

Can Virtual or Digital Creation be Considered as Art or Technique ?

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Abstract

The framework of art using software environment implies a reflection on today's aesthetics and its many creative means. In the following corpus we propose a number of steps to help analyse the state of digital art work including virtual art. Art is experiencing one of the biggest challenges: the pragmatic use of abstract information systems deprived of any primary and direct link with a reality, whatever it is. Because of the processing power of computers and the development of innovative man-machine interfaces, digital arts are facing a specific technique and cannot select only some features of it. As a matter of fact, virtual reality (VR) technology, developed in the field of art, allows converting virtual experimentation and/or experience into an operational and daily reality. Thus, art becomes totally technical and as Pierre Levy put it – technology is rather similar to the Art approach following the scheduled, ordered aspect of gestures. This is the context of our publication, we propose to study the following question: does virtual or digital art essentially belong to technology or mathematics and does it convey the right idea of what new art is?

1. Introduction

During the two last decades, the artistic production was radically influenced by the modern techno-scientific effect of artificial intelligence. New relations were created between art and aesthetics. This heavy Hegelian heritage which defines aesthetics as the rational discipline which studies the artistic beauty "free demonstration of the spirit, higher than nature" is seen challenged. The artistic thought as much as its products and its tools, see themselves trapped by the techno science. One attends a redefinition of art, of its systems and its practices. Thus, we are facing a indefinitely amplified process of rationalization. This inescapable development of algorithmic design of the artistic forms raises an aesthetic culture completely seized by mathematical theories of algorithmic models.

An "aesthetics of algorithmic" progressively imposes itself in contemporary artistic mentality, and we do not hesitate to recognize an authentically virtue. Everywhere, the innovation and the novelties are sought. It is precisely what identifies the contemporary art : its degree of innovation, of unforeseen, of novelty, without prejudging so far as it is recognized and appreciated by us [1] .

Indeed, art is questioned in these most fundamental concepts. The new artistic practice indicates the general phenomenon of bursting of aesthetics out of the institutional limits that the tradition assigned to him. In this context, it is necessary to understand the changes with which the contemporary artistic creation is confronted.

The approach developed in this article involves three parts. In the first part, we draw three reference marks that will guide us towards a reflection on art at its virtual age. In the second part, we try to elucidate the relationship between art and science. In the last part, we evoke the relationship between art and technique. Then we conclude by evoking new perspectives concerning these three domains.

2. Art at its virtual age

2.1 The artist and the act of creation

At the end of intense ideological debates on aesthetic, the Sixties contribute to call in question concepts of artist and creation. The contemporary art reversed there prospect which binds representation and effect of realism in the traditional design of creation. The artist becomes an operator by the effect of immersion in virtual worlds.

What changes, are not only the formal procedures and the use of new technical means, like those related to computer science such as automatic generation of patterns or virtual reality techniques. It is the nature of the art work which differs from its concept, such as it is heard in the tradition of the visual arts, its materiality, its structure, its genesis, its mode of apprehension, its reproducibility without limits and its spontaneous possibilities of diffusion which escape any skirting.

These cues concerning art at its virtual age lets appear new forms of artistic expressions, in particular, those supported by interactivity, real-time simulation, user's immersion in 3D virtual worlds. This new aesthetic culture – that we will call "digital aesthetic"– raises a philosophical disagreement between partisans of "natural" art, fruit of the inspiration and the technical knowledge, and defenders of techno scientific art [2].

The detractors of digital aesthetic denounce that the algorithmic would empty the art work as well as its process of creation of their enigma and of their possibility of direction and values. They also fear a certain limitation of freedom and originality of the artist personal expression. Thus, the new techniques of creation constraint the expression of the creativity by their nature of meta-tool. This can be expressed by : "no aesthetics can be the base of a work without a sensitive nature: the sensitivity is not measured nor is calculated.

For the defenders of computerized creation, digital art offers the possibility of a broad field of new art works of which the nature is based of complex algorithmic equations. the simulation function, creative function by nature, assigns with these works the privilege to explore all the fields, all the tests, all the creative experiments.

In this way, numerical work is based on a changing materiality and does not limit itself to some constraints. It is disconnected of any physical support and does not rely on any pragmatic relation with a given matter. It is pure abstraction, *a "work without matter"* which leads to a redefinition of the modalities and methods of artistic creation.

2.2 : Art work without matter

If it is admitted that any image comes from a model , that draws its substance and its power from it, one notes that with numerical art, one attends the absence of model and the use the digitalisation.

