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"EXAMINING INTELLECTUAL PROPERTY RIGHTS IN THE AGE OF ARTIFICIAL INTELLIGENCE: AN ANALYSIS OF CHALLENGES IN INDIA AND A GLOBAL OUTLOOK"

AUTHORED BY – RAJ BORELE

ABSTRACT

Once perceived as a distant concept, Artificial Intelligence has transitioned from the realms of literature and cinema to a tangible reality, rapidly gaining prominence in recent years and leading to significant advancements across various domains. Its impact is pervasive, touching upon every sector, and Intellectual Property Rights (IPR) is no stranger to its influence. Artificial Intelligence (AI) is poised to exert a dual influence on Intellectual Property Rights (IPR). On one hand, it holds the potential to bring about positive outcomes in areas like patents, patent search engines, and precise research methods, facilitating the organization of innovations and ideas. On the flip side, AI may pose a threat to the essence of IPR, which lies in fostering innovation and growth. This is manifested in AI's ability to present inventors with existing patents closely aligned with their ideas, potentially impeding genuine progress. This research paper will delve into the impact of digital technologies on IPR, explore the pros and cons of AI in relation to innovation and development within the IPR framework, and consider future perspectives on the role of AI in IPR.

Keywords- Artificial Intelligence, Intellectual Property, Innovation, and Accountability

INTRODUCTION

The term "Artificial Intelligence (AI)" encompasses tasks performed by machines without human intervention. The term "machine" can substitute for "computer" in this context. Examples of cognitive technologies include natural language processing, sentiment classification, face recognition, risk assessment, and fraud detection. Industries may utilize AI to supply real-time data for monitoring supply chains and offer instant notifications for manufacturing activities.

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Artificial intelligence is characterized as a field of study focused on comprehending human intelligence by means of computer programs. It involves simulating intelligent human behavior and denotes a computer program's capability to address problems or make decisions. In essence, the program autonomously determines the approach to problem-solving or decision-making, identifying parallels between diverse situations and adapting to novel circumstances[1].

Countless data sources, encompassing both structured and unstructured, domestic and international, can be safeguarded. A substantial portion of this data holds the potential for crafting customized presentations for clientele. Automated vehicles powered by AI have the capacity to replace instances of human error. When AI is integrated with the Internet of Things, there is the prospect of creating smart cities characterized by reduced pollution and enhanced traffic control[2]

Ever since John McCarthy coined the term "Artificial Intelligence" as "the engineering and science of producing machine intelligence" in 1955, he anticipated that achieving theoretical milestones in this field would span five to five centuries[3]. He was accurate. Presently, systems can generate substantial volumes of content, aid in processing extensive digital data, and predict legal outcomes. However, the Intellectual Property (IP) terrain is becoming increasingly competitive, and entities dependent on IP portfolios now face a more limited timeframe to ensure global protection and utilization.

Machine learning is a subset of artificial intelligence. The system comprises convolutional neural networks, essentially computer applications. Within this system, optimization algorithms, involving mathematical processes and a set of variables, yield outcomes akin to human intelligence. Deep learning and machine learning stand out as the fundamental components of AI, with deep supervised machine learning appearing as a particularly fitting descriptor for AI. Machine learning obviates the necessity for a step by-step directions to obtain the output.

[1] Jamal bin Subaih Al-Hamlan Al-Sharari, The Impact of Artificial Intelligence on the Quality of Administrative Decision from the Point of View ofSecondary School Leaders in Al-Jouf Educational Region, Volume 8, Part 1, Solouk Magazine, Ibn Badis University Mostaganem, Algeria, 2021,

[2] Ballardini, R. (2021). Artificial Intelligence and IPR: The Quest or Plea for Ai as a Legal Subject. Ballardini RM & van den Hoven van Genderen R.,"Artificial Intelligence and IPR: the quest or plea for AI as legal subject", in Pihlajarinne T.(eds), Alen-Savikko A.(eds) and Havu K.(eds), AI and the Media-Reconsidering Rights and Responsibilities, Edward Elga

[3] Prof. A.Lakshminath&Dr.MukundSarda, Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research,

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The hardware or system, similar to a human, arrives at intelligent decisions based on these structures. The term crucial in this context is cognition. Human development is characterized by four cognitive processes: observation, memory, recollection, and reasoning[4]. When a computer is granted the capacity for intellectual learning, it can manage, handle, and analyze extensive quantities of unprocessed data. Unstructured information includes documents, periodicals, metadata, analog data, such as content in emails, audio recordings, media files, webpages, medical histories, and scientific documents.

