# CINEMATIC EXPERIENCES AND THE DIGITAL MOVING IMAGE

Ricardo Rivera Berrío, Address: Nolineal - Cra 54 107-13 402, Bogotá, Colombia, South America. E-mail: <ricardo@nolineal.com>.

**Abstract**

If the introduction of the digital into moving image production does not alter the cinematographic device, nor change any of the essential features of the cinema, then the production of digital moving images will not affect the essence of cinema. If any of the essential features of cinema are, in fact, superseded by the digital features of the moving image, they should be named as *cinematic experiences*, which are defined as *moving image production, digitally mediated, that looks for its essence in the consciousness of movement and visual rhythms*.

**Keywords:** cinematic, experience, cinema, digital, moving image, production, interaction, spectator, actor.

**Fig. 1. OP_ERA. (©Rejane Cantoni and Daniela Kutschat. Photo © João Caldas.)**

Figure 1 is a photograph from OP_ERA, of the Brazilian artists Rejane Cantoni and Daniela Kutschat. This is a work that has been evolving in its format and has been presented in various places in the world. Inside OP_ERA [1], a luminous cube with lines and forms can be moved in real time with the finger or the attitude of the participants. The question here is: Is OP_ERA a new form of cinema? Cantoni, one of its creators, confirms that it is cinema in four dimensions and Jorge La Ferla in his book *Cinema (and) Digital* describes this work as "cinema that appeals to sensorial experiences and exceeds the audio-visual perception" [2]. OP_ERA isn't the only case that raises this question. In his book *The Language of the New Media*, Lev Manovich talks about the interactive CD-ROM, videogames and the experiences of net-art as new forms of cinema [3]. The theoretical trend seems to move in that direction. In universities around the world, seminars are given that respond to names of "New Cinema", "Intelligent Spaces", "Interactive Cinema" or, as in the case of the ISEA2013 panel, "Transformative Cinema". What needs to be asked is whether the concept of cinema depends on film (in the physical sense) as a fundamental support of its existence, and how the digital production of the moving image intervenes with the very nature of cinema.

The cinema finds its foundation, its birth, its essence, in the possibility of producing moving images. But, when was cinema born? The history of moving image production goes back at least 2.500 years, when Plato used *Allegory of the Cave* as an example of this. [4].

Historically, there were three different aspects which led to a good ending for the moving image production:

1) The research about the production itself of the moving image and its projection;

2) The research about the theory of persistence of vision;

3) The application of the invention of photography, that is, of the means to capture reality, and its specific application in the chronophotography [5].

These three areas of research began to converge until the Lumière Brothers assembled the cinematograph. For the first time, moving images of reality were publicly projected in the darkness of a cafe in Paris, with a paying audience. Through the use of film, they were able to copy and distribute their work with the purpose of presenting the show afterward in another room. Cinema, as a general consensus, was born there, on the 28th of December 1895 [6].

However, for some, cinema wasn't born there, only the first implementation of cinematography. Morin [7] affirms that cinema was born when Méliès understood the real effect of the device he was handling which gave him the power to perform magic tricks. Another perspective is that of Deleuze [8], who argues that cinema conquered its own originality when it found editing, the moving camera and the emancipation of the projection of a shot; that is, when cinematography transcended as a mental image. In that case, when was cinema really born? In the year 1895 with the cinematograph? Or was it in 1897, when Méliès consciously incorporated editing? Or was it still later, in 1911, when Griffith laid the foundations of the North American school? Or was it in 1925, when Eisenstein formalized his theories?

Defining the founding of cinema becomes very important for this research because the characteristics of analog moving image production were also configured at that moment, which is the basis of cinema. That said, given that without the production of the moving image there would be no cinematography, and without cinematography there would be no cinema, we find in the Lumière's projection the founding moment that configured the cinematographic device. From the rigorous analysis of that founding moment and its period, we identify in this research a definition of cinema: *moving images of the reality projected on a screen in a dark room with simultaneous audience that may be reproduced in films and distributed in a number of rooms*.

The definition of the founding moment is used here to identify the essential features of the cinema, which are:

1) To be an index or trace of reality [9] and

2) moving image projection [10]. Let's remember that cinema was born as a direct consequence of the historical search for the capturing of reality and its representation in movement.

3) At least one member of the audience is required since it's he/she who completes the movie [11];

4) The fascination of the big picture: both Bazin and Machado, through Dubois and Deleuze, found the spectacular and breathtaking moving images project-

ed on a large screen to be fundamental [12], a feature which is complemented by the fifth attribute;

5) The dark room, a mythical space that besides allowing the cinematographic experience, also makes it possible for the spectacle to make sense;

6) The sixth place is the immobility of the spectator: it is exactly because the spectator is immobile that cinema has been able to improve the way that it has [13]; and

7) The intention of explaining a discourse; the moving image is the support through which the ideas, sensations or feelings of a given historical moment are immortalized.

