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PROBING INTO THE UNHOLY CONVERGENCE OF ARTIFICIAL INTELLIGENCE IN ART: A TECHNO-LEGAL PERSPECTIVE AND FUTURE CONTEXT OF DIGITIZED ART GENERATION

Sadia Sultana[1], *Chandril Chattopadhyay* [2]

ABSTRACT

Art "generating" has recently become a typical art world term, associated with the creation of art through the usage of Artificial Intelligence. With the encompassing of AI in art, radical changes have taken place in the art world regarding business and commerce and promotion of such new digital arts across several platforms. The proliferation of machine learning has certain ramifications in the current scenario where AI has captivated a greater part of human lives, including the creative expressions through art. Since the formation of Deep Neural Network, the progress in AI has become noticeable. The creation of AI induced art involves a more nuanced process of "generation" and then will pass through "discriminator" through complex neural and algorithmic procedures like Generative Adversarial Network. Thus our paper would try to answer from existing literature on the originality, authorship of the AI driven art and the lacunae in the existing framework concerning AI and IPR in India that shall make the above mentioned questions difficult to answer like in the case of the painting Suryast where IPRs were rejected for soul ownership by RAGHAV (the AI art generator). The paper would also try to explore the multifarious aspects of AI and Art Law like the use of machine learning and deep learning techniques through ANNs, the modus operandi of the new AI software for art generation like Dall-E2, Midjourney and Stable Diffusion, and discuss the sustainability of such datasets to produce a wide range of artwork that can actually result in saturation. Thus questions regarding legal personhood regarding AI generated Art, the legal issue behind digitization of copyrighted work without authorization. The question related to whether AI art in certain process is transformative enough to pass the "fair use" test under the Copyright Act, 1957 shall be discussed in this paper,along with suggestions for a consolidated clause to put on record the importance of the growth of AI driven art and the necessity for their protection.

[1] BSc.(Mathematics), LL.B.(H), The University of Burdwan.
[2] M.A.(English), LL.B.(H), The University of Burdwan

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INTRODUCTION

"The world today doesn't make sense, so why should I paint pictures that do?"

- Pablo Picasso

Dematerializing of art in this age of digitalization has implications far reaching than merely decolonising the art-scapes and projecting a stringent and consolidated idea of art and artworks that is convention at its best. The copyright laws that were organically frame keeping the printed works in mind does not protect these digital artworks in the cyberspace and there in lie a gap with regards to ownership, commercialisation, issues of provenance and other legal compliances while dealing with such works of art, now that Artificial Intelligence have rolled into the practice and have caused a wider range of issues in the Intellectual Property space.

Digital art analysed color theory more efficiently and generated art that could pull the cords of viewers' emotions more efficiently. But the authors who are artists and art-history geeks themselves felt averse towards it initially because of its furtherance from what I called real art and more so because with AI, there have been rampant questions on infringement of copyright. The authors' idea somehow got altered with the recent Sun Yuan and Peng Yu's installation "Can't Help Myself" (2016- 19).[3] It is a robot arm that was devised to interact with the viewers a little and contain the hydraulic fluid in the abstract space that's constantly flowing out, besides taking care of itself. It eventually stopped entertaining its own needs and taking head to visitors but to just attend the scooping of the liquid. It surely is an art and it touches our emotions.

Artificial intelligence is a branch of Computer Science that deals with the multidisciplinary aspect of using machine learning capacity to develop smart machines that function without human conscience and contravention. AI algorithms are structured to continuously collect data (inputs) and draw inferences from the data after analysis, thereby using them along with the first set of basic data subjects, that is machine learning.[126] There are various ways we can use AI in agriculture, healthcare, robotics, business and astrophysics and now art generated by AI is a matter of interest as well as raises serious concerns regarding the underlying infringement involved in producing the artwork.

[3] Iris Olde Hampsink, "Can't Help Myself - How A Relatable Robot Offers A Critical Reflection on Modern Society", *Diggit Magazine, available at* https://www.diggitmagazine.com/papers/can-t-help-myself-how-relatable-robot-offers-critical-reflection-modern-society.

