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CHARTING A ROADMAP FOR INTEGRATION OF AI AND IPR: Analysing The Domestic and Global Regulatory Frameworks Posing Humanistic Challenges

Shivang Tripathi & Neha Singh[1]

Abstract

From being portrayed as a privilege to becoming a significant asset, Artificial Intelligence has transformed itself into multiple shapes, sizes and textures, leaving substantially no stone unturned. From 'luxury' to 'need', the path traversed by AI was never expected to be without challenges. Its integration with the Intellectual Property regime became prominent only after it posed roadblocks to legislative reforms. One school of thought attempts to accommodate AI in contemporary IP Laws in the form of suitable amendments. The most crucial challenge to such a line of argument arose in the form of 'humanistic' considerations, such as cognition-based skill-set, human creativity, reward theories of IP, and ethical dimensions read with labour and exhaustion principles. The authors have attempted to delineate the relevant literature in the form of a comparative analysis coupled with suitable judicial discourse reflecting upon various suggestive measures. Primarily, the emphasis is on the conflicts arising out of 'ownership/inventorship' and 'authorship' in Patent and Copyright legislative frameworks with real-time case studies. The authors have intentionally narrowed down the scope of research to patents and copyright protection to maintain brevity in establishing a chain of connection amongst various skill-based and ethics-based challenges to granting IP laws protection to various works having their origin in AI tools. From the doctrine of 'originality' in copyrightable works to tracing the 'who' factor in deciding authorship or inventorship in AI-generated works, authors have attempted to develop a linkage between the nodal points of challenges posed by AI and IPR integration. From portraying the challenges to filtering out doctrinal alternatives and suggestions based on an integrated study of the various legal regimes, domestic and global, the authors have attempted to adopt a humanistic approach towards the issue.

Keywords: Artificial Intelligence, ownership, inventorship, patent, copyright, humanistic consideration

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Introduction

Artificial Intelligence has finely touched multifarious sectors and lifestyle patterns in recent times, including, but not limited to art, medical and healthcare, literary, scientific, banking and educational spheres. The humanistic elements of 'creativity' and 'cognition-based skill-set' have been substantially protected and promoted in the IPR discourse. The complexities evolve gradually once AI is tested on the pedestal of "creativity" and where it reflects or even surpasses the humanistic skill set. This is where the conflict about 'authorship', and 'ownership' concerning such AI-generated or AI-based works arises, inviting the wholesome bunch of stakeholders, including policy-makers and legislators to lift their veil of ignorance and acknowledge the mammoth potential of AI creations and the need to carve out a legal boundary around the contours of such creations before it is too late.

The quantification of the impact created and imposed by AI-generated works could be deciphered by just having a glance at the range of activities being carried out by AI platforms and tools, such as poetry, script-writing, artistic creations, justice-delivery mechanisms etc. These post-modern functionalities reflect the ever-expanding scope of AI as a futuristic tool. The authors intend to shed light upon the intricacies involved, issues raised and the ramifications posed by AI, in general, and specific sense. This literary journey shall not be a bed of roses since it will have several challenges posing various grey areas and the nodal points wherein there is a legislative vacuum.

Authorship, inventorship, ownership, ethics, potentialities etc. are just a handful of the list of legal and regulatory issues lying in the way of granting any sort of legal shielding for works created with/through AI per se. Authors have intentionally narrowed down the scope of research to patents and copyright protection to maintain brevity in establishing a chain of connection amongst various skill-based and ethics-based challenges to the creations/works emanating through/from AI. From portraying challenges to filtering out doctrinal alternatives and suggestions based on an integrated study of the various legal regimes, domestic and global, the authors have attempted to adopt a humanistic approach towards the issue. Neglecting any sort of protection for AI-generated works shall never serve as a comprehensive solution because the growing scales of technological advancements and the desperate urge of human civilizations to outsmart their previous generations will time and again throw at us the same set of problems and challenges. The trajectory being followed by various domestic and global

law-making discourses reflects an evolutionary approach which is suitable enough to become accommodative in the future. This process needs to be 'gradual' and not 'hesitant and speedy'.

What does Artificial Intelligence (AI) mean?

The term "artificial intelligence" describes the possibility that computers or robots controlled by computers may one day perform activities normally requiring human intellect and cognition. It marks the scientific journey from 'human-specific controls' to a system wherein the computer starts learning by itself with no or minimal human involvement.[2] AI does this largely through machine learning, including, but not limited to, the 'deep learning' technique.[3] Two overarching classifications of AI exist, Narrow AI and General AI,[4] where the former one, often known as weak AI, excels in specific tasks within well-defined domains, like voice recognition or image classification.[5] For example, voice assistance facilitators like Amazon's Alexa. When one speaks to Alexa, she can quickly recognise one's voice and carry out one's instructions, whether it's to play music, or to get weather updates in real-time basis. However, its intelligence is limited to these predefined functions and cannot engage in a general conversation or understand complex queries outside its designated domain. Another good example of Narrow AI is 'AlphaGo' which is a computer program that assists in playing a specific board game 'Go'.[6] In contrast, General AI, or Strong AI, represents the ambitious goal of creating machines capable of human-level intelligence across the range of cognitive activities, demonstrating adaptability and abstraction akin to humans.[7] It encapsulates the extensive power of reasoning, decision-making, and randomised and abstract thinking, all on par with humans in terms of intellectual efforts.[8] Beyond this, the notion of Super AI emerges as a speculative concept, indicating a level of machine intelligence surpassing human capabilities in all cognitive facets.[9] This is a stage which is not expected to be observed or seen in the near future, at least for a few decades. However, transitioning from narrow AI to General AI and eventually achieving Super AI presents intricate scientific, ethical and safety

