

AUTHORSHIP OF AI GENERATED WORKS UNDER THE COPYRIGHT ACT, 1957: AN ANALYTICAL STUDY

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ABSTRACT

With the recent development of artificial intelligence (AI), increasingly creative works have been created by non-human authors. AI is now capable of producing complex creations which becomes indistinguishable from works made by human beings. Traditionally the authorship of copyright in computer generated works was not in question because the program was merely a tool that supported the creative process, very much like a pen and paper. However, with the latest types of artificial intelligence, the computer program is no longer a tool and it actually makes many of the decisions involved in the creative process without human intervention. Section 2(d) of the Copyright Act, 1957 in India defines 'author' in the context of different copyrightable works but does not make any reference to the legal personality of the author. The present study explores the feasibility and implications of this assertion. It addresses the scope of the definition of 'person' in the Copyright Act, 1957 and examines whether AI can be considered as author. Consequently it analyses the implications of including AI as author of copyrighted work. It further analyses the implication of granting authorship to AI and the problems of handling legal responsibilities arising out of such authorship. Therefore, the study

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contends that AI cannot be considered as author since they will not be able to discharge legal responsibilities. Drawing analogy from the 'Lavery' decision, this paper argues that in the absence of having the legal capacity to claim remedies for copyright infringement, the argument of extending copyright protection to AI generated works will fail.

Keywords: *copyright, traditional, legal responsibility, lavery*

I. INTRODUCTION

The basic principles of copyright law has constantly been challenged by new technologies. There are several situations where traditional concepts of 'originality' or 'creativity' of works as requirements for copyright protection appear difficult with the computer generative process behind certain types of work.¹ Technology has been used to create authorial works for a considerable period of time. Now, the question of artificial creativity, alongside the issue of artificial intelligence have acquired significant importance in the intellectual property rights regime.

When computers are used by human authors as instruments in making of works of authorship the resulting works are generally referred to as Computer Assisted Works (CAWs). Here, technology is merely a tool for the author, like a brush in the hands of a painter. Examples of computer assisted works include the use of word processing programs to produce texts, computer animation to make animation movies or digitise manually created drawings, etc. CAWs does not pose any problematic issue from a copyright perspective. However, in certain cases technology can supplant the human creator in respect of creativity. In case of Computer Generated Works (CGWs) by which AI-enabled machine learning software is the real originator of the final works. In CGWs the programmer establishes the rules and instructions according to which the program functions. The input given by the programmer, or by the software's user, may also entail feeding the

¹ Maggiore, M., Artificial Intelligence, computer generated works and copyright. In *Non-Conventional Copyright*, EDWARD ELGAR PUBLISHING (2018).

machine general parameters. However, unlike CAWs the creative outcome shall bear no causal link with the programmer or the software's users. In CGWs the creative choices are akin to random – or at least unpredictable from a human perspective – as they depend on the machine and not on the humans behind it.²

The focus of the paper is on addressing the issues pertaining to authorship of protectable works created by the use of computers and artificial intelligence (AI), i.e., computer generated works. It starts with the recent illustrations of creative works generated by AI enabled machine learning computers. The next part of the paper traces the concept of authorship as creative human being in the existing copyright laws. After that the theoretical justification for AI-generated work is discussed in respect of revolutionary, romantic and modernist school. Subsequently, the position of non-authorship of protectable works have been analysed in the legal framework of international copyright instruments, and in the respective copyright legislations of European Union, United States of America and India. After that the paper highlights the key areas of inadequacy of the present copyright law to deal with AI generated authorship. The paper concludes that the existing copyright law does not recognise non-human authorship and because of lack of personhood, the argument of extending copyright protection to AI generated works will not succeed. Finally, it is asserted that copyright law needs to be changed or re-evaluated to determine how laws should address computer enabled AI generated works.

II. TECHNOLOGY, AI AND CREATIVITY

In 1843, Lady Ada Lovelace, an English mathematician, considered the world's first computer programmer, wrote that a machine could not have human-like intelligence as long as it only did what humans intentionally programmed it to do. According to Lovelace, a machine must be able to create original ideas if it is to be considered intelligent.³ Modified in 2001,

² Ibid.

