

DOI: <https://doi.org/10.34069/AI/2023.64.04.31>

How to Cite:

Zabora, V., Kasianenko, K., Pashukova, S., Alforova, Z., & Shmehelska, Y. (2023). Digital art in designing an artistic image. *Amazonia Investiga*, 12(64), 300-305. <https://doi.org/10.34069/AI/2023.64.04.31>

Digital art in designing an artistic image

El arte digital en el diseño de una imagen artística

Received: February 21, 2023

Accepted: May 12, 2023

Written by:

Volodymyr Zabora¹<https://orcid.org/0000-0001-6273-5430>**Karolina Kasianenko**²<https://orcid.org/0000-0002-4602-314X>**Svitlana Pashukova**³<https://orcid.org/0000-0001-6890-1145>**Zoya Alforova**⁴<https://orcid.org/0000-0003-4698-9785>**Yuliia Shmehelska**⁵<https://orcid.org/0000-0001-6136-0905>

Abstract

The research aim lies in describing new approaches in art. The use of digital art allows displaying an artistic image that perceives new ideals. The development of digital art in the era of global digitization implies introducing several modern tools for designing an artistic image. The paper raises the issue of the media of digital works, including photographic paper and canvas. The technological and automated side of some or all digital works is also described. The question of their uniqueness or singularity is raised. The paper reveals the aesthetic aspect of a computer-designed work, which depends primarily on the parameters of brightness, contrast, and saturation of the creative software used, as well as the parameters chosen for printing. Since this aspect is the same as for a traditional work reproduced in printed form, from a purely artistic point of view, a digital work can resemble a traditional work in every way if it borrows elements from it, such as hand-painted or digitally drawn textures. Moreover, when traditional techniques are combined with digital techniques, creative ways are likely to multiply because of the variety of techniques. Consideration is given to the use of

Resumen

El objetivo de la investigación es describir nuevos planteamientos en el arte. El uso del arte digital permite mostrar una imagen artística que percibe nuevos ideales. El desarrollo del arte digital en la era de la digitalización global implica la introducción de varias herramientas modernas para diseñar una imagen artística. El artículo plantea la cuestión de los soportes de las obras digitales, entre ellos el papel fotográfico y el lienzo. También se describe el aspecto tecnológico y automatizado de algunas o todas las obras digitales. Se plantea la cuestión de su unicidad o singularidad. El artículo revela el aspecto estético de una obra diseñada por ordenador, que depende principalmente de los parámetros de brillo, contraste y saturación del software creativo utilizado, así como de los parámetros elegidos para la impresión. Dado que este aspecto es el mismo que el de una obra tradicional reproducida en forma impresa, desde un punto de vista puramente artístico, una obra digital puede parecerse en todo a una obra tradicional si toma prestados elementos de ésta, como texturas pintadas a mano o dibujadas digitalmente. Además, cuando las técnicas tradicionales se combinan con las digitales, es

¹ Teacher Department of stage direction and public holidays Faculty of theater, film and pop Kyiv National University of Culture and Arts, Ukraine.

² Doctor of Philosophy, Associate Professor Department of Fine Arts and Design Faculty of Ukrainian and Foreign Philology and Study Art Oles Honchar Dnipro National University, Ukraine.

³ Senior Lecturer, Kyiv National University of Technologies and Design, Faculty of Arts and Fashion, Department of Digital Art, Ukraine.

⁴ Doctor of Arts, Professor, Head of the Department of Methodologies of Cross-Cultural Practices, Faculty of Audiovisual Arts, Kharkiv State Academy of Design and Fine Arts, Ukraine.

⁵ Candidate of art studies, Senior Lecturer, Kyiv National University of Culture and Arts, St. Yevhena Konovaltsia, Ukraine.



correction tools to facilitate modification of the composition.

Keywords: art, composition, design, digitalisation, pixel.

Introduction

To understand digital art, its design and production, it is necessary to realize the difference between art that uses digital technology as a primary tool to create more traditional objects - photography, print, or music - and art that uses it as a medium. In the latter, work is produced, stored, and presented only digitally and uses its interactive or participatory potential (Kress & Van Leeuwen, 2020).

Digital technology and interactive media challenge traditional notions of creativity, audience, and artist. The artist is no longer the sole creator of the work, but often the mediator or animator of the interactions between the audience and the artwork. The creative process itself is often the result of a complex relationship between the artist and a team of programmers, engineers, scientists, and graphic designers. A number of digital artists undergo engineering and design training themselves.