[2]Ulrike Franke, *Harnessing Artificial Intelligence*, ICFR (Jun. 25, 2019), *available at-* https://ecfr.eu/publication/harnessing_artificial_intelligence/ (last visited Nov. 20, 2023).
[3] *Id.*
[4] Stephan De Spiegeleire et al., Front Matter, in *Artificial Intelligence and the Future of Defense: Strategic Implications for Small- and Medium-Sized Force Providers* 30 (2017).
[5] *Id.*
[6] V A Greiman, *Human Rights and Artificial Intelligence*, 20 J. INF. WARF 50, 54 (2021).
[7] O.Pasichnyk & O. Strelkova, *Three Types of Artificial Intelligence, available at-* https://conf.ztu.edu.ua/wp-content/uploads/2017/05/142.pdf (last visited Nov. 20, 2023).
[8] *Supra* note 6.
[9] *Supra* note 7.

challenges, making it a topic of continued exploration and discussion in the technological and AI community.

The potential of AI and its pragmatic implications

In recent times, significant advancements have occurred in AI, empowering it with remarkable capabilities in various domains such as:

1. **The concept of Machine Learning:** Machine learning helps computers train themselves and enhance their functionalities in terms of performance by analysing databases, scrolling through millions of algorithms, and forming predictions with minimal role of coding and programming.[10] It facilitates accuracy in predicting results with the help of various software tools and applications.[11] Furthermore, deep learning, reflected as an offshoot of computed learning or machine learning, is particularly powerful because it involves layered mechanisms working all at once, allowing it to understand vast amounts of complex data and train itself accordingly. This capability has significantly enhanced tasks like image recognition, where AI systems can identify objects in images with remarkable accuracy, and voice recognition, which powers voice-activated assistants. Deep learning gets its strength from 'training data', which helps in the prediction of data patterns.[12]
2. **Healthcare:** AI is transforming the healthcare industry in numerous ways. It is being used to assist in diagnosing diseases by analysing medical images, such as X-rays and MRIs, often with greater precision than human radiologists. AI-driven drug discovery algorithms can sift through vast datasets to identify potential compounds for new medicines, speeding up the research and development process. Personalized treatments, based specifically on a patient's medical record and genetic database, are also being enabled by AI algorithms that analyse patient data to determine the most effective interventions.[13]
3. **Finance:** AI, as a tool, assists in identifying and curbing the rising menace of fraudulent financial activities. The algorithmic structures in machine learning has the potential to scrutinize the set of transaction data in real-time to detect unusual patterns

[10]Ian Goodfellow *et.al.,* DEEP LEARNING 2 (2016).
[11]*Id*.
[12]*Id.*
[13]*Supra* note 4, at 92.

indicative of fraud, thereby safeguarding financial systems.[14] AI is also used for risk assessment, where it evaluates the creditworthiness of individuals and businesses. Additionally, AI-driven trading algorithms are employed for automated buying and selling of financial assets, reacting to market conditions swiftly and efficiently.[15]

4. **Virtual Assistance:** AI-based virtual assistance services, in the likes of Apple's Siri, Google Assistant, etc. have revolutionized human-computer interactions. These virtual assistants use organic language patterns and machine learning in manufacturing user's command-specific responses catering to the user's imminent need. From setting reminders to playing music and wirelessly operating various smart home devices, they act like a human's friend and assistant. This technology has become increasingly integrated into our daily lives, simplifying various tasks and enhancing user convenience.[16]

In essence, the aforementioned areas reflecting the potential of AI portray just a marginal impact as compared to its rising significance of late, enabling it to excel in tasks ranging from data analysis to image recognition and even natural language understanding. Its applications span diverse industries, from healthcare and finance to consumer technology, reshaping one's routine chores and frequent interactions with technology in some form or the other. Apparently, AI promises further advancements and innovations in the coming years, opening up new possibilities and opportunities across various sectors.

AI's Impact on Copyright and Patent Protection

When it comes to protecting and encouraging human ingenuity, intellectual property rules are crucial. The rapid growth presented by AI and significant confrontation to the existing legal aspect of IPR and normative framework, especially in the domain of copyright and patent regulations are significant for future research opportunities.

