

## COPYRIGHTABILITY OF AI GENERATED WORKS- A CRITICAL ANALYSIS

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### Abstract:

Artificial Intelligence (AI) is one of the highly advanced technologies. It has potential to revolutionize all the sectors ranging from satellite operations to creation of art. AI is already utilized in various industries and one of them is the creative expression field. AI uses programming languages to involve in creation of artistic, literature and musical works. These works are similar to the works created by humans and in many cases the AI generated works cannot be distinguished from human created works. With AI technology becoming more and more advanced; the artistic works generated by AI are also significantly increasing. This implies that more and more of this artistic work are contributed to economy which requires certain protection from being copied. Law provides protection to the author and owner of the eligible works through copyright law which is one of the branches of Intellectual property law. At present the Indian legislation is silent on AI generated works. In this paper, the author has explained whether AI generated work can be provided copyright protection, how AI generated work differs from computer aided works and how granting IP protection to AI generation works will impact present legal system. The author has also tried to find whether AI can create work individually and whether the work would constate to be an original creation; the author has applied the doctrines of Sweat of brow theory and Modicum of creativity theory to analyze whether AI generated works falls under Original work. The author has also analyzed the position of other jurisdictions on this issue. Finally, the author provides suggestions for desired action required to be taken to in order to catch up with this new technology.

Keyword: Artificial Intelligence, Copyright, Creative work, Originality

### I. Introduction:

In this 21<sup>st</sup> century the devices around us have reached to newer scales in technological advancements. They have started to assist us in most activities of our day-to-day life, that it has become inalienable part of our lives. These devices are not only just machines which do mechanical works but also developed to an extent of performing most of the works which were once exclusively done by humans. This improvement is due to the *Machine learning* technology which empowers the device to learn from input data and develop new works from input data. Throughout the world AI technology is progressing at rapid pace. Artificial intelligence is the ability of a computer program or a machine to think and learn, they process the data provided as input and arrive at the programmed output. Presently A.I.'s have developed to the extent of creation and generation of works, for instance *Amper* an AI machine capable of music composition, production, and performance had been involved in production of Musical album<sup>1</sup>, similarly an AI *Aiva* has been involved in generation of Classical sound track<sup>2</sup>, AI's have also started to contribute in the creation of Art<sup>3</sup>, Sculpture<sup>4</sup>, Video Games etc. These are few examples which illustrate how Artificial Intelligence is involved in development of creative works. This leads us to the question of whether these AI generated works possess originality and can these works be protected through Copyright laws.

## II. AI and Copyrights:

### 2.1 Artificial Intelligence:

The complete vision of A.I. was first articulated by Alan Turing, in 1950 he authored an article "Computing Machinery and Intelligence", and through this article he introduced the

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<sup>1</sup> [Dom Galeon](https://futurism.com/the-worlds-first-album-composed-and-produced-by-an-ai-has-been-unveiled), "The World's First Album Composed and Produced by an AI Has Been Unveiled", *Futurism*, August. 21, 2017, available at <<https://futurism.com/the-worlds-first-album-composed-and-produced-by-an-ai-has-been-unveiled>> (last visited on Dec. 13, 2020).

<sup>2</sup> [Bartu kaleagasi](https://futurism.com/a-new-ai-can-write-music-as-well-as-a-human-composer), "A New AI Can Write Music as Well as a Human Composer", *Futurism*, March 9, 2017, available at <<https://futurism.com/a-new-ai-can-write-music-as-well-as-a-human-composer>> (last visited on Dec. 13, 2020).

<sup>3</sup> [Katy Cowan](https://www.creativeboom.com/inspiration/meet-ai-da-the-worlds-first-robot-artist-capable-of-drawing-people-from-life/), "Meet AI-Da: The World's First Robot Artist capable of drawing people from Life", *Creative boom*, June. 04, 2019, available at <<https://www.creativeboom.com/inspiration/meet-ai-da-the-worlds-first-robot-artist-capable-of-drawing-people-from-life/>> (last visited on Dec. 17, 2020).

<sup>4</sup> James Vincent, "This AI-generated sculpture is made from the shredded remains of the computer that designed it", *The Verge*, Apr. 12, 2019, available at <<https://www.theverge.com/tldr/2019/4/12/18306090/ai-generated-sculpture-shredded-remains-ben-snell-dio>> (last visited on Jan. 08, 2021).

concepts of Machine learning, reinforcement learning<sup>5</sup>, in 1956 McCarthy proposed the terminology 'Artificial Intelligence', later he founded LISP<sup>6</sup> an AI programming language which paved way for the modern sophisticated Artificial intelligence systems. The A.I. technology has since grown to carry on the activities such as *learning, decision making, problem solving* etc. Though there have been many attempts to define Artificial Intelligence the most inclusive and accepted definition is that Artificial Intelligence is the study of how to make computers do things which, at moment, people do better<sup>7</sup>.

