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CAN ALGORITHMS BE PATENTED? THE BATTLE BETWEEN TECH GIANTS

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I. ABSTRACT

Significant changes in a variety of industries are being driven by algorithms, which are at the heart of advances in machine learning, artificial intelligence, and emerging technologies. However, their enormous worth is frequently contrasted with difficulties in intellectual property law, especially when it comes to figuring out if they qualify for patent protection. Algorithms are crucial in forming economies, civilizations, and industries in the current era of technological progress. Algorithms provide the foundation of numerous revolutionary technologies, ranging from financial applications to artificial intelligence. At the nexus of technology and intellectual property law, the patentability of algorithms is still a controversial topic. As crucial elements of contemporary inventions, algorithms propel developments in finance, artificial intelligence, and other cutting-edge fields. With an emphasis on how international frameworks and pragmatic tactics arc influencing the legal environment around algorithm patentability, this article offers a thorough overview and explores the wider ramifications for competitiveness, creativity, and society.

II. KEYWORDS

Algorithm, patent, intellectual property law, artificial intelligence, machine learning, emerging technologies.

III. INTRODUCTION

An algorithm[2] is a collection of guidelines or directives created to carry out a certain operation or address an issue. The problem with patent law is that algorithms are frequently viewed as mathematical formulas or abstract concepts, which are typically

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[2] Tim W. Dornis 'Artificial Intelligence And Innovation: The End Of Patent Law As We Know It' (Yale Journal of Law & Technology, 2020) <file:///C:/Users/Lenovo/Downloads/ssrn-3668137.pdf>

not covered by patents in many nations. Inventions that satisfy the requirements of novelty, non-obviousness, and usefulness are intended to be protected by patent law. However, algorithms frequently conflict with these requirements due to their abstract nature. Whether algorithms are innovations or just discoveries of natural principles is the main topic of discussion.

The fundamental problem is balancing the tangible requirements of patent law with the abstract nature of algorithms. In order to safeguard inventions, promote research and development, and give inventors financial incentives, patents are an essential instrument. However, under conventional intellectual property frameworks, algorithms are frequently categorized as unpatentable subject matter due to their mathematical and intangible nature. This has led to a legal limbo, especially in India, where algorithms "per se" are not patentable under Section 3(k) of the Patents Act.

When looking at the state of the debate, it is striking that patent offices around the world do not seem overly concerned. Of course, the most pressing issues—such as questions of right ownership and patent eligibility for "AI inventions"—have been recognized. Additionally, legal scholars and practitioners have begun discussing the effects of the increasing level of "AI supported" human inventors[3].

IV. NATURE OF ALGORITHM: ELUSIVE

Despite being essential to technological advancement, algorithms are infamously challenging to classify under the conventional frameworks of intellectual property law. Algorithms are conceptual tools rather than actual objects, and they are fundamentally abstract and mathematical in contrast to practical creations. The dual identity of algorithms is one of the main obstacles to their definition. They are, on the one hand, mathematical constructs—series of actions intended to carry out computations or address issues. However, they take on a useful shape when incorporated into hardware or software, which drives procedures and produces observable outcomes[4].

[3] Tim W. Dornis 'Artificial Intelligence And Innovation: The End Of Patent Law As We Know It' (Yale Journal of Law & Technology, 2020) <file:///C:/Users/Lenovo/Downloads/ssrn-3668137.pdf>
[4] Meghan J. Ryan 'SECRET ALGORITHMS, IP RIGHTS, AND THE PUBLIC INTEREST' (Nevada Law Journal,2020) <file:///C:/Users/Lenovo/Downloads/ssrn-3691765.pdf>

A looming patent war over the internet of things (IoT) has also generated a good deal of chatter. IoT technologies—which generally refer to interconnected physical devices that collect and exchange information over the internet.[5] The complex language of algorithms makes them even more elusive. Algorithms that are written in code or represented as mathematical formulas can seem abstract and unrelated to practical uses. But their influence is not merely theoretical. Algorithms drive e-commerce sites' recommendation engines, streamline supply chain operations, and facilitate ground-breaking medical and genetic discoveries.

The modular nature of algorithms allows them to be reused and repurposed in a variety of contexts. For instance, a search engine ranking optimization algorithm can be modified to increase smart grid energy efficiency. In Ferid Allani v. Union of India case, the court decided that if a computer program has a "technical effect" or a "technical contribution," it may be patented. "The focus should be on the content of the invention rather than the format to determine the patentability of CRIs," the court stated.[6]

V. CAN ALGORITHM BE PATENTED? LEGAL PERSPECTIVE

At the nexus of technology and intellectual property law is the question of whether algorithms are patentable. The jurisdiction and the particulars of the algorithm play a major role in the answer. Although algorithms are frequently not patentable as mathematical structures, their use in systems or applications that exhibit technological advances may be eligible for protection. According to Indian law, "algorithms per se" are not patentable under Section 3(k)[7] of the Patents Act. Nonetheless, protection is available for computer-related inventions (CRIs) that exhibit technical impacts, such as enhancing system performance or opening up new features. This stance was

[5] See, e.g., Scott R. Peppet, Regulating the Internet of Things: First Steps Toward Managing Discrimination, Privacy, Security, and Consent, 93 TEX. L. REV. 85, 89 (2014).
[6] Ferid Allani vs Union Of India & Ors on 12 December, 2019 <https://indiankanoon.org/doc/90686424/>
[7] Section 3(k) of the Indian Patents Act of 1970

strengthened by the historic Ferid Allani v. Union of India judgment[8], which permitted patents on algorithms that resolve technological issues.