Robots today produce creative work which, if made by humans, would be copyrightable. However, the unique nature of robot-generated outputs makes them non-copyrightable too,

[14]Hebooks, AI-POWERED ECONOMY: HOW ARTIFICIAL INTELLIGENCE WILL REVOLUTIONISE THE ECONOMY (2023).
[15]*Id.*
[16]David Yao, UNLOCKING THE POTENTIAL OF OPENAI'S CHATGPT: A BEGINNER'S GUIDE WITH HANDS ON EXAMPLE 62 (2023).

effectively making them accessible to the masses, prompting thorough scrutiny of probable copyright protection for AI.[17]

In *Naruto v. Slater*[18], the Court vociferously considered animals in terms of 'non-human' category, making them fall out of the copyright protection in works created or generated by them. It was ruled that animal lack *locus standi* to sue for copyright infringement, despite having constitutional standing under the U.S. Constitution.[19] This absence of animal copyright regulation poses a similar challenge for AI, with many international copyright offices not yet accommodating works generated by machines. The issue extends to patent laws as well, as witnessed in Stephen Thaler's patent application seeking protection for an invention made by his AI mechanism, DABUS, which faced rejection by various Courts due to lack of 'human personality' in the alleged inventor.[20]

Therefore, the expansion of AI in these domains of copyright and patent gives rise to distinct complexities revolving around authorship, innovation, and ownership of IPR. AI is capable of ushering into the domain of 'creative works' and developing new technologies. This evolution challenges the existing IP systems, originally designed to protect creative works produced by human efforts.

Legal Implications surrounding the conflict between AI and IP Laws

Copyright

Copyright requires originality as a prerequisite. Only unique works that have not been plagiarised may qualify for legal protection. It is not even required that the works include the original articulation of a notion. To be considered original, a phrase has just to be unique and not lifted wholesale from another source. Therefore, the author has to come up with the content of his own. Copyright protection pays no heed to the originality of 'ideas' per se, it focuses

[17] Amir H Khoury, *Intellectual property rights for Hubots: On the Legal Implications of Human-like Robots as Innovators and Creators*, CARDOZO ARTS & ENT L. J. 35 (2017).
[18] *Naruto v Slater*, 888 F.3d 418 (9th Cir. 2018).
[19] SCC, *Animals, By Virtue Of The Fact That They Are Not Humans, Lack Locus Standi Under The Copyright Act To Sue For Copyright Infringement*, (26 April, 2018) *available at*- https://www.scconline.com/blog/post/2018/04/26/animals-by-virtue-of-the-fact-that-they-are-not-humans-lack-locus-standi-under-copyright-act-to-sue-for-copyright-infringement/ (last visited on Sep. 30, 2023).
[20] LIVE LAW, *Artificial Intelligence Lacks Personhood to Become the Author of An Intellectual Property*, (22 September, 2023), *available at*- https://www.livelaw.in/law-firms/law-firm-articles-/artificial-intelligence-intellectual-property-indian-copyright-act-singhania-co-llp-238401?utm_source=internal-artice&utm_medium=also-read (last visited Oct 15, 2023).

instead upon the 'expression of the thought' and even this expression is not required to be original or novel as such but rather it mustn't be a wholesale copy of another's work.[21] In *Macmillan v. Cooper*[22] the Court raised scepticism on the idea of quantifying one's labour, capital and skill invested in some creation/invention with utmost certainty, making it all the more challenging. It impliedly means that the originality of a creation can be attributed by the mere fact that at least some extra effort or skill is duly applied to the work seeking copyright protection, irrespective of the fact that it is derivatively based on the knowledge available in the public domain. The aforementioned judicial observation partially opens the protective gates for even the AI creations which otherwise fulfil the essential criteria of IP protection, especially under the Copyright regime. If it is allowed to overlook the quantification of skill and labour in general, it will enable the AI-generated outputs/works to seek IP protection because even the 'training data' for AI is an outcome of machine-based skill and effort.

On the aforementioned conflict, if the US perspective is gauged, it can be seen that even as early as 1965, it was observed in an annual report that one cannot explicitly exclude computer-generated outputs from becoming a copyrightable subject matter merely because of their origin lying within some computer code.[23] In contemporary times, the situation warrants legal initiatives to provide 'normative and regulatory' infrastructure for creations/works developed from/through AI. Further, a US Court had held in the year 2000, as to 'there ought to be no restriction on copyright due to dictation from an artificial source.'[24] This was later vacated in 2004.

Quite recently, in an application for registration made in 2022 in US, a work partially created by AI and partially by a human was rejected to the extent it sought the protection for AI-generated images.[25] The rationale followed by the Copyright Office was that if there is a substantial absence of control over creativity, then such human being cannot claim to be its 'author', in the sense implied under the Copyright Protection regime.[26]

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[21] *University of London Press Ltd. v. University Tutorial Press Ltd*., [1916] 2 Ch. D. 601 (Appeal taken from Ch.D).
[22] *Macmillan v. Cooper,* AIR 1924 PC 75 (India).
[23] U.S. Copyright Office, ANNUAL REPORT OF THE EXAMINING DIVISION, COPYRIGHT OFFICE, FOR THE FISCAL YEAR 1965 4 (1965), *available at*- https://copyright.gov/reports/annual/archive/ar-examining1965.pdf (last visited Nov. 21, 2023).
[24] *Penguin Books U.S.A. v. New Christian Church Full Endeavor*, 96 Civ. 4126 (RWS) (S.D.N.Y.2000).
[25] U.S. Copyright Office, CANCELLATION DECISION RE: ZARYA OF THE DAWN 1 (2023), *available at*-https://www.copyright.gov/docs/zarya-of-the-dawn.pdf (last visited Nov.21, 2023).
[26] *Id.*

In India, recently Delhi High Court had to witness the first legal action in the form of copyright infringement proceeding, filed by ANI News Agency against the owner of ChatGPT, alleging that the AI generated texts by the latter had violated the copyrightability owned by the former over certain news content. Summons have been issued in the matter. Primary contention from the plaintiff's side pertains to the fact that the defendants have no right to reproduce their original content word by word in answering queries raised to defendant's large language module (LLM) chatbot, to which the defendants have pleaded clearcut absence of territorial jurisdiction of the adjudicating forum since they claim to have no servers present in India.[27]

There are two schools of thought that address how a piece of work is evaluated for originality.