³ Kapoor, P., 2015. Approaches to measuring the intelligence of machines by quantifying them. *International Journal of Advanced Research in Computer and Communication Engineering*, 10(4), pp. 81-83.

the Lovelace Test proposes a way of scrutinising this idea. A machine can pass this test if it can produce an outcome that its designers cannot explain based on their original code.⁴ Till now, no AI has successfully been able to pass this test. However, following is a list of works that AI has successfully produced which if generated by a human would be considered to be creative and original.

a. Painting

The Next Rembrandt project⁵ is a remarkable manifestation of the wonders of AI in this respect. The goal of the project was to have a machine produce a brand new Rembrandt painting as if the Dutch genius himself had painted it. By analysing the statistical properties of known Rembrandt paintings on the level of high resolution photographs and depth images, a new painting was produced by 3D printing. The painting had similar properties as the Rembrandt paintings but it was clearly a new painting in the sense that it was not a copy or a variant of an existing one, at least in any obvious way. However the question arises here is, who is the author of the work and will that work merit copyright protection? Will it be sufficient to attribute the authorship to the researchers who extracted data from Rembrandt's paintings and programmed them into machine?

b. Story writing

Another example of AI induced creativity can be Ray Kurzweil's Cybernetic Poet, which by using a type of machine-learning logic, distilled the poetic style of a number of authors and produced its own original poem. Recently, a Japanese AI wrote a novel called "The Day a Computer Writes a Novel" that almost won a literary prize in Japan. The research team first wrote a novel of their own and then broke it down into its component parts. Then the AI involved itself, arranging the parts it had been given to create "another story

⁴ Ibid.

⁵ <http://www.nextrembrandt.com>

similar to the sample novel,” building it from words, phrases, characters and plot outlines that had been fed into it.⁶

c. Music

More examples include the ‘Flow machines’ tool which can extract patterns from a database music and create new compositions in the style of a chosen artist of genre. Significant adjustment of (human) musicians is still needed to reach a satisfactory end result. This includes adding tracks, writing and producing lyrics and mixing.⁷

III. AUTHOR AS THE CREATIVE HUMAN BEING

“When contemplating the creative, images of Beethoven, Joyce and Monet comes to mind, not images of machinery.”⁸ This statement is the essence of copyright. Across the world the principles of copyright law have revolved around the ‘author’ as the flesh and blood individual behind the work, by displaying a ‘human’ infrastructure that pays tribute to the ‘ideology of authorship’ and is rooted in the Romantic idea that associates human genius with authorship.⁹

The historic conception of authorship, forming the original structure of most of the copyright laws in the world, formally has not changed. The author is idealised as a creative, lone artist, inspired directly from nature. The fundamental principle of copyright law, i.e., the ‘idea-expression dichotomy’ reflects the conception of human author as the subject of copyright law. Works always originate from ideas, which will not be protected by copyright until they are expressed in a form. The issue is particularly relevant for expressions created by AI software where the computer generates the

⁶ <https://slate.com/technology/2016/03/a-i-written-novel-competes-for-japanese-literary-award-but-humans-are-doing-the-work.html> (Last accessed on 15.1.2019)

⁷ <http://www.flow-machines.com/ai-makes-pop-music.com>

⁸ Clifford, R.D., 1996. Intellectual property in the era of the creative computer program: Will the true creator please stand up. *Tul. L. Rev.*, 71, p.1675.

⁹ Jaszi, P., 1991. Toward a theory of copyright: The metamorphoses of authorship. *Duke L J*, p.455.

expression even though it might not have originated the idea. The issue here is the difficulty in identification of who (the computer or the individual) has generated what (the idea or the expression). Consequently, if the idea and the expression cannot be readily distinguished, then copyright protection should not be available.¹⁰

The problem related to authorship and right to ownership of copyright protected works arises when those works reflect creative choices attributable to machines. The dilemma stems from the human centric conception of copyright law that is structured around the idea that only human beings are the source of creativity and may produce original works in a copyright sense. The settled position is that the author is the natural person making the creative choices and as such, infusing her own personality into a given work. With different nuances, the meaning of 'author' or 'artist' traditionally sits at the root of copyright law. In the jurisdiction of European Union, 'originality' is interpreted as the 'author's' own intellectual creation. This understanding establishes a bi-univocal relationship between the act of creating a copyrightable work and a human acting as its creator so that there is no originality and hence no copyright can subsist where there is no natural person behind a work.¹¹

IV. THEORETICAL JUSTIFICATIONS FOR AI-GENERATED AUTHORSHIP

Human authorship may not be an 'a priori' of the copyright law.¹² It is indeed nothing more than it should obviously be expected to be – a legal construct designed around policy considerations. This assumption may find support by considering how copyright law deals the level of creativity required for works to be protected. The present framework of copyright law appears to revolve around the 'creative human author'. However, there is uncertainty regarding

¹⁰ Butler, T.L., 1981. Can a computer be an author-copyright aspects of artificial intelligence. *Comm/Ent LS*, 4, p.707.