Several observations can be made by reviewing OP_ERA through these criteria. Let's compare it with the essential features of the cinema: although there is a fascination by the great image and this happens in a dark room, in OP_ERA, there is no shooting, the post-production is live; the spectator is released from his immobility and intervenes in the work; the discourse explained would transform here in an invitation to a sensorial experimentation; and there are no traces of reality in the moving image detached from back projections. Even so, is it cinema? Would we be able to make the arguments that it is not cinema?

The only thing we can affirm with certainty at this moment is that the construction of the moving image that OP_ERA provides, entirely mediated by the digital, is generated at the very moment when the work occurs, which doesn't happen with the moving image produced by the cinematograph. Does this mean that the digital is able to produce a moving image different from the one the cinema has produced until now?

The moving image as product of cinema is an illusion: it is the sum of immobilities; it is, as appreciated by Oubiña, “the typical example of the false movement” [14]. When investigating this construction of the moving image, the frame appears as the basic, primary element. The frame is a concrete fact, is there, with its translucent image captured from reality which is crossed by the light. That makes us wonder: where are the frames of OP_ERA?

Today, it's a fact that the digital cycle of moving image production is complete: capture, processing, post-production, distribution, exhibition and projection; they are all already digital. But in essence, how does this affect the digital production of the moving image?

When we *digitalize* something, what we are doing is taking signs of reality at intervals, equal to what happens with the frames of cinema. But after doing so, these intervals become pieces of information and are in turn entered into a mathematical function, which, among other things, has the ability to predict and reproduce any point between two given intervals. In this way, if one wants to get the interval 2A, that non-existent frame that would be between the frame 2 and the frame 3, the mathematical function would be able to generate it.

At this point, we can already identify two elements of the digital that make an impact on the production of the moving image: first, it requires an algorithm generating the mathematical function to be able to get the moving image that no longer depends only on the succession of immobilities. Second, the support of the image is no longer the frame and becomes a code. The potential transformation of cinema doesn't happen simply because it has become digital or because it is working with pieces of information discreetly. The real transformation happens because the support that bears the moving image has changed: it has moved from the photographic picture printed on film, to the code executed by mathematical equations.

In theoretically developing the potentiality of this kind of support and comparing it with our analysis of multiple works, we are able to identify the characteristics of the moving image digitally produced. These characteristics are outlined below:

1) It is no longer an index or trace of reality. The digitally produced moving image could be constructed just by using code and mathematical equations, or even signals from sensors. It doesn’t need moving or still pre-recorded images by a camera to exist;

2) It allows for the simulation of reality based on mathematical equations;

3) Besides becoming separate from the capture of reality, the digitally produced moving image has the potential of being continuous: it is simply a matter of time before the mathematical formula can be developed that shows the result continuously, instead of extracting the frame from the time vector.

4) It opens up creative possibilities in the dialogue with the machine.

5) The notion of authorship becomes vague. Who is the author of a digitally produced moving image? The one who conceptualize it, the one who made the programming, the one who alters machines to get the expected result? The user? The algorithm?

6) The immateriality of the support doesn't imply nor guarantee its visibility in time, that is, it is tied to its interpretation by a device.

7) It is a numerical representation;

8) It can be produced, recognized and indexed by automated processes;

9) Its intrinsic variability allows it to be interactive. Maybe this is its greatest potential and with no doubt, its greatest difference from the analogous cinematographic image: To be a numerical representation allows the digital moving image to respond to the action of an actor in a given environment. Finally,

10) The digitally produced moving image has been able to permeate the cultural layer [15]. Only the arrival of the digital in the production of the moving image allowed us to create cities of light. This wouldn't be possible without moving images generated by codes and equations that respond in a singular way to the environment and people who live there.

At this point, the first conclusion can already be outlined: *The digitally produced moving image is different from the image produced by the cinematograph. The digital alters the production of the moving image when modifying its support, which was the frame or photographic picture, to become the conjunction of code and equations. This also alters the representation of the moving image when modifying its ways to show the image, and broadens its possibilities in the representation.*

Having said that, from the point of view of the moving image, what is the difference between going to the movies today or a hundred years ago? In truth there is no difference. While as we outlined the digitally produced moving image is different, its very nature allows it to *simulate* the one produced by the cinematograph [16]. Therefore, there is a second conclusion: *cinema will not disappear nor will it be transformed in an essential way with the digital production of the moving image if it keeps the* ***simulation*** *of the cinematographic image as much in its production as in its representation.*

The question that arises is obligatory: If this **simulation** is superseded, what happens? Returning to OP_ERA, let's appreciate its aesthetic of light and colour, of visual rhythms. When analysing cinema and the experience it produces in the audience at a deeper level, and comparing it with this work, we perceive that

OP_ERA doesn't seem to match the "cinema" category. But if it isn't cinema, then what is it?

