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Friend or Foe: Decoding the Legal Challenges Posed by Artificial Intelligence in The Era of Intellectual Property

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ABSTRACT

"The potential benefits of Artificial Intelligence are huge, so are the dangers." - Dave Water.

Artificial intelligence is one of the facet of Information technology domain which despite several attempts does not have a clear definition or ambit. However it can be understood as technology to solve problems via automated decisions and predictions. Artificial intelligence is essentially an algorithm based technology which analyses the large amounts of data and then solves problems by detecting useful patterns. Owing to its automated feature it will not be wrong to say that humans & AI have more utility than humans alone or computers alone.

For many decades AI experienced enthusiasm as well as setbacks, yet it has today become part and parcel of our everyday life, making it convenient or at times problematic. AI and related technology encompass Intellectual Property in multiple ways, the most important being AI technology for management of Intellectual Property, IP for protecting AI and IP as a hindrance to the transparency of AI systems. Thus the relationship between the two is of reciprocity as IP influences AI and vice versa. While AI is a recent concept, the IP laws for protection or even dealing with its challenges are relatively older, raising the need for revision to keep up with the pace of technological advancements. The present academic endeavor attempts to scrutinize the intricate dynamics inherent in the symbiotic relationship between Artificial Intelligence (AI) and Intellectual Property (IP), with the ultimate objective of discerning the magnitude of their reciprocal benefits or potential clashes. Furthermore, this scholarly inquiry seeks to delve into the manner in which conventional conceptions of intellectual property (IP) are undergoing substantial redefinition in order to adapt to the unanticipated consequences stemming from the swift progression of artificial intelligence (AI). In the present context, this scholarly article aims to propose effective strategies for mitigating the challenges at hand, thereby cultivating a harmonious association wherein artificial intelligence assumes a benevolent role rather than being perceived as adversarial.

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I. INTRODUCTION

Even though Artificial Intelligence (AI) is a new age term and technological phenomena, it has already acquired a good understanding and meaning in the scientific and even legal community. The term implies activities a machine can undertake and complete without any intervention of the human being. The term machine can be used instead of computer to understand the concept of AI.

Cognitive technologies encompass a range of capabilities such as natural language processing, sentiment analysis, facial recognition, risk evaluation, and fraud detection. Artificial intelligence (AI) can be utilized by multiple industries to facilitate real-time monitoring of supply chains and industrial processes, thereby enabling the provision of real-time notifications. The concept of artificial intelligence encompasses the inherent capacity of a computer program to engage in the systematic examination of information, the manipulation of data, and the subsequent formulation of a resolution or determination within a particular context, frequently emulating cognitive processes akin to those exhibited by humans, namely acquisition of knowledge, logical inference, and the resolution of complex issues. This field of study seeks to comprehend the essence of human intelligence by means of computer programmes that can imitate intelligent human conduct. AI, or artificial intelligence, encompasses the capacity of a programme to recognize commonalities among diverse scenarios and arrive at appropriate determinations.[2] The remarkable prowess exhibited by artificial intelligence in its ability to safeguard and process copious volumes of data, irrespective of its structural composition or geographical origin, confers upon it a substantial competitive edge. One of the salient manifestations of artificial intelligence (AI) resides in the domain of autonomous vehicles, wherein its proficiencies empower them to supplant human operators, thereby obviating the potentiality of human fallibility.

Furthermore, the amalgamation of artificial intelligence (AI) with the Internet of Things (IoT) presents a compelling prospect of revolutionizing urban environments into intelligent urban ecosystems. [3] By virtue of this amalgamation, urban centers can bear witness to diminished

[2] Jamal Bin Subaih Al-Hamlan Al-Sharari, The Impact of Artificial Intelligence on the Quality of Administrative Decision from the Point of View of Secondary School Leaders in Al-Jouf Educational Region, 8(1) SOLOUK MAGAZINE 18, 19 (2021).

[3] Rosa Maria Ballardini & Robert Van Den Hoven Van Genderen, Artificial Intelligence and IPR: The Quest or Plea for AI as a Legal Subject, in T. Pihlajarinne, A. Alen-Savikko(eds) and K. Havu (eds), AI and the Media-

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levels of pollution and enhanced traffic governance, thereby engendering urban environments that are more sustainable and efficacious.

It is of considerable significance to acknowledge that the genesis of artificial intelligence (AI) can be discerned in the seminal work of John McCarthy, who astutely delineated it in 1955 as "the discipline encompassing the engineering and scientific endeavors aimed at cultivating machine intelligence." McCarthy's prescience was indeed remarkable when he prognosticated that the attainment of substantial theoretical breakthroughs in the realm of artificial intelligence would necessitate the passage of numerous centuries, a prognostication that the annals of history have unequivocally validated. [4]

Systems may now produce an astounding amount of content, help process enormous volumes of digital data, and even predict the outcome of legal proceedings.[5] However, the intellectual property (IP) landscape is becoming more competitive, and businesses that rely on IP portfolios have less time than before to ensure that they are used and protected globally.

Artificial intelligence is a component of machine learning. The system is composed of convolutional neural networks, which appear to be essentially computer programmes. These optimization algorithms, which are made up of a number of variables and mathematical operations, yield outcomes that are on par with human intelligence. Deep learning and machine learning are considered to be the fundamental constituents of Artificial Intelligence (AI), with deep supervised machine learning being regarded as the most effective approach for defining AI. Machine learning obviates the need for elaborate instructions to generate the desired output. The programme develops its own ability to recognize informational trends.[6] Based on these frameworks, the hardware or system makes intelligent decisions, just like a human might. The key word here is cognition. The intricate progression of human cognitive advancement encompasses the intricate interplay of four fundamental cerebral processes, namely observation, memory, recall, and reasoning. Undoubtedly, in the realm of intellectual expansion, it is irrefutable that a computer possesses the inherent capacity to adeptly manage, manipulate, and scrutinize copious amounts of raw, unprocessed information. The inherent ability of a computational device to expeditiously and precisely execute calculations on vast collections of

Reconsidering Rights and Responsibilities (Edward Elgar Publishing Ltd. 2022).

[4] Prof. A. Lakshminath & Dr. Mukund Sarda, Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research, 2 CNLU LJ 1, 5 (2011-12).

[5]Sanjeev Ghanghash, Intellectual Property In the Era of Artificial Intelligence: A Study Reflecting Challenges in India and International Perspective, 11 MULTIDISCIPLINARY JOURNAL OF EDUCATIONAL RESEARCH 72 (6) (2022), available at http://ijmer.in.doi./2022/11.05.112 (accessed Sept. 23, 2022).

[6] Tripathi & C. Ghatak, Artificial Intelligence and Intellectual Property Law, 7(1) CHRIST UNIVERSITY LAW JOURNAL 83, 98 (2018).

