

CineVivo: a mini-language for live-visuals

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ABSTRACT

CineVivo is a concept-tool for live visual performance where code-text can become a second layer of communication and visual information. CineVivo is a mini-language ongoing development in OpenFrameworks by Esteban Betancur. This concept-tool has also been explored and exploded by connecting with other open sources platforms such as Supercollider, Chuck, and Tidal using OSC protocol. The following paper presents an overview of the conceptual framework, and the technical specifications embedded in CineVivo, as well as a deep description of MOTHER, an electronic literature live-performance where CineVivo was used.

1. INTRODUCTION

In 2017, two members of *colectivo Andamio*¹ were working alongside with Emilio Ocelot² in a piece for a live-performance using a paetzold and sending OSC messages to run pre-recorded sound and video samples. This was part of a tour in Colombia including a short residency in Medellín, and a second week with activities at the *Festival Internacional de la Imagen in Manizales*, Colombia where the piece was premiered. During the first week in Medellín, we met Esteban Betancourt, which is a professor at the *Instituto Tecnológico de Medellín* and has already developed some application for sound in Chuck and video alongside with *Semillero Cinevivo*³. We shared some of the technological problems encounter on adding video to Leviathan and connecting this visual layer to the interactive-sound system already programmed in SuperCollider. This resulted in a short notice collaboration in order to develop a system that could connect through OSC protocol to Supercollider and that allowed the performance to start a set of video clips that were projected.

Through this collaboration, the first version of CineVivo⁴ was born a couple of months after this event, as well as further collaborations between *colectivo Andamio* and Esteban Betancur. The work that we have developed as Andamio since the beginning is deeply connected with text as an initial output were other sound and visual layers run parallel. Esteban Betancur was also interested in producing mini-languages that could be written in English and Spanish, as well as developing tools from a Latin American context. The first version of Cinevivo was embedded inside all these subjects, and it worked as a based for a collaboration where we work alongside with Esteban to find possible layers and paths to include in Cinevivo, that became a concept rather than just a tool.

In the following paper, we will expose the theories and technologies involved in this collaborative process that has resulted in newer and/or specific versions of CineVivo. CineVivo as a concept is not a finished tool, but an open source project that could be enhanced with specific directions, which makes the project as open as it can be. When we review the theory about CineVivo we could understand better why we state that Cinevivo is a 'concept' instead of a tool. Exclusively, because we will explore briefly how this has become a base for further explorations by other musicians, programmers, and artists, adding and solving alternative questions that the ones that were conceived by us. Finally, it is important for us to share an example of the connections between theory and the technological possibilities of CineVivo as a collaboration project. Since

¹ Andamio is a collaboration project where sound is the base element that ramified in different applications: within the body, textures and visuals. More information online: www.andamio.in

² A mexican musician, sociologist and programmer. More information online: <https://emilioocelotl.github.io/>

³ More information online: <https://scinevivo.github.io/inicio.html>

⁴ Full project online: <https://github.com/essteban/CineVivo>

this conceptual and technological collaboration project has also resulted in an artistic piece, an electronic literature live-performance called MOTHER.

2. CODE/TEXT AS IMAGE

When Marshall McLuhan wrote “The Gutenberg Galaxy” (1966), he made himself the following query: What has been, possibly, the role of the written word in our transformations of perception’s habits of visual archives? Singularly, because the written word is an image itself. Images have been coexisting since the man activated images as a way of communication. At the same time, their repercussions in our quotidian life have been active and inactive meaningful, and languages.

On the other hand, Hans Belting (2011) thinks of images, just like Marshall McLuhan, in the sense of activating and inactivating images, but no being determinative. Every man is capable of producing and consuming images. As soon as they consume, they are producing again. The problem has been that we have already disconnected images and text. They work in both ways. Most important, we have translated our use of quotidian images to the technology of phonetic alphabet, that is artificial to men.

Images are also artificial. There is no doubt. But these ones have the singularity to depend on, exclusively, of the spoken word, and leads us to use words as our archive of images, and give us the opportunity of activating and inactivating, or producing and consuming these ones in both ways. We can not think anymore, text like an absolute truth or reality, partly because they do not act in consequence, and partly because they do not act in an autonomous way. According to Boris Groys, in his book: “On the new” (2014), he shares with us the idea that in our archives of images, these ones have value only, when they are compared.

The principles that support CineVivo as a concept are based on these ideas: a) to use text in order to compare images, b) to give value to the text and images when comparing them, c) To offer the producer and spectator active and inactive images (their own images), and d) to consume images in order to produce them comparing text and images, giving value as much the text as images in a space/time where both are coexisting in the screen; but having value for the producer and the viewer through comparison.

3. CINEVIVO

