



AI Technology: A Lifeline for the Continuity of Art in the Millennial Era

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Abstract. The advancement of artificial intelligence (AI) technology has had a significant impact on the art world, offering new opportunities for artists to remain relevant in the digital age. Art, as a vital element of human life, influences emotions and creative expression. This study aims to explain the importance of AI applications in art and explore how this technology can help artists develop and sustain their creative and innovative works. Based on a qualitative descriptive study (Taylor & Bogdan, 1984), the analysis was conducted by collecting data on phenomena occurring in a social environment. The researchers collected and analyzed documents such as discourse, articles related to AI technology, and works of art produced using AI technology. The data was discussed descriptively and presented with examples of art produced using AI technology. The findings, in the form of multiple inferences, have shown that the ability of AI technology to support the continuity of art in line with technological developments can be implemented in creating unique works of art, analyzing big data, presenting more interactive performances, and creating immersive experiences through Augmented Reality (AR) and Virtual Reality (VR) technology. Although still in the exploratory stage, AI offers great potential to transform the way humans create, work, and understand art, as well as ensuring the continuity of art in the millennial world.

Keywords: Artificial intelligence (AI), Augmented Reality (AR), Virtual Reality (VR), art, digital era.

1 Introduction

Art has been an integral part of human life since time immemorial. Art is deeply embedded in every aspect of human life and soul. It is also seen as a tool to fulfill human emotional needs, influencing feelings of happiness, sadness, anger, excitement, love, hate, etc [1]. To meet these emotional needs, humans require external stimuli. For instance, individuals with an artistic and aesthetic soul will express their emotions through music, painting, acting, dancing, literary writing, and so on. When an individual is under stress, relaxation time spent listening to music, watching movies, or engaging in other art-related activities such as playing music, painting, and the like is necessary to relieve mental stress. In terms of technology, manners or even human thought patterns will always think for their survival. Likewise with art, which is always

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overshadowed by the current development of the modern world, allowing every artist to struggle to maintain the continuity of art in the digital era. Currently, the world is witnessing the phenomenon of human gluttony in pursuit of a highly technological world. This is also driven by the stigma that the progress and development of a country is also measured by the level of technological progress. As a result, artists have no choice but to adapt to it in order to maintain the survival of art in the digital era. Technological advancements have made a significant impact on the art world and provided new opportunities for artists to be more creative and innovative [2] [3]. For those who are aware of it, it is certain that the advancement of this first wave is a tough challenge, especially for those who are still actively working in the conventional way. But for activists who want their artworks to remain relevant to the current developments in the modern world, correlating with technology is a lifeline that should be thought of as a solution to be galvanized together. Therefore, this study will examine to what extent AI technology can help sustain art in the millennial era so that it remains relevant, significant, and flexible with the rapid development of technology. Based on this issue, this study will explain the importance of AI technology applications in creating new spaces for artists to develop works of art by exploring creatively and innovatively in line with the development of millennial-era technology.

1.1 Government and Higher Education Institution Initiatives

Aware of this, the Ministry of Tourism, Arts and Culture (MOTAC) through the National Department of Culture and Arts (JKKN) for example has organized the Cultural Art Product Development Discourse program 'Artificial Intelligence (Artificial Intelligence), Threats or Advantages to Local Cultural Arts?' held at the Mini Auditorium Hall, Malaysia Tourism Center (MaTIC) on 13 July 2023. Higher education institutions such as Universiti Malaysia Kelantan (UMK) through the Communications and Multimedia Content Forum of Malaysia (CMCF) and Creative Accelerator Center (CAC), Faculty of Creative Technology and Heritage (FTKW) have also organized 'Content Discourse: AI Technology in Art Content' Visual in Malaysia 2024' on 25 May 2024. A platform like this shows the determination of Malaysians to foster the desire among art activists and take the opportunity to learn and practice the capabilities of AI technology in various branches of art. This initiative is also seen as a field of information sharing between art activists and AI technology experts through a forum approach and AI technology demonstration. This shows that government entities, statutory bodies and private parties are always committed and proactive in helping artists produce works that are in line with current technological advances. These efforts are also clearly seen as wanting to help create a diversity of technology-based methods for art activists through the production of works and art performances by combining traditional and modern ways using artificial intelligence (AI).

