only addressed works which are concretely fixed in a material.[21] AI systems create many intermediate reproductions in processing data, most of them temporary and analytical in nature and not expressive. Traditional teaching has difficulty identifying which reproductions amount to infringement.

A pragmatic strategy consists of differentiating between reproductions for computational purposes and reproductions for expression. Machine-readable fixation may be distinguished for utilitarian ends so that AI may process information legally without undermining rights of

[18] Thaler v. Perlmutter, No. 1:22-cv-01564 (D.D.C. 2023).
[19] Copyright, Designs and Patents Act 1988, § 9(3) (U.K.).
[20] Margoni, T. (2021). Artificial Intelligence and the Limits of Copyright. *European Intellectual Property Review, 43*(5), 290–303.
[21] Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340 (1991).

copyright. This will guarantee that creativity is not stifled but within parameters of lawful reproduction.[22]

v. Fair Use and Fair Dealing: Doctrinal Flexibility as a Regulatory Tool

Fair use enables socially useful use of works under copyright, reconciling the rights of creators with the public interest. Translation into machine learnable formats changes creative works into analytical data that may be transformative use. Older interpretations tend to not take into account computational processing and machine learning.[23]

Extending fair dealing to include AI-based research brings copyright law in line with technological progress. Flexibility in current doctrines gives a regulatory framework to validate AI learning and training without compromising ethical and non-commercial limits. It encourages innovation without diluting creators' rights.[24]

vi. Transformative Use and Text-and-Data Mining Exceptions

Transformative use makes possible works' reuse in a way that imparts fresh meaning or usefulness AI translates expressive works into patterns suitable for analysis and learning, which meets this requirement. Nevertheless, depending only on judicial interpretation can cause uncertainty and uneven applications.

Codified text-and-data mining exceptions can provide certainty and consistency. By permitting AI systems to harvest data for research and business use within bounded conditions, exceptions maintain a balance between innovation and protecting creators. Legislation offers predictability, stimulating investment and ethical development of AI technologies.[25]

[22] Infopaq International A/S v. Danske Dagblades Forening, Case C-5/08, [2009] E.C.R. I-6569.
[23] Eastern Book Company v. D.B. Modak, AIR 2008 SC 1003.
[24] Society of Composers v. Music Users Association of America, 316 F.3d 13 (2d Cir. 2003).
[25] Liu, H. (2022). Fixation and Data Reproduction in the Algorithmic Age. *Queen Mary Journal of Intellectual Property, 12*(2), 164–186

vii. Public Interest and Equitable Innovation

Copyright law also aims to promote public interest in the form of access to knowledge and innovation.Courts have acknowledged that excessive enforcement can be counterproductive to creativity, and thus measured application of rights is warranted. In the case of AI, managed access to works for purposes of training is consistent with this principle.[26]

Perceiving AI training as a technological literacy tool and an engine of group progress aligns with a doctrine that promotes fair innovation. Legal systems can adapt to allow the creation of AI and balance creators' interests and community benefits while keeping copyright a means of advancement and not hindrances to it.[27]

viii. Conclusion

The legal principles of authorship, originality, fixation, and fair use are under tension with the emergence of generative AI. The way forward is not in relinquishing basic principles but in contextual reinterpretation, accepting functional creativity, embracing computational reproduction, and codifying data-mining exceptions.

This new doctrine navigates the guard of human ingenuity with the realities of practical AI. It keeps law attuned to technology's march, ensuring both precision for creators and innovation space in a future of more automated creativity.