Unstructured information encompasses the verbal, aural, and visual elements of human interaction. Machine learning utilizes these forms to recognize extensive data sets. In the field of education, instructors based on AI can deliver personalized training and guidance to students, creating a customized learning environment that caters to individual needs. In the healthcare sector, AI finds multiple applications, including hospital administration, disease diagnosis, patient monitoring, enhancement of clinical outcomes, improvement of healthcare system and therapeutic decision-making, enrichment of care management, and optimization of facility efficiency.

SIGNIFICANCE OF THE STUDY

To reap the advantages of AI in the realm of intellectual property (IP), companies must devise an appropriate IP strategy for their machine learning and AI systems. Such a strategy is essential for securing a competitive advantage over current or potential competitors, showcasing innovative foundations, and enhancing attractiveness to both investors and buyers.

STATEMENT OF PROBLEM

There is a considerable possibility of an inundation of intellectual property rights (IPR) claims due to the significantly enhanced inventiveness of AI technology compared to humans. The future may see detrimental effects on human creativity as AI continues to advance. If autonomous computers were to replace inventions by natural persons, there could be a decline in human intellect.

Consequently, positions and businesses involved in high-tech research and design may face

[4] Ibid 1

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elimination. It is crucial to establish an effective system to ensure that individuals filing patents are genuinely transparent about AI's role in the creative process. The absence of human oversight in AI inventions could lead to adverse consequences. It is imperative to promote transparency and accountability through appropriate measures.

Existing intellectual property regulations, such as patent, trademark, and copyright laws, should undergo revisions to encompass AI-driven advancements, including considerations for AI ethics, data protection, and security. The IP policy should also address the patentability of AI technologies. While the belief in AI's creative capabilities is widespread, additional questions arise, such as whether AI can partake in a joint apprenticeship with an individual. Furthermore, in cases of IPR infringement, determining accountability becomes a critical issue.

RESEARCH QUESTIONS

1. Is AI liable for any adverse events impacting intellectual property?
2. What legal penalties will be imposed on AI in the event of a violation of the intellectual property rights of the holder?
3. How do humans address AI that operates independently of human intervention, and who bears responsibility for the actions of AI?

LITERATURE REVIEW

- AI and IPR: The Quest or Plea for Ai as a Legal Subject, Rosa Ballardini.
  This study has explored the need to treat AI operators as legal entities, placing our investigation within the industry context of entertainment and the press, and examining its connection to the legislative framework of intellectual property rights (IPR).[5]
- The significance of intellectual property in the intelligence explosion, as explored by Andrea Moriggi.

This article examines the potential legal challenges surrounding Intellectual Property within the realm of AI, underscoring the significance of AI in accelerating the pace and scope of

[5] Ballardini, R. (2021). Artificial Intelligence and IPR: The Quest or Plea for Ai as a Legal Subject. Ballardini RM & van den Hoven van Genderen R.,"Artificial Intelligence and IPR: the quest or plea for AI as legal subject", in Pihlajarinne T.(eds), Alen-Savikko A.(eds) and Havu K.(eds), AI and the Media-Reconsidering Rights and Responsibilities, Edward Elgar

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innovation.[6]

RESEARCH METHODOLOGY

The study also involves a content examination of historical records, journals, governmental documents, conferences, law commission reports, legal publications, reference materials, scientific papers in both articles and books, electronic journals, magazine articles, a series of online documentary videos, newspaper articles, national parliament debates, and more. The inquiry into the patentability of AI is being conducted from an interdisciplinary standpoint. The research relies on a combination of primary and secondary data sources.

HOW DOES AI DEAL WITH IP?

The global copyright sector currently acknowledges that AI technologies are rooted in software, subject to all the standard intellectual property issues associated with software development. Presently, it is indisputable that "programs go beyond mere text—they also function," and while creative thinking and invention remain fundamentally human endeavors, computers are increasingly becoming highly skilled in these activities.