(1) The 'Sweat of the Brow' Principle

It states that all an author needs is a basic effort to get a copyright for his work. No serious ingenuity or imagination is expected. Only because of the time and money he invested in creating the work does he get a copyright. A modicum of inventiveness argues that uniqueness may be found in any work that has been created with a minimum quantity of intellectual inventiveness and sound judgment. Copyright protection requires some amount of originality, even if it's not very high.

Eastern Book Company v. D.B. Modak[28] led Indian courts to adopt the principle of the 'modicum of creativity', which was seen as an attempt to replace the predecessor doctrine of the 'sweat of the brow'.[29] After reading the aforementioned verdict in its entirety, There is no valid argument to suggest that AI systems are unable to achieve any level of creativity. Therefore, the results produced by such machines may be considered to be original. Herein, the Court categorically criticised the aforementioned view and extended the immunity only to 'compilation' aspects, making the raw facts accessible to the masses at large. The court cautiously treading upon the glaring flaws in the doctrine, observed that this doctrine impliedly expanded the copyright protection beyond 'compilation' to even the 'raw facts' which is prima

[27] LIVE LAW, *Delhi High Court Issues Summons In ANI's Copyright Infringement Suit Against OpenAI's ChatGPT* (19 November, 2024), *available at*- https://www.livelaw.in/high-court/delhi-high-court/delhi-high-court-issues-summons-in-anis-copyright-infringement-suit-against-openai-chatgpt-275633 (last visited Dec. 14, 2024)
[28] *Eastern Book Company v. D.B. Modak*, (2008) 1 SCC 1 (India).
[29] *Id.*

facie dilution of the rationale behind the copyright protection, creating a monopolistic regime for the materials existing in the public domain.[30]

(2) Minimal Imagination Doctrine

This doctrine reflects upon the 'minimal creativity' aspect of any work seeking copyright protection. It favours the 'modicum of creativity' doctrine which became significant after the failure of sweat of brow principle wherever 'compilations' were claimed as copyrightable subjects.

Artificial Intelligence-Author Conundrum

Indian Copyright legislation presents a problem for copyright issues in AI creations.[31] A person must be considered an 'author' to setup ownership over a copyrighted work. Issue is complicated for AI since they are neither recognised as 'natural' nor 'juridical' persons. The term "author" as it pertains to computer-generated artistic, dramatic, literary, or musical compositions designates the person who initiates the procedure of generating originality.[32]

For this Act, 'person' refers to both natural and legal persons, and 'proximity' refers to the physical distance between the person and the work. Therefore, AI systems are not covered by the Copyright Act as it now stands. In this light, under Indian Copyright Laws, the tracing journey for actual/real authors of any creation/work developed with/through AI would be vague and a futile exercise.[33] If AI, as a system, is considered to be the 'intelligent agent', unlike a real human being, a distinction can be drawn between a work created autonomously by the so called 'intelligent agent' and a work which involves substantial human intervention in terms of inputs and variables at work. The inbuilt distinction between 'AI-generated outputs' and 'Computerised outputs' lies in the autonomy aspect of its creator. To put it simply, the latter ones have merely used a computer device as a tool to obtain the fact-specific output with

[30] *Id.*
[31] The Copyright Act, 1957, S. 2(d).
[32] *Id.*
[33] SCC Blog, *Mounting Artificial Intelligence: Where are we on the time line?*,(June 7, 2018), *available at:*https://blog.scconline.com/post/2018/06/07/mounting-artificial-intelligence-where-are-we-on-the-timeline/ (Last visited Sep 30, 2023).

the effective control of the entire process residing with a human being, whereas in the former one, human intervention is almost non-existent, making it human-free to a great extent.[34]

The human-specific subjective choices made by a person is something that demarcates the line between an autonomously created AI work and a work involving human intervention. It provides the essence of 'Personality' to the author. This 'personality' can be worn by/or attributed to an intelligent agent only if it has created a work with no or minimal human intervention.[35] The Supreme Court of the United States emphasized upon 'originality' as an attribute least concerned with 'someone (author) manifestly putting inputs'.[36] The issue at hand has always been lying in the linkage between the 'originality' of a work and the 'human entity'.