APPLICATION OF AI IN ART

Now there are various ways that AI can be used in art that just create art by using its pattern recognition and computer vision. This new machine learned knowledge can be used in Social robots and creative bots. Now these create a new identity problem of the AI[4] and Intellectual Property Rights dispute. The Copyright Office of India and most other countries are still not sure of how to deal with it but this special domain has already started having economic growth and the earlier we incorporate it in law with defined terms, the faster it will bring in more economic growth for the nation.

Besides the common notion of creation of art by AI, it can be used for countless applications, the most important of which is study and preservation of our cultural heritage. This new artistic domain does not pose a challenge but facilitates and hastens the traditional ones. Large scale digitization effort has led to large scale availability of huge, digitized artwork collections. With advancement in pattern recognition and computer vision, there is a new opened up path of solution for art researchers and assisting domain experts in the study and analysis of existing visual arts. There is one other very important benefit. It can open a window for a wider audience in a deeper understanding of visual arts. Thus, promoting the spread of art culture for a never before seen group of humans. There by promoting visual art, which is our cultural heritage that aids national economics, causing overall cultural growth of our society. Now this way of application of machine learning in art is very difficult. The ability to recognize properties, similarities and patterns within and between digitized artwork, in order to favour a deeper study, inherently falls within the domain of human artistic and creative perception. This perception is very difficult to objectify subjectively, clarify and conceptualize. It's influenced by a broad number of factors and the emotion the artwork evokes in the observer is huge. So this theory of AI facilitating art historians and domain experts is very fertile and active research in the Computational Intelligence Laboratory. Its sole purpose is to propose new techniques, methodologies and tools for the automatic and intelligent analysis of visual art.

VISUAL LINK RETRIEVAL

It is the building block of most analysis in the visual arts in finding similar function sets that map and link between painting of different artists and painting schools. This new machine generated function sets will help Art historians discover from a new viewpoint and b~~etter~~ understand theinfluences and changes from one art movement to another. Traditionally this bulky, costly and time-consuming work is done manually by inspecting a large collection of human annotated

[4] Vaishali Mittal, Siddhant Chamola, "AI's Right To Legal Identity In India", *Asia Business Law Journal*, *available at* https://law.asia/ai-right-legal-identity-india-2/.

photos. This new method relies on use of a deep convolutional neural network[5] to perform feature extraction and a fully unsupervised nearest neighbour mechanism to retrieve links between the digitized paintings.

This unsupervised technology is helpful where metadata[6] is scarce, unavailable or difficult to collect and manual data would be tedious and impossible to link. It doesn't only provide most similar to the input query but also allows the user to study Historical patterns by analysing the "influence graph"[7] built on the retrieved link. So, the visual link method by applying graph measures on the network built on the retrieved links performs a form of historical knowledge discovery on artists. Besides the Art Historians, these benefit enthusiasts by visiting online museums and art galleries. It can increase the joy and journey favouring art.

ARTWORK CLUSTERING

It is clustering artworks into different groups, such that the data appears to be uniformly distributed within a single homogeneous cluster in the feature space. Feature space refers to the collections of features that are used to characterize your data.eg- if it is about art- the feature space might be period, style, material used. It refers to the n-dimension where the variable lives, not including the target variable if present. All variables are features. AI models are made that can cluster artwork without depending on illusory labels or subjective knowledge, which can be really useful for many domain applications. E.g.- period of production of an artist, classification of contemporary art that can't be richly annotated. A method using a pre- trained deep convolutional neural network to perform feature extraction and uses a deep embedded clustering model, based on an auto-encoder neural network to perform clustering[131]. This deep pipeline technology is useful for highly dimensional input pixel space and the feature space resulting from CNN embedding, especially when input images are very complex artistic images. Image Embedding is a lower dimensional representation of the image which can be used for many tasks such as classification. CNN can be used to create image embedding. So, this method is a promising solution to the well known "cross-depiction" problem.

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[5] T.Q. Peng, Fang Li, *Image Retrieval Based On Deep Convolutional Neural Networks And Binary Hashing Learning*, IEEE International Conference on Acoustics, Speech and Signal Processing, Held on ICASSP, USA, https://www.semanticscholar.org/paper/Image-retrieval-based-on-deep-Convolutional-Neural-Peng-Li/483ab4c90d7c49163bec437d7d11d86664a16d11.

