COPYRIGHT IN WORKS CREATED BY ARTIFICIAL INTELLIGENCE: ISSUES AND PERSPECTIVES

Artificial intelligence is becoming increasingly sophisticated and is, today, capable of originating content with minimal human input. This development has created some interesting issues in the world of intellectual property, not the least of which is attributing authorship over works authored by artificial intelligence.

Technological advancements in the artificial intelligence (AI) space have led to the creation of technologies and systems that can generate original content across various media. This has raised interesting questions as to ownership and infringement of AI-created content under copyright law.

Independent works authored by AI

The Infinite Monkey Theorem postulates that a monkey typing at a typewriter for an infinite amount of time is almost certainly capable of recreating any text including the complete works of Shakespeare. Similarly, today’s AI can generate such random documentation by mapping and creating content at inhuman speeds. Illustratively, in 2019, OpenAI\(^2\), released the GPT-2, a language model trained on a curated dataset with the objective of predicting the next word on the basis of the preceding words within that text. Based on sentence inputs provided by the user (which act as ‘prompts’), and by adapting for style and content, GPT-2 can create an entire news article or story that appears to be authored by a human.

In the machine learning era – where AI can be applied in a manner which enables it to ‘learn’ and improve based on its past experiences – sophisticated AI is no longer solely dependent on human instructions, and can apply logic, make contextual decisions, automatically perform tasks and simultaneously process and interpret a large quantity of data. Human involvement may be restricted to providing the AI with data (research shows that nearly 2.5 quintillion bytes of data are being created per day, and that number is only increasing in light of the COVID-19 pandemic which has forced many to work from home\(^3\)). The sophistication of AI increases with the amount of data it receives.

AI has made the leap from computer to creator and, or, inventor. In 2016, an AI analysed thousands of Rembrandt’s works and created a new portrait named “The Next Rembrandt” in the style of the famous painter. AI is now used to create local news articles\(^4\), poetry\(^5\), music albums\(^6\), architecture\(^7\), etc. The work product is usually so sophisticated that an observer may not be able to distinguish between man-made and machine-generated content. Where it is not always possible to discern whether the author of a work is a natural person or an AI, two questions arise:

a. Who owns the copyright in a work created by AI?

b. Who is responsible for infringement by AI of copyrighted works?

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1 By Kaushik Moitra and Karnika Vallabh
2 an AI research laboratory.
3 DOMO, Data Never Sleeps 8.0, accessible at <Data Never Sleeps 8.0 Infographic | Domo>, accessed on 25 January 2021 at IST 0300 hrs.
4 In 2017, The Press Association won a €706,000 Google grant to run a news service with computers writing 30,000 local news stories a month with the help of human journalists.
Protection of copyright in India

In India, the Copyright Act, 1957 (Indian Copyright Act) requires that a work must be original and must have been expressed in a fixed form to qualify for copyright protection. The Indian Copyright Act does not define originality and the courts have interpreted the criterion of originality on a case-by-case basis - including based on the use of sufficient judgment, skill, and labour and, or, sufficient creativity and judgment in creating the work. Essentially, the work must not be merely a result of labour and capital expenditure alone.  

Copyright automatically subsists in an original work from the moment it is created and fixed in a medium – registration of a copyright is not a prerequisite. Further, countries who (like India) are signatories to the Berne Convention for the Protection of Literary and Artistic Works, 1886, grant simultaneous and automatic copyright protection to any work created and published in a member country. This automatic copyright protection is afforded, in the first instance, to the author or creator of the work (the first owner of the copyright).

Can copyright vest in an AI?

The primary objective of intellectual property law is to protect the rights of the creators of intellectual property. Copyright laws specifically aim to: (i) promote creativity and encourage authors, composers, artists and designers to create original works by affording them the exclusive right to exploit such work for monetary gain for a limited period; and (ii) protect the creators of the original works from unauthorised reproduction or exploitation of those works.

While determination of the owner or author of a man-made work is usually fairly straightforward, difficulties arise with respect to works created by AI. Copyright protection of works created by AI may be addressed in the following ways:

a. States may altogether deny any copyright protection to works created by AI;
b. States may attribute authorship of works created by AI to the AI itself;
c. States may attribute authorship of works created by AI to the creator(s) of the program.