¹¹ Maggiore, M., 2018. Artificial Intelligence, computer generated works and copyright. In *Non-Conventional Copyright*. Edward Elgar Publishing.

¹² Ibid.

what qualities a person should have to be recognised as author. Neither national, nor international copyright laws provide a definite definition of authorship. The laws are partly silent regarding whether non-humans can qualify for authorship and left the issue open for to judicial interpretation. Since technological developments in AI bring new challenges to the traditional concepts of copyright law, it raises the fundamental question of whether there is a need to shape the law and its interpretation to promote and not stifle technological development. Addressing this crucial and fundamental question will require us to step back and look at the following three scenarios:

a. The Revolutionary School

One possibility to regulate AI generated innovations could be to include in the law an explicit provision that allows non-human authorship. This solution will follow a 'property-centred' type of approach in the sense that it will allow IPR entitlements to any innovation produced by non-humans, as far as the other protect ability requirements are met. From a 'pure' legal perspective, such approach will have the consequences of giving legal personhood to a non-human. Copyright law assumes that the first author is the first owner of the IPR. Opening the door for AI to become authors will make a non-human a right holder. This mechanism, does not aim at incentivizing the machine, but some of the human stakeholders that are part of the innovation process.

b. The Romantic School

From a legal point of view, the Romantic school follows the idea that the existing IPR framework should be interpreted so to allow only natural persons to be authors in all categories. This approach will categorically deny IPR entitlement on non-human produced innovations. This school considers several important factors, inter alia the fact that developers might actually build AI systems exactly for the purpose of creating artistic works in certain specific ways that will not be possible to be done by human beings

themselves. In these cases what incentivise humans to develop AI systems is the prospect of having exclusive rights on the output. This could be even truer in cases where the AI machine per se will not be able to attract IPRs, but the outcome will.¹³

c. The Modernist School

Finally, a way to approach the issue could be to include in the law a provision stating that only 'natural' persons can be authors and at the same time, create a rule according to which the natural person(s) behind the arrangements necessary for the creation at stake should be considered as the author. The Modernist school follows a similar approach that have been embraced in the UK with regard to computer generated works, which provides that "in the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."¹⁴ Such provision undoubtedly provides that non-humans cannot be authors and that creations produce by non-humans cannot exercise IPRs.

V. POSITION OF NON-HUMAN AUTHORSHIP OF PROTECTABLE WORKS IN DIFFERENT JURISDICTIONS

Copyright subsists in original work of authorship and therefore authors are the starting point and central focus of any discussion on copyright law. The question about the role of authorship in copyright has certainly been made more persistent with the growth of creation of CGWs. The major concern is who is to be conceived as the author when the work is created by a non-human author. This segment of the article will analyse the definition of author in different jurisdictions and will attempt to explore whether non-human authors can be considered as authors in copyright law.

¹³ Ballardini, M R., He, Kan and Roos, T., 2019. AI generated content: authorship and Inventorship in the age of artificial intelligence. In *Online Distribution of Content in the EU*. Edward Elgar Publishing.

¹⁴ Copyright, Designs and Patents Act, 1988, section 9 (3).

a. Authorship of protectable work under international copyright instruments

The three major international treaties relevant to copyright law are the Berne Convention,¹⁵ the WIPO Copyright Treaty and the TRIPs Agreement.¹⁶ Although the term ‘author’ is often mentioned and used in the text of the Berne Convention, it is not explicitly defined.¹⁷ As explained by Goldstein and Hugenholtz, “the consequence and doubtless also the cause of the silence of international agreements..... is that countries vary sometimes widely in the answers they have given.”¹⁸ It can be inferred that legal scholarship seems oriented in concluding that only natural persons can be regarded as authors. Although Berne Convention does not explicitly set an originality requirement, this already existed in national copyright laws at the time of drafting the Convention. According to Ricketson, it was clearly understood that this was also a requirement for the purposes of protection under the Convention and inherent in the phrase, ‘literary and artistic works’ in Article 2. The condition that a literary and artistic work possesses a sufficient degree of originality postulates, “the need for the author to be a human being and for there to be some intellectual contribution above and beyond the simple effort (‘sweat of the brow’) or what may be called mere ‘value in exchange’.”¹⁹