1.2 Artificial Intelligence (Artificial Intelligence)

Artificial Intelligence (Artificial Intelligence), is a digital technology that is capable of imitating human intelligence to perform a task and provide a human-like response or reaction [4]. AI is considered as a machine developed to solve tasks by understanding the concept of tasks and problems. Russell said, defined AI as a system that seeks to build an entity of intelligence and at the same time understand how AI fully operates [5]. Among others, AI is defined as the ability of machines to think like humans, able to learn, adapt to situations, synthesize, correct errors and use data to process complex tasks [6] [7] [8].

In the context of the creative arts industry, AI is capable of producing image images, sounds, works of art such as lyrics and songs, including writing in the form of articles, scripts and literary works. The introduction of this amazing AI technology is seen as having the potential to change the landscape of art development especially in Malaysia as well as in the archipelago which is still just accepting this change.

Welling who is also an AI researcher described that AI technology plays a very important role in supporting the development of art learning in the digital era [9]. This technology has provided wider access to art resources, guidance and interactive experiences that are able to continue and develop artworks in terms of innovation - such is the level of significance in the context of art learning. Information through the mediation of communication media such as computer technology, internet, satellite, electronic media, and cyber technology has made the art discipline jump to a high level and is widely open. Toffler, who said that, "...the third wave in the development of world civilization is the age of information technology [10]."

The impact of this globalization has given rise to various forms of challenges and roles that need to be faced by art disciplines so that the continuity of traditional arts is maintained.

2 Research Methods

The study uses a qualitative descriptive method [11], which is the collection of data on phenomena that occur in a social environment. The explanation is a narrative of the effectiveness of AI technology in various branches of art. This approach is used to explain how AI is essential in enhancing the development of art and exploring art creatively and innovatively along with the technological developments of the millennial era. Researchers collected and analyzed documents such as discourses, articles related to AI technology and artworks produced using AI technology. The data is discussed in a narrative description and exposure to the results of art using AI technology, which will also provide an understanding that acts as a (multiple) inference that is clearer

about how the ability of AI technology to assist the continuity of art along with the flow of technological development.

3 Findings and Discussion

3.1 AI-Based Artwork

Artists use AI algorithms to create more unique works of art. For example, applications to the art of painting, music, literature, and works of visual art produced with the help of generative algorithms. AI algorithms such as Generative Adversarial Networks (GANs) for example can produce more original works of art by combining the styles of various artists or by creating a unique new style in their work. Artworks produced through AI technology such as "Théâtre D'opéra Spatial" by Jason Allen and the works of AI artists such as the French Collective Obvious through its work entitled "Portrait of Edmond de Bellamy" bring a great change in the world of art based on artificial intelligence technology (AI) using Midjourney app. Recognition of Jason Allen through his digital portrait work entitled "Théâtre D'opéra Spatial" which was crowned as the first winner in the 'Colorado State Fair' competition in the digital art category [12] as well as "Portrait of Edmond de Bellamy" digital work by French Collective Obvious, which was sold at Christie's in New York for a price of \$432,500 (RM2,036,642.50) [13], opened the eyes of many, especially artists. The achievements and recognition obtained by the two artists explain that artificial intelligence (AI) is one of the technological developments that attracts attention and is considered to be able to bring about a major change in the landscape of the art cycle involving human civilization.