Like Dabus issue dealt in the realm of patent protection, Indian Copyright Office faced a similar kind of legal dilemma, when it mistakenly granted co-authorship to RAGHAV, which is an AI system, making its owner the original author. Point to be noted is that when the same owner had applied seeking sole author rights in favour of the AI system, it was duly rejected by the Copyright Office in India, following the line of thinking and reasoning adopted by the US offices. Even though the copyright office has notified the human owner to retract the application for registration but ironically the status tab reflects as RAGHAV still bearing a "registered" tag.[37]

The aforementioned line of reasoning adopted by various Copyright Offices and Courts reflect the overlooked significance of case precedents for an issue like this. It is the Courts which will have to step up initially, in order to settle the authorship conundrum pertaining to the AI generated creations or work, till the time legislative boundaries are drawn on empirical and uniform lines.

The 'incentive/reward' theory operationalises on a pre-supposition that there is a kind of exhaustion in 'human personality', in simple words, a mortal human being can create only 'n' number of creations/works in his/her life because of his mortality and various other factors. But this doesn't hold good in the case of AI systems or 'intelligent beings', which can create

[34]Sik Cheng Peng, ARTIFICIAL INTELLIGENCE AND COPYRIGHT: THE AUTHOR'S CONUNDRUM 175 (2020) *available at-* https://www.wto.org/english/tratop_e/trips_e/colloquium_papers_e/2018/chapter_13_2018_e.pdf (last Visited Nov. 21, 2023).
[35]*Id.*
[36]*Feist Publications Inc. v. Rural Telephone Service Co*, 499 U.S. 340 (1991).
[37]*Thaler v Lancu*, 959. F.3d 1104, 1108 (Fed. Cir. 2020).

innumerable outputs, resulting in multiple copyrightable entities. The incentive/reward aspect was linked to the skill, labour, capital, fatigue and tireless efforts of a human being which reflect the restraints (natural) faced by mortal human beings and this is what justifies the incentivisation of their work, unlike machines. The same holds true for the Lockean theory of IP as well.

The copyrightability of creations/works developed with/through AI revolves around tracing 'who' shall be vested with this right. This brings three categories of entities in the play, namely a) The AI Coder or the Corporate entity which developed it, b) AI Mechanism/tool c) end-user of the intelligent agent. If it is bestowed upon the AI mechanism itself, it shall not serve any significant purpose in terms of 'enforcement of rights', since its enforceability will not be able to see the light of the day, whereas, if this right is vested in any of other two entities, it will dilute the entire categorical classification amongst 'computer-derived creations/works' and creations/works developed by/through AI per se.[38]

US researchers advocated work created for hire theory, which treated the intelligent agent as a company employee and gave the firm copyright. [39] This faced backlash for its lack of practicality and in the wake of deficiency of the required personhood in the AI system which was a sine-qua-non for being someone's employee.[40]

The aforementioned doctrines and lines of thought pertaining to copyrightability attributed to the creations/works developed with/through AI reflect a constant conflict within various doctrines and policies which made even the slightest effort to immunise creations/works developed with/through AI under any domestic jurisdiction. The United Kingdom, US etc have made and are still making attempts to holistically consider the issue at hand but it is too early to comment on their respective future policies.

Patent

The essence of 'Patent' lies in the exclusive right upon one's invention. The term 'invention' encapsulates within its fold any product or process, which enables a user to effectively carry

[38]NATIONAL TECHNICAL REPORTS LIBRARY, *Final Report of the National Commission on New Technological Uses of Copyrighted Works* (1978), *available at* https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB85225621.xhtml (last visited Nov. 21, 2023).
[39]Butler Timothy, *Can a Computer be an Author - Copyright Aspects of Artificial Intelligence* 4 Hastings Comm. & Ent. L.J. 707, 739 (1982).
[40]*Id.*, note 39, at 741.

out some task and it may also act like a solution to some humanistic problem or technological crisis.[41] Patent protection is granted only once certain set of ingredients are fulfilled, such as novelty, inventive step and the potential to be industrially applicable. The patentee has the power to make his invention exclusive to himself, prohibiting its use, manufacture, creation, possession etc. by anyone except for the ones authorized by the patentee. This exclusivity is for a fixed duration as per the domestic patent laws. This impliedly bestows upon the patentee a right equivalent to a state of monopoly for a limited duration. As mentioned earlier, 'AI-powered' systems can carry out tasks and generate inventions, typically stemming from the application of human cognitive process. Indeed, these machines are generating outcomes that meet the criteria for being considered patentable inventions. However, the patentability of creations/works developed with/through AI leaves a grey area in legal research. Various legal systems within their domestic IPR patent laws have tried to deal with the question, but couldn't cover it in a holistic fashion.

The U.S. Patent law confines the word "inventor" to a "natural person," which limits its reach.[42] Contrasting the above definition with a significant decision pronounced in *Thaler v. Lancu*[43], wherein the question of attributing 'inventorship' upon an AI-generated invention was discussed, wherein the plaintiff owned an AI system and he sought patent protection for inventions that were generated by it only to face rejection from the USPTO, for the lack of human creator. Additionally, USPTO reiterated multiple judgments and judicial observations which held that inventors can only be some natural person. In one such case[44], inventorship was denied to a Corporation or a State since an AI-based inventor cannot act as an inventor legally. The Appellate Court also affirmed the USPTO's decision, upholding the aforementioned view. The terms 'individual' and 'person' throughout the statute were interpreted to mean natural persons.