The Berne Convention indirectly specifies one concept of author by stipulating that if the author’s name is indicated he/she shall be regarded as the author of a literary or artistic work in the absence of proof to the contrary.²⁰ Rather than defining the author, this rule aims at offering some certainty and reducing the burden of proof for right holders. It can be argued

¹⁵ Berne Convention for the Protection of Literary and Artistic Works as amended on September 28, 1979.

¹⁶ Agreement on Trade-Related Aspects of Intellectual Property Rights, 1994 (TRIPs).

¹⁷ Ginsburg, J.C., 2002. The concept of authorship in comparative copyright law. *DePaul L. Rev.*, 52, p.1063.

¹⁸ Hugenholtz, P.B. and Goldstein, P., 2010. *International Copyright: Principles, Law and Practice*. Oxford University Press.

¹⁹ Ricketson, S., 1991. The 1992 Horace S. Manges Lecture—People or Machines: The Bern Convention and the Changing Concept of Authorship. *Colum.-Vla JL & Arts*, 16, p.1.

²⁰ Berne Convention, Article 15 (1)

that the author then can be a natural or legal person, because both can exhibit their names on the work. Both the WIPO Copyright Treaty and the TRIPs agreement remain silent with regard to the definition of ‘author’, even though both treaties require compliance with the Berne Convention.²¹

b. Authorship of protectable work in European Union

Under EU legislation AI authorship seems equally doubtful. At the EU level, with the exception of cinematograph and audio-visual works, computer programs and databases, copyright directives do not really address the issue of whether only human beings can be regarded as authors. Article 1(5) of Directive 93/83²² (the Sat-Cab Directive) states that for cinematographic or audio-visual works the principal director shall be considered as its author or one of its authors, leaving Member States free to provide for others to be considered as co-authors. Article 2(1) of Directive 2009/24²³ (the Software Directive) provides that the author of a computer program shall be the natural person or a group of natural person who has created the program or, where the legislation of Member State permits, the legal person designated as the right-holder by that legislation. Article 4(1) of Directive 96/9²⁴ (the Database Directive) admits the possibility that the author of a database can be not just the natural person or group of natural persons who created the base. Directive 2006/116²⁵ (the Term Directive, sub recital 14) refers the calculation of the term of copyright protection to the life of the author as ‘physical persons’.

In *Infopaq International A/S v Danske Dagblades Forening*,²⁶ the Court of Justice of the European Union extended the interpretation of originality as

²¹ WIPO Copyright Treaty, Article 1; TRIPs, Article 2(2).

²² Council Directive 93/83/EEC of 27 September 1993.

²³ Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer program.

²⁴ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases.

²⁵ Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights.

²⁶ Case C-5/08 *Infopaq International A/S v. Danske DagbladesForening* [2009] ECLI:EU:C:2009:465.

“author’s” own intellectual creation to all categories of work and also held that copyright protection should apply only to a subject matter which is original in the sense that it is the author’s own intellectual creation. In other important decisions,²⁷ CJEU observed that ‘author’s own intellectual creation’ means that the author should “stamp his personal touch or reflect his personality in the sense that he expresses his creative abilities in original manner by making free and creative choices.”²⁸ Evidently, AI will fail this test as it will not be classed as an author and the work it creates will not be considered original creative works.²⁹

c. Authorship of protectable work in United States of America

As per the United States Copyright Act of 1976, for the purpose of copyright protection a work should be created by an ‘author’.³⁰ The statute does not define the term ‘author’. However, recent litigations in the US have looked into the issue of human and non-human authorship. In *Naruto v. Slater* (also known as ‘Monkey Selfie case’),³¹ the US District Court of the Northern District of California dealt with the question of animal ownership in photographic works, where a Celebs crested macaque named Naruto had used a photographer, named Slater’s camera to take a picture of itself. In 2016, the Court dismissed the action and refused the monkey’s claim for authorship of the photograph, as the copyright legislation majorly speaks of a ‘person’ involved in the creation of the work and that for a work to qualify as a copyright protected work it has to be created ‘..... created by a human being.’³² Representing Naruto, PETA appealed against the decision of the

²⁷ *Football Association Premier League Ltd et al v. QC Leisure et al* [2011] ECLI:EU:C:2011:631; *Eva-Maria Painer v. Standard Verlags GmbH et al.* [2013] ECLI:EU:C:2013:138; *Football Detaco Ltd et al., v. Yahoo! et al.* [2012] ECLI:EU:C:2012:115.