The digital environment also poses different challenges to the traditional art world: exhibition space, collection, sale, storage. The term digital applied to art is quite controversial because of its semantic blurring: "art design", "media art," "multimedia," "transmedia" (Du, 2020). This terminology is sometimes unconvincing because of the literal English translation and too noticeable is the load of the word "media," which certainly encompasses a reality different from the reality that emerges in the artistic practice of the 21st century. This paper aims to describe methods of designing an artistic image using digital technology. Assignment - definition of the concept of digital art, analysis of its typology, evolution, and distribution channels. The research questions are the next: Does digital art undermine aesthetic codes with the help of all the resources of modern techniques? Are the pieces of digital art the result from the electronic and computer revolution? Is the combination of art and digital technology giving birth to new artistic practices, new forms of works, and new relationships with the viewer?

probable que se multipliquen las formas creativas debido a la variedad de técnicas. Se tiene en cuenta el uso de herramientas de corrección para facilitar la modificación de la composición.

Palabras clave: arte, composición, diseño, digitalización, píxel.

Theoretical Framework or Literature Review

In contrast to the visual arts, digital art can have different definitions: classical and formal, analogue and manufactured. Increasingly, artistic practices are inseparable from technological and computer advances, perceived as a revolution in the art world. The technique of digital work is quite "incidental" and goes beyond its role as a tool and an aesthetic, symbolic characteristic (Dominguez, Messina, Donoso-Guzmán & Parra, 2019).

Rooted in the Dadaist movement of the 1920s, digital art is closely associated with the work of Marcel Duchamp and Man Ray (Randall, 2020). In the 1960s, the Fluxus contemporary art movement, influenced by Dadaism, mainly touched on visual art as well as music and literature and aimed to erase the boundaries between art and contemporary life through devastating humour (Oppenlaender, 2022). The concepts, specificity, and aesthetics of digital art are often inspired by science fiction novels.

The transition from the industrial age to the digital age was accompanied by a growing interest among artists at the crossroads of art and technology. Digital art evolved to bring together a wide range of practices, from the creation of object-oriented projects to works aimed at developing process-oriented virtual objects (Neate, Roper & Wilson, 2020). However, it was not until the 1990s that digital art gradually entered the art world. Today, the relationship between "digital art" and "contemporary art" is quite complex.

Like any human activity, art has bowed to the digital revolution and, in fact, has begun to revise its own *raison d'être*. Yot (2019) in this regard describes the changes brought about by digitalization: the multiplication of sources, the dematerialization of media, immediacy, and virtuality, transversality, and networking.

Digital art is taking root and following the contours of developments related to computer science. This is evidenced by the semantic variants of "cybernetic art" and "computer art,"

which began to emerge with the arrival of consumer microcomputers in the 1980s (Humm, 2022). At first, the visual work - computer images, 3D, “new” images - was synonymous with digital art practice. Therefore, the transition from analog to digital may be the only criterion for identifying the specificity of a digital work of art. But this key point is not a support for the qualification of video art. It only marks an extension of the other modalities of projection, installation, diffusion, exhibition. Li (2020) traces the branching of digital art from the beginnings of electronic music and experimental cinema to the motifs of kinetic art. Gintere (2019), argues that it is video art that is the ancestor of digital art, realized by means with the intention also in this diversion of function and purpose of the technical object to make it a work of art. Furthermore, in all its forms (projection, virtualization, installation and/or device), digital art questions the relationship between man-machine-environment in the artist-work-public.

Methodology

This study is based on a comprehensive approach, proper use of methods of system analysis, synthesis, generalization, as well as historical and comparative approaches, through

Table 1.

Characteristics of digital art

Interactivity	Presence of a sensory component
Minimum interactivity	Navigation in the information space

Table: author's own development

The first factor characterizing digital art is interactivity. Whereas classical works of art (painting, sculpture) have remained static, subordinate only to the contemplative side, digital art works prefer a sensory component: in particular, touch and gesture, hitherto absent in the art world. Art of a device loaded with sensors, digital art in its interactive version is driven by a new attitude, not a passive one. Appropriation is also a feature of the “multiple choice work” (Koch, Taffin, Lucero & Mackay, 2020). The second question was if the pieces of digital art the result from the electronic and computer revolution? Indeed, digital arts are a source of genuine “inter-action,” requiring movement of the work toward the viewer and, conversely, from the viewer to the work. This interaction is reduced according to a modality that differs depending on the installed devices.

which the image system of modern digital art and the opportunities it offers in creating an artistic image is defined. The chosen methods of research meet the goals and objectives: in covering the historical component of the emergence of digital art - historical and cultural method; to identify its factors and typology of digital artistic image method of abstraction and comparison. In addition, the work used a theoretical analysis of the literature.