Under Indian law, only a natural person may be considered the author of a copyrightable work. The Delhi High Court has held that an artificial person (in that case, the Central Board of Secondary Education) would only be entitled to claim copyright in a work if it established and proved that it had engaged natural persons under a contract specifically to create the work. Therefore, in India, if any protection is sought to be provided to AI-created works, authorship must necessarily be attributed to a natural person.

To facilitate innovation in India, particularly in light of the Government’s ‘Make in India’ drive, the Indian Copyright Act should be amended to specifically provide for the protection of AI-created works. The scope of copyright protection in India must expand to at least account for protection in AI-created works. The denial of copyright to AI-created works and allowing such works to be freely used by anyone may

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8 This ‘Sweat of the Brow’ Doctrine originated in the United Kingdom in the case of Walter v. Lane, [1900] AC 539, and has been relied upon by Indian courts in a variety of cases to ascertain whether a work qualifies as ‘original’ within the meaning of the Indian Copyright Act.


be unwise as it may adversely impact the value of AI and, therefore, discourage developers from improving on, and creating new or more advanced AI. This would conflict with the primary purpose of all intellectual property legislation, viz. to foster creativity and encourage development in a variety of fields by providing a monopoly right to the creators of works (including the creators of AI).

Many jurisdictions are unwilling to confer copyright protection to works created by artificial persons. The United States of America, one of the world’s largest sources of new intellectual property, recognizes copyright as “the fruits of intellectual labor...founded in creative powers of the mind”. The United States Copyright Office has officially stated that only works created by human beings can be copyrighted, and that it will not register claims for works not created by human beings.

In 2012, an Australian court declared that any work generated by a computer is not protected under copyright law. In Taiwan, Article 798 of the Civil Code provides, “Fruits that fall naturally on an adjacent land are deemed to belong to the owner of such land, except if it is a land for public use”. The “fruits” generated by AI are considered copyrightable works and not capable of copyright protection.

The Court of Justice of the European Union has also held that copyright is only vested in an author’s own intellectual creation, i.e. in order for a work to be protected, the author’s personality must be reflected in the original work. In the case of AI, it is debatable whether the work produced by the AI will ever be truly original as there is substantial human intervention in designing the AI algorithms and training the AI. Even the data utilized by AI for learning is created by humans.

The European Parliament proposed a somewhat controversial approach in 2017 by considering the possibility of granting personhood to machines for the purpose of vesting them with rights. In October 2020, the European Parliament published a report on Intellectual property rights for the development of AI technologies, which states that AI-created works may not be eligible for copyright protection under extant EU laws, as the requirement of ‘originality’ is necessarily linked to the concept of ‘intellectual creation’ of a natural person. However, the European Parliament recognized the need for vesting copyrights in AI-created works and suggested that AI-created works could be considered as copyrightable based on the creative end result as opposed to the creative process involved in the creation of such works. To this end, the Parliament has suggested that the natural person who is involved in the creation of such works may be vested with the copyright thereof. In the 2020 report, the Parliament further acknowledged that imparting legal personality to AI technologies may not be the best solution as this would discourage human creators.

Further, AI today is insentient and should not be vested with moral rights. Additionally, recognizing AI

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20 Moral rights, also referred to as ‘authors special rights’ are certain inalienable rights that are granted to the author of a copyrightable work, including (i) the right to paternity (i.e. the right to claim authorship of a work and the
as the author of copyrightable works can create a variety of complications. For instance, an AI will not be able to transfer or license the rights in the work created by it without human intervention or be able to ascertain whether the work has been disparaged, thus rendering the moral rights useless.

Unlike other jurisdictions, China appears to have recognised that copyright may exist in AI-created works when, in January 2020, a court in Shenzhen, China, afforded copyright protection to articles generated by the AI, Dreamwriter.  

Under English copyright law, for computer-generated works, the author is taken as the person “by whom the arrangements necessary for the creation of the work are undertaken”. Such a provision is able to acknowledge the human input required to generate AI works, even if the ultimate work is created by the machine. However, it is difficult to identify the natural person responsible for an AI’s transgressions as hours of coding and a number of humans are involved in the creation of an AI system (which is often based on borrowed code from other technological giants). To this end, it may be feasible to consider attributing collective authorship of AI-created works to all the creators involved in developing the relevant AI.

AI, as it exists today is considered relatively weak as it specializes in undertaking a narrow category of tasks and is dependent on some level of human input. Therefore, at this stage, attribution of authorship of AI-created works with the creator of the program seems the most practical. This is consistent with the objective of intellectual property law to protect and reward the rights of the human being creating the work.