[6] Agata McCormac, Kathryn Parsons, Marcus Butavicius,"The Use of Metadata Visualisation to Assist Information Retrieval", Australian Government- Department of defence 01-02(2007)

[7] Giovanna Castellano and Gennaro Vessio,Deep Convolutional Embedding for Digitized Painting Clustering, 25th International Conference on Pattern Recognition (ICPR)2708-2715(2020).

[131] Types of Neural Networks and Definition of Neural Network, *available at:* https://www.mygreatlearning.com/blog/types-of-neural-networks/(last visited on 13 October, 2023).

COMPUTER VISION AND KNOWLEDGE GRAPHS

Most of AI Art relies solely on pixel information inherent in the digitized paintings and drawings. But it loses out on a lot of other domain knowledge- other than visual classification there are historical, social and contextual factors that allow us to frame them in a more complex framework. Art knowledge graph is the solution of including a vast domain gap (gap of rich metadata, contextual information and textual descriptions) including arbitrary complex entities related to art besides the visual content. Art graph integrated with visual features automatically learned by deep neural networks to develop more learning models.

SOCIAL ROBOTICS

It is a vision based approach that aims to maintain the illusion of dealing with a human being. It requires the AI/robot to identify and locate people, recognize art that they are viewing, profile the user during the visit in order to generate adequate recommendations and have conversational skills. It is a very new approach and will make art literature easily approachable and allure more visual art viewers. It is a fast blooming topic and will make favorable progress in the coming years.

"ART GENERATION" BY AI

This is very common and is just one website away to create or generate art/images from a simple sentence or a series of prompts. These results by AI are very creative, balanced and pull the chords of human conscience easily. But it poses a big question about the future of creation and creativity. These AI made art from word prompts are available at our fingertips thanks to software like Midjourney, DALL-E2, Imagen, Dreambooth and Stable Diffusion. These tools use language understanding and learning models on huge quantities of data to generate images from a line of text. Google explains that Imagen was subject to LAION-400M for training. It is a database of 400 million images associated with written captions found on the internet, which formed the basic pre-trained, inbuilt inspiration of the AI. So after a request or prompt text, corresponding art illustrations are created by reducing image noise into a cluster of pixels of random colours (denoising). The current image generating software is made successful by this diffusion technique. This technique makes realistic and grotesque visuals. As long as the request by any command prompt/request by any user isn't against their moderation policy, the AI can generate corresponding art. Programs like Imagen and Midjourney create new images and not just make composite images from images available. However, the problems are multifaceted. An infringement analysis for any AI generated art is complicated by assertions that Stable Diffusion was used to create visuals in the style of the master artists even though the original is always

changed in the final image. It is only a reference image that is fed into the system, but the questions remain intact and never addressed. Getty Images have filed 2 trillion-dollar worth of lawsuits for infringements in both U.K. and U.S because the Stable Diffusion that generates pictures has allegedly taken the pictures from the database of Getty and fed into the system of Stable Diffusion.

PROBLEMS OF AMALGAMATING ART AND AI

I. PATENT ISSUE

Copyright is one of the three main aspects of Intellectual Property Rights. It is internally protected by international treaties and TRIPS. India being one of its dignitary has amended the existing Copyright Act 1957 to incorporate the changes. This right is given to someone who creates something for the public. This right is automatically granted and that person has the right to make copies of the product, distribute to the public or use the creative product as he likes. The expression of work is eligible for Copyright protection but it does not protect the ideas, procedures, methods of operation or mathematical concept as such currently.

For example, if a programmer coded, innovated and created an application with a special ability to create paintings in Bob Ross style, the copyright protects the code from being copied but if a coder/ programmer recreates the same application with a different coding/programming, it is not infringement of copyright. To protect these rights, Patent is a safeguard. Patent is a title giving the rights to its owner(s) which forbids other competitors to make such products for a period of time.[8] Earlier these kinds of crimes (patent infringement) were not protected in cyberspace and there was only copyright infringement. Patent Act, 1970 was amended in 2005 to comply with all digital medium patent international law. Presently the Patent right is not yet rightfully granted in most countries including India and there is not much international law to handle this too. The basic requirements of an invention to be patentable are novelty, innovation and industrial applicability. So, an AI can be an owner or inventor of an artwork if it is capable of receiving, owning, transferring and assigning the invention to anyone. All this is impossible if AI has no legal personality. Thus, Patent Inventorship is a great concern in many countries, and this should be separately dealt with in the form of a new policy framework by the Office of the CGPDTM. Controller General of Patent, Designs, and Trademarks (CGPDTM) in