Quite significantly, the Court, in dealing with the plaintiff's argument seeking an expansive interpretation of the term 'inventor', vehemently rejected the proposition on the ground that it is something to be decided by Congress and hence it falls under the legislative domain and not the adjudicatory domain. The plaintiff moved the US Supreme Court to appeal against the

[41]World Intellectual Property Organisation, *Patent, available at*- http:// www.wipo.int/patents/en/ (last visited on 29 Aug, 2023).
[42]35 US Code, § 100(f).
[43]*Supra,* note 37.
[44]*University of Utah v Max Planck Gesellschaft zur Forderung der Wissenchaften E.V* , 734 F.3d 1315, 1323 (Fed. Cir. 2013).

aforementioned order where it is sub-judice. The aforementioned case illustrated multiple legal complexities with respect to the integration of AI with IPR reflecting upon the future course of action. If AI is to invent, the patentee remains untraceable. This conundrum is circular as it is substantially similar to the problems that arose whilst granting copyright to creations/works developed with/through AI. This question of 'who' impliedly brings forth the aspect of 'human autonomy' and 'human skill-set', which shall always be a challenge against AI-driven inventions as well as creations.

Quite recently, the UKIPO too adjudicated the same matter, as upheld later by the higher court. The UKIPO denied the patent protection accordingly, in line with the domestic patent law.[45]

Significantly, while the UKIPO maintained its position on these specific issues, it acknowledged the increasing prevalence of AI-generated inventions and advocated for an extensive discussion on expanding the reach of Patent legislations to deal with such issues. Acknowledging the fact that the existing legal framework couldn't entitle such inventions for patent protection, the UKIPO called for a thoughtful consideration of this issue rather than attempting to fit it into current legislation arbitrarily.[46] Subsequently, the Appellate Court upheld the rejection of the patent application.[47]

The court recognized that while the AI might possess innovative ideas, they were deemed insufficient to qualify for an "inventor." Despite this, the judge did not dispute that DABUS could 'invent' things. The Court accepted that the controller of the AI computer can be viewed as the 'actual deviser of the invention', but only non-legally for now, allowing the opportunity for future disputes.

In line with the European Perspective, the European Patent Convention (EPC) governs EU patent applications. Similar to US patent legislation, it calls inventors natural people. Article 81 says that European patent applications must identify the inventor. The designation must specify the origin of the European patent right if the applicant is not the inventor. AI-generated innovations are now addressed in one DABUS lawsuit, like the US and UK, EPO denied it the patent.[48]

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[45] UK Intellectual Property Office, *Patent Decision BL O/741/19 of 4 December 2019* (2019), *available at-* https://www.ipo.gov.uk/p-challenge-decision-results/o74119.pdf (last visited 31 Aug, 2023).
[46] *Id.*
[47] *Thaler v Comptroller-General of Patents, Designs and Trade Marks*, [2020] EWHC 2412 (Pat).
[48] EPO, *Grounds for the EPO decision of 27 January 2020 on EP 18 275 163*, available at-

Finally, the Indian Patents Act defines patentee as the patent grantee and owner registered in the patent register.'[49] 'Person interested' implies someone who might be either actively doing research or advocating for research in the same subject as the innovation.[50] To clarify the position further, Section 6(a)[51] mandates that only a 'True and first inventor' can be eligible for such protection.[52] The first user or purchaser of an invention from a country other than India is not considered an inventor.[53] Single-point agenda coming out of the holistic reading of all the aforementioned provisions is the emphasis on the singular interpretation of the term 'inventor', making its scope narrow enough to cover only the natural persons. Further, the term 'person' includes the Government.[54] Therefore not only natural persons but also government can be a patentee. However, even after such a consolidated effort to demarcate all the terminologies in an explanatory fashion, the issue of 'who shall be the original inventor in an AI-generated invention' still stands its ground.

According to Ayyangar Committee Report of 1959[55] one of the objectives of the Patent Act is that a patentee can enjoy patent rights for a single invention only. It expanded patent protection even to a person who can claim moral entitlement to the invention with the objective of enhancing the economic value of one's patented invention. However, AI holds no ground even under the most expansionist view of patent protection.

The Supreme Court expressly negated the entitlement of any corporation as sole inventor on the pretext of lack in terms of 'natural human skills and traits'. [56] The examiner report cited that DABUS, an AI generated patent, does not satisfy the essentials under the Patent Act and hence couldn't be acknowledged as a natural personality.[57]

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https://register.epo.org/application?documentId=E4B63SD62191498&number=EP18275163&lng=en&npl=false (last visited 21 Nov, 2023).

[49]The Patent Act, 1970, S. 2(1) (p).

[50]*Id.*, S. 2(1)(t).

[51]*Id.*, S. 6(1)(a).

[52]V.K. Ahuja, LAW RELATING TO INTELLECTUAL PROPERTY RIGHTS 498 (2013).

[53]*Supra* note 49, S. 2(1)(y).

[54]*Id.*, S. 2(1) (s).

[55] Shri Justice N. Rajagopala Ayyangar, Report on the Revision of the Patents Law (1959), available at https://ipindia.gov.in/writereaddata/Portal/Images/pdf/1959-_Justice_N_R_Ayyangar_committee_report.pdf(last visited 22 Nov., 2023)."