## 2.2. AI Generated works:

With rapid development of technology, A.I. has been involved in creation of many aesthetical works such as Art, Paint, Musical work etc. The Artists and AI developers program the algorithms to "learn" an aesthetical work by analyzing set number of input data. After input of data the software then attempts to generate new works based on learning from input data<sup>8</sup>. In circumstances where there is human interference in creation of Art there is no dispute over the Intellectual property rights of these creations as the Creator or Producer has rights over it based on the type of creation, but for works that are generated without human interference as in the case of GAN the ownership of the work is disputable. Countries around the world have taken different stances based on their domestic laws and many countries are in ambiguous position over granting Copyrights to A.I. generated product. This also raises question whether A.I. can be given stature of legal personality.

According to Section 13 of the Copyright Act there are 2 basic requirements for granting Copyrights, they are:

1. The work should be an **Expression**.
2. And the expression should be **Original**.

In practice it remains unsettled over the dilemma of whether authorship and ownership rights can be given to Artificial Intelligence as it is a non-Juristic personality. In cases where the

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<sup>5</sup> Stuart Russell, Peter Norvig, *Artificial Intelligence: A Modern Approach* 45 (Pearson Education, London, 2007)

<sup>6</sup> *Ibid.*

<sup>7</sup> Elaine Rich, Kevin Knight, et al., *Artificial Intelligence* 3 (McGraw-Hill, New York, 1991).

<sup>8</sup> AI is blurring the definition of artist, *American Scientist*, Nov. 10, 2019, available at <<https://www.americanscientist.org/article/ai-is-blurring-the-definition-of-artist>> (last visited on Jan.11, 2021).

creation has been created using Human input, the work would fall on the ambit of *Computer-Generated work* and law provides protection for such computer-generated works but in circumstance where Human input is not present there can be two approaches either to completely deny copyright protection for such works and the other option would be to provide ownership rights to the creator or owner of the A.I. Technology<sup>9</sup>.

Difference between Computer Generated work and Artificial Intelligence generated work:

*Computer generated works are recognized in Indian Copyrights act<sup>10</sup>. The provision provides that when any literary, dramatic, musical or artistic work is generated by computer, the authorship rights would be vested with the person who causes the work to be created. The authorship of any work created using Computer, lies with the Author of the work and generally, the authorship lies with the person who made necessary arrangements for the creation of the art<sup>11</sup>. In cases where a work is created by Human with help of A.I., this provision could be used to gain rights over the work, but in cases where aesthetic work has been created by AI with no human interference the authorship of the Work cannot be provided through a single blanket solution and depends upon facts of user action<sup>12</sup> and policy of the country. At present A.I. technology such as Deep reinforcement learning systems are prevalent but they lack creativity and are dependent on human<sup>13</sup> but researchers have already started to work towards inventing a new set of sophisticated AI technologies known as Artificial General Intelligence (AGI) which exhibits Human like intelligence. This technology if comes to reality would be able to create works on its own without any human input and interference.*

### III. Originality of creation:

A.I. by itself cannot involve in creation of a work, it needs requisite program, input data and instructions to involve in generation of works. AI processes the data, analyses the instruction to produce a new work. Generally, AI uses a class of algorithm known as *Generative*

<sup>9</sup>Andres Guadamuz, Artificial intelligence and copyright, *WIPO*, October 2017, available at <[https://www.wipo.int/wipo\\_magazine/en/2017/05/article\\_0003.html](https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html)> (last visited on Jan 17, 2021).

<sup>10</sup> The Copyrights Act, 1957 (Act 14 of 1957), s. 2 (d) (iv).

<sup>11</sup> Supra note 9.

<sup>12</sup> See Supra note 9.

<sup>13</sup> Can AI ever learn without human input? These researchers think so, *Elsevier*, available at <<https://www.journals.elsevier.com/neural-networks/news/can-ai-ever-learn-without-human-input>> (last visited on Jan 19, 2021).