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data sets serves as a fundamental attribute that delineates its cognitive advancement. By virtue of employing sophisticated algorithms and leveraging machine learning methodologies, computational systems possess the capability to discern recurring patterns, extract profound understandings, and render judicious determinations predicated upon the information they are subjected to. Unstructured information includes, but is not limited to, books, magazines, metadata, analogue data, emails, media files, webpages, audio recordings, and scientific and medical materials. The nomenclature "unstructured information" encompasses a comprehensive spectrum of data that is devoid of any predetermined structure or arrangement. The subject matter at hand pertains to a diverse array of human communicative modalities, which encompass not only the spoken word but also auditory and visual elements that emerge from interpersonal engagements. The aforementioned data category exhibits a wide range of variations and dissimilarities, thereby posing obstacles to conventional techniques of data manipulation owing to its inherent absence of a clearly delineated framework. Machine learning utilizes these forms to recognize vast volumes of data. AI-based educators can give students individualized training and supervision in the field of education. In a specially designed environment, the needs of the students are well met and satisfied. AI has several applications in the field of healthcare also. It is used for hospital administration, disease diagnosis, patient monitoring, clinical outcomes, enhancement of the healthcare system and therapeutic decision-making, enrichment of care management, and facility effectiveness.

The continuous progress in this technology field has not been reflected in changes to the legislation. It is difficult to deny that AI is a key part of our daily lives, so it is time to review our current laws and update them while taking stakeholders' ideas and opinions into account. It is crucial that our laws are set up so that we can benefit from technology without it impinging on our rights. The ability of a machine to simulate intelligent activity is known as artificial intelligence, a fast developing field of technology. However, after only a few years, intelligent robots are a reality and a part of our existence; they are now more science than fiction. They are assisting in clean our homes, drive our cars, and cook. The development of machine learning has enabled machines to learn and carry out specific activities on their own, making them more similar to humans.

Even with multiple applications and advantages it has often been questioned if the machine's output is the result of its own intellect or simply commands and algorithms. The Turing test[7] was proposed by Sir Alan Turing as a means of addressing the aforementioned issue.

[7] Alan Turing, Computing Machinery and Intelligence, 59 MIND 236, 433 (1950).

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Following a text-based interaction with either an individual or an artificial intelligence system, participants were prompted to indicate their perception of the entity they were communicating with, whether it was a human or a machine. [8] A computer showed intellect, in Turing's view, if its answers matched those of real people. This test was useful for a while, but it could only be used with voice recognition software and for specific quizzing purposes. The World Intellectual Property Organization (WIPO) has duly recognized the profound import of Artificial Intelligence (AI) and has astutely delineated three discrete classifications of AI applications. The aforementioned classifications encompass the following delineations:

Expert systems, also known as artificial intelligence programs, have been meticulously crafted to replicate the cognitive faculties of human experts within well-defined domains. These systems aim to simulate the intricate decision-making processes that are typically exhibited by individuals possessing profound expertise in their respective fields. These systems are constructed through the utilization of formalized regulations and repositories of knowledge, enabling them to engage in logical deduction and furnish suggestions or resolutions for intricate quandaries.

Observation systems, within the realm of artificial intelligence, encompass applications that leverage machine learning algorithms and data analysis methodologies to discern intricate patterns and discernible trends from copious volumes of data. These computational systems possess the capability to discern correlations, anomalies, and insights from data in the absence of explicit programming instructions.

Natural-language systems, colloquially referred to as natural language processing (NLP) systems, represent a class of artificial intelligence (AI) applications that bestow upon machines the ability to comprehend, decipher, and produce human language. These conversational agents serve as intermediaries in the interaction between human users and computer systems, enabling a communication process that emulates the patterns and dynamics of natural conversation.

The aforementioned categories aptly capture the multifaceted capacities of artificial intelligence (AI) and its profound capacity to disrupt numerous domains through its emulation of human cognitive faculties, thereby empowering machines to execute tasks that were hitherto the exclusive purview of human proficiency. The acknowledgment by the World Intellectual Property Organization (WIPO) of these distinct classifications serves to underscore the utmost significance of incorporating intellectual property deliberations within the realm of artificial

[8] Ibid.

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intelligence (AI) advancement and implementation. [9]

Due to the efficiency and wide range of applications of AI systems, users desired to obtain protection for the results. However, notwithstanding the initial setback resulting from the 1956 ruling that refused to grant copyright protection to a piece of literature, the ongoing discussion pertaining to this issue persevered. The profound implications of this discourse, particularly in the domain of intellectual property encompassing copyrights and patents, necessitated its elevation to the higher echelons of the national judiciary for additional contemplation. The individuals aspiring to advocate for copyright protection in the realm of literary works encountered a landscape fraught with ambiguity and uncertainty at the outset. However, the inherent significance of this matter, coupled with its far-reaching ramifications for the realm of intellectual property rights, served as a driving force compelling them to embark upon a course of action within the confines of the law in order to seek a satisfactory resolution. Consequently, the subject matter persisted in being subject to ongoing deliberation and eventually became subject to the jurisdiction of domestic judicial bodies, thereby underscoring the significance of the underlying apprehensions and the wider ramifications involved within the realm of intellectual property.

II. THE WAIT IS OVER-AI IS HERE

In the year 1955 John McCarthy described Artificial intelligence as "the science and engineering of making intelligent machines"[10]. While describing the phenomena he truly believed that there is a wait of at least five to five hundred years before the humans can claim that the conceptual breakthroughs. While he wasn't entirely wrong, it did not take as much time as he thought and predicted for the machines to take over. In today's era computers have the capability of creating a astounding arrangement of content which is helpful in crunching a vast amount of digital data and it is also being predicted that in the very near future these machines will be able to accurately predict litigation outcomes.[11] While technology progresses to amaze mankind with such results, it has led to increase in competitiveness specially in respect of owning IPR over the same as companies which rely on IP portfolios have a smaller than ever window today to ensure protection and exploitation of the technology. As a matter of fact, almost up to 85 percent of a technology based company's value is dependent upon its IP

[9] A. Johnson-Laird, Neural Networks: The Next Intellectual Property Nightmare?, 7 THE COMPUTER LAWYER 14 (1990)..

[10] J. McCarthy, What is Artificial Intelligence?, Stanford University, 2007, available at: http://www-formal.stanford.edu/jmc/whatisai.pdf.