[56] *V.B. Mohammed Ibrahim v Alfred Schafranek* , AIR 1960 Mys 173.

[57] LIVE LAW, *Demystifying Rights of AI Generated Inventions* (15 April, 2023), available at-https://www.livelaw.in/law-firms/law-firm-articles-/ai-generated-inventions-chatgpt-indian-patent-act-dabus-united-states-patent-trademark-office-european-patent-office-226394?infinitescroll=1 (last visited 23 Nov., 2023).

Further, the Apex Court bestowed the title of 'personality' only and exclusively to 'juristic' persons which was also enunciated as a concept in this decision. A juristic person is one who has the legal entitlement to file a suit and can accordingly be at the receiving end of the litigation as well. AI, prima facie, lacks the potential to any such aforementioned actions and responses due to lack of autonomous identity and personality. [58] This blurs even the slightest hope to incorporate AI inventions under the umbrella of the patent regime.

Conclusion

The idea of granting IP protection to AI creations and inventions is not novel. It may have gained light recently, but its traces can be found ever since its first creative work output was released. Issues were always pertaining to 'entitlement', meaning thereby the conceptual understanding of 'who', when it comes to making a search for the entity who can be referred to as 'patentee'. Issue of 'originality' in granting copyright has proved to be a tough nut to crack. If it is allowed to overlook the quantification of skill and labour in general, it will land somewhere in a position wherein even AI-generated works could be given due recognition under IP protection because even the 'training data' for AI is an outcome of machine-based skill and effort. On the other hand, the modicum of creativity aspect puts AI-generated works on the backseat. Human-specific virtues such as 'ethical' and 'moral' attributes have vehemently opposed the idea of bestowing any sort of IP protection upon AI outputs-based creations .

Copyright laws focusses on requirement of 'natural human' structure and attributes of authors. This encapsulates the ingredients of originality, individual character, author's ownership of copyright, personality-based rights, measurement of tenure of protection based on the author's lifespan. This 'relativistic' approach mandates a major overhauling of the core concepts as aforementioned, that is, to enable protection for AI works, significant revisions to current copyright provisions related to originality, authorship, personality-based bundle of rights, and duration of protection would be necessary. The authors propose 'attribution techniques' as one of the solutions to the problem emanating from the 'non-consensual' exploitation of copyrighted content whilst training the AI generative tools. This entails various methods, such as watermarking, meta-data tagging, language analysis etc. to attribute and acknowledge the

[58] *Som Prakash Rekhi v Union of India & Another*, AIR 1981 SC 212.

due credit to the author per se and AI infrastructure used in generating content based on a blend of various databases.[59]

While few schools of thought under IPR back their affirmative views on providing IP protection to AI works but such arguments lack theoretical and pragmatic backing. The mere fact that the AI works tend to possess and reflect innovative and creative attributes, quite parallel to how human-made works do, doesn't provide a sufficiently strong pillar to the argument of bestowing upon the IP protection on AI works, especially copyright, which involves artistic, literary elements to a great extent, making them a suitable subject matter for being effectively placed in public domain forever. Copyright protection is typically justified by doctrines which focus mainly on the personality and labour theory, both of which lean substantially towards 'humanistic' tendencies. The only possible rationale for assigning copyright to works created by AI is to encourage creative endeavors and establish a creative ecosystem in sync with cutting-edge technology advancements; yet, this may not be convincing enough, considering how inexpensively AI can create work. Keeping in mind that there might be some door of legal immunity which may open subsequently, authors argue that copyright protection will still not be a plausible offer.

Alternatively, creations/work developed with/through AI can be shielded under unfair competition laws. If there is a business convention or a practice which, in some or the other way provides unfair advantage to the enterprise or it adversely impacts the affairs or profits of another enterprise, it has to be prohibited in letter and spirit, even when such prohibition, etc. is not emanating from the realm of IPR Laws or scope of such IP Laws. For example, European Unfair Competition Act in essence, prevents unfair business practices especially when AI-generated creations wear similar attributes as present in Human-Generated/created work.[60] This aforementioned reasoning denotes a negative connotation towards AI created works, but when it comes to providing certain positive entitlement/protection to such works, one can read Article 5(c) of the Unfair Competition Act, in Switzerland, which implicitly allows the use of someone's else's work by way of some scientific or technological means.[61] But the aforementioned leverage can be availed only if the AI-generated work or work created by other

[59]Thomas Lancaster, *Artificial Intelligence, Text Generation Tools and ChatGPT – Does Digital Watermarking Offer a Solution?* INT. J. EDU. INTERGR. (2023), *available at-* https://edintegrity.biomedcentral.com/articles/10.1007/s40979-023-00131-6 (last visited Aug. 23, 2023).
[60] Sogut Atilla, *Dealing with AI-Generated Works: Lessons from the CDPA Section 3(9),* 19 JIPLP 43 (2023) , *available at* https://academic.oup.com/jiplp/article/19/1/43/7485196 (last visited Dec. 13, 2024).
[61] The Swiss Federal Act on Cartels in Federal Act on Cartels and Other Restraints of Competition, 1995, S. 5(c).