Results and Discussion

The results of the work give strict answers to the research questions. First, giving answer to the question if digital art undermine aesthetic codes with the help of all the resources of modern techniques one should admit that the use of digital technology in the design of the artistic image means that from the production of the work to the presentation, only the digital platform is used and that it represents and explores its inherent possibilities. The digital art image is, among other things, interactive, participatory, dynamic, and customizable according to the artist's vision, and these features give rise to a special aesthetic. There are factors that best characterize digital art (Table 1):

The minimal interactivity is always the navigation in the information space. More complex interactivity may prescribe the generation of a programming algorithm. In this case, it is simultaneously controlling the observed process for the viewer and the author (Aldouby, Hasler, Nadav & Friedman, 2022). Interactivity can be the possible input of the artist. Interactivity may or may not have any real impact on the content or form of the work. Contributions in this case are combined with digital processing. Finally, interactivity can be a breeding ground for mediated interpersonal communication. This is where alteration - real-time collective action - is at the heart of the art project (Block, 2020).

The creation of an artistic image in digital art occurs differently in its various forms (Fig. 1):

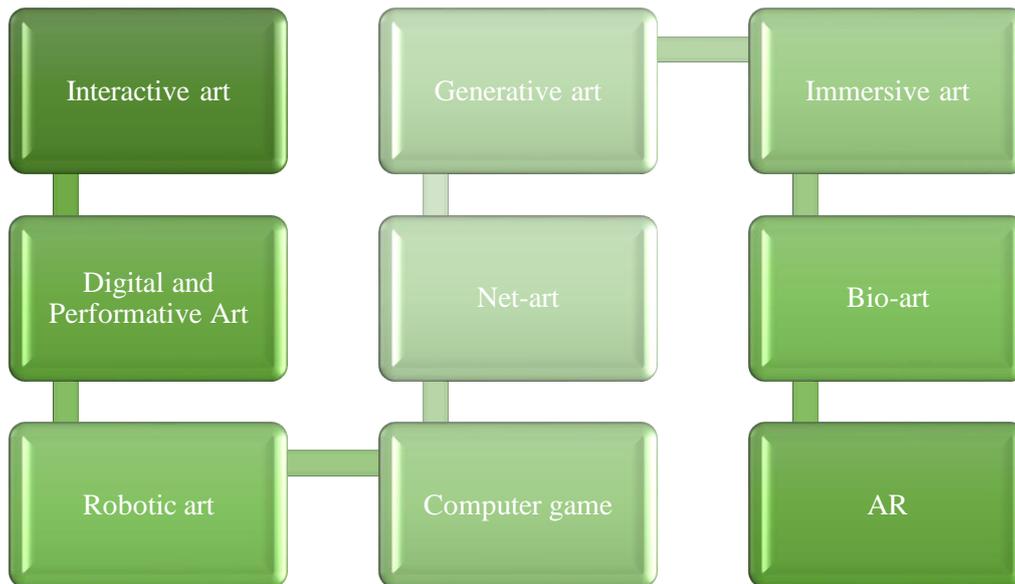


Figure 1. Typology of digital art
Figure: author's own development

Interactive art - brings a new mode of existence to work and the formation of an artistic image whose state of completion remains an “unfinished” production. Algorithmic programs create the illusion of autonomous life for the work and seem to increase its potential for interactivity to the point where it seems to escape its creator and is autonomous, alive.

Generative art (algorithmic art, computer art) is primarily about questions of worldview and randomness in the creation of images. Therefore, generative art precedes the arrival of computer science. Mathematics and robotics are the only way for the artist to expand his intention, his perception, his interpretation, his emotions.

Interactive and generative, digital art offers touching and fascinating artistic images, works where text, sound, image, and form and meaning are modular and almost infinite.