[8] Gil Appel, Juliana Neel bauer, David A. Schweidel, "Generative AI Has an Intellectual Property Problem", HARVARD BUSINESS REVIEW, *available at* https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-

India who administers the law relating to GI, Patent, Designs and Trademark Giving AI the patent inventorship its responsibility or Judgment are at question.eg- if an AI self-driving car kills a woman in the USA, the Self- driving cannot take responsibility even if granted legal personhood.

II. AUTHORSHIP ISSUE-

If Art is created by AI there is major concern about the authorship of the creations. About authorship there are multiple stakeholders who should be taken into account, people involved during the creation of an AI and its usage to create art, creates complexities in determining the author. AI is used in two types. One way of using AI is as a tool like Grammarly. The second type is where AI is used to create/ work on its own and for that the AI is trained accordingly. When AI is used as a tool, the law considers humans as the author here. By practice and procedure manual issued by the Copyright Office in India where it mandates that a natural person's details should be provided during registration. Hence where AI is used as a tool in Art, humans can be considered as author and is subject to copyright. There is a big issue about the authorship and thereby IPR issue, when the AI creates creative work on its own after being subject to training. According to self-taught programmer Robbie Barrat (who creates Art using AI) he used/trained two neural networks to perform his tasks. The neural network instead of operating on the basis of set rules they figure out solutions themselves. In 2017, European Parliament adopted a resolution where they considered a possibility of a separate legal status for AI robots, i.e. electronic person. An independent legal classification seems like an ideal solution. However Indian law remains unchanged and unclear. The US Copyright Office rejected application on grounds that work meets legal and formal requirements of copyright protection, only if it's created by a human author. The UK intellectual property office is making a wait and watch approach.

III. ISSUE PERTAINING TO GANBREEDER

Ganbreeder, now renamed Artbreeder, is a tool that uses GANs (consisting of a generator and a discriminator) to create artwork, created by Joel Simon. The process used allows the machine to generate something replicating, recreating, and blending the styles of what it received as user choice. That means the new creators might need to work on pre-existing creations and therefore whether such an art should be original or not is a huge concern. There have been several instances of production of similar

end products when similar kinds of images were fed into the system. Using existing work as a preset for new work or rather as a basis on which a creator can create his or her work also raises further issues on copyrights, ownerships, etc. and there has been no pertinent answer to how to deal with the same. It has also failed the inventorship versus ownership considerations.

IV. ETHICAL ISSUES

There are greater ethical issues involved in the use of AI art, for it has been said to create hyper realistic deep fakes, synthetic propaganda as well as non-consensual pornography.[9] After Allen won the blue ribbon, the anti-art element of the AI art have been questioned more vehemently and that it is a great reason for the death of traditional art, killing employment opportunities for the traditional painters and artisans.

SOLUTIONS TO THE PROBLEMS

I. REPRESENTING AI AS HUMAN: THE WAY FORWARD

A company is a body corporate with a common seal but with provisions of lifting of the corporate veil. Similarly an AI can be incorporated in the legislation with a similar perspective, i.e. considering it as a human. We can see that when Saudi Arabia first gave its citizenship to AI Sophia.[10] To understand this it is important to understand how creativity is defined. Is AI right now being creative or is it the creativity of human minds in programming? By Scherer's loose definition[11] of an intelligent system, a system is considered intelligent if it is capable of doing tasks similar to humans. So an AI is considered intelligent because it has a machine learning process which is speedy, adaptive and learning like a human or a little better than human. AI can also be considered intelligent because it recognizes the human psyche that involves assigning different categories to objects, persons and people. It recognizes and categorizes by method of machine learning process that is similar to human thought and consciousness. To deal with this dispute, India follows the 'Sweat of the Brow' doctrine for grant of Copyrights, it was adopted by the UK in 1900 UK Copyright law.

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[9] Annie Planker, "The Legal Implications of AI Generated Artwork", CARDOZO AELJ, *available at* https://cardozoaelj.com/2023/03/08/the-legal-implications-of-ai-generated-artwork/(last visited on 10th October, 2023).