such scientific means can substantially portray novel applications or improvisations over the prior works/creations. Under the Competition Act, 2002, in India, the interaction between the Unfair Trade Practices Law and AI-generated algorithms can be seen under Section 3 of the Act, where the evil of "algorithmic collusion" comes into picture.[62] Algorithmic Collusion takes place when corporations/entities employ mutually prepared or designed algorithms to carry out the functionalities such as fixation of prices, regulation of the availability of options/choices, or deciding upon the quantity or quality of the supply of the products in the market, etc. They tend to form vertical agreements amongst them, hiring an algorithm designer who tries to make the price trends uniformly tailored and arbitrarily fixed, in turn, making it anti-competitive in nature. Such algorithmic collusions are not limited to trades and businesses, they are also being employed in the entertainment industries and artistic industries, touching upon the copyright protection regime of the original human creators of works. Issues such as deep fakes, voice clones, algorithmic biases/collusions have become immensely significant in the entertainment industries nowadays because they present a potent threat to the fair trade practices in the entertainment market and they also endanger the IPR of the original creators.[63] Therefore, the competition laws can be said to be providing an implicit yet partial protection to shield the AI created works, but this leverage is confined to cases where such works provide some "novel application/addition upon the existing works". Otherwise, general trend of the legislature and the judiciary has been oriented towards maintaining a stringent balance between "fighting with algorithmic monopoly" and "leveraging imitations/copying to a limited extent so as to foster establishment of a healthy and competitive market". In cases where the aforementioned laws become ineffective, the concept of 'neighbouring rights' can be one of the way to approach the issue of immunisation to the creation/work developed with/through AI, but contemporary rights discourse warrants no requirement of any such extension.[64] Additionally, when one AI creates an algorithm setting up any other AI mechanism, it can be dealt under the protection granted to softwares under the present IP discourse.[65]

[62] The Competition Act, 2002, S. 3(3).
[63]Ayush Raj, *Conflict between Generative AI and Anti-trust in the Entertainment Industry: Exploring the Need for a Balanced Source of Entertainment*, RSRR, *available at* https://www.rsrr.in/post/conflict-between-generative-ai-antitrust-in-the-entertainment-industry-exploring-the-need-for-a-b (last visited Dec. 14, 2024).
[64] Laurens Buijtelaar and Martin Senftleben, *Robot Creativity: An Incentive-Based Neighboring Rights Approach* (2020), available at- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3707741 (Last visited Nov. 23, 2023).
[65] *Supra* note 60.

Mere denial of copyright to AI works doesn't prevent the producer or owner of such content from exploiting it in the market. Instead, alternative measures can be used to protect and monetise AI-generated content. Producers can implement access restrictions to control who can access and use AI-generated content. Various methods to manage digital rights may implement these access limits. AI-generated material may include digital watermarks and other technological precautions. Digital watermarks are information embedded into the content that can verify its ownership. These measures can deter unauthorised use and facilitate tracking and enforcement of rights.

The current patent protection regime, domestic and global, primarily deals with human inventors. Consequently, the judicial discourses on various patent applications based on AI-generated inventions haven't seen the light of the day. This singling out and exclusive nature of the protection regime is constantly inviting discussions and policy-making to act in a futuristic fashion. There is a need to encourage patent applications involving AI interference. This would provide clarity in demarcating humanistic attributes from AI contribution which is vital for establishing human inventorship and patentability.

Patent systems serve the dual purpose of safeguarding the rights of inventors and fostering innovation through the public disclosure of inventions. If inventors are required to conceal the true extent of AI's contribution due to fears of rejection, it will prejudice the entire object and the reasons behind patent protection laws. It may also lead corporations to preserve AI-generated ideas as trade secrets rather than patent them. Trade secret offers protection without disclosing the invention's details to the public, but this approach may limit the spread of knowledge and hinder further innovation in society, shrinking the knowledge database in the public domain to a great extent.

The European Courts and authorities have creatively made an attempt to embrace the patent protection to AI works, by way of 'proxy human inventor' doctrine,[66] according to which the patent seeking application is mandated to carry name of some human inventor and thereafter acknowledge the role played by the AI mechanism.This concept acknowledges the limitation of the current patent law, which primarily focuses on human inventors. Allowing applicants to disclose the role of AI systems while retaining a human inventor's name has apparently paved

[66] Florent Thouvenin and Peter George Pitch, *AI and IP: Theory to Policy and Back Again-Policy and Research Recommendation at the Intersection of Artificial Intelligence and Intellectual Property,* 54 IIC 916, 919 *available at-* https://doi.org/10.1007/s40319-023-01344-5 (last visited 23rd Nov. 2023).

the way for the constructive transformation of the current patent protection regime so as to make it holistic and accommodative.

Despite potential reforms to patent laws acknowledging creations and works generated with or through AI, this does not necessarily imply that AI systems will be granted patent ownership. A new set of standards will need to be developed by the law to identify the original patent owner, who can be a legal or natural person. Patent ownership and inventorship are distinct legal concepts. While the law can adapt to accommodate AI inventors, determining the initial owner of the patent remains an unresolved issue. This shall entail pragmatic implications for the ones who hold the rights and obligations related to the patent.