Immersive art - digital art invites an experience that is not only emotional but also sensual and corporeal. Enhanced by sound and pyrotechnic devices (spatial sounds, intense use of smoke, and strobe lights). Immersive art leaves the digital field to take over the body as well as the mind with the most destabilizing projects (Belting, 2022), immersing the viewer in a state of epilepsy or catalepsy, depending on the perception of the artistic image. Immersion is primarily a matter of measurement--real or virtual--and feeling again real or simulated through interfaces (virtual reality headsets, data gloves, controllers with “haptic feedback”).

Audiovisual performances are a mix of sound and image, freed from the cathodic and magnetic limitations that characterized video art. Going beyond the simple function of illustration (VJing), the audiovisual version of digital art is available in installations and performances enhanced by special sensors and software. Here, too, the ongoing semantic shift says a lot about the evolution of techniques and practices: vjaying, live A/V, audiovisual performance, audiovisual art, live cinema, film concerts, film mixes, live media, stage design (Cetinic & She, 2022). Mapping perfectly illustrates the new perspectives: new software allows artists to project their images on a three-dimensional building.

In terms of the third research question if the combination of art and digital technology gives birth to new artistic practices, new forms of works, and new relationships with the viewer one can conclude that an artistic image that multiplies on screens, combines with pyrotechnic effects, refracts on spatial sounds, modulates itself according to the software, and has become, quite literally, an experience to be lived.

Digital and Performative Art - Stage art, and dance in particular, constitute a separate and very dynamic field of activity in the world of digital art.

Net art - if an image is accompanied by digital art, it cannot be defined without computer code. By investing in the Internet, digital artists are sublimating the coding process. Net art has become emblematic of digital art and is

combined in a multitude: online art, web art, google art, software art, ascii art, code art (Lee & Lee, 2019). Again, the multiplication of qualifiers associated with this art and online - by and for the Internet - is indicative of protean creativity, whose evolution and forms are indexed to the evolution of new media technologies. Net art is really “media art” and “code art,” also playing with cultural codes, communication codes (Walker, 2019). It is an art that borrows factors of mobility, fluidity, and virtuality from the Internet and new communication technologies to create an artistic image, changing the inner character of the work. Bioart - our lives are influenced by digital technology, and art is influenced by biotechnology. We are talking about laboratory techniques for creating an artistic image. The artist's work is about molecular biology.

Robotized art is the artistic reprogramming of industrial machines and robots for aesthetic purposes. Addresses the living, in continuation of bio-art or attempts at a recomposed and augmented body, the experience of cybersex, and the ultimate avatar, posthuman performance art (Whitaker, 2019). Worked artworks in sound art and some music-making devices.

Computer Game - Contemporary artists also invest their talents in video games. In a computer game, artists create artistic images already in a transformed form, through dematerialization, new media, and the players themselves.

Augmented reality - combining the real and virtual worlds, capturing our senses, and enriching our perception, augmented reality opens an impressive window into the foggy Internet universe (Liu, Liang, Xu, Wang, Hao, Dong & Yu, 2022). To create an artistic image in augmented reality, the artist simply has to download an AR app, select a “layer” of data to overlay on reality and point the phone screen in the desired direction.

Thus, digital art is the marker of our time, the basic aesthetic and cultural form that unites the intimate and the common. Digital art holds up to society the broken mirror of modern subjectivity.

Conclusions

Digital art is consonant with modernity; it designs and reproduces our daily lives transformed by new technologies and the Internet. In contrast to contemporary art, digital art does not simply undermine aesthetic codes but makes use of all the resources of modern

techniques; and especially those resulting from the electronic and computer revolution. This combination of art and digital technology is giving birth to new artistic practices, new forms of works, and new relationships with the viewer.

As in other fields, the birth of “digital” art is part of the beginning of the birth of the computer mainstream. The software makes it possible to create the latest artistic image. It is the medium, that is, the computer and its associated technical objects, which becomes the object of artistic practice. But the foundations of this new artistic construction rest with video art and kinetic sculpture, based on design image and movement. In the same way, kinetic art is already an art of “motorization,” mobility, and interaction with the environment or the public. Another characteristic of digital art is its complexity and diversity, which continues to grow with technological advances. Motion sensors, for example, allow artists to experiment with previously unseen types of art in terms of the formation of artistic images. But the status of the artist is doubled by the status of technology.

The symbol of digital art is Net Art. Art borrows from the Internet the factors of mobility, fluidity, virtuality and has changed the internal character of the work. The Internet is both a place of production, but also a place of performance, participation, experimentation, and communication. A place with which galleries and museums cannot compete.