Picture 1: "Théâtre D'opéra Spatial" by Jason Allen
Source: Avijit Ghosh



Picture 2: “Portrait of Edmond de Bellamy” by at Christie’s in New York
Source: Timothy A Clary/AFP/Getty Images

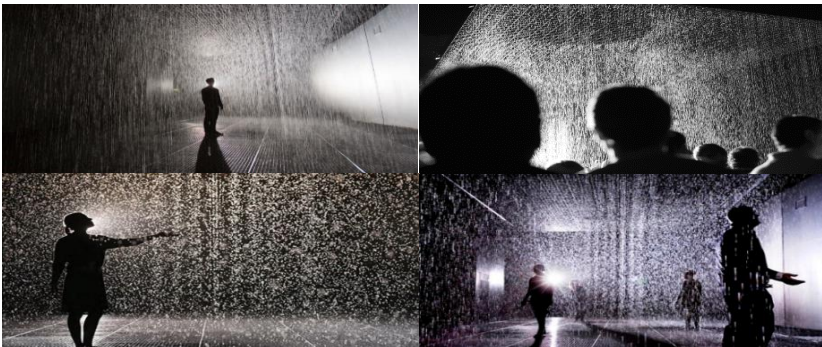
The emergence of various Artificial Intelligence Art platforms such as Generative AI mene-rusi application recognition Dall-E, Midjourney, and Stable Diffusion for example are seen as a new era of artistic exploration. With such platforms, artists can input parameters, styles or even data sets and continually allow the algorithms to create more unique artworks. These developments are seen as enriching and expanding artists' capabilities by exploring further and experimenting with different styles with ease [14]. The user also only needs to direct a machine by writing an idea (prompt) or a brief instruction, and then the algorithm of the application used will try to produce an illustration based on the instruction given. All sets of information data sources, visual image inventories from the internet that become information input by AI Art application algorithms through the method of 'machine learning' [15] allow a more creative and innovative work to be produced and displayed exceptionally.

3.2 Interactive Performance

Interactivity is often associated with communication. However, if viewed from an artistic point of view, interactive is often associated with art that requires communication between the work and the observer. In computer art (internet, multi-media) and page art, for example, it refers to the post-modern art trend that is more supportive towards modern technology. Art practices that are still in the old notch in producing works and do not dare to move to give new life to their works are seen to be left behind as an example from a rigid work to a work that can involve the audience's response or in other words more flexible need to be highlighted. Looking at the interactive artworks available in Malaysia, most of them are produced by the new generation of art practitioners.

This proves that the new generation is not technophobic. Therefore, artists should move in tandem and adapt to the development of technology in the world to ensure that art through traditional practices such as using brushes, paint and moving canvas produces more interactive works of art.

At this time, AI is seen to be able to demonstrate artistic results that are more interactive and much more responsive to the audience. For example, completing works of art that are able to react (response) to the movements or emotions of the audience (audi-ens) in real-time. Rain Room International located at The Museum of Modern Art (MoMA), New York is an example of how AI technology is used to present a unique and interesting atmosphere interactively and able to respond to its visitors. The experience of being able to walk through the rain without having to feel wet as is usually experienced when it rains.



Picture 3: Random International's Rain Room

Source: <https://www.random-international.com/rain-room-2012>

The interactive work by Refik Anadol titled 'Melting Memories' offers a representation that emerges from the intersection of advanced technology and contemporary art [16]. Based on AI technology, the concept of the work 'Melting Memories' uses EEG data to capture brain activity and transform it into a visualization that moves and changes according to the data received. The discovery of a new style with the help of AI technology is able to process data and then be able to produce unique and dynamic visuals for visitors.



Picture 4: Melting Memories by Refik Anadol

Source: <https://refikanadol.com/works/melting-memories/>

TeamLab Borderless in Odaiba, Tokyo, through a digital art exhibition in Tokyo, uses AI technology to create an interactive and changing art space. Through this technology, visitors can interact with works of art that can change shape and color based on the visitor's movement and touch. All exhibitions of unique and interesting works of art with the concept of interactive art with the help of AI technology form a world of art with limitless creativity. This TeamLab Borderless artwork, for example, can interact and react directly with its visitors in computer-programmed realtime.