[11] M. Zimmerman, Coming to Grips with Artificial Intelligence, Georgetown University Law Library Lights, 2017.

portfolio as the IP acts as the key driver in many prominent mergers and acquisitions.[12]

III. RELATION OF AI WITH IP

The impact of widespread automation extends far beyond the IP sector. A critical area where technology is already lowering the need for human involvement is in the recognition and assessment of papers, which has traditionally served as a valuable proving ground for AI solutions. The routine work required in law companies, patent offices, and even courts can be difficult, risky, and time-consuming. Traditionally, these duties have been backed by documentation, time-consuming inquiries, or challenging decision-making processes, all of which place substantial amounts of money at risk with even a single-entry mistake. Businesses and organizations will be able to improve accuracy and dependability on the job, reduce risks and boost market rivalry thanks to the robotic transformation, which will also help them handle major challenges like a lack of workers and a limited budget. The very first online court in the entire world heard its maiden case in 2017, using AI to prepare judgments and facial and audio recognition to digitally compile trial records.[13] However, notwithstanding the initial setback resulting from the 1956 ruling that refused to grant copyright protection to a piece of literature, the ongoing discussion pertaining to this issue persevered. The profound implications of this discourse, particularly in the domain of intellectual property encompassing copyrights and patents, necessitated its elevation to the higher echelons of the national judiciary for additional contemplation. The individuals aspiring to advocate for copyright protection in the realm of literary works encountered a landscape fraught with ambiguity and uncertainty at the outset. However, the inherent significance of this matter, coupled with its far-reaching ramifications for the realm of intellectual property rights, served as a driving force compelling them to embark upon a course of action within the confines of the law in order to seek a satisfactory resolution. Consequently, the subject matter persisted in being subject to ongoing deliberation and eventually became subject to the jurisdiction of domestic judicial bodies, thereby underscoring the significance of the underlying apprehensions and the wider ramifications involved within the realm of intellectual property. How lawyers communicate with their clients must be significantly affected by the possibility that IP lawsuits could be easily mechanized.[14]

There has been a steep rise in the patents on Ai technology as tech-based companies aspire to ever advance its research. Infact in the last 5 years alone the number of patent applications filed

[12] A. Ciccattelli, The Future of Big Data and Intellectual Property, Inside Counsel, 2017.
[13] Changing Shi, Tania Sourdin & Bin Li, The Smart Court – A New Pathway to Justice in China?, 12 INTERNATIONAL JOURNAL FOR COURT ADMINISTRATION 4 (1) (2021).
[14] E. Chikhaoui & S. Mehar, Artificial Intelligence (AI) Collides with Patent Law, 23(2) JOURNAL OF LEGAL, ETHICAL AND REGULATORY ISSUES 1, 10 (2020).

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over AI technology has increased by 308%, with mostly big tech companies leading the field.[15] As this number of applications increases, so does the possibility of patent litigation with business sharks ready to gulp down the small fishes in the sea.

IV. PATENT AND AI

(A) How AI is approached by IPR

The global copyright regime has come to the common consensus that AI systems all over the world are software based. Also, all IP issues which arise in the development of such software are very much applicable. Currently, it would not be erroneous to posit that "software applications encompass not solely textual elements, but also exhibit behavioral characteristics.[16]" In the current technological milieu, it is evident that programs and software have transcended their erstwhile static nature as mere lines of code, and have instead assumed dynamic characteristics that bear resemblance to the actions and responses exhibited by human beings. The exponential progress in computational technology has engendered a paradigm shift, endowing contemporary computers and machines with unprecedented capacities. These advancements have culminated in the emulation of human-like behaviors and the execution of tasks that were hitherto the exclusive domain of human cognition, creativity, and ingenuity.

The prevailing perception of creativity and invention as inherently human faculties has encountered a paradigm shift in light of the exponential advancements in artificial intelligence and machine learning. This technological progress has engendered a notable encroachment by increasingly proficient computers and machines into these hitherto exclusive domains. The proliferation of artificial intelligence (AI) systems that exhibit the capacity to engender artistic creations, orchestrate musical compositions, and conceive innovative resolutions to intricate predicaments is a resounding testament to the ever-expanding frontiers of machine aptitude.

The persistent infiltration of machines into historically exclusive human realms constitutes an enduring phenomenon that engenders profound inquiries regarding the societal ramifications, ethical considerations, and the trajectory of labor in the forthcoming era. The advent of machines presents a profound opportunity for enhanced productivity and efficacy, necessitating a contemplation of the inherent characteristics of human creativity, resourcefulness, and the idiosyncratic attributes that define our humanity. The imperative to achieve a harmonious

[15] H. Fujii & S. Managi, Trends and Priority Shifts in Artificial Intelligence Technology Invention: A Global Patent Analysis, available at: https://is.gd/law_trends_in_AI.

[16] R. Davis, Intellectual Property and Software: The Assumptions Are Broken, in World intellectual Property Organization, WIPO Worldwide Symposium on the Intellectual Property Aspects of Artificial Intelligence, Stanford University, 1991.

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equilibrium between harnessing the capacities of machines and safeguarding the fundamental tenets of human ingenuity and innovation shall persist as technological progress unfolds.[17] Allowing protection of AI systems and their creations even, which is bound to be even more problematic, is pushing the legal universe towards many a challenges to tackle.

In the current milieu of technological advancements, the convergence of patent legislation and the realm of Artificial Intelligence (AI) is assuming a progressively momentous role. The pervasive utilization of artificial intelligence (AI) is currently witnessing a remarkable surge, as it serves as a catalyst for optimizing and rationalizing the implementation of indispensable undertakings. This phenomenon has resulted in noteworthy diminutions in human exertion and concomitant enhancements in efficacy spanning a multitude of sectors. *Prima facie* AI-enabled devices operate exactly like calculators and some other comparable technology. While in some scenario technology functions in a far more complicated way reflecting its complicated side to us. The current state of technological advancements has facilitated the convergence of artificial intelligence (AI) capabilities with computer systems, resulting in a notable milestone wherein these machines possess the ability to independently execute tasks predicated upon their own discernments and revelations. The aforementioned technological progress exhibits the capacity to fundamentally transform diverse domains, empowering computational systems to autonomously generate and fabricate groundbreaking resolutions. The aforementioned development signifies a noteworthy scientific milestone, yet concurrently engenders a plethora of intricate legal quandaries, particularly within the realm of patent legislation.

The extant legislative framework pertaining to patents and intellectual property regulations has predominantly been crafted with the intention of addressing the realm of inventions and innovations that have been engendered by human inventors. In light of the burgeoning advancements in AI-driven technologies, a plethora of inquiries have emerged pertaining to the ascription of inventorship and the subsequent ownership of intellectual property rights. There are disadvantages to patent protection for AI systems and technologies which is only natural considering AI technology mimics a human task mostly. For instance, Microsoft's Inner Eye project is primarily an artificial intelligence (AI) system that assists oncologists in quickly customizing cancer treatment. It achieves this by examining a person's neuroimaging data and utilizing machine learning techniques to identify healthy bone and cartilage from cancers. By hand-drawing contours on 3D images, the oncologist had already finished this task. If a declaration of claim is submitted for this very function carried out by the machine, it will be

[17] P.M. Kohlhepp, When the Invention Is an Inventor: Revitalizing Patentable Subject Matter to Exclude Unpredictable Processes, Minnesota Law Review, 2008.