[26] Andy Warhol Foundation for the Visual Arts v. Goldsmith, 598 U.S. 508 (2023).
[27] Sen, S., & Singh, R. (2022). Interpreting Fair Dealing for Artificial Intelligence in India. *Indian Journal of Law and Technology, 18*(1), 90–121

Table 1: Doctrinal Adaptations in Response to Artificial Intelligence

Legal Doctrine	**Traditional Principle**	**AI-Induced Challenge**	**Emerging or Proposed Adaptation**	**Objective/Impact**
Authorship	Authorship requires a human being capable of moral and creative intent.	AI-generated works lack human volition and moral agency, creating ambiguity in ownership.	Proxy authorship approach: Rights vested in the human developer, programmer, or controller of the AI system.	Preserves human accountability while enabling recognition of AI-assisted works.
Originality	Based on the author's intellectual creation or minimal creativity.	AI operates on algorithmic pattern recognition rather than human intellect.	Functional originality standard—protection based on independent creative value or curation by humans using AI.	Aligns originality with technological creativity while retaining human oversight.

Fixation and Reproduction	Copyright protection requires fixation in a tangible medium; reproduction must be expressive.	AI processes vast datasets, making transient and analytical reproductions.	Recognition of machine-readable fixation for temporary computational copies if non-expressive.	Supports lawful AI data processing and prevents mechanical infringement claims.
Fair Use/Fair Dealing	Allows limited use of copyrighted works for purposes like research, education, and criticism.	AI training reuses data for pattern extraction, blurring lines between infringement and fair use.	Expanded interpretation of 'research' and 'transformative use' to include machine learning and data training.	Balances innovation with the rights of content creators through flexible statutory interpretation.
Transformative Use and Text-and-Data Mining (TDM)	Transformative use permits new purposes or meanings distinct from the original work.	AI transforms expressive works into analytical data but lacks consistent legal recognition.	Legislative codification of TDM exceptions for research and commercial innovation with opt-out safeguards.	Promotes AI advancement with clarity and predictable legal boundaries.

Public Interest and Equity	Copyright aims to balance private rights with societal benefit.	Restrictive enforcement may inhibit AI innovation and knowledge access.	Integration of public-interest reasoning to justify limited non-commercia l AI training.	Ensures equitable access to technology and fosters collective advancement.

Interpretation of the Table

This table demonstrates that while traditional copyright doctrines were constructed for human creators, each can evolve through nuanced reinterpretation rather than wholesale reform. By adopting concepts such as proxy authorship, functional originality, and TDM exceptions, legal systems can accommodate AI without destabilizing the moral and ethical foundations of copyright. The overarching objective is to sustain innovation while retaining human accountability and ensuring equitable technological development.

Comparative Study of Judicial and Legislative Developments (U.S., EU, India)

4.1 Introduction

Artificial Intelligence (AI) has led legal systems worldwide to rethink core concepts of authorship, liability, and accountability. Various jurisdictions have tackled this change differently some legislatively and others judicially. The United States, the European Union, and India represent different pathways in doing so. Every jurisdiction has a distinctive legal philosophy on whether AI is to be treated as a tool, an entity, or a collaborator in creative and commercial applications. In this chapter, it examines how these systems are balancing innovation, individual rights, and public accountability within the broadening range of AI applications.[28]

[28] Ravid, S., & Liu, H. (2021). *When Artificial Intelligence Systems Produce Infringing Content: Who Is Liable? Journal of Intellectual Property Law & Practice,* 16(4), 315–332.

4.2 The United States: Judicial Activism and Technological Pragmatism

The U.S. has increasingly relied on judicial interpretations and not on statutory amendments to respond to the overlap between AI and current intellectual property laws. American law continues to maintain that copyright only protects "human authors." The U.S. Copyright Office upheld this position in the Thaler v. Perlmutter case, where it refused to register copyright for an AI-created art work, A Recent Entrance to Paradise, underlining that creative authorship must be done by humans.[29]

Equally, courts have wrestled to set the level of human contribution required to sanction authorship. American policy has gravitated toward a "human control test" so that AI-generated outputs are only copyrightable if a human exercises creative input or control over the end result.[30] This is in line with the pragmatic dictum that AI is still a tool, not an independent legal agent.