A two-step approach for patent eligibility was established in the US by the Supreme Court's ruling in Alice Corp. v. CLS Bank International. In order to qualify as a patent-eligible application, algorithms must first pass the abstract idea test and then exhibit an original idea. Numerous algorithm patents have been declared invalid due to this strict approach, highlighting the necessity of measurable innovation[9].

Amazon, Apple, Facebook, Google, and Microsoft are the most valuable corporations in America and the leading suppliers of important products or services. They are so large and so critical to the economy that critics claim they are monopolies, able to exploit consumers, crush smaller competitors, and exert unacceptable levels of political power. In 2011, Apple sued Samsung for copying its iPhone design and setoff a "patent war" between the two technology companies that raged on in the courts and in the public square for years. Yet, the Apple versus Samsung patent war was not a new phenomenon.

In Blackberry Limited Case[10], the Delhi High Court has taken a strict stance, stressing that algorithms may not be patentable even when they are implemented on hardware if they don't make a substantial technical advance beyond the algorithm's execution. These cases highlight how crucial it is to show a distinct and significant technological impact in order to get patent protection for algorithm-based inventions in India.

VI. CHALLENGES

Algorithm patenting is not without its difficulties, despite these opportunities. In order to emphasize the algorithm's technical features and useful applications, applicants must carefully craft their claims. Patent standards vary by jurisdiction, which makes things more complicated and forces inventors to modify their

[8] Ferid Allani vs Union Of India & Ors on 12 December, 2019 <https://indiankanoon.org/doc/90686424/>
[9] Alice Corp. v. CLS Bank Int'l, 573 U.S. 208 (2014) <https://supreme.justia.com/cases/federal/us/573/208/>
[10] Blackberry Limited vs Assistant Controller Of Patents And ... on 30 August, 2024 <https://indiankanoon.org/doc/50904559/>

approaches for every market. Rapid technology improvements and court interpretations are driving changes in the global legal landscape surrounding algorithm patentability. In addition to promoting innovation, patent rules must guard against monopolization and guarantee fair access to key technologies.

1. **Novelty and Non-Obviousness:** Because of the speed at which technology is developing, it might be challenging to prove innovation and non-obviousness because prior art can appear quickly. It might be intimidating to navigate the complicated global patent ecosystem with its disparate standards and methods.
2. **Claim Drafting:** It might be difficult to draft patent claims that precisely and thoroughly outline the invention's scope, especially when dealing with intricate algorithms. Claims must be sufficiently detailed to prevent being judged invalid due to their excessive breadth.
3. **Technical Effect Requirement:** It can be difficult to demonstrate that an algorithm produces a certain technical result outside of abstract mathematical computations. It might be challenging to distinguish a distinct technological contribution when the boundaries between theoretical ideas and real-world applications are blurred.

VII. CONCLUSION

At the nexus of intellectual property law and technological innovation, algorithm patentability raises important issues on how to fairly access core technology while encouraging advancement. As the engine underlying machine learning, artificial intelligence, and other cutting-edge technologies, algorithms will play a crucial role in determining how societies and industries develop in the future. However, their adaptability and abstract nature pose problems for legal systems around the globe. It is this feature of property rights that is so important for patents. A patent gives its owner control rights over all embodiments of a claimed invention. Technology is unpredictable. R&D leads researchers in many (often unpredictable) directions[11].

[11] Henry E. Smith 'Institutions and Indirectness in Intellectual Property' (University of Pennsylvania Law Review, 2009) <https://scholarship.law.upenn.edu/penn_law_review/vol157/iss6/13/>

Nuanced methods for determining whether computer-related ideas are patentable have been established by the changing legal framework, especially in countries like the US and India. The idea of "technical effect" has become a crucial requirement, which calls for algorithms to exhibit a concrete contribution that goes beyond simple mathematical computations. Patent practitioners and innovators need to take a calculated approach. To guarantee a thorough and transparent understanding of the invention, this entails working with patent examiners, carefully crafting patent claims, and being aware of the particular needs of various countries.

The legal framework for algorithm patenting must change to ensure that innovation is encouraged and rewarded as technology continues to advance at an unparalleled rate. A favourable environment for the creation and application of cutting-edge technology can be established by legislators and courts by finding a balance between defending intellectual property rights and encouraging competition.