²⁸ He, Kan. 2016. The concept of originality in EU and China. In *The governance of IP in EU and China*. Edward Elgar.

²⁹ Ihalainen, J., 2018. Computer creativity: artificial intelligence and copyright. *Journal of Intellectual Property Law & Practice*.

³⁰ 17 United States Code, section 102.

³¹ *Naruto v. Slater*, case no. 15-cv-04324-WHO (N.D. Calif. 2016)

³² *Ibid.*

district court, the case has been settled out of the court in 2017.³³ This case follows the US Copyright Office's Compendium,³⁴ which expressly states that 'to qualify as a work of 'authorship' a work must be created by human being.³⁵ Works that do not qualify this requirement are not copyrightable. The Office will not register works produced by nature, animals or plants.³⁶ This Compendium specifically referred to 'a photograph taken by a monkey' as an instance of work that cannot be protected. In this the District Court referred to the Compendium to conclude that Naruto cannot be the author of a protectable work.

The issue raised by the Monkey Selfie case highlights the bigger question of whether copyright protection can be made available to non-human authors.³⁷ The Compendium of the US Copyright office suggests that protection is not available to 'works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author.'³⁸

d. Authorship of protectable work in Indian Copyright Act, 1957

Section 2 (d) of the Copyright Act, 1957 in India defines the term "author" in the context of several copyrightable work but does not make any reference to the legal personality of the other.³⁹ Section 17 provides distinct instances of ownership of protectable work when a work has been made under a contract of service or apprenticeship for artificial persons such as the government and

³³ Toliver, Z. Settlement Reached: 'Monkey Selfie' case broke new grounds for animal rights, see <https://www.peta.org/blog/settlement-reached-monkey-selfie-case-broke-new-ground-animal-rights/>

³⁴ U.S. Copyright Office, Compendium of U.S. Copyright office Practices, section 101 (2017).

³⁵ Burrow-Giles Lithographic C. 111 U.S. at 58.

³⁶ U.S. Copyright Office, Compendium of U.S. Copyright office Practices, section 101 (2017).

³⁷ Ramalho, A., 2017. Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems.

³⁸ U.S. Copyright Office, Compendium of U.S. Copyright office Practices, section 101 (2017).

³⁹ Copyright Act, 1957, section 2 (d) "author" means,—(i) in relation to a literary or dramatic work, the author of the work;(ii) in relation to a musical work, the composer;(iii) in relation to an artistic work other than a photograph, the artist;(iv) in relation to a photograph, the person taking the photograph; (v) in relation to a cinematograph film or sound recording, the producer; and (vi) in relation to any literary, dramatic, musical or artistic work which is computer-generated, the person who causes the work to be created.

international organizations. The absence of reference of any artificial person from section 2 (d) indicates primarily that only natural persons can be protected as authors under the Copyright Act, 1957.⁴⁰ Under section 2(d)(vi) of the Copyright Act, 1957, in relation to any literary, dramatic, musical or artistic work which is computer-generated, “the person who causes the work to be created.” In this definition, the key issue is the usage of the expression ‘the person who causes the work to be created.’ Determination of who ‘causes’ a work to be created is a question of the proximity of a natural or legal person to the creation of the ‘expression’ in the content in question. The more closely or directly a person is involved in creating the ‘expression’, the more he or she contributes it and the more likely he or she is to qualify as a person ‘who causes the work to be created.’ Consequently, the existing legal framework under the Copyright Act, 1957 may not effectively deal with creation of works where the actual creator or a contributor of the ‘expression’ is not a human or legal person.⁴¹