We can find another kind of moving image that is digitally produced, like an augmented reality (AR) application that looks to create a new kind of narrative. This is the case in Michael Cohen's research [17], which has involved the creation of an AR application where a person follows the road shown by some bubbles in the screen of his device. The bubbles respond to the actions of the person to warn him if his road is right or not. The moving image produced is digitally mediated and mixes virtual image with reality. In the end, the "movie" leads him to find a treasure. Tensions are set out here with the cinematographic: this sequence is digitally treated in real time, so the question arises: where is the index of reality? Where is the immobility of the audience? And the dark room? And the projection of moving images? Where is the frame? So, does this lived experience belong to cinema or does it get away from it?

As more works were observed during the research, it became more difficult to relate each of the concepts to those of cinema. Then, it was necessary to identify a new category which better fits these works. Taking the meaning of the words into account, the context which has been used and its relationship with this research, we call this new category *cinematic experience*.

*A cinematic experience is a moving image production, digitally mediated, potentially requiring an action and that looks for its essence in the consciousness of movement and visual rhythms*.

This definition consists of four parts: in principle it considers that the moving images must be *produced*, that is, behind them must be an exercise of preparation that gives life to the moving image. It also considers that the production process, or staging, or the waited result, is *digitally mediated*, which implies that its support is code and this is executed through algorithms. This digitally mediated moving image production potentially *requires an action*, which means that it can allow the audience to be involved with the moving image produced in the surrounding environment. Finally, this digital moving image looks for its essence *in the consciousness of movements and visual rhythms,* which implies that the image production affects vision and exalts the *consciousness* of the movement caused by the light.

This definition distinguishes *cinematic experiences* from *movies, expanded cinema* and *installation art*.

This research also explored different milestones in the production of the moving image to determine which of them could be considered the birth of cinematic experiences. Research was undertaken into the prehistory of cinema and the birth of cinema, and it was found that digital technologies were not involved and the action of the spectator was not required. It was not until 1958 with *Laterna Magika* of Svoboda and *Kinoautomat* of Çinçera that all characteristics of digital moving image were found together, but there is no evidence of the use of digital technologies for its exhibition. It was Youngblood who documented the first use of digital technologies by artists in the 1960s [18]. In analysing these works, this investigation determined the birth of cinematic experiences on March 19, 1963 with the first exhibition of Nam June Paik [19].

Once this new category was identified, we decided in this research to do the exercise of comparing the different results obtained with the intention of identifying the new aesthetic, result of the cinematic experiences. For this, we compared the characteristics of digitally produced moving images with the essential features of cinema, in the light of the categories that Greenaway proposes for rethinking a cinema of the future [20], with these results:

1) The camera is not essential to produce the digital moving image. Besides, the concepts detached from the use of the camera, such as the frame, the point of view and the editing, in the strict sense of cinema, aren't transferable to the cinematic experiences.

2) The issue of the digital disputes the legitimacy of the cinema screen being the ideal space to see moving images. The use of digital tools contributes to the breaking up of the traditional frame of representation, mainly with the computer, projections and unconventional interfaces.

3) The digital nature of moving image production distorts the necessity of the linear organization of the moving image flow. In its place, these will respond to pre-programmed algorithms and to the intervention of some other agent or at random. From this perspective, there is no equivalent to the text as an organizer of the audio-visual story in the cinematic experience, and databases will appear as a new cultural form, which together with the algorithm and the very intention of the audience, make it easier to take new unpredicted directions.

4) In the cinematic experience the concept of actor is modified according to three approaches: a) the possibility of creating digital actors that may exist by default or be created when the cinematic experience is in progress; b) The transformation of the spectator is potentially becoming the spectator-actor: what makes the big difference with cinema is the ability to allow the members of the audience to react in front of the cinematic experience and intervene in its development; c) The geographical distribution of spectators-actors related with the same cinematic experience at a given moment, thanks to tele-presence tools.

As we can see, the aesthetics of the cinematic experience differ widely from cinema, which allows us to outline the third and last conclusion of this work: *when a digital moving image is produced by creatively exploring one or several of its characteristics, and exceeds one or several of the essential features of cinema, the result is a cinematic experience*.

Cinematic experiences are a conjunction of knowledge, techniques and aesthetics gathered at a crucial point and evolving the arts towards a new form without a name. As La Ferla knew intuitively, much of what is seen in the cinematic experience was imagined first by cinema. Maybe that's why it is difficult to think that what the cinema imagined, when it becomes reality, is not cinema. When we understand that the cinematic experiences go beyond the cinema and installation art, a new panorama arises for the moving image which is immense, not only for the production, but also for theoretical reflection along the following lines: the subjects of image and light representation in the cinematic experiences; the exploration of the poetics of the cinematic experiences; the relationship of the spectator-actor as a postmodern person with digital cultural creations; the development of cinema; the creative act which depends on the digital; the role of the human perception in a world where communication between machines takes priority over the communication between humans.

When our children grow up, maybe the fundamental question raised here will be irrelevant, since the digital will already be the only support in their world. Even so, the concern about the moving image production will continue to prevail. They must be very attentive to find the way to get away from the surrounding prison of datum and light.

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