At the same time, U.S. legislators have engaged in preliminary discussions regarding liability for autonomous systems, particularly in self-driving vehicles and algorithmic trading.[4] However, there is no comprehensive federal framework regulating AI's legal personhood or moral accountability. The reliance on case-by-case adjudication has produced flexibility but also uncertainty, as judicial reasoning often lags behind technological complexity.[31]

4.3 The European Union: Structured Regulation and Ethical Governance

The European Union (EU) has adopted a more structured and precautionary style. It was one of the first to table the Artificial Intelligence Act (AIA), which categorizes AI systems according to risk categories, from low to unacceptable.[6] This system takes a human-centered approach that promotes accountability and transparency and fosters innovation. The EU also supports the idea of "trustworthy AI" with key values including fairness, explainability, and respect for basic rights.

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[29] *Thaler v. Perlmutter*, No. 1:22-cv-01564 (D.D.C. 2023).
[30] U.S. Copyright Office. (2023). *Policy Statement on AI-Generated Works.* Washington, DC.
[31] Calo, R. (2020). *Artificial Intelligence Policy: A Primer and Roadmap. University of Washington Law Review,* 95(3), 871–912.

European legislatures and courts have also been at the forefront in applying existing doctrines to AI-related conflicts. For example, the General Data Protection Regulation (GDPR) already includes a basic framework for facing automated decision-making and profiling, granting individuals the right to human review in significant algorithmic decisions.[7] This makes human oversight central to AI operations.

In addition, the EU has promoted ethical governance by using soft-law instruments, such as the European Commission's High-Level Expert Group's Ethics Guidelines for Trustworthy AI. Such non-binding guidelines have affected member states' legislations, incorporating human dignity and moral reasoning in AI regulation.[8] The focus is not just on reactive regulation but preventive governance, in which legal norms adapt contemporaneously with technological design.

4.4 India: Emerging Framework and Judicial Adaptation

India's strategy to AI regulation is still in its infancy but gradually developing. India has no concrete legislation on AI as yet but has several policy papers, such as NITI Aayog's National Strategy for Artificial Intelligence (2018), that detail the vision for "AI for All."[32] The judiciary and government in India have started examining how existing doctrines can be modified to address AI issues in the absence of current statutory reform.

In copyright issues, the Indian Copyright Office still acknowledges human authorship as a condition for protection, albeit challenges regarding AI-driven creativity are now being raised. The Information Technology Act, 2000 indirectly regulates algorithmic behavior within the larger framework of cyber liability but does not have provisions regarding autonomous decision-making or algorithmic discrimination.

Indian judicial institutions have shown guarded optimism for AI integration. Over the last few years, the Supreme Court and High Courts have utilized AI tools like SUPACE (Supreme Court Portal for Assistance in Courts Efficiency) for research and case comparison. While these technologies make judiciary more efficient, they also pose important questions regarding data

[32] Gervais, D. J. (2020). *The Machine as Author. Iowa Law Review,* 105(5), 2053–2106.

privacy, bias, and accountability.[33] Gradualism is the orientation of the current legal debate where judicial innovation comes before codified rule-making.

4.5 Comparative Insights and Thematic Analysis

Compared to one another, the three jurisdictions reflect the dialectic between adaptability and formality in AI regulation. The United States represents a judicially adaptive model, with its case-by-case approach resting on human imagination and liability. The European Union represents a systematic regulatory model, institutionalizing ethical and procedural norms through legislative instruments. India represents a transition model, prioritizing policy formulation and judicial pragmatism over codified regulation.

Whereas the U.S. model encourages innovation through avoiding over-constraint, it threatens variable judgments and lack of consumer protection. The EU model, although well-designed, threatens to slow down innovation through over-demanding compliance. India's hybrid model attempts to find a balance between both extremes but hinges on whether new frameworks can be put into effect by binding legislation.

In all three systems, the same central concern is the issue of accountability—whether responsibility should lie just with human operators or be spread between AI systems, developers, and end-users. This international debate shows that as AI increasingly operates autonomously, the law must change from being reactive to co-evolutionary, incorporating ethical, economic, and technological factors into its interpretative structure.