RELATION between AI and intellectual property (IP).

The impact of extensive digitalization extends beyond the intellectual property sector. The identification and assessment of documents represent a crucial aspect where technology has been progressively reducing the need for human involvement. This has served as a fruitful testing ground for AI technologies in previous instances.

Administrative tasks, particularly in legal firms, patent offices, and at times in legal tribunals, are among the most time-consuming, challenging, and perilous. Historically, these tasks have relied on paperwork, laborious searches, and intricate decision-making processes. A simple input error could potentially jeopardize significant amounts of money.

In 2017, the world's first online court heard its first lawsuit, employing face and speech

[6] The role of intellectual property in the intelligence explosion, Andrea Moriggi, 2017, https://www.4ipcouncil.com/application/files/9615/1638/1031/The_Role_of_Intellectual_Property_in_the_Intelligence_Explosion.pdf, last accessed on 7 May 2022

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identification to compile trial recordings digitally and AI to prepare judgments.[7]

Furthermore, it is anticipated that AI will soon take on the responsibility of autonomously determining legal cases. This expectation is based on studies indicating that lawsuit forecasting has achieved a notable level of precision. Notably, computer programmers at UCL have developed an algorithm that examined 584 instances in English language statistics, processed the data, and formulated its own legal conclusions.[8]

EXISTING IP CHALLENGES AND ISSUES

Existing intellectual property (IP) regulations, including patent and copyright laws, need to be revised to encompass progress driven by AI, taking into account AI ethics, data protection, and security. Additionally, the IP policy should address the question of whether AI technologies are eligible for patent protection. The widely accepted idea is that AI can generate creative works. Another aspect to ponder is the concept of shared inventorship—whether AI can jointly hold authorship with a human.

The rise of AI in technology is undeniable. It is reasonable for the creator to disclose the utilization of AI software.[9] In conventional applications, the separation between innovators and ownership is clear. The applicant asserts ownership of the innovation. However, the question of ownership becomes ambiguous when it comes to AI inventions.

AI'S IMPLICATIONS ON IPRS

The safeguarding of intellectual property rights (IPR) has gained heightened significance with the advancements in machine learning and recent technological progress. The tech revolution of the late twentieth century and the emergence of the internet as a global communication medium have continuously pressed for adaptations in IPR. In response to revolutionary technological strides and the need for protective measures in intellectual property rights, the "World Intellectual Property Organization (WIPO)" has implemented various treaties. While AI and machines were once confined to the realm of science fiction, they have now become a tangible

[7] Changqing Shi, Tania Sourdin and Bin Li, 'The Smart Court – A New Pathway to Justice in China?' (2021) 12(1) International Journal for CourtAdministration 4. DOI: https://doi.org/10.36745/ijca
[8] See C. JOHNSTON, Artificial Intelligence 'judge' developed by University College London computer scientists, availableat: https://is.gd/article_law_UCL_AI_judge
[9] Ibid.

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reality that humans must grapple with. According to market research company IDC, the AI market is expected to surge from $8 billion in 2016 to well over $47 billion by 2020.[10]

The substantial growth of AI is anticipated, driven by the convergence of extensive data, the ready availability of processing power, and the deployment of cost-effective hardware. Despite the individuality of each AI in its implementation, it is crucial to recognize that the ongoing progress of AI poses several contemporary challenges in the realm of intellectual property. Indeed, as AIs emulate aspects of human cognition, they may engage in content production. Additionally, many AI technologies undergo a training process during which they develop internal decision-making techniques and principles through practice and feedback to enhance future actions. Moreover, AI systems are regularly employed to analyze vast amounts of data, aiming to identify statistical patterns.

PATENT AND AI

The intersection between patent laws and AI is expanding in today's technological landscape. As demonstrated in the preceding section of this document, AI has been extensively utilized to streamline basic functions and, notably, reduce human involvement. AI-enabled devices function akin to calculators and other related technologies. However, the operational dynamics of technology are considerably more intricate. AI-enabled computers can now engage in tasks that involve independent significant observations, potentially enabling them to generate novel creations. While this marks a noteworthy technological advancement, it also introduces novel and intricate legal challenges, particularly within the domain of patent legislation.[11]

THE SIGNIFICANCE OF TRADEMARKS FOR AI FIRMS

Trademarks play a crucial role in distinguishing a name and brand, differentiating their products and services in the market. In the realm of AI, the transparency and openness of algorithms contribute to enhancing the reputation of a brand. Companies selling AI technology can leverage their brand name, and in addition, trademarks may be employed to promote highly potent AI systems.

