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Implications of Artificial Intelligence Integration in Visual Artwork and Aesthetics

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ABSTRACT:

Visual artwork is considered as a depiction of inner core feelings of a human being which is perceived by an artist due to exposure and belief in which a person is born, lived and exposed. But with the advent of modern technological advancements in the field of artificial intelligence and machine learning such visual art can also be produced in very short span of time. Even some times the dimensions of the patterns may be beyond imagination of human being but the fast growing involvement of AI in creative artwork has also sworn so many seeds of ethical, cultural and legal controversies related to biasness of data, authority of ownership of work i.e., Intellectual Property and copyright. Therefore a need has been felt to draw a line on the involvement of artificial intelligence and machine learning in such a creative area of work so that a fair balance could be made between technology and human creativity. To resolve the intricacies of creativity due to the integration of AI, an international consciousness is required to develop urgently blurring the geographical boundaries of the nations.

Keywords: Visual Artwork, aesthetics, artificial intelligence, creativity, copyright.

Introduction:

Visual artwork has been used in to express and communicate the inner and outer world feelings without any language or word barriers to others since the inception of human civilization i.e., starting from Stone Age up to Present Polymer and Composite Age which is substantially governed by computer controlled processing aids viz., Computer Vision assisted with cameras and sensors, Machine Learning and Artificial Intelligence etc. Thus artwork provides a non verbal medium for individual person to express or communicate emotions that may be difficult to articulate. It is also well documented that the visual artwork not only affects the brain activities of a creator but also affecting spectator (1-3). Literature survey revealed that the various forms of visual artwork like achromatic, chromatic and poly chromatic, solo and multiple objects, objective and non objective etc., have their own effect on the brain (1). Hence, among various art traits the visual artwork seems very effective tool for communication and motivation to human beings. Beside it, the artwork is deemed as a carrier of heritage because the religious and social faith, culture and apparels used in artwork gave an idea about the era and environment of the creator or what is aimed to depict which is reflected in artwork. In other words one can easily guess about the era, civilization, and even religious faith etc., from the artwork (4).

In due course of time, the effectiveness of visual artwork is enhanced with the embodiment of Aesthetics in it (5). Aesthetics explores the profound and vaguest messages conveyed through the elements of visual art. Therefore, the vitality of any composition depends on the influence of aesthetics. The representation of artistic elements in an artwork evokes aesthetic feelings. Aesthetics cogently shape the artwork by channelling its visual impact, emotional reverberating, influencing the perception of beauty of viewers, develop subjective feelings both enjoyable and thought stimulating (pleasure, sorrows, anger, calm etc.,). If aesthetic embodied artwork awakens consciousness even in the unconscious mind, then it's purpose is considered fulfilled and such artwork is considered superior. In nutshell the visual artwork has been considered so far as the reflection of human expression, shaped by the artists own intents, skills and methodologies which are being performed manually relying greatly on their skills, institutions and emotions. Legends like Leonardo de Vinci, Rembrandt and Claude Monet made a pivotal position due to their ability to encapsulate reality simply using brush strokes, color theory and composition (6). In XX century, movements like Abstract Expressionism started after post-World War II in the New York city of America during the 1940s and 1950s and Surrealism in which unrelated images and events were put together in strange and impossible ways, like a dream, in an attempt to express what happens deep in a person's mind, altered the boundaries of traditional visual artwork, often practicing new tools such as photography or collage. However even in these context, the artist's hand remained central to the creation of the artwork. Art still is a reflection of human experience, consciousness and emotion. But since the artificial intelligence and machine learning penetrates in creating artworks with the help of generative tools such unamazing patterns can be produced which may be beyond the imagination of a orthodox artist.