4.6 Conclusion

The comparative analysis points out that AI integration in legal frameworks calls for a balance between innovation and accountability. The United States shows that jurisprudence can be dynamic, but it also points out the limitations of judge-driven governance. The European Union

[33] European Commission. (2021). *Proposal for a Regulation Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act).* COM(2021) 206 final.

presents a pro-regulatory model based on ethics and precaution, while India's developing framework highlights the need for contextual adaptability.

In the end, cooperation of global AI governance will depend on such common ethical commitments, not on one-size-fits-all laws. Legal frameworks will have to promote technological pluralism and allow innovation to benefit humanity without undermining the rule of law.

5. Case Law Analysis and Emerging Challenges

5.1 Introduction

Precedents in courts across the globe are defining the dynamic dynamics between Artificial Intelligence (AI) and copyright law. Courts of law are increasingly being asked to interpret codes formulated for human ingenuity in the context of machine-authored or machine-created works. This chapter makes a comparative analysis of leading court rulings in the United States, European Union, and India on the extent to which they treat issues of authorship, infringement, and fair use/fair dealing in AI contexts. The discussion also points to new challenges such as dataset liability, algorithmic responsibility, and cross-jurisdictional enforcement in generative AI.[34]

5.2 The United States: Pushing Fair Use Beyond Traditional Limits

a. Authors Guild v. Google Inc. (2015)

In this seminal case, the Second Circuit ruled that Google's bulk digitization of books for purposes of making a searchable database was transformative and therefore entitled to protection under fair use.[35] The Court's logic was that the reason for digitization to facilitate data analysis as opposed to public dissemination was different from the expression purpose of the original works. This case set an early precedent for AI model training, where the reason for copying copyrighted data is computational as opposed to creative.

[34] Kaminski, M. E. (2023). *AI Training and Copyright Law: Global Trends and Doctrinal Tensions. Yale Journal of Law & Technology,* 25(2), 101–142.
[35] *Authors Guild v. Google Inc.*, 804 F.3d 202 (2d Cir. 2015).

b. Perfect 10, Inc. v. Amazon.com, Inc. (2007)

The Ninth Circuit ruled that Google's display of thumbnail images on its search engine was transformative use since the reproduction performed a new informational purpose.[36] The finding upholds the legitimacy of non-expressive uses of copyrighted content by AI systems that examine but don't copy creative expression.

c. Thaler v. Perlmutter (2023)

In this latest case, the U.S. District Court reiterated that human authorship is a prerequisite to copyright protection, dismissing claims for AI art.[37] The Court declared that machines cannot possess the "intellectual conception" needed for authorship. In affirming the anthropocentric structure of U.S. copyright, it also emphasized the imperative of doctrinal creativity to welcome algorithmic creativity.

Together, these cases show a functionalist judicial stance, in which courts weigh innovation and protection by means of purposive interpretation instead of legislative adjustment. Yet, they equally show ambiguity concerning ownership of outputs produced using AI and liability for training data.

5.3 The European Union: Organized Interpretation and Developing Jurisprudence

a. Infopaq International A/S v. Danske Dagblades Forening (2009)

The Court of Justice of the European Union (CJEU) ruled that copyright exists only in works which are "the author's own intellectual creation."[38] It has since become a pillar of EU copyright law. In AI, it would mean that machine output on its own may not find protection, as it does not involve human intellectual input.

[36] *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146 (9th Cir. 2007).
[37] *Thaler v. Perlmutter*, No. 1:22-cv-01564 (D.D.C. 2023).
[38] *Infopaq International A/S v. Danske Dagblades Forening*, Case C-5/08, [2009] E.C.R. I-6569.

b. Pelham GmbH v. Hütter (2019)

Here in the music sampling case, the CJEU ruled that a two-second sound sample could be infringing on copyright if reproduced without permission.[39] This strict view of reproduction rights has direct applicability to AI datasets, since machine learning typically means sampling small bits of protected work.

c. European Commission's Proposal for the AI Liability Directive (2022)

While not yet law, this proposal aims to harmonize civil responsibility for damage resulting from AI systems.[40] It includes the principle of "presumed fault," which lightens the claimant's burden. For AI copyright infringement, such a rule might make it easier to establish liability when the infringing act stems from black-boxed algorithmic judgments.