[10] Intellectual Property Rights in an Age of Electronics and Information, U.S. OFFICE OF TECHNOLOGICAL ASSESSMENT (1986), https://www.princeton.edu/ ~ota/disk2/1986/8610/8610.pdf, last accessed on 7 May 2022.
[11] Rashmi, R., & Sneha, S. (2017). Artificial Intelligence: IPR, Liability and Ethical Issues. Int'l. In-House Counsel.

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Google DeepMind has successfully obtained the trademark "AlphaGo," and IBM has pursued the trademark registration for "Watson." It is essential for companies to exercise caution to prevent the dilution of the distinctiveness of their trademarks, especially if the components that constitute them are also employed as identities in the information system. Additionally, registering trademarks with buzzwords that are widely recognized and associated with AI could pose greater challenges compared to registering fictitious and nonsensical terms. Consequently, the strength of certain trademarks may surpass that of others.

LEGAL AMBIGUITY

The patent system is in place to encourage inventors to invest more in technology by guaranteeing that their innovations will yield a reasonable profit. Ambiguity surrounding the authenticity and enforceability of a patent can diminish its market value. This uncertainty can impact the rights holder's ability to generate profit through licensing or legal actions. It is important to note that patents do not necessarily safeguard applicants' investments or validate the accuracy of a claim if it faces challenges. However, they do play a role in expediting investment and innovation while disseminating information, aligning with the intended objectives of the patent system.[12]

AI AND COPYRIGHT

Traditional copyright law does not recognize works generated by AI; it only protects original creations by individuals. In the significant Monkey-Selfie copyright case, the United States Copyright Office asserted that a work must be created by a human being to be eligible for protection under copyright law. This ruling has raised uncertainties about the copyrightability of creations generated by AI.

Conversely, the legislation in the U.K is quite different. A clause in the UK Copyright Act states that when a creation is -made, the author is presumed to have been the individual who aided the work's creation. Similarly, we might presume that perhaps the creator of AI-generated work is the one who established the essential arrangements[13]

[12] Rashmi, R., & Sneha, S. (2017). Artificial Intelligence: IPR, Liability and Ethical Issues. Int'l. In-House Counsel J., 11, 1

[13] Artificial Intelligence Poses a Greater Risk to IP than Humans to, TECHCRUNCH(Dec. 31, 2015), https:// techcrunch.com/ 2015/ 12/31/artificialintelligence-poses-a-greater-risk-to-ip-than-humans-do/.

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INTERNATIONAL INSIGHTS

Globally, the volume of intellectual property is on the rise. According to the World Intellectual Property Organization, patent submissions witnessed a 7.8% increase between 2014 and 2015. This upward trend in filings has persisted for almost two decades, leading to the expansion of intellectual property tools and information. With such a vast amount of information, extracting valuable data has become increasingly challenging. Traditionally, searches were conducted manually, relying solely on static search engines for assistance.

AI and Machine Learning (ML) have the capability not only to streamline the examination of extensive databases but also to store and leverage previously acquired data to improve the accuracy of future analyses. Additionally, AI can be deployed to gain insights into specific geographic or sectoral industries.

THE UNITED STATES OF AMERICA (USA)

AI advancements can be broadly categorized into two groups. The initial category comprises new and enhanced AI technologies, while the second involves established AI approaches. To qualify for a patent, an AI application or system must be innovative, non-obvious, and not derived from an abstract concept. A patent is attainable for an AI application or program that automates a task traditionally performed by humans through a distinctive and innovative process.

CHINA

China aims to emerge as the dominant force in global AI leadership by the year 2030. The prevalence of patents containing terms such as "AI" or "deep learning" has notably risen in China compared to other nations. China has surpassed the United States in the realms of finance, research, and innovation. For AI software to be eligible for patenting, it should be articulated through claims in the format of "medium plus computer program method" and equipment assertions, outlining components executed through a computer algorithm.