So with the advent of modern technological advancements in the area of computer vision, artificial intelligence and machine learning etc., the individualistic concepts of every traits of art have been completely revolutionised (7). AI is a kind of machine intelligence in which technologies and algorithms are used and it deemed to replicate human cognitive competence like comprehending, assimilating, developing practical solution using logic and creativity and decision making. In AI the information is digitized in the form of logarithms from the data available in open domain or fed intentionally

which after amalgamation and adopting varying permutation and combinations with the help of generative models like GANs and VAEs deemed to produce varying type of novel solutions and out of which most plausible patterns are chosen to suit the requirement. AI, after studying and analyzing thousand years old data on aesthetics, has also tried to find out that how a human try to understand aesthetics and based on these conclusions such artwork with attractive color patterns could be produced which will be liked by spectators. Undoubtedly the AI revolutionized artwork by introducing new principles, styles and even aesthetics.

In the beginning it was considered that AI will be helpful only in optimizing processing parameters thus will be able to produce artwork very fast to meet the requirement of the commercial demands but once, with the passage of time, an artist get familiarised so deeply with the technologies that a synergy between machine and man develops, which democratized creativity and facilitate easy accessibility of artist expressions to wider audience. In fact the creativity is considered as an individual treasure because it depends on the exposure of the individual with the different kind of societies, culture and religion which affects brain but the AI has totally overridden it and open new horizon of unexplored domain of imagination. Midjourney AI tools viz., DALL-E and Stable Diffusion have revolutionized the field of artwork and aesthetics. AI has narrowed down the margin of human and machine creativity and become indistinguishable (8, 9). Still there is hardly any competition in the output of high quality visual artwork produced by AI and an orthodox artist because a person only after spending sizeable amount of time in practice will be able to produce desired craft but AI will replicate it in fraction of seconds.

The interminglement of Art and AI tools is astonishing on one side and on the other side its results and intents are highly profound. The integration of AI in visual artwork and aesthetics has given a new definition of creativity, changed the definition of pre AI aesthetics and role of AI in democratization of artwork to those who are technically untrained aspirants of artwork but on the other side sown several seeds of doubt regarding copyright issues, employment of artists and lacking of human sentiments, ethics, intellectual property right, culture and religious faiths and bias etc (10).

So with the invention of new technologies, it seems very pertinent to redefine creativity with respect to visual artwork creation. Conventionally the artwork is considered as depiction of human feelings, experiences and expression of soul and depend on the emotional and intellectualism of the creator. But the advent of AI has changed this perception. AI technologies, particularly deep learning algorithms like generative adversarial networks (GANs) have the ability to learn from vast datasets of existing artworks, mimicking styles, techniques and forms and then generating new piece that are often indistinguishable from human created art (11). Now the AI is not only working as a tool but playing a role of co-creator for the artist (12).

So, an artist can find out a variety of patterns in seconds using AI, if the mood and reaction of spectators towards an artwork could be captured with the help of computer vision, a branch of AI, which facilitate robot to interpret visual data obtained from cameras, sensors and other sources. Thus most plausible and appealing solution could be given in real time by creators for commercialisation and appreciation (13).

Another unimagined breakthrough of AI is its ability to make visual images from text descriptions for it the tools like GPT-40, Midjourney and DALL-E are used even by a traditionally untrained person in visual art craftsmanship.

Not only the image creation, the AI can also convert 2D drawings in 3D models with the help of certain platforms like Masterpiece studio and Spline AI. More to it, now with the help of Style Transfer technologies, a user is able to change photographs into an artwork resembling to any famous artistic style e.g., using DeepArt tool a standard photo can be converted to Picasso Inspired masterpiece.

However, alongside these opportunities, it is essential to consider the ethical implications of adopting AI. Issues such as copyright, ownership, the use of training data, proper attribution of creative work and the broader impact of AI on creative professionals (14).

Discussion:

Literature survey clearly showed that with the inclusion of AI, computer vision and machine learning and using generative adversarial network a new horizon has been touched in the creation and production of visual artwork inculcated with aesthetics. As it is a well accepted concept that the development, if, advantageous on one side but also leave negative and controversial aspects on the otherside. So, a fair discussion is inevitable on the different issues associated with the natural instinct of visual artwork and technological implications on it.