The digital artwork is, among other things, depending on the intentions and techniques it involves, a “multiple choice work” a work in constant creation, animated by algorithmic programs. It can also be a “living” work, as in the case of bio-art, combining art, science, and biotechnology.

However, the creation of an artistic image using digital code is a fragile work, dependent on the technical environment, its quality, its programming, its maintenance, and storage. The next few centuries will show whether digital art will be as sustainable as classical art.

Bibliographic references

Aldouby, H., Hasler, B. S., Nadav, T., & Friedman, D. (2022). Viewing images of jagged texture in digital artwork affects body sensations: A virtual reality study. *Psychology of Aesthetics, Creativity, and the Arts*. <https://doi.org/10.1037/aca0000522>

- Belting, H. (2022). An anthropology of images. In *An Anthropology of Images*. Princeton University Press. <https://doi.org/10.1515/9781400839780>
- Block, B. (2020). *The visual story: Creating the visual structure of film, TV, and digital media*. Routledge. <https://doi.org/10.4324/9781315794839>
- Cetinic, E., & She, J. (2022). Understanding and creating art with AI: Review and outlook. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, 18(2), 1-22. <https://doi.org/10.1145/3475799>
- Dominguez, V., Messina, P., Donoso-Guzmán, I., & Parra, D. (2019, March). The effect of explanations and algorithmic accuracy on visual recommender systems of artistic images. In *Proceedings of the 24th International Conference on Intelligent User Interfaces* (pp. 408-416). <https://doi.org/10.1145/3301275.3302274>
- Du, J. (2020). Research on optimization of portrait sculpture data based on 3D image and mobile edge computing. *IEEE Access*, 8, 224452-224460. <https://doi.org/10.1109/ACCESS.2020.3043010>
- Gintere, I. (2019, May). A new digital art game: the art of the future. In *SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference* (Vol. 4, pp. 346-360). <http://journals.rta.lv/index.php/SIE/article/view/3674>
- Humm, M. (2022). Modernist women and visual cultures. In *Modernist Women and Visual Cultures*. Edinburgh University Press. <https://doi.org/10.1515/9781474469395>
- Koch, J., Taffin, N., Lucero, A., & Mackay, W. E. (2020, July). Semantic Collage: enriching digital mood board design with semantic labels. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference* (pp. 407-418). <https://doi.org/10.1145/3357236.3395494>
- Kress, G., & Van Leeuwen, T. (2020). *Reading images: The grammar of visual design*. Routledge.
- Lee, J. W., & Lee, S. H. (2019). User participation and valuation in digital art platforms: the case of Saatchi Art. *European Journal of Marketing*. <https://doi.org/10.1108/EJM-12-2016-0788>
- Li, F. (2020). The digital transformation of business models in the creative industries: A holistic framework and emerging trends. *Technovation*, 92, 102012. <https://doi.org/10.1016/j.technovation.2017.12.004>
- Liu, Y., Liang, C., Xu, H., Wang, F., Hao, Y., Dong, J., ... & Yu, P. (2022). Digital Art Pattern Design Based on Visual Material Colouring Intelligent Programming System. *Mathematical Problems in Engineering*, 2022. <https://doi.org/10.1155/2022/2450074>
- Neate, T., Roper, A., & Wilson, S. (2020, October). Painting a Picture of Accessible Digital Art. In *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility* (pp. 1-3). <https://doi.org/10.1145/3373625.3418019>
- Oppenlaender, J. (2022, November). The Creativity of Text-to-Image Generation. In *Proceedings of the 25th International Academic Mindtrek Conference* (pp. 192-202). <https://doi.org/10.1145/3569219.3569352>
- Randall, L. M. (2020). Images in the margins of gothic manuscripts. In *Images in the Margins of Gothic Manuscripts*. University of California Press. <https://doi.org/10.1525/9780520376045>
- Walker, J. A. (2019). *Art in the age of mass media*. Routledge. <https://doi.org/10.4324/9780429039386>
- Whitaker, A. (2019). Art and blockchain: A primer, history, and taxonomy of blockchain use cases in the arts. *Artivate*, 8(2), 21-46. <https://doi.org/10.1353/artv.2019.0008>
- Yot, R. (2019). *Light for visual artists: understanding & using light in art & design*. Hachette UK.