[10] Sophia, HANSON ROBOTICS, *available at* https://www.hansonrobotics.com/sophia/(last visited on 14th October, 2023).

[11] Scherer, Matthew U., "Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and

This doctrine takes the skill, efforts and labour of the author into consideration. But UK doctrine shifted to 'Modicum of creativity' in *Eastern Book Company v. DB Modak*[12]. This doctrine introduced pre-requisite of minimum level of creativity for a work to be granted copyright. Now India follows the middle path adopted from the Canadian approach in *Canadian Ltd v Law Society of Upper Canada (2004)*. In this case the Supreme Court of Canada held that Sweat of the brow is a low standard of test that favours the owner against the public interest. It also opined that 'Modicum of Creativity' is of high standard synonymous with the patent rather than copyright.

II. GRANT COPYRIGHT TO THE CREATOR OF THE AI ART

The other approachable solution is to not consider AI as the author at all, rather allow copyright to the person(people) who created and subjected the function set in the AI, i.,e- programmer or software and/or its last user. It is the contribution of these stakeholders that the AI ever came into existence. But if the right is given to the creator of the AI, the rights of the user of the software is neglected. It would be the same scenario as a pen manufacturer claiming copyright of an author's work as he used the pen. It neglects the AI users- efforts, innovative advancement and their repetitive exposure acquiring skills to different databases. Section 17(a) of the Copyright Act, 1957 of Indian law applies the doctrine of 'Modicum of Creativity'. Section 17(a) and 17(b) talks about the employer as the first owner of the works/creations by the employed author of the creation. So these are based on contract of service as is the case of an AI exposed to training. This is on the line of Hire approach. This is a better approach as the law can be better regulated this way- it allows to regulate the work created and holds the user/programmer accountable for any damage.

The question of creativity was best discussed in the Next Rembrandt Project. The AI used in this project was subject to 150 GB work of artists as training data. 20 data scientists, programmers and 3D painters work together on this project. So this AI studied, classified, related and tried to revive the painting style of Dutch artist Rembrandt. This won several prizes including the Cannes Lions. But was the project really unique? Issue was raised by the platform of Creative Commons in a WIPO Conference on AI and IPR. Argument was raised that anything that is not human creation lacks creativity and originality. In Amarnath Sehgal v Union of India, the court held that the human moral rights of paternity, purity and decency come from

[12] Civil Appeal No. 6472 of 2004.

creative in-genuinely and creative aesthetics. Also, it is still held by most data analysts, programmers and coders that AI can't decide besides the defined function set, i.,e- pre trained data for creating art.

RECOGNIZING AI ART IN INDIA: A LEGAL PERSPECTIVE

The Indian Copyright Office is still in boggy waters. Under the Indian Copyright Act, the words- "computer generated works' were included in 1995, at a time when AI was not producing Art. Copyright law in India grants authorship to the person who caused the work to be created. There is no clearance in Indian law related to AI being an author can harbor copyright or not? The Indian Copyright office is also unsure how to deal with such applications. In 2020 the copyright office of India was confused as to how to deal with such an application. So when an application of AI (RAGHAV) as sole author of the AI generated "Suryast" painting by IP Attorney Ankit Sahni was rejected, there was a reapplication by Sahni with AI (RAGHAV) as a co-author in creation of an artwork. This was granted, but a withdrawal notice was given a year later. This notice was issued in November 2021 but was brought before court- that a copyright registration cannot be 'withdrawn' once it has been registered. It is a pending proceeding and hence the artwork is still registered.

RAGHAV represents Robust Artificially Graphics and Art Visualizer and is named after Raghav Gupta, an engineer who helped Ankit, Sahni, owner of the app to build the same in 2019. The painting is based on Vincent Van Gogh style and amalgamated with a photograph by Ankit Sahni as the base datasets on which the AI developed painting came into being. RAGHAV is also trained in a lot of other styles besides the one used in "Suryast". AI generated art has picked up momentum and this old news is still worth considering. So now this case can be used as precedents for such new AI (as co-author) application for copyright. So still the Indian Copyright office believes that copyright protection is conditioned on human authorship but had flip-flopped in the 1st instance. The parliamentary standing committee has reported that both AI generated work and AI solutions should be protected under the Patent law of India as it would contribute to the nation's economic growth. AI is still subject to both technical and legal challenges in India, though it has shown great acceptance with the abovementioned step in that direction.[13]

[13] Sukanya Sarkar, Exclusive: India recognises AI as co-author of copyrighted artwork, MANAGING IP, *available at* https://www.managingip.com/article/2a5czmpwixyj23wyqct1c/exclusive-india-recognises-ai-as-co-author-of-copyrighted-artwork.