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prohibited because this situation also falls short of one of the requirements for patentability, which is to describe how well the invention works. Inventions and original concepts are the foundation of social inclusion. A system of intellectual property law, which includes patents, has historically protected creations. While patent law still has strong links to industrialization, it has been able to adapt to later revolutions like computing to a greater extent, albeit with some issues. An unprecedented change, with ramifications for the law on patent, specifically that are quite so far-reaching that their influence is quite unknown, is already upon us. The era of AI is now.

V. COPYRIGHT AND AI

Copyright is a significant form of intellectual property right that grants legal entitlement to the one creating the original. work, providing exclusive control over its distribution and utilisation. The aforementioned conceptual comprehension is rooted in Locke's economic doctrine of possessive individualism, in conjunction with the notion that the author is a trailblazer. [18] In order to confer a copyright, it is generally required that two fundamental prerequisites be satisfied: firstly, the work in question must be original, and secondly, it must initially be expressed in a tangible form.

In general, a copyright is employed as a means of safeguarding artistic and written creations. The contemporary utilisation of artificial intelligence in the production of literary works necessitates an examination of copyright law in relation to AI. This study aims to examine three court decisions, namely *Burrow Gilles Lithographic Co. v. Sarony*[19], *Bleistein v. Donaldson Lithographing*[20], and *Alfred Bell & Co. v. Catalda Fine Arts*[21], for the purpose of analysis.

(A) Burrow Gilles Lithographic Co. v. Sarony

The central issue at hand pertains to the inquiry of whether it is permissible to grant copyright protection to a photograph. [22] The significance of the case lies in its examination of the distinction amid creative labour and purely mechanical effort. The present Court deliberated on the probability of securing copyright protection for a commodity that is generated through a mechanical process. The Court limited the extent of safeguarding for works that are deemed to lack inherent creativity due to their purely mechanical labour. [23] Applying analogous reasoning

[18] Leenheer Zimmerman, It's an Original!(?): In Pursuit of Copyright's Elusive Essence, 28 COLM. J. L. & ARTS 187, 194 (2005).
[19] *Burrow Gilles Lithographic Co. v. Sarony, 111 U.S. 53 (1884).*
[20] *Bleistein v. Donaldson Lithographing*, 188 U.S. 239 (1903)..
[21] *Alfred Bell & Co. v. Catalda Fine Arts*, 91 F.2d 99 (2d Cir. 1951).
[22] *Burrow* (n 13)
[23] Ibid.

to artificial intelligence (AI) systems, the task of affording copyright protection to works generated by AI would pose a challenge.

(B) Bleistein v. Donaldson Lithographing Co.

Regarding the legal issue raised there, this case was an extension of the one before it. The Court in this case made an impressive distinction between a human's labour and that of a manufactured creature. Stating for the majority, Justice Holmes specified the individuality of human personality in the work create by him and made it a requirement for copyright.[24] This stance was further vehemently enunciated upon in the following language of the court "*something irreducible, which is one man's alone' which implied that there remains no scope for anything which is not a product of a human's creative efforts*".[25] This decision impacts the possibility of copyright protection over works created by AI, however creative the same may be.

(C) Alfred bell & Co. v. Catalda Fine Arts, inc.

The decision herein reeks of a moderate approach adopted towards copyright. Lowering the benchmark for originality, the Court held that for a work to bear originality it should not have been copied from another artistic work of similar character.[26] An author may claim unintentional or accidental modification as his own work. This judgement came as. Respite for people who claimed copyright over work generated by AI. These judgements combined clear the air pertaining to grant of protection to AI systems. Even so, there lacks a definitive stance which affects prospective right of holders.

The discourse pertaining to the intricate interplay between Artificial Intelligence (AI) and copyright undeniably possesses profound historical underpinnings. In the annals of technological progress, a seminal moment occurred in the year 1974 when the esteemed National Commission on New Technological Uses of Copyrighted Works (CONTU) bestowed due recognition upon the nascent field of artificial intelligence (AI). In a display of prescience, CONTU astutely appraised the profound import of AI and conscientiously endeavored to grapple with its potential ramifications within the confines of one of its meticulously crafted reports. The report issued by the Commission on New Technological Uses (CONTU) has brought to the forefront the salient practical hurdles entailed in the endeavor of constructing an artificial intelligence (AI) framework that possesses the capacity to generate autonomous creative outputs.

[24] *Bleistein* (n 14).
[25] Ibid.
[26] ibid (n 15).

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During that particular epoch, artificial intelligence (AI) was in its embryonic phase, and the concept of machines independently engendering creative works presented a plethora of theoretical and technical quandaries. The potentialities of artificial intelligence (AI) were initially circumscribed, and the notion of AI-fabricated content seemed to be a remote eventuality.

Subsequent to that juncture, the progression of artificial intelligence (AI) and machine learning (ML) technologies has engendered a profound transformation within the domain under scrutiny. In the contemporary landscape, it is irrefutable that artificial intelligence (AI) systems, encompassing generative models and natural language processing algorithms, have demonstrated the capacity to engender creative outputs across various domains. These outputs span a wide spectrum, encompassing artistic creations, musical compositions, written articles, and poetic expressions.

The ongoing evolution of artificial intelligence (AI) has undeniably rekindled and heightened the discourse pertaining to copyright and intellectual property within the realm of AI-generated content. In light of the ever-expanding creative potential of artificial intelligence (AI), inquiries pertaining to authorship, ownership, and the legal ramifications surrounding AI-generated works have assumed a prominent position within contemporary discourse.[27] This issue was revisited by the Office of Technology Assessment (OTA) in 1986 while it attempted to evaluate the effects of rapid improvements in the field of interactive computing on Intellectual Property. OTA has not agreed with CONTU and has recommended that AIs should be considered as lawful co-authors of the copyrighted works.[28] Almost five decades later the debate remains still at its prime whereby one side contends that computers are unable to be creative as humans, whereas others disagree on the ground that there cannot be an objective definition of creativity.[29]

Even if there is a scenario whereby countries allow copyright over original works created by AI, the question which remains unanswered is who will get the copyright. The lack of legal personhood of AI, unless granted by its creator, is the cause of the ambiguity arising from the current legal requirement for the right holder to possess such personhood. [30] Notwithstanding,

[27]Final Report on the National Commission on New Technological Uses Of Copyrighted Works, 3(1) COMPUTER LJ http://eric.ed.gov/PDFS/ED160122.pdf (1981) (accessed Sept. 23, 2022).