Picture 5: Melting Memories by Refik Anadol

Source: *teamLab Borderless*, Tokyo © teamLab

3.3 Augmented Reality (AR) and Virtual Reality (VR)

Through AR and VR, artworks are combined with AI technology to create immersive experiences that allow audiences to interact with artworks in virtual or real-world spaces. This technology combines AI with AR/VR to create a more interactive art experience. Through this technology, artists can express themselves and interact with audiences in a way that has never been possible before. Carmigniani defines Augmented Reality (AR) application as a view of the real world physically and prepared with computer-generated virtual data [17]. In art Augmented Reality (AR) is a method of combining digital elements with the real world, allowing artists to add interactive power to the physical environment. The 'ARTivive' app for example provides artists with a platform to create artworks that appear more lifelike or realistic. Using the ARTivive app for example on a painting will cause it to appear “alive” with animated renderings or additional information when viewed through a smartphone.

ARTivive is a revolutionary tool that changes the way the general public sees art. Interestingly, artists will be able to connect digital layers into traditional artworks and then experience them through this app. The result of this AR technology application

provides an amazing experience to the audience, especially children, by only needing to point the phone (smartphone) to the traditionally produced artwork (painting) and then it looks alive (moving according to the atmosphere of the painting) [18].



Picture 6: Artivive – The Augmented Reality Art Tool

Source: <https://artivive.com/>

Meanwhile, street artists are also able to produce their street mural works more actively using AR technology. If the previous works were only displayed in a fixmanner without any movement, now this traditional art is enhanced, when viewers can see animation or additional visual effects on street art through AR applications such as 'Wonderspaces'. Wonderspaces is an initiative or platform building that combines art with artificial intelligence (AI) technology.

In the context of mural art, 'Wonderspaces' technology refers to a work presented in the form of mural art as part of an interactive art exhibition or experience. Wonderspaces technology is presented in art exhibitions that are immersive and more interactive. The organizations that control this technology combine their technology with street mural artists to create works that incorporate interactive elements, technology, or multisensory experiences. This clearly shows that AI technology has a significant influence on the continuity of art, both in the creation, development, and appreciation of art in this millennial era.



Picture 7: Mural Art with Wonderspaces Philadelphia
Source: *CBS Philadelphia*

The biggest 'Wonderspaces' technology-application-based interactive art museum in Philadelphia operated by the Franklin Institute for example is a science museum known for its interactive exhibits engaging visitors of all ages through various scientific concepts, including art and technology. In general, traditional murals refer to a two-dimensional static form of painting painted on a wall. But nowadays, with the application of digital technology such as effective AR and AI technology, the addition of compositions to the programming system, interactive technology in the form of 3D displays, light painting and other media, mural art has gained the attention of the younger generation and has been further developed [19].

Virtual Reality (VR) is also bringing big, fresh changes to the art world by offering new opportunities for creative expression and more immersive artistic experiences. VR allows artists to create unlimited immersive art experiences based on traditional media such as painting, sculpture, or any performance or exhibition. In addition, VR can also help artists who produce works conventionally to experience art in a new and inclusive way. By using VR platforms, artists can expand the boundaries of their traditional galleries by reaching a wider or global audience.

AI-generated art gallery project such as Dreamcatcher by Fabin Rasheed for example demonstrates how AI attempts to generate visual artworks inspired by traditional art collections from the real world. VR visitors can explore a virtual gallery filled with paintings, sculptures and traditional handicraft art that can change and evolve based on the individual's tendency to choose the form they want.



Picture 8: Traditional Dream Catcher compositions
Source: *Pixels/Arthouse Studio*

The tradition and culture of using dream catchers has been practiced by Native American ethnic groups for many years [20]. The American people also view dream catchers not only as catchers used by Native Americans, but even as part of traditional jewelry that is also given a modern touch and creativity. Dreamcatcher is developed and based on an AI approach to analyzing dreams called the continuity hypothesis.