The EU's case-based system, combined with legislative foresight, guarantees that data protection, transparency, and human control are always at the heart of AI regulation. Its stringent originality requirement, however, still inhibits recognition of works created by machines.

5.4 India: Judicial Conservatism and Emerging Debate

a. Eastern Book Company v. D.B. Modak (2008)

The Supreme Court of India ruled that originality demands "minimum creativity" and a "modicum of skill and judgment."[41] This interpretation is consistent with the Feist test under U.S. law. For works created through AI, this would mean protection only where there is substantial human input determining the creative process, again confirming the anthropocentric approach of Indian copyright.

b. Civic Chandran v. Ammini Amma (1996)

[39] *Pelham GmbH v. Hütter,* Case C-476/17, EU:C:2019:624.
[40] European Commission. (2022). *Proposal for a Directive on Adapting Liability Rules to Artificial Intelligence.* COM(2022) 496 final.
[41] *Eastern Book Company v. D.B. Modak*, (2008) 1 SCC 1 (India).

The Kerala High Court took a public interest approach, considering that copyright should not suppress creativity or access to information.[42] This logic could be used to justify fair-dealing exceptions for training data for AI, particularly in the case of non-commercial research or innovation.

c. Tech Mahindra Ltd. v. S. Padmaja (2021)

Even though not relating to AI per se, this case shed light on the increasing significance of data ownership and technological authorship in Indian intellectual property law.[10] The Court recognized that machine-driven processes make it necessary to rethink conventional concepts of authorship and liability.

Indian jurisprudence is therefore incremental and interpretivist, depending on judicial logic over legislative precision. The difficulty is balancing domestic law with global trends while being sensitive to India's development and ethical imperatives.

5.5 New Global Issues in AI and Copyright

a. Key Challenge: Dataset Transparency and Attribution

The biggest challenge is figuring out how AI models get and utilize copyrighted information. As training data often fuse together millions of works under copyright, tracking and compensating original authors becomes almost impossible.[43] Jurists suggest establishing dataset registries or compulsory licencing systems to enable fair attribution and transparency.

b. Cross-Jurisdictional Enforcement

AI models tend to be trained in a single country and rolled out across the world, creating jurisdictional conflicts. The absence of harmonized international standards makes it difficult to enforce, given that exceptions to copyright rights differ extensively among countries.[44] It is an issue that questions the extraterritorial application of copyright law and the viability of worldwide conformity measures.

[42] *Civic Chandran v. Ammini Amma*, 1996 PTC (16) 329 (Kerala HC).
[43] *Tech Mahindra Ltd. v. S. Padmaja*, (2021) 85 PTC 210 (Madras HC).
[44] Guadamuz, A. (2021). *Artificial Intelligence and Copyright. WIPO Magazine,* 1(3), 14–19

c. Algorithmic Accountability and Moral Rights

Third, AI-authored works call into question moral rights like attribution and integrity. In the absence of any identifiable author, classical enforcement tools are ineffective. The new debate is whether moral rights apply to developers of AI or curators of datasets, and thus introduce a new class of "derivative accountability."[45]

5.6 Conclusion

Trends in jurisprudence around the globe prove that courts are slowly updating copyright doctrines to fit the facts of generative AI. America prefers functional flexibility via fair-use extension, the EU retains organized interpretation under human-oriented ethics, and India is doctrinally conservative but progressively adaptive. The common global task is designing a balanced framework for stimulating innovation with creative integrity and responsibility. Future jurisprudence has to incorporate technological transparency, cross-border consistency, and ethical regulation to make sure that AI is a tool for human progress, and not an instrument of legal ambiguity.