[28] U.S. Office Of Technological Assessment, *Intellectual Property Rights in an Age of Electronics and Information* (U.S. Government Printing Office, OTA-CIT-302, 1986), ch. 8 Impact of New Technologies on the International Intellectual Property System, https://www.princeton.edu/~ota/disk2/1986/8610/8610.pdf (accessed Sept. 23, 2022).

[29] David Gelernter, *The Muse in the Machine* 83 (Free Press, 1994).

[30] James Boyle, 'Endowed by their Creator? The Future of Constitutional Personhood', 70 N.C. L. Rev. 1231 (1992), available at http://www.brookings.edu/papers/2011/0309_personhood_boyle.aspx (accessed Sept. 25, 2022).

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there is a loophole pertaining to the contingency of copyright protection afforded to either the originator or purchaser. The resolution to this perplexing issue is in favour of the originator in select nations, such as England and New Zealand, where the intellectual property rights of works generated by artificial intelligence are attributed to the individual who programmed it. Nonetheless, this does not effectively resolve the lack of clarity.

Another issue that arises with the existing framework is regarding the nature of criminal liability of the AI. At the time of invention of the AI, the wonders it can possibly achieve was probably not envisioned by any. This potential has only exceeded expectations so much so that AI may soon attain the status of an independent entity. A relevant questioned to be answered regarding the criminal liability of the AI is only an obvious consequence in such a situation.[31] If the current situation is to prevail, the liability will be upon the creator, irrespective of the absence of Mens Rea or actus reus of the act. It is for these reasons that we deem the present position as full of loopholes.

VI. EXISTING IP CHALLENGES AND ISSUES

In light of the escalating prevalence of AI-driven advancements, it is imperative to integrate ethical deliberations, data safeguarding, and security measures into the existing framework of contemporary intellectual property (IP) standards, with specific emphasis on patent and copyright legislations. The amalgamation of artificial intelligence (AI) and intellectual property (IP) engenders distinctive quandaries and prospects that demand meticulous legal and regulatory frameworks. Whether or not AI technology are patentable or copyrightable should also be determined by the existing IP laws. The idea that AI can produce is widely accepted yet inventorship, individual or shared is to be determined clearly. Another question so far unanswered is whether it is possible for AI to collaborate with a person during an apprenticeship?

Technology is increasingly utilizing AI. The disclosure of the inventor's use of AI software is simply reasonable. Traditional applications clearly show the difference between proprietorship and innovation. The owner of the innovation, according to the claimant, is himself. It's uncertain who owns inventions involving AI. Intellectual Property (IP) Protection is concerned with who owns the rights to creations based on AI. The advent of artificial intelligence (AI) in the realm of product development engenders intricate inquiries pertaining to the domains of ownership and authorship. In the realm of conventional practice, it has been observed that in instances

[31] Prof. Gabriel Hallevy, 'AI v. IP- Criminal Liability for Intellectual Property IP Offenses of Artificial Intelligence AI Entities', in Dennis J. Baker & Paul H. Robinson (eds.), *Artificial Intelligence and the Law* (Routledge 2022).

where a human entity engages in the act of inventing or creating, the resultant invention or creation is commonly ascribed to either the individual inventor or the employer of said inventor, contingent upon the contextual factors surrounding the genesis of the intellectual property in question.

In the context of artificial intelligence (AI) being employed for the purpose of product generation, the task of ascertaining the legitimate creator and proprietor assumes a heightened level of complexity. In certain instances, it is plausible to assert that the person who employs AI technology for the purpose of product development assumes the role of both creator and proprietor, given their initiation and guidance of the AI's operations.

However, it is imperative to acknowledge that the integration of artificial intelligence (AI) into various creative processes has the potential to intricately entangle the conventional understanding of individual authorship and ownership. Artificial Intelligence (AI) is an instrumental apparatus that functions through the utilization of intricate algorithms and data. The genesis of AI is often contingent upon the substantial dependence on pre-existing data and models, which may have been meticulously crafted by diverse contributors. Henceforth, it can be posited that ascribing exclusive proprietorship to the individual employing the artificial intelligence may not comprehensively encapsulate the inherently cooperative essence of creations generated by artificial intelligence.

The inquiry concerning the capacity of an autonomous computing system to autonomously file a preliminary patent application for an AI-facilitated discovery is undeniably germane and engenders noteworthy legal and ethical deliberations. In the conventional framework, patent applications are duly filed by natural persons who have engaged in inventive activities or by their authorized legal representatives. In light of the remarkable progress in artificial intelligence (AI) capabilities, it is conceivable that AI systems may engender inventions or discoveries that possess the requisite qualities for patent eligibility.

The matter at hand necessitates a comprehensive assessment of the parameters governing the determination of inventorship within the realm of patent legislation. In the realm of intellectual property law, it is widely acknowledged that the attribution of inventorship necessitates the indispensable involvement of a sentient being in both the conceptualization of the invention and its subsequent practical realization. The inquiry at hand pertains to the potential recognition of an artificial intelligence (AI) system as an inventor, taking into consideration its modus operandi rooted in pre-existing algorithms and data, devoid of conscious comprehension or volition.

The attribution of inventorship to artificial intelligence (AI) systems carries significant

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ramifications with respect to the realm of patent rights and the allocation of ownership. In the event that artificial intelligence (AI) assumes the role of inventor, a multitude of inquiries emerge regarding the appropriate custodian of patent rights. Specifically, deliberations ensue as to whether the developer responsible for crafting the AI system, the user who engages with said system, or the entity that possesses and oversees the AI should be deemed the rightful proprietor.

Moreover, this particular matter gives rise to apprehensions regarding the attribution of accountability and the allocation of responsibility in relation to inventions generated by artificial intelligence. The process of patent applications necessitates the comprehensive divulgence of intricate particulars pertaining to the invention at hand. It is imperative to exercise caution and prudence in the bestowal of patents, as a lack of thorough comprehension and diligent scrutiny regarding the provenance of the invention may conceivably engender unanticipated and undesired ramifications. Also, whether a machine will be in the public domain if it couldn't file for a patent has to be clearly answered. The most time-consuming and hazardous components of the industry are the IP management processes. Legal firms and IP divisions in corporates handle plethora of unique pieces of IP material from tens of various jurisdictions at any given time, in addition to hundreds of different goods. This process has always been quite slow and difficult. Think about a single patent that a company has applied for protection, across multiple countries. A network of dealers who are familiar with the specific procedures required to obtain protection in specific countries would support the company. Along the way, hundreds of documents in numerous languages will be created, each with its own set of challenges and opportunities. Prior to entering in the IP management software, all of this data is to be manually evaluated. This could consequently cause a wide range of information processing issues with the likelihood of making a mistake being almost infinite. Despite this an IP continues to be many firms' most valuable asset. “The World Intellectual Property Organization” (WIPO) foresees that about a fourth of patent data is incorrectly entered into the databases, making the consequences dangerously evident.[32] Additionally, the time and money required for the human labor for data entry is substantial. Legal services and IP specialists would be willing to focus on more important choices if this procedure could be automated. AI may assist with accuracy and dependability by quickly and effectively analysing massive volumes of data. Also, while machines take care of the more mundane aspects of IP management, legal companies and IP specialists can take a more involved responsibility within the company by drawing inferences from data to help determine the future success of the company. Interactions from the various

[32] *Final Report, National Commission on New Technological Uses of Copyrighted Works* 4 (1978), http://eric.ed.gov/PDFS/ED160122.pdf (last accessed May 7, 2022).