How can one then circumscribe the matter of numerical work in the absence of it?
How digital images could be objectified without recourse to a presentation of matter ?

Different from the traditional representations (photographic or videographic images), synthesized images are not images, they are language. The rough reality of traditional materials the reality simulated or – virtualised of – the numerical one replaces.

One aspect of artistic synthetic images is abstraction. These images are sometimes expressed via mathematical models and computer programs, although they offer a visible material aspect. In this way, the mathematical representations produce visible results (images). Indeed, in the field of figurative thought and artistic creation, the digital world introduces a different way of designing and perceiving the world.

Moreover, a radical change appears in the quality of the materials used. These

materials being strongly structured and inseparable of the computing processes

which generate them.

The image ends, in this way, by becoming means of ubiquitous writing which must carefully be read, interpreted, compared with its text, as we have learned how to do it in the field of writing.

One has thus the right to fear an increased virtualisation of art, a loss of the body one, or an irrepressible reduction of scientific rationality, with the abstraction and the analytical deconstruction [3].

With its new images, one calls upon the shade. No trace, no human print is given to follow and decipher.

2.3 Authenticity of art work

In its numerical spaces of creation, contemporary art reveals new ways of representation of the world. By its abstract character, it is anchored in reality without being fully real. It deploys on a purely new world, on virtual realities which threaten "its authenticity" and its value.

These new characteristics associated with the contribution of technology and computer science and more recently virtual reality technology, generated divergent meanings which led to the disappearance of the uniqueness of the art work. Technology undermined the identification of autonomy suitable for art. It also induces a delocalisation and the absence of temporal synchronisation which abolishes the membership of the image to a space and a given time, and allows not only new perspectives for the object but also the possibility of new existences [4].

New artistic practices indicate a general phenomenon of bursting of aesthetics out of the institutional limits that the tradition assigned to it. One attends the decline of the "aura" of the art work [5]. Dimensions which explain this event were largely interpreted by the art work of Rainer Rochlitz, entitled, *disenchantment of art* [6].

This devaluation of the authenticity of art work is primarily the effect of many transformations:

On the artistic level, technique introduces at the same time a transformation of our point of view and a change of our relationship to time. It substitutes eternity by topicality; at the duration, the moment, the fugacity, the accelerated rate that new technologies and more recently virtual reality technologies amplify. These new processes confer to art work a new actuality, which threatens its capacity of historical testimony and breaks it from its tradition.

On the anthropological level, the decline of the "aura" of art work returns to the rise of mass society and diffusion. This, corresponds today to what we call "a democratisation of art". This value of exposure, which takes seat of the cultural value of work, generates a new process of significant perception: art escapes the field from appearance of the "beautiful" and gives up its properly aesthetic dimension.

Virtualisation, simulation, interactivity, temporalities, variability, memorisation of the volatile, provide new reference marks in the aesthetics of the digital image. The image at its virtual age, proposes sequences of reversible figures to us : it twists, it is stretched, turned over, etc.

The exploration of the image temporal plasticity related to its algorithmic dimension, also introduced a modified perception of space, as the illustrated material which makes it. From now, the algorithmic and temporal identities of numerical works constitute their aesthetic identity.

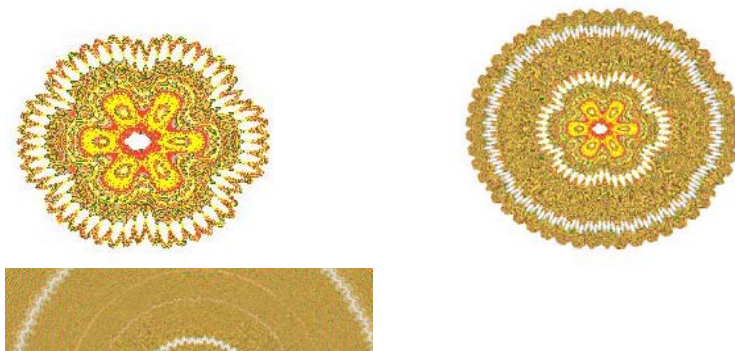
If art got rid of duration, if it integrated its transitory character by sympathy for the "volatile", it could not be that under the terms of a design of the truth which is not baited to regard this one as abstract, but becomes aware of its temporal aspect [7].

3. The art seized by mathematical modelling and computing

The use of mathematics in art is not new. Indeed, mathematics have always underlay artistic creation (research of the symmetry and the balance of the composition as in the Renaissance), in painting, *Vera Molnar, Jenner or the SPACE Group*, use graphical representation of algebraic structures. This step towards science finds one of its illustrations with the design of an abstract imagery based on the adaptation of the mathematical formulas (*works of Max Bill, Gérard Chamayou or Félix*).