INDIA

India's patent laws are governed by the Patents Act of 1970, guiding the Indian Patent Office and the legal system in determining the patentability of a product or technique. The criteria for patentable subject matter include absolute novelty, an original idea, and industrial applicability.

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The assessment of the patentability of software advancements in India is influenced by Section 3(k) of the Patents Act, 1970, and the Guidelines for Examination of Computer-Related Inventions (CRIs) provided by the Office of the Controller General of Patents, Designs, and Trademarks. According to Section 3(k), a software program itself is not patentable. However, software inventions can be deemed patentable if they satisfy specific criteria.

- The invention improves on existing prior art in terms of technology; and
- By delivering a direct implementation or a sufficient technical impact of the fundamental program, the invention gives a technological remedy to a technical issue.

THE NEW DIMENSIONS OF 'INVENTION' AND 'INVENTOR'

Several criteria play a role in determining the approval or rejection of a patent. However, specific conditions must be satisfied to be recognized as an inventor. In the case of Townsend v. Smith in the United States, it was necessary for something to be conceived before it could be deemed a legally valid outcome of a discovery. The entire process of 'creation' must be undergone, meaning a definite idea must have been envisioned in the creator's mind before its actual implementation. Anything produced without prior contemplation cannot be deemed an invention, and the individual responsible for the creation would not be considered an innovators.[14]

There is a proposition that such forms of imaginative thinking can originate exclusively within conscious imagination with ideation notions. The removal of the "spark of enlightenment" requirement for patentability stands out as one of the most compelling reasons for incorporating AI in the classification of an "inventor." While the previous test acknowledged the need for conception to recognize something as an innovation, the U.S. Congress rejected this requirement, asserting that when an invention contributes to the advancement of scientific knowledge it operates on, the process by which it originated in the inventor's mind becomes irrelevant. Many AI algorithms, including AlphaGo, Watson, and others, execute operations such as providing solutions based on vast amounts of data, making such integration into the patent system a natural progression[15].

[14] Prof. A.Lakshminath&Dr.MukundSarda, Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research,CNLU LJ (2) (2011-2012)
[15] Tripathi, S., & Ghatak, C. (2018). Artificial intelligence and intellectual property law. Christ University Law Journal, 7(1), 83-98.

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The primary purpose of patents is to protect the inventor and uphold their commitment to a creation they may not wish everyone to use without due consideration. Detractors of extending patent protection to AI contend that computers lack this capacity, hindering individuals from forming clear intentions about how their invention might be utilized. This, in turn, undermines the fundamental objective of intellectual property rights.

CONCLUSION

The impact of patentability on the development of AI, the industry, and society is poised to be significant. With the swift progress of AI technology, it becomes crucial for key stakeholders, including patent experts and academics, to engage in dialogues aimed at determining how the patent system can effectively nurture innovation. Additionally, it is essential to implement adequate measures to prevent adverse social and moral consequences.

An in-depth examination of the current criteria for patent-eligible subjects is imperative to ascertain whether it could adversely affect AI or AI-driven innovations. If such negative impacts are identified, stakeholders must collaborate to identify regulatory changes that can align with the primary objectives of patent law.

The existing liability regulations lack provisions for situations where an AI independently causes a patent infringement. It is imperative to clearly outline the party held responsible and establish criteria for assessing accountability in such scenarios. These challenges require careful consideration. A fundamental objective of patents is to stimulate innovation, science, and technology. Given the swift evolution of AI, patent laws should possess adaptability and strive to achieve economic and societal benefits in the context of AI.

The outdated nature of existing global intellectual property (IP) legislation is proving inadequate in addressing the current landscape, diminishing the motivation for innovators and creators to safeguard their intellectual property rights. The consequences of this gap are extensive and could potentially impede the progress of contemporary society, affecting industries and overall social structure. To harness the benefits of this new era, navigating this uncharted territory is essential, necessitating an adjustment of the legislative framework to address the intricate issues surrounding ownership and patent protection in the digital age. Such adaptations need to be ongoing to keep pace with the evolving landscape.