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patent applications and agent networks can be effortlessly organized plus found on call by streamlining data entry and ensuring that each piece of IP does take a distinct identity. An AI engine might therefore be used to identify the key information in correspondence, producing speedier and more useful results.

VII. AI ADVANCEMENTS IN IPR

John McCarthy asserts that "AI is the science and building of making cunning machines, especially cunning PC programmes." The idea of artificial intelligence has been around for more than a century. Robots and artificial humans were initially mentioned in ancient Greek tales. Since then, there have been numerous significant developments in the field of artificial intelligence, including the development and refining of the Turning Tests, which evaluate Alan Turning's insight, and ELIZA, a distinctive language used in PC setup. In retrospect, the last three decades have been important for AI.

In 1991, the American forces used DART at the Gulf War era. It was a scheduling and planning tool for automated logistics. The self-driving automobile STANLEY won the DARPA Grand Challenge in 2005. Sophia, a humanoid robot, acquired Saudi citizenship in 2017. This sparked debate over whether AI devices should have the same rights as people. In the case of Naruto v. Slater, often known as “The Monkey Selfie Case,” the San Francisco court refused copyright petitions for a macaque monkey who was taking selfies and also took a stance against artificial intelligence. This situation raised more questions than it did answers.

Although the information found in today’s sciences is important, by conventional standards it does not qualify as a creation. This reinforces the idea that AI is expanding globally along with economic growth, making it more necessary than ever to establish and review its fundamental structure, which includes ownership, licences, abstracts, etc.

(A) AI's Implications On IPR

As machine learning and related new technologies advance, IPR protection has acquired a different standard of importance. IPR adaptation has become increasingly important as a result of the late 20th-century technological revolution and the expansion of the internet as a global communication tool. Several treaties have been enacted by WIPO in response to the progress of groundbreaking technological expansions and the protective actions of intellectual property rights. Machines and artificial intelligence have for very long been concepts of science fiction, but they are now a reality that human beings must deal with. The AI market was rightly projected by market research firms to grow from $8 billion in the year 2016 to even further than

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$47 billion in the year 2020[33]. It is anticipated that the worldwide artificial intelligence market, which was estimated to be worth USD 93.5 billion in 2021, will develop at a compound annual growth rate of 38.1 percent from 2022 to 2030.[34] 16 Due to the convergence of big data, simple access to computing power, and the use of affordable technology, AI is anticipated to experience tremendous growth. Even if each AI is different in how it is implemented, we must admit that as modern AI develops, it may face a number of challenges related to intellectual property. In fact, AIs tend to contribute to content creation by mimicking some aspects of human cognition. Additionally, a lot of AI technologies undergo training where they develop their internal principles and decision-making procedures through practice and feedback to improve future actions. In order to uncover statistical trends, large amounts of data are frequently analyzed using AI systems.

AI as a machine has significant implications for IPR in many a ways as-

- Patentability: AI is increasingly being used in the development of new products and processes. In light of the aforementioned, it is imperative to acknowledge that innovations employing artificial intelligence (AI) possess the potential for patentability, albeit necessitating distinct criteria for patent eligibility when juxtaposed with conventional inventions. In the realm of artificial intelligence, the establishment of novelty and inventiveness in an AI invention poses a considerable challenge. This challenge arises from the fact that AI algorithms often rely on pre-existing data and have the capacity to generate outputs that closely resemble those generated by human intellect. Consequently, discerning the demarcation between AI-generated outputs and human-generated outputs becomes a complex task.
- Ownership: The concept of ownership in the realm of artificial intelligence (AI) warrants careful consideration. It is pertinent to acknowledge that AI has the potential to generate creative works that may meet the criteria for copyright protection, including but not limited to music compositions and written works. Nevertheless, the intricate matter of ownership becomes considerably convoluted in the context of artificial intelligence (AI). In the realm of artificial intelligence, a pertinent query arises: in the event that an AI system engenders a creative work, to whom does the copyright ownership vest? In the realm of AI systems, the attribution of responsibility for their

[33]U.S. Office of Technological Assessment, *Intellectual Property Rights in an Age of Electronics and Information* (U.S. Government Printing Office, OTA-CIT-302, 1986), ch. 8 Impact of New Technologies on the International Intellectual Property System, https://www.princeton.edu/~ota/disk2/1986/8610/8610.pdf (accessed Sept. 23, 2022).

[34] *Artificial Intelligence Market Size, Growth, Report 2022-2030* (Grand View Research, 2022) 95.

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actions is a complex matter that warrants careful examination. The question of whether the developer, the user who trained the AI system, or the AI system itself should bear the burden of accountability is a multifaceted issue that necessitates a nuanced analysis. The elucidation of these inquiries is not invariably lucid and may hinge upon sundry factors, including the precise legal jurisdiction at hand.

- Infringement: The utilization of artificial intelligence (AI) can indeed serve as a means to encroach upon intellectual property rights (IPR). In the realm of intellectual property rights, it is noteworthy to acknowledge the potential employment of artificial intelligence (AI) in the replication of copyrighted works, encompassing but not limited to movies and music. Furthermore, the advent of AI has facilitated the creation of deepfakes, which pertain to the fabrication of synthetic media content featuring individuals. Engaging in such activities gives rise to substantial legal and ethical considerations.
- Licensing: The utilization of artificial intelligence in the realm of intellectual property rights licensing poses a set of formidable challenges. Artificial intelligence (AI) possesses the capability to discern potential infringers, oversee the utilization of intellectual property (IP) assets, and engage in the negotiation of license agreements. Nevertheless, it is imperative to meticulously deliberate upon concerns pertaining to data privacy, accuracy, and transparency in the utilization of artificial intelligence within these particular domains.
- The pervasive integration of artificial intelligence (AI) within the realms of intellectual property rights (IPR) engenders a plethora of novel challenges and prospects for legal frameworks, enterprises, and individuals alike.