Who is responsible for breaches of copyright by AI?

As the law stands now, no jurisdiction affixes liability for infringement on an AI system itself and liability for copyright infringement will necessarily fall on a natural person. Where a work infringes on a copyrighted work, the author of the infringing work is generally liable for the infringement. Consequently, if the creator of an AI is considered to be the author of any works created by the AI, then the creator of the AI will be held responsible for infringements of copyright by the AI.

Further, human accountability in AI-created works will be extremely difficult to enforce, in the absence of any mens rea. For instance, if any work created by AI in India is defamatory or obscene or against public morals, then the test of defamation i.e. “intention to harm” cannot be met, either by the human author or by the AI. The questions that stem from considering a human as the author in AI creations are nearly endless. However, legislation, whether international or domestic, is yet to afford any attribution of authorship and more importantly impose liability for infringements that may occur in AI-created works.

The Road Ahead

Existing intellectual property frameworks across jurisdictions were not created with AI in mind. While there is no legal framework strictly governing AI in any jurisdiction, the present solution seems to be to

right to demand attribution of the work to the author thereof); and (iii) the right to integrity (i.e. the right to restrain any mutilation or distortion of a work).


25 See Google’s TensorFlow library accessible at <https://www.tensorflow.org/> which allows individuals to integrate Google’s machine learning expertise into their own applications by borrowing code from Google. Last accessed on 26 January 2021 at IST 1130 hrs.
treat issues of authorship in AI-created works on a case-by-case basis.

Practically, if an AI infringes copyright, the aggrieved person will sue the company who owns the rights in such AI. Thereafter, the allegedly infringing company may decide to implead other entities and, or, persons as parties to the suit. Alternately, the aggrieved person may file a John Doe suit\textsuperscript{26}, alleging infringement by an unknown entity and seeking relief from the court. However, these options do not address the issue of authorship, as such claims are made against the owners of the infringing AI with the rights of monetary exploitation of the AI and AI-created works. Therefore, unless the relevant courts decide to specifically address the issue of authorship of AI created works in each case, the rights and liabilities of authors associated with AI-created works will remain in a flux.

Several countries have recognized the need for intellectual property legislation that addresses works created by AI. A High-Level Expert Group on Artificial Intelligence appointed by the European Commission, Singapore has instituted an Advisory Council on the Ethical Use of Artificial Intelligence and Data in Singapore, and the UK House of Lords has constituted the Select Committee on Artificial Intelligence to provide guidance on issues related to AI. Many private companies have also released guidelines and principles on AI\textsuperscript{27}. The World Intellectual Property Organization (WIPO), in their draft issues paper on Intellectual Property Policy and Artificial Intelligence, has suggested a \textit{sui generis} (separate) system of protection of copyrights in original literary and artistic works autonomously generated by AI, with reduced terms of copyright protection and other limitations.\textsuperscript{28}

In India, the NITI Aayog, in its discussion paper on the National Strategy for Artificial Intelligence of 2018, noted the need for a robust and enforceable intellectual property regime in terms of AI which can allow authors to make profits from and take credit for their work, and recommended that a task force comprising of persons from the Ministry of Corporate Affairs and the Department for Promotion of Industry and Internal Trade be set up to examine and issue appropriate modifications to the intellectual property legislation. The Government of India is currently considering a national strategy on artificial intelligence and a cabinet note on implementation this strategy.\textsuperscript{29}

Recently, the NITI Aayog proposed an investment of INR 7,500 crores in 5 institutes for research and 20 international centres for promoting AI.\textsuperscript{30} These efforts by the government make it clear that denying copyright protection to AI-created content is not a sustainable solution. Perhaps more importantly, someone will need to be made accountable for any infringements by AI-created works. To this end, at least for now, vesting authorship with the creator(s) of the AI itself seems to be the most sensible approach in order to ensure innovation and growth, and to allow human beings to reap the benefits of their creation.

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\textsuperscript{26} In India, ‘John Doe’ or ‘Ashok Kumar’ suits can be initiated against infringing parties whose identity is unknown to the plaintiff in order to avoid delays in the delivery of justice.

\textsuperscript{27} See Google’s principles on AI accessible at <https://ai.google/principles/>, accessed on 26 January 2021 at IST 1150 hrs.


\textsuperscript{29} The portal can be accessed at <https://indiaai.gov.in/>, last accessed on 26 January 2021 at IST 1230 hrs.