Picture 9: Dream Catcher uses VR and AI technology

Source: *Youtube Fabin Rasheed*

The Dream Catcher uses AI technology to help modernize traditional art treasures to make them more interesting and relevant to the younger generation. Through VR technology, visual and sound elements can be generated to enhance audience appreciation of heritage arts. Fabin Rasheed, a digital artist from India, for example, has successfully used Dream Catcher as a platform to promote digital art and Indian culture globally. Overall, Dream Catcher can be seen as an example of how AI and VR technologies can be utilized to preserve traditional arts and culture in Asia by modernizing works, facilitating the creative process, and expanding audiences.

3.4 Optimizing the Creativity Process

AI is used to help artists take the creative process to the next level through finding inspiration, developing ideas and creating more complex designs. AI can help artists find inspiration quickly through analyzing large visual data. It can suggest related artworks, colors, textures or styles based on the input provided by the artist. This allows artists to explore new ideas more efficiently and further develop existing art. With the ability to process large visual data, AI can help artists create more complex and detailed designs. AI technology can also suggest suitable compositions, colors, textures and visual elements based on the style and theme set by the artist. This can speed up the artwork generation process.

Mathew Dryhurst and Holly Herndon are two German-based European artists who are examples of artists who have utilized artificial intelligence (AI) technology in their more sophisticated works. Dryhurst often collaborates with Holly Herndon on interdis-

ciplinary audiovisual-related projects that explore the creative potential and ethical issues of creating content using technologies such as AI, Web 3.0, and blockchain. They have also developed projects that utilize AI technology, such as Holly+, an AI music generator that allows users to upload polyphonic songs that are then performed by deepfake versions of Herndon.

Additionally, through Voice Deepfake, AI models that have been trained to interact with Holly+ can generate deepfake versions of Holly Herndon's voice. Users can upload a polyphonic audio track, and Holly+ will then generate a version of the song with Herndon's authentic-sounding voice. Overall, Holly+ is a platform that allows users to generate and explore AI music in a more decentralized and flexible way [21], while considering the ethical and copyright issues that arise in the use of AI technology in the arts.

3.5 Producing and restoring a work to its original form and condition (restoration)

AI technologies can be utilized to assist in the process of restoring damaged or worn artworks. Through techniques such as machine learning, for example, AI can analyze visual data from original artworks to help interpret and reconstruct missing or damaged parts. In other words, as AI is used to remove, restore, and repair damaged or old artworks, endangered art can be preserved and redistributed.

For an example, AI can be used to help restore color, texture, and detail to ancient paintings that have faded or deteriorated. This can be done by analyzing visual data from the original image and using algorithms to generate a restored version using machine learning. Not only that, as a result of research through the use of AI technology as well, information errors or mysteries behind the production of a work can be ascertained and proven more accurately and precisely.



Picture 10: Madonna della Rosa

Source: [https://en.wikipedia.org/wiki/Madonna_of_the_Rose_\(Raphael\)](https://en.wikipedia.org/wiki/Madonna_of_the_Rose_(Raphael))

The Madonna della Rosa painting for example, was previously believed to be the work of painter Raphael. Through analysis using AI algorithms, the discovery of evidence that the Madonna Della Rosa painting was actually the work of St. Joseph further disproved that Raphael was not the real painter.

In addition, the underground art treasures of Alexander's Sarcophagus from the 4th century BC still preserve their original colors. Through visual analysis using AI technology, historians were able to detect the style of clothing and military attire worn by the ancient Macedonians from the paintings on this sarcophagus. All the works found were later exhibited in the museum for exhibition and tourist attraction.



Picture 11: Alexander Sarcophagus

Source: https://en.wikipedia.org/wiki/Alexander_Sarcophagus



Picture 12: Alexander Sarcophagus by derivative work: Colour reconstruction AI tech.
Source: https://en.wikipedia.org/wiki/Alexander_Sarcophagus

This clearly shows that AI is capable of helping to analyze in visual detail such as clothing styles, so that historians can study the culture and life of the ancient Macedonians more deeply. This discovery is one example of how AI technology can be used to restore and study ancient works of art and can subsequently be seen as a method towards the continuation of art in the future and provide new insights for historians and art lovers.