(B) AI & The Legal Challenges

The increasing use of AI in various industries has created several legal challenges that need to be addressed. Here are some of the most significant legal challenges posed by AI:

- Liability: One of the biggest legal challenges posed by AI is determining who is liable when an AI system causes harm or damages. Determining responsibility in the event of an accident involving an autonomous vehicle is a complex and evolving legal challenge. The answer may vary depending on the circumstances, jurisdiction, and the specific laws and regulations in place.
- Privacy: The advent of artificial intelligence has facilitated the collection and processing

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of copious volumes of data, thereby engendering apprehensions pertaining to the realm of privacy. For example, facial recognition technology and other AI-based surveillance systems can be used to monitor individuals without their consent or knowledge.

- Bias and discrimination: The inherent susceptibility of AI algorithms to exhibit bias is predicated upon the data upon which they are trained, thereby engendering the potential for discriminatory outcomes. In the event that an artificial intelligence (AI) system employed within the context of recruitment procedures exhibits bias against specific demographic cohorts, it may unjustly preclude said groups from accessing gainful employment prospects.
- Intellectual property: As discussed earlier, AI can create new challenges for intellectual property rights, such as ownership disputes and infringement issues.
- Regulations: There is currently a lack of clear regulatory frameworks around the development and use of AI, which can create legal uncertainties and risks for businesses and individuals.
- Accountability: The intricate nature and opaqueness inherent in AI systems engenders a formidable challenge in comprehending the decision-making processes therein, thereby impeding the ability to effectively attribute responsibility to the agents behind said decisions.

Overall, these legal challenges highlight the need for clear and comprehensive regulatory frameworks that address the various legal issues posed by AI. These frameworks must balance the potential benefits of AI with the need to protect individuals' rights and interests.

VIII. THE LATEST MAGNITUDES OF 'INVENTION' AND 'INVENTOR'

The determination of patent grant or denial is subject to a multitude of factors, thereby necessitating the satisfaction of specific prerequisites for an individual to attain recognition as an inventor. An indispensable facet in this context pertains to the notion of "conception," a salient focal point underscored in the seminal legal case of *Townsend v. Smith in the United States*[35] within the jurisdiction of the United States. In order to ascertain the validity of an invention, it is imperative that said invention undergoes the preliminary phase of conception. This entails the essential process wherein the idea is conceived and formulated within the cognitive faculties of the creator or inventor, prior to its manifestation in a material or tangible manifestation.

[35] *Townsend v. Smith, 36 F.2d 292, 293 (1929).*

The fundamental crux of inventorship lies within the capacity to conceive a notion and subsequently materialize it into a tangible and functional manifestation. This stipulation serves to guarantee that inventions are not merely theoretical constructs, but rather tangible and operational advancements that possess the potential for practical application and safeguarding within the realm of patent legislation. The concept of conception assumes a pivotal role in the evaluation of the ingenuity and uniqueness of an innovation, thereby upholding the sanctity of the patent framework and fostering authentic inventiveness.

In the realm of patent law, the determination of whether a patent is bestowed or denied is contingent upon a multitude of considerations. However, it is imperative to underscore that the satisfaction of the prerequisites of conception is of paramount importance in order for an individual to be duly recognized as an inventor and for an innovation to be deemed eligible for the safeguard of patent rights. Anything reduced not on account of a predetermined idea will not be termed an invention.[36] It has been contended with ideas of conception that various forms of artistic conception can arise in the human brain itself.[37] One extremely persuasive argument in favor of allowing AI as an 'inventor' utilizes the justification behind the eradication of the concept of "flash of genius" test of patentability.[38] While it is true that this test has indeed honored the requirement of conception for recognition of an invention[39] The US Congress nullified this prerequisite, arguing that if an invention constitutes a scientific advancement that it is intended to operate upon, then the process by which the inventor conceived of it is inconsequential. [40] It is widely acknowledged that AI programs, such as Watson, are capable of generating solutions through the analysis of vast amounts of data. Therefore, it is argued that these solutions play a significant role in the progression of scientific research and development, and should therefore be eligible for patent protection. Nevertheless, the situation for academics in this particular area is not as straightforward.

Utilizing the argument of collaborative invention which acknowledges computers as inventors in addition to their human counterpart[41] does not hold ground as computer lacks the required 'legal personality' in many legal systems. Another contention in favor of computers as inventor is realization of the 'incentive theory' which stresses upon the incentive factor as motivation

[36] ibid.
[37] Robert Sachs, 'Can a Computer Be an Inventor?' (Fenwick & West LLP, 7 April 2016), https://casetext.com/case/townsend-v-smith/posts/can-a-computer-be-an-inventor (accessed Sept. 25, 2022).
[38] ibid.
[39] *Cuno Engineering v. Automatic Devices*, 314 U.S. 84 (1941)..
[40] *Townsend* (n 29).
[41] Ryan Abbot, 'I Think, Therefore I Invent: Creative Computers and the Future of Patent Law', 57 B.C.L. Rev. 1079, 1095 (2016).

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behind innovation. Since patents are allowed to protect inventor and his invention which is reflective of his honor and personality, computes cannot be allowed the same as they lack any such attachment to their creation.[42] They lack any opinion regarding the way of utilization of the creation thereby overpowering the very objective of patent safeguard.

IX. THE FUTURE

While one cannot deny that AI will ever develop to no leaps and bounds in the future. Many companies in their attempt to revolutionize technology will provide incentives towards the same and also serve final products in the market in the form of software solutions. There is also immense scope for development of appropriate guidelines and laws for regulation of this situation. However convenient life may become due to technology, AI can contract the value of human thinking and innovation. A beneficial situation to this situation would be granting a more concerted form of patent safeguard over inventions created by AI systems. This is due to the fact that human element is necessary for management of right and obligations which are associated with the patent and thus cannot be done only with a machine. Furthermore, given the increased potential for utilizing numerous artificial intelligence networks that operate autonomously or with minimal human intervention, it is imperative to grant patents for anthropomorphic agents. This would enable the identification and accountability of said agents in the event of malfunction or violation of laws. Also, it is impossible to absolutely surrender to AI technologies which is bound to drastically condense the role of humans.

When an AI owns the intellectual property rights to an innovation or work, problems about infringement arise.

- First, AI should be made to enter the arena of infringement and enforcement if it is granted the same standing as an individual for developing or inventing a work. It seems logical, but also impossible, for AI software to enter into legal contracts on its own and to be sued for infringement. This Along with economic growth and the need to establish and evaluate ate, an is increasing globally. This demonstrates the impossibility of AI as a legal entity.
- Second, when an AI violates the rights of a third party, the issue of accountability arises. The challenge of proving that the infringement had access to the protected work may be significantly easier to overcome in cases of copyright, especially as it is simpler given that all works are available online.