*adversarial networks* (GANs)<sup>14</sup> to generate artistic works. GANs help in generation of new works which will be then evaluated by Discriminatory adversarial networks. Section 13 (1) (a) of Copyrights Act stipulates that Copyright can be provided to Original literary works only<sup>15</sup>. The act does not define the term “Original”, but it is a settled position that Originality in expression of thought is required rather than the Originality of idea<sup>16</sup>. In the case of *Thomas v. Turner* (1886) the court decided that Copyright protection would not be given when there is trivial correction or alteration is made to pre – existing work<sup>17</sup>, similarly when an A.I. compiles the given set and arrives at new work based on the amount of correction and alteration made the work can be concluded as Original work or not. In the case of *Eastern Book Co v Navin J Desai*, the court held that when modifications are of trivial nature, copyright cannot be provided to that work<sup>18</sup>. Hence originality can be attributed to work that have major and important changes from the source work. There are 2 major doctrine on deciding whether a work can be termed as Original or not;

1. **Sweat of Brow doctrine:** According to this doctrine the Copyright is provided not based on originality of idea but based originality in expression of idea through efforts such as Selection, Judgment and experience. In the case of *Macmillan v. Cooper* (1923)<sup>19</sup>, it was held a compilation would attract Copyright if the author has used ‘selection, judgment and experience’, in case of A.I. generated work the A.I. on the instruction of the codes processes the set given data to arrive at new work through *Automated reasoning*, when an A.I. compiles these given sets it uses Selection and Judging process to create the new work.

2. **Modicum of Creativity doctrine:** According to this doctrine a work in order to be qualified as Original should contain at least minimum amount of intellectual creativity and Judgment involved in creation of that work. In case of A.I. generated works though Judgmental process is involved in selection of required features from input data, the intellectual creativity is disputable but A.I. exhibits Intellectual creativity in analysis and selection of relevant portion of data. Thus, on application of the two major doctrines on Originality it can be concluded that

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<sup>14</sup> See *Supra* note 9.

<sup>15</sup> The Copyrights Act, 1957 (Act 14 of 1957).

<sup>16</sup> RG Chaturvedi, *Iyengar's: The Copyright Act* 92 (Universal law publishing, Allahabad, 2010).

<sup>17</sup> *Id.* at 30.

<sup>18</sup> (2001) PTC 82(Del).

<sup>19</sup> (1924) 40 TLR 186.



works generated through Artificial Intelligence exhibits characteristics in order to be qualified as Original works.

#### IV. Granting Authorship rights to A.I.:

A.I. creates work through instructions and after providing certain data. When the work is done without any human interference, the work may be considered as work involving Selection, judgment and experience and in such cases, authorship right can be granted at theoretical level. There are certain rights which are provided by Copyrights law to an Author, these rights can be classified into 2 set of rights. One is Economic rights; the next set of rights is Moral rights. The economic rights subside with the Owner of the Work, but Moral rights are provided exclusively for the author of the work. Section 57 of the Copyright act provides for Moral rights, these rights are independent from ownership of the work. Here the author is provided with right to claim authorship of work in case of Publication etc., the author is also provided with right to restrain or claim damages in case of any mis-happenings to the work. In case of A.I. being given authorship rights the A.I. cannot be able to exercise the Moral rights which are generally provided to the author. One of the major arguments against granting authorship rights to A.I. is that the A.I. generated works are mere *Compilation* and that the work lacks Originality. But these types of works are recognized as work of compilation and the person who collects and arranges the entire work would be generally considered as Author of the work<sup>20</sup>. According to legal personality theory rights and obligations can be provided only to Legal subjects who has own will whereas it cannot be vested on animals and non-living materials they are mere objects of law. Hence though IP law is favourable for giving authorship rights to AI but as AI is not subject of law the IP laws has to be updated over this issue.

##### 4.1. Author, Owner Dilemma:

When the Author does the work for the consideration of a person, i.e. Contract of service the employer gets the Ownership of the work and when the work is done during the course of employment the Employer automatically gets ownership of the Work whereas the author can claim for authorship rights. But in case of A.I. dilemma arises about whether who should be given ownership rights as it is not involved in employment but in case of economic-work

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<sup>20</sup> V K Ahuja, Law of Copyright and Neighboring Rights 54 (LexisNexis, Mumbai, 2007)

environment, the ownership rights can be granted to the Owner or user company of the A.I. as these work and related ownership rights would be the reason for purchasing the A.I. and if not for providing these rights to them the sole purpose of purchasing the A.I. would be defeated causing economic loss. Hence in such circumstance considering the economic purpose for which the AI was purchased and considering the legal personality theory, AI cannot be provided with Ownership right but granting authorship rights can be considered upon.