"Mathematical art " is especially an idea, a thought, a knowledge converted into form. It is an act of theorems modelling external to it, suitable act of the scientific thought. Art came to Science [8]. As machines became the main source of inspiration, mathematical art returned into a new experimental phase. This marriage between mathematics and new technologies raises new artistic disciplines such as numerical art, generative art, fractal art, or virtual art. One of the common aspects of these new disciplines is that they reformulate in an understandable way abstract contents.

For example, fractals or other computer generated images, as a result of a complex mathematical modelling and simulation, reduced creative acts to their simplest expressions. Thus, giving a mathematical function or a functional system of equations with adequate parameters setting, a computer program is capable of generating complex aesthetic images. Such works put in scene complex and chaotic universes characterized by phenomena of proliferation, overload, saturation, or excess, a universe in permanent metamorphosis in witch nothing is stable, neither the image, neither the colour, nor the figure itself (Fig. 1). This lead to a culture of flow, where instability, abstraction, fugacity, and chaos are dominant values. Fragmentation, irregularity, bifurcation or junction points, bind order and chaos, random and determinism, finite and infinite [9].



4. The art seized by technique

Modern art stuck, all along its history, to release itself from any technical specificity. This resulted in the possibility of making art with any technique. Carried by the computing power and the development of innovative man-machine interfaces, digital or virtual art is today confronted with specific techniques which cannot take only positive aspects.

The introduction of virtual art creates suspicion and faintness persisting in the field of art. It is a polemic in the centre of which "contemporary" art sees itself, suddenly and brutally, questioned. We entered a new era, the era of the generalized connectivity which will transform, not only the supports of art, its diffusion, its know-how, but also its perception [10]. Indeed, the inescapable development of the functionalities and modalities of this new technology, at the software level as well as at the level of human-machine interface, allowed the emergence of the concept of virtual experimentation. This one consists to study various mathematical models and to solve its equations so as to follow the evolution of the various variables representative of a physical or non-physical phenomenon. Thus, it will be possible to act, via these models, even on virtual objects or to test non-physical conditions.

Released from their scientific and technological aspect, these tools offer to the artist new means of expression which can give life to fantastic universes. This raises to a new kind of art offering infinite potentialities resulting from both the continual increase of computing power and the creation of new software.

It is a system of which various functions (processing, interaction, visualisation, motion capture devices) may be delocalised but they appear to the user, belonging to the same logical entity. The effective use of new technologies such as virtual reality and the numerical results they produce lead to fabulous tool of discovery. The produced images generate unforeseen and unforeseeable patterns (although already present in the equations).

Such revolutionary tools modified academic references and tradition of the theory of creation. Should we announced an epistemological rupture? The artist holds anyway, power tools for creation which will also permit to question our senses, our relation to reality, space, and time (art work of Edmond Couchot and Michel Bret (Fig. 2) and those of Miguel Chevalier (Fig. 3, 4)).



Figure 2 : "Le pissenlit" - Edmond Couchot et Michel Bret (1996).



Figure 3 : "Sur-natures" - Miguel Chevalier (1980).



Figure 4 : "Digital Paradise" - Miguel Chevalier (2005).

5. Conclusion

In this article, we have presented two main tendencies of art : one assigns its scientific aspect and the other assigns its technicality. Indeed, the most projecting feature of the current state of art holds in the fact that technique and science take an increasing importance in art work. Evolution of art and techniques went hand in hand, maintaining a close relation. Facing this huge potential offered by computer-aided creation and virtual reality techniques, does art will be considered as being completely technical or mathematical ? The start of a reconciliation of art and techniques led to a sharp reflection : does "digital art" is a cut art ? Anyway, it is an art which falls under the continuity of artistic research and the prolongation of the history of art. Although it is very related to computer science, its evolution testifies to an artistic and aesthetic original history, which cannot be reduced to a simple application, as "advanced" as can be. Even if one reaches with digital art, an ultimate degree of use of techniques and mathematics, art and technique were never contradictory. Digital art does not break, but differently poses the relations of adjacency between technique and language, technique and art. It facilitates and automates the exchanges and communication modes between figurative and technical thought. So, potentialities offer by the technology enable any creator to redefine his subjectivity and to reconsider the respective relationship between reality, virtual reality, and imagination [11].

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