Justice Nandrajog in *Amarnath Sehgal v. Union of India*⁴² recognized the moral rights of an author under section 57 of the Copyright Act, 1957 and observed that the author has a right to preserve, protect and nurture his creations through his moral right. He further stated that the rights of paternity, preservation of integrity and that of retraction came to the author from the fact that “a creative individual is uniquely invested with the power and mystique of original genius, creating a privileged relationship between a creative author and his work. In this case, the Court’s emphasis on the individual while discussing an author’s moral rights suggests that artificial persons were meant to be excluded from the concept of authorship. Therefore, when it comes to works that are created by AI, their authorship will be contentious under Indian copyright laws. Undoubtedly, a human’s

⁴⁰ Basheer, S. Artificial intelligence and intellectual property. See <https://spicyip.com/2016/12/artificial-intelligence-and-intellectual-property-mind-the-machine.html> (Last accessed on 02.02.2019)

⁴¹ Nishith Desai Associates, *The Future is here: Artificial Intelligence and Robotics*. See http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research_Papers/Artificial_Intelligence_and_Robotics.pdf (Last accessed on 01.02.2019)

⁴² 2005 (30) PTC 253 Del.

involvement is required in kick-starting the AI's creative undertaking, however the process to determine who the author or owner is when the AI steps in to play a pivotal role in the creation of the work, continues to remain a grey area.⁴³

VI. INADEQUACY OF COPYRIGHT LAW TO DEAL WITH AI-GENERATED AUTHORSHIP

The Monkey Selfie case, discussed previously in this paper, raises important issues that will likely become more sensitive in the foreseeable future.⁴⁴ The question of non-human authorship is not only about whether a monkey can be the owner of copyright in the photographs that it takes, but whether increasingly sophisticated technologies, under the umbrella of artificial intelligence, will result in the broadening of the understanding of what an author is. The law as it is currently structured cannot vest ownership of the copyright in a computer generated work in the work's author-in-fact because the work's author-in-fact has no legal personhood.⁴⁵

In *People ex rel Nonhuman Rights Project, Inc v. Lavery*,⁴⁶ the Court held that a chimpanzee was not a 'person' entitled to the rights and protections afforded by the writs of habeas corpus because animals, unlike human persons, corporations and municipal entities could not bear any legal duties, submit to societal responsibilities or be held legally accountable for their actions; the incapability to bear any legal responsibilities and societal duties rendered it inappropriate to confer upon chimpanzees legal rights. Following this precedent, in *Matter of Nonhuman Rights Project, Inc v Stanley*⁴⁷ the court ruled that ascribing legal personhood to chimpanzees is 'inappropriate as they are incapable of bearing any legal responsibilities and societal duties.

⁴³ Nishith Desai Associates, *The Future is here: Artificial Intelligence and Robotics* See http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research_Papers/Artificial_Intelligence_and_Robotics.pdf (Last accessed on 01.02.2019)

⁴⁴ Rosati, E., 2017. The Monkey Selfie case and the concept of authorship: an EU perspective. *Journal of Intellectual Property Law & Practice*, 12(12), pp.973-977.

⁴⁵ Bridy, A., 2012. Coding creativity: copyright and the artificially intelligent author. *Stan. Tech. L. Rev.*, p.5.

⁴⁶ [2014] 124 A D 3d 148.

⁴⁷ [2015] NY Slip Op 31419 (U).

The capability of rights and duties is the sole attribute that is exclusively considered by courts in determining legal personality of any entities, in the absence of any statutory provisions defining personality of any beings.⁴⁸

An analogy can be drawn here between animals and AIs as non-human authors and because of lack of capacity to hold rights and duties neither of them can be considered as authors for the purpose of protectable works. Even if the concept of non-human authors gets recognition in copyright law the bigger questions which arise here is, who will claim and enforce the economic and moral rights of the non-human author will be exercised? who will assign and license the economic rights? how an infringement suit will be filed in a court of law in case of violation of copyright and who will be entitled to the remedies? Although we may be fast approaching a time when AIs achieve the status of legal personhood, that time is not yet here.⁴⁹ Logically it can be inferred that the programmer of computer generated software is the logical owner of the copyright in the works generated by his or her software. After all, he or she is the author or author of the works.⁵⁰

In United States in 1974, the Congress created the National Commission on New Technological Uses of Copyrighted Works (CONTU) in 1974, the imminent problem of computer authorship was no closer to being solved.⁵¹ CONTU was asked to study the creation of new works with computer assistance. In its final report CONTU concluded that the development of an AI capable of independently creating works was “too speculative to consider at this time.”⁵² The Final Report channelled Ada Lovelace’s critique of the Analytical Engine: “The Commission believes that there is no reasonable

⁴⁸ Solaiman, S.M. 2017. Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy. *Artificial Intelligence and Law*.