1- Creative Integrity vs Artificial Intelligence

The use of AI without any control may cause the bewilderment to real artist as it takes fairly a good time to draw an imagination as is dreamed by a creator or an artist assimilate these feelings prevailing and affecting the society. A person from the childhood start printing impressions on mind and heart (unconscious mind) from the society, culture, religion believes and academic or skill education and exposure to other civilizations.

AI works on the data available in open domain or fed by a person or group of people but has nothing to do with the fairness of these data, which on processing yield variety of patterns of artwork which some time beyond imagination and selection of such work depends on the personal choices. The work has nothing to do with the pointed sentiments of the society.

In view of it, it is plausible to raise an issue that the artwork generated herein is the outcome of genuine or data bias. So a possibility of unfairness could not be ruled out.

Easy Accessibility of Art with the use of AI:

With the advent of AI and machine learning, now it is not required to learn drawing and painting skills for carrying out visual artwork rather one can produce wonderful objects simply by the inputs of thoughts in writing scripts or linguistically. So with the help of AI, the artwork is available for every common person (15). Artists can use AI systems to evaluate massive volumes of data, explore new artistic frontiers and access computing power (16). AI can improve human creativity, not replace it. A comparative study is therefore very important to understand that how artistic expressions are changing with the developing synergy between Man and Machine in response to human creativity vs machine contents on visual artwork (17,18).

Biasness In AI Generated Artworks:

Data Bias- An other discussion takes place regarding AI generated artwork that it is data bias or represented fairly. AI generate artwork depends on the existing data sets which may reflects societal biases, cultural stereo types or historical inaccuracies. This can led to misrepresentations in AI generated artwork, reinforcing imbalanced portrayals of gender, ethnicity and cultural identity (19).

An Ethical Perspective published in 2024 also mentioned that the reason for these problems in AI is feeding of database that database is input and trained by humans. Humans are oftenly assumed biased, so the inputs to AI will also be accomplished with these biases (20). e.g., if a male artist creates an AI model then obviously it will be fed by the artwork which will conform to traditional male- dominated art styles and theme. So there are fairly good chances that the artwork will be lesser in consonance with female artist perspectives and will be under represented. Further if an AI model is trained only on European art style then this may unintentionally ignore the features and beauty of African or Asian art forms which will automatically generate a biased artwork; so until and unless AI system is not trained to work diverse data bank then it is not possible to include the experiences and aesthetics of marginalised societies which ultimately result the production of stereotype output and not representing every society which may be over ridden by human involvement. Therefore the developers of AI art platforms must ensure that their models are trained on diverse, inclusive data sets, preventing biased out puts that marginalise certain groups.

Authorship and Intellectual Property Right :

AI with the help of generative models like GANs and VAEs is able to generate such artwork which is very difficult to differentiate whether it is human or a machine creation. Therefore it is very important to address the issue of ownership, authorship and also a limit is defined upto which extent the AI and its agents are allowed to assimilate data for generating artwork (21).

Currently, copyright laws do not fully address AI generated art, leaving artists and legal experts to debate how ownership should be determined. Some proposes that the AI generated content should be considered public domain, while others argue for collaborative authorship, where both AI tool and human user share credit (22,23).

Infact, there is no common stand on these issues, rather it differs from country to country like Europe, America and India prefer to adhere with old laws dominating the human creativity as a core for issuing authority on ownership, IPR and copyright matters. Whereas China and Japan seeks a rational authority on the sharing of human element and AI user for copyright and IPR matters as it will help to protect commercial interests (24).

In view of it government, legal institutions and technology leaders must hold multilateral discussions on common standard, ethical AI development and regulatory structures that enable innovation while being fair and helpful to human creators, technological advancements and digital economy too.

So, an international treaty is required on these issues which should be adaptive, inclusive and ethically sound so that universally a plausible solution could be find out to protect both human and AI creativity in the larger interest of Societies.

Conclusion:

Undoubtedly, the AI has ability to copy and reproductionization of visual artwork matching to an expert artist which sometimes produce patterns beyond imagination and more audience-friendly which is viable commercially too. But such fast growing infringements of AI in human dominated area raising some ethical and legal issues specially biasness of gender, culture, history and copyright and ownership which needs to be addressed internationally.

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