[42] ibid 1107.

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- Thirdly, there is the question of AI systems' transparency about their ownership of intellectual property rights. If an instance where AI systems are shielded by trade. This might prevent AI systems from being transparent because of information and secrets. Transparency and accountability for the decision-making process are becoming more and more necessary and important as time goes on.

(A) Protecting AI Creations- Where Are We?

The achievements of late as well as the humongous investments in AI systems by tech-based companies surely raises the question of whether as well as how is the protection to be granted to the autonomous creations of the AI. Having remained disappointed for over decades, the performance by self-learning and deep learning AI systems has surpassed the expectations and in fact the performance of humans in comparison, in various fields. The same may be attribute to the incredible escalation in the volume of data which can now be fed into these systems which allows AI to not be dependent upon engineering inputs for generating new inventions. Thus, with the computer algorithms and learning machines becoming the new source which fosters creativity and inventions even, the obvious temptation to allow IP protection to the same has emerged and is in the need for addressal.[43]

X. CONCLUSION

The patentability of AI will have a significant impact on its progress, the economy, and society. Given the quick development of AI technology, it is crucial that interested parties, including academicians and patent experts, have discussions about how the patent system might encourage innovation. Additionally, adequate safeguards must be put in place to guarantee that negative social and moral repercussions are avoided. To determine if the existing patent-eligible subject - particular requirement has a materially negative impact on AI or AI-driven breakthroughs, a comprehensive analysis must be conducted. If this is the case, stakeholders need to decide what regulations may have been changed in order to achieve the main objectives of patent law. The present-day liability laws do not excuse situations in which an AI violates a patent on its own. In such situations, it is necessary to specify who will be held accountable and how accountability will be assessed. All of these challenges need to be handled carefully.

AI in and of itself is not inherently bad for intellectual property rights (IPR). In fact, AI can be beneficial for IPR in several ways, such as by improving the efficiency of IP-related tasks, identifying potential infringements, and enhancing the accuracy of patent searches.

[43] P. Block, 'The Inventor's New Tool: Artificial Intelligence. How Does It Fit in the European Patent System?', *European Intellectual Property Review* (2017).

Notwithstanding, it is imperative to acknowledge that artificial intelligence (AI) may conceivably engender a myriad of challenges or perils to intellectual property rights (IPR). In the present discourse, let us consider an illustrative case to expound upon the subject matter at hand.

Infringement: As previously expounded, the utilization of artificial intelligence (AI) has the potential to encroach upon intellectual property rights (IPR) through the replication of copyrighted works, the generation of deepfakes, or the involvement in other illicit undertakings that contravene the established framework of intellectual property laws.

In the realm of artificial intelligence, it is imperative to acknowledge the potential for bias within AI algorithms, a phenomenon that arises from the data upon which these algorithms are trained. This inherent bias can subsequently lead to outcomes that are deemed unfair within the intricate domain of intellectual property rights (IPR). In the event that a patent search algorithm exhibits a predisposition towards specific categories of inventors or inventions, it has the potential to inequitably preclude alternative prospective patent holders.

The intricate matter of ownership arises when artificial intelligence is implicated in the genesis of intellectual property assets, as previously alluded to. The aforementioned circumstances may engender legal ambiguities and contentions.

The potential for misuse of artificial intelligence (AI) is a matter of concern, particularly in relation to intellectual property rights (IPR). One prominent avenue for such misuse involves the utilization of automated tools to extract content from websites or databases, thereby infringing upon IPR. Additionally, the manipulation of search results to obtain unauthorized access to protected materials represents another form of AI-enabled IPR infringement.

Henceforth, it is imperative to acknowledge that artificial intelligence (AI) possesses the capacity to bestow advantages upon intellectual property rights (IPR). However, it is of utmost significance to conscientiously confront the potential perils and obstacles associated with AI employment, so as to guarantee the judicious utilization of AI in a manner that duly upholds and safeguards IPR. Notwithstanding, it is imperative to acknowledge that artificial intelligence (AI) has the potential to engender a plethora of challenges and risks in the realm of intellectual property rights (IPR). In the present discourse, it is opportune to elucidate the matter at hand through the lens of cyber jurisprudence. The user's text,

Infringement: As previously elucidated, the utilization of artificial intelligence (AI) possesses the potentiality to encroach upon intellectual property rights (IPR) through the act of duplicating copyrighted works, fabricating deepfakes, or partaking in other forms of conduct that

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contravene the established framework of intellectual property (IP) legislation.

Bias: In the realm of artificial intelligence, it is essential to acknowledge the potential for bias within AI algorithms, particularly when considering their application in the context of intellectual property rights (IPR). The inherent bias in AI algorithms arises from the data on which they are trained, thereby giving rise to the possibility of producing outcomes that are deemed unfair within the IPR domain. In the event that a patent search algorithm exhibits a predisposition towards specific categories of inventors or inventions, it has the potential to inequitably preclude alternative prospective patentees.

Ownership: The intricate matter of ownership arises when artificial intelligence is implicated in the genesis of intellectual property assets, as previously alluded to. The aforementioned circumstances may engender legal ambiguities and contentions.

Misuse: The potential for misuse of artificial intelligence (AI) is a matter of great concern within the realm of cyber law. One prominent area of apprehension lies in the unauthorized acquisition or exploitation of intellectual property rights (IPR). This can manifest through various means, including the utilization of automated mechanisms to extract content from websites or databases, or the manipulation of search results to gain illicit entry into safeguarded materials. Such actions not only infringe upon the rights of content creators but also pose a significant threat to the integrity of the digital ecosystem.

Henceforth, it is imperative to acknowledge that while artificial intelligence (AI) holds promise in the realm of intellectual property rights (IPR), it is incumbent upon us to confront and mitigate the attendant perils and obstacles to guarantee the judicious employment of AI in a manner that upholds the sanctity and safeguarding of IPR.

This requires careful attention to issues such as bias, ownership, and misuse, as well as the development of appropriate legal and ethical frameworks.

Despite the new reality which AI has brought forth the world, they are recognized only in a handful of countries. Thus, a step in this direction for recognition of AI uniformly to be followed worldwide should be developed. Despite the clear differentiation between the notions of inventorship and invention, it is crucial for policymakers to recognize and confront the matter of integrating AI-driven technology within this classification. The protection of artificial intelligence has become a crucial concern due to the extensive generation of solutions and the heightened utilization of such technologies. The issue of providing incentives to human scientists for the development of such systems, as well as the potential hazards associated with granting full autonomy to highly intelligent machines, necessitates the prompt establishment of

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appropriate guidelines.

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