4 Conclusion

In conclusion, AI technology can help modernize traditional works of art to be more interesting and relevant for the younger generation as well as in line with the development of the high-tech world. Like other technological advances, AI technology has inspired both artists and artists to explore how art is created and what is defined as art for the sake of art survival in this millennial era.

References

1. Werhane, P. H. (1984). *Philosophical Issues in Art*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.
2. Du, W., Li, Z., & Gao, Q. Analysis of the interaction between digital art and traditional art. Retrieved from International Conference on Networking and Digital Society: <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=5479462>. 2010.
3. Badrolhisham Mohd Tahir. (2010). *Young Malaysian artist: New object(ion)*. Kuala Lumpur: Galeri Petronas.
4. Shabbir, J., & Anwer, T. Artificial Intelligence and its Role in Near Future. *Journal of Latex Class Files*, 14(8), 1–11 (2015).
5. Russell, S. J. and Peter, N. (1995). *Artificial Intelligence: A modern Approach*. Englewood Cliffs, New Jersey: Alan Apt.
6. Chandra, R & Prihastomo, Y. "Artificial Intelligence Definition: A Review," pp. 1–3. Retrieved from <https://www.semanticscholar.org/paper/Artificial-Intelligence-Definition-%3A-A-Review-Chandra-Pr-hastomo/d959ad041acca7570a7229e51c18a297bb7ca0b2>. 2012.
7. Amrizal, Victor & Aini, Qurrotul. (2013). *Artificial Intellegence*. Jakarta Barat: Artificial Intelligence Strategy.
8. Popenici, S. A. D. and Kerr, S. "Exploring the impact of artificial intelligence on teaching and learning in higher education,". *Research and Practice in Technology Enhanced Learning* 12(22) (2017). doi: 10.1186/s41039-017-0062-8.
9. Welling, M. "Artificial Intelligence in Art Education: Expanding Horizons in the Digital Era," *Journal of Art and Education*, 8(2), 45-62. 2022.
10. Toffler, A. (1981). *The Third Wave*. New York: Bantam Books.
11. Taylor, S. J & Bogdan, R. (1984). *Introduction to Qualitative Research Methods: The Search for Meanings*. Second Edition. John Wiley and Sons. Toronto.

12. Foley, J. AI-Generated art won a fine arts competition – And artists are up in arms. *Creative Bloq* (2022, September 7). Retrieved from <https://www.creativebloq.com/news/ai-art-wins-competition>.
13. Cetinic, E. & She, J. (2021). *Understanding and Creating Art with AI: Review and Outlook*.
14. Samdanis, M. "The impact of new technology on art". In J. Hackforth-Jones, I. Robertson (Eds.), *Art Business Today: 20 Key Topics*, London: Lund Humphries, pp. 164-172 (2016).
15. Hencz, A. AI Art and How Machines Have Expanded Human Creativity. *Artland Magazine*. From <https://magazine.artland.com/ai-art/>, April 8 (2022).
16. Huewe, K & Anadol, R: "Wdch Dreams". *Flaunt Magazine*, November 28, (2018).
17. Carmigniani, J. (2011). *Handbook of Augmented Reality*. Springer: New York.
18. Wibawanto, A, Sidik, S.A., & Kusumah, N. N. The use of Artivive application to improve children's communication skills. 3rd International Conference on Special Education (ICSE). *Advances in Social Science, Education and Humanities Research*, volume 388, pp. 231-236. Atlantis Press, Paris (2019).
19. Long, X. (2001). *Digital art*. Beijing: Peking University Press [J].
20. Hagen, B. On Dreamcatchers. *Transmotion*. 5(2), 82-87 (2019)
21. Dzuverovic, L. Holly Herndon: A life across bits and atoms. *Afterall A Journal of Art Context and Enquiry*, 41. pp. 90-97 (2016).

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