⁴⁹ Boyle, J., 2011. Endowed by Their Creator?: The Future of Constitutional Personhood. *Constitution*, 3, pp.194-213.

⁵⁰ Bridy, A., 2012. *Coding creativity: copyright and the artificially intelligent author*. STAN. TECH. L. REV., p.5.

⁵¹ National Commission on New Technological Uses of Copyrighted Works, Final Report 4 (1978).

⁵² Ibid.

basis for considering that a computer in any way contributes authorship to a work produced through its use. The computer, like a camera or a typewriter, is an inert instrument, capable of functioning only when activated either directly or indirectly by a human. When so activated it is capable of doing only what is directed to do in the way it is directed to perform.”⁵³ In its final recommendations to Congress, CONTU recommended that there be no change to the copyright law in consideration of new works produced through the application or intervention of automatic systems.⁵⁴

The most significant hurdle to obtain copyright control and accountability for a work generated by an AI system is the principle of human authorship.⁵⁵ It is not clear that whether copyright law across all the jurisdictions explicitly requires the author of a creative work to be human.⁵⁶ The US Copyright office, by publishing “The Compendium II of Copyright Practices,”⁵⁷ has revealed the attitude of the Copyright Office of the US and presents a significant hurdle for humans seeking to claim copyright protection in works not directly authored by them. In *Urantia Foundation v. Maaherra* for support,⁵⁸ regarding the copyright of a text supposedly authored by “celestial beings”. The Ninth Circuit Court mentioned in the dicta that copyright law does not explicitly “require human authorship”.⁵⁹ However the case also be interpreted to mean that the statute does not really protect works authored by non-humans. The court again observed that “it is not creations of divine beings that the copyright laws were intended to protect.”⁶⁰ The court required that “some element of human creativity must have occurred in order for the Book to be copyrightable.” The originality and creativity requirements of copyright protected work in different jurisdictions confirm that copyright

⁵³ Ibid.

⁵⁴ Id. at p. 46.

⁵⁵ Nimmer, D., 2013. *Nimmer on copyright*. LexisNexis; Haas, R., 2010. Twitter: New challenges to copyright law in the Internet age. *J. Marshall Rev. Intell. Prop. L.*, 10.

⁵⁶ Yanisky-Ravid, S., 2017. *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model*. MICH. ST. L. REV., p.659.

⁵⁷ U.S. Copyright Office, *The Compendium II of Copyright Practices* (1998).

⁵⁸ 114 F.3d at 957.

⁵⁹ Id. at 958.

⁶⁰ Ibid.

protects authorial works created by humans. The human tie is reinforced when creativity or originality in a copyright sense are codified and interpreted by the case law as synonymous with imagination, inspiration or artistry – none of which spring to mind as attributes of computers or of computer generated works⁶¹. Therefore, integrating works produced by AI into the copyright regime will require the disturbance of well-settled and established norms of copyright law.⁶²

VII. CONCLUSION

So far, copyright law exists as long as there is still a human, or a team of humans, behind the art that these computers produce. However, the reality has entirely changed as AI systems have become able to create independently. Law of copyright needs to be changed or re-evaluated to determine how laws should address these AI systems, the product they produce and the challenges they pose for the existing copyright regime. Policymakers have to define new moral boundaries for these systems in order to avoid harm by imposing control of and accountability for AI-generated works on recognised legal entities. In order to propose whether an author shall be required for AI-created works, the EU report on robotics can be followed. It suggests the creation of electronic personhood or even a specific set of rights for AI to own the rights in the works that it creates. One alternative that has been raised is to treat the works made by AI as works for hire and affording the rights to the person who has commissioned the AI to create a particular work. However, the flip side of this is that it can lead to issues where companies can commission works and saturate the market, potentially even wielding the masses of works as a sword against other producers, including competitors. The AI created works can also benefit from sui generis rights, similar to database rights and then there will be no requirement of authorship.

⁶¹ Maggiore, M., 2018. Artificial Intelligence, computer generated works and copyright. In *Non-Conventional Copyright*. Edward Elgar Publishing.

⁶² Yanisky-Ravid, S., 2017. Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model. *Mich. St. L. Rev.*, p.659.