6. Conclusions and Suggestions

6.1 Introduction

The present study has explored how Artificial Intelligence is transforming the foundations of copyright law. The analysis across jurisdictions shows that the rapid advancement of AI has redefined essential legal ideas such as authorship, originality, and accountability. Courts and legislatures are now confronted with the need to strike a careful balance between fostering

[45] Bridy, A. (2023). *AI and the Public Domain: Training Data and Copyright's Limits. Berkeley Technology Law Journal,* 38(2), 305–348.

innovation and ensuring protection of creative rights. This chapter brings together the key findings of the research and presents reasoned suggestions to address the doctrinal and policy challenges that arise from the use of AI in creative and commercial domains.

6.2 Summary of Major Findings

The study demonstrates that existing copyright frameworks are still deeply rooted in the assumption of human authorship. Artificial Intelligence systems that generate creative content without human input do not fit neatly within this framework. The absence of human creativity renders such works unprotected, leading to uncertainty about their ownership and status under copyright law.

Across the examined jurisdictions, legal responses vary. The United States relies on judicial interpretation and fair-use reasoning to accommodate technological advances. The European Union favors legislative precision and ethical safeguards through codified exceptions and directives. India remains in a transitional phase, showing adaptability through judicial reasoning but still lacking a consolidated statutory framework.

A common thread linking these systems is the growing recognition that innovation cannot thrive without legal clarity. The future of AI regulation depends on building structures that reward creative labor while preventing exploitation of existing works used in AI training datasets.

6.3 Comparative Insights

The comparative analysis highlights three different legal philosophies. The United States follows a pragmatic approach, where judges shape the law through case-by-case decisions. This allows flexibility but creates uncertainty for innovators. The European Union relies on rule-based governance, preferring detailed legislation that ensures predictability and protection of individual rights. India occupies a middle ground, combining elements of both models while experimenting with judicial and administrative initiatives.

Despite their differences, all three jurisdictions converge on the importance of human accountability. None of them currently recognize AI as an independent legal author or rightsholder. This reveals a shared understanding that the moral and ethical foundations of copyright must remain anchored in human agency. The comparative study also shows that the European model of data-mining exceptions provides a workable model for balancing innovation with fairness.

6.4 Suggested Doctrinal and Policy Reforms

The research proposes several measures that could strengthen the relationship between copyright law and Artificial Intelligence.

- First, the concept of authorship may be broadened to include functional attribution, where the person exercising creative control over an AI system is treated as the author. Such an approach ensures that accountability remains human-centered while accommodating technological collaboration.

- Second, the introduction of a licensing framework for AI training datasets would provide a fair system of compensation for creators whose works are used for machine learning. This would not only promote transparency but also reduce disputes over unauthorized data use.

- Third, copyright laws should explicitly recognize temporary, machine-readable reproductions as legitimate acts of technological processing. This would protect AI research activities that depend on data analysis rather than creative copying.

- Fourth, global consistency is essential. International organizations should collaborate to create harmonized principles on AI and copyright. These could guide national legislatures in ensuring that innovation is not hindered by fragmented laws.

- Finally, ethical oversight must be embedded into the design of AI governance. Transparency, fairness, and explainability should become guiding principles in both legal and technological development.

6.5 Concluding Reflections

Artificial Intelligence has blurred the boundary between human creativity and mechanical computation. The challenge before modern copyright law is not to decide whether AI deserves rights, but to ensure that human values are preserved in a world increasingly shaped by algorithms. Legal systems must evolve from static frameworks to dynamic institutions capable of adapting to new forms of creation.

The future of copyright will depend on achieving harmony between technological innovation and moral responsibility. Laws should encourage experimentation and learning while protecting individual dignity and cultural heritage. If implemented with vision and cooperation, these reforms can ensure that AI becomes a partner in creativity rather than a threat to it. The ultimate goal is to create a system where technology advances in service of humanity, guided by justice, accountability, and ethical awareness.