CASE STUDIES

I. In the famous Monkey Selfie case, titled *Naruto v Slater*[14] Narutom the crested macaque, a species of monkey, picked up a camera and clicked photographs of himself. The photographer whose camera was used, David Slater and the Wildlife Personalities Ltd. published the "Monkey Selfies' in a book and claimed copyright. Dr. Antje and PETA sued as Narutom in this case was the author of the photographs and therefore the publishers had infringed on his copyright. The U.S. The Court of Appeals for the Ninth Circuit dismissed the claims as animals or any computer could not have a standing in terms of claiming authorship and therefore questioned the infringement. This poses the underlying ambiguity in the direction of whether AI generated artists can claim the copyright or not. Similarly, Barrat cannot claim copyright over his Rapping Robot even though it is the AI artist who also had some contribution of feeding the data into the neural network and the initiation selection of artworks thereof. In this context, it is pertinent to mention that the U.K. grants copyright protection to the person who makes arrangements to create the new artwork through inspired art.[15]

II. In the case of *Graham v. Prince,*[16] *Richard* Prince was sued by a photographer when Prince took a screenshot of an Instagram post of the photographer where Prince himself commented on and later used the same for an exhibition where he used prints of several Instagram posts of others where he himself had commented. Prince challenged that his work was based on "fair use" and was transformative as they focussed on the art of his comments on random Instagram posts that he screenshot and was thus removed from the original posts. The Court did not agree to this contention of Prince and said that there was no change in "composition, presentation, scale, colour palette and media" resulting in the infringement.

III. In *Burrow-Giles Lithographic Co. v. Sarony,*[17] the US Supreme Court ruled that photography was, for the most part, a mechanical process. However, the particular image of Wilde featured a number of things, including the creation of a particular setting, lights and other changes and his involvement in the process made the court render him the copyright. Thus, it has been concluded from this case that the AI-generated art could also be protected with copyright as long as creativity and

[14] 888 F.3d 418(9th Cir. 2018).
[15] Andres Guadamuz, "Artificial Intelligence and Copyright", WIPO MAGAZINE, *available at* http://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html.
[16] 265 F. Supp. 3d 366, 370-73 (2017).
[17] 111 U.S. 53, 4 S. Ct. 279 (1884).

involvement and dedication in the entire artistic generation can be represented and from this the AI art can also be called “creative art” for it involves the creative determination and individual instincts in producing something from available resources.

CONCLUSION

It must be understood that the AI Art has been accepted or rejected while keeping in mind several parameters across various jurisdictions. It is pertinent to mention that the Canadian IP Office has registered “ Suryast " even though the Canadian Copyright Act does not recognize “ author” and grants copyright only to natural persons. India has a long way to go and one must see whether the Copyrights, Designs and Patents Act shall be followed or there shall be an all-encompassing legislation taking the best of the practice in the Copyright laws across the common law nations. As with the present gimmicks around ChatGPT, we understand that the period of *Singularity* is far from real and therefore machine intelligence shall never be able to surpass human capabilities, unless there is more nuanced development of the innovation. However once it arrives pushing aside all intellectual property thickets, the ambiguity will slowly disappear perhaps. But, the posthuman trauma is equally challenging and the inability of being the owner of the copyright for humans will perhaps not be synonymous with real advancement for it shall somewhere dismantle the creative autonomy for people who would not have access to the technology. As philosopher Donna Haraway in her seminal work Cyborg Manifesto (1985) says, “We are all chimeras, theorized and fabricated hybrids of machine and organism, in short, we are cyborgs”. So perhaps the copyright for AI Art would also be attributed to the Cyborgs, the idea being resonated by other post-humanists like Yuval Noah Harari.

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