## ***V. Legal Position in other jurisdictions:***

### ***5.1. Legal position in United Kingdom:***

The copyright law in UK is similar to that of copyright law practiced in India. According to Section 9(3) of the CDPA, authorship rights are provided to the person who makes necessary arrangements for the creation of the work<sup>21</sup>. This is similar to *Section 2(d) (iv) of the Indian Copyrights act, 1957, which recognizes Computer generated works*. This can be interpreted as person who made necessary arrangements can be provided with Authorship rights. But the term person who made necessary arrangements is vague and can be used by both the AI developer as well as present possessor of AI who would have made necessary arrangement by feeding data and instructions *and the technology is just used for mere processing of input data*. Hence this could not be used to conclude whether AI generated works can be given copyright protection.

### ***5.2. Legal position in United States of America:***

According to US copyright Act, 1976 a work has to be created by Author in order to attract Copyright protection. According to § 306 of Compendium of U.S. Copyright Office Practices, Third Edition<sup>22</sup>, Human authorship is required in order for registering a work as original work. It protects works only by intellectual labor which is found in creative powers of the mind. One of the prominent examples is the ruling of “Naruto” monkey selfie copyright dispute case wherein the monkey had clicked a picture of selfie using unattended camera of British wild life photographer, with regard to requirement of Human intellectual

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<sup>21</sup>UK Copyright, Designs and Patents Act, 1988, s. 9(3).

<sup>22</sup> U.S. Copyright Office, Compendium of U.S. Copyright Office Practices, 2017, s.306.

input is the Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author. Similarly, US Supreme Court in an 1879 case held that Writings are found only in Creative powers of mind<sup>23</sup>. Hence any work which is generated by AI individually cannot be granted Copyright, but when a work is created using human input that person would be provided with authorship rights.

### 5.3. *Legal position in Japan:*

According to Article 2(a) the term of Japanese Copyright Act, "work" has been defined as a production in which thoughts or sentiments are expressed in a creative way<sup>24</sup>, this restricts AI generated work from copyright protection as thoughts or sentiments are absent in AI generated it exhibits only Judgmental skill and not thoughts or emotion. But whereas when an work is created by AI through human input with regard to any of above mentioned thoughts the work would qualify for copyright protection.

### **VI. Economic aspect:**

Granting certain set of protection to A.I. generated works is an important and required action because the economic nature involved in creation, selling, distribution of economic valuable works needs to be recognised. A.I. is capital extensive technology which drives technological advancement towards future and conferring authorship and ownership rights to A.I. generated work is required to meet the expenses involved which is essential for the investors to recover the investments made towards creation and setting up Artificial intelligence technology. Artificial intelligence is already being used to generate works in music, art, journalism, creative works etc. These economic valuable goods require protection from being copied and used. Not providing adequate legal protection would have chilling effect on the development of automated systems. The A.I. technology is not only capital extensive but also knowledge extensive technology which requires great effort to be taken in order to develop

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<sup>23</sup>100 U.S. 82 (1879)

<sup>24</sup>Natsuko segawa, 'JapaneyesrightsprotectionforAIartwork', *Nikkei: Asian review*, April. 15, 2016, available at <<https://asia.nikkei.com/Economy/Japan-eyes-rights-protection-for-AI-artwork>> (last visited on Feb. 03, 2021).



such technology. Hence protection of A.I. developed work would encourage development of such technology in future<sup>25</sup>.

## VII. Recommendations and Conclusion:

The authorship and ownership of Works done by A.I. can be classified into 2 parts based on interference of Human,

1. When the work is **created by AI based on human input** apart from Source code and Data. In this case the Ownership rights of the work can be vested with Human who provided the Input. Similarly, the authorship rights can be provided to person who made the necessary arrangement.

2. Where work is **created by AI without human input**, in such cases, the Ownership rights of the work can be provided to the Human/ Company who owns the AI and the Authorship right can be provided to the A.I. In such a case there requires certain modifications in Copyright Act over Economic rights and moral rights of the Author, as AI is not a separate entity to get involved in economic transaction and is not a juristic personality it cannot enforce its rights in case of infringement. In such cases 'next friend principal' could be adopted to protect the interests vested with A.I.

Though at present AI does not create a work individually without any human intervention, with rapid development of technology the status quo may not remain the same in near future. Hence pro-active steps may be taken by legal fraternity in order to protect the rights of the stakeholders and to regulate and drive the technology towards better innovations.

WORDS SPEAK

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<sup>25</sup>Ryan Abbott, "I Think, Therefore I Invent: Creative Computers and the Future of Patent Law" 57 *Boston College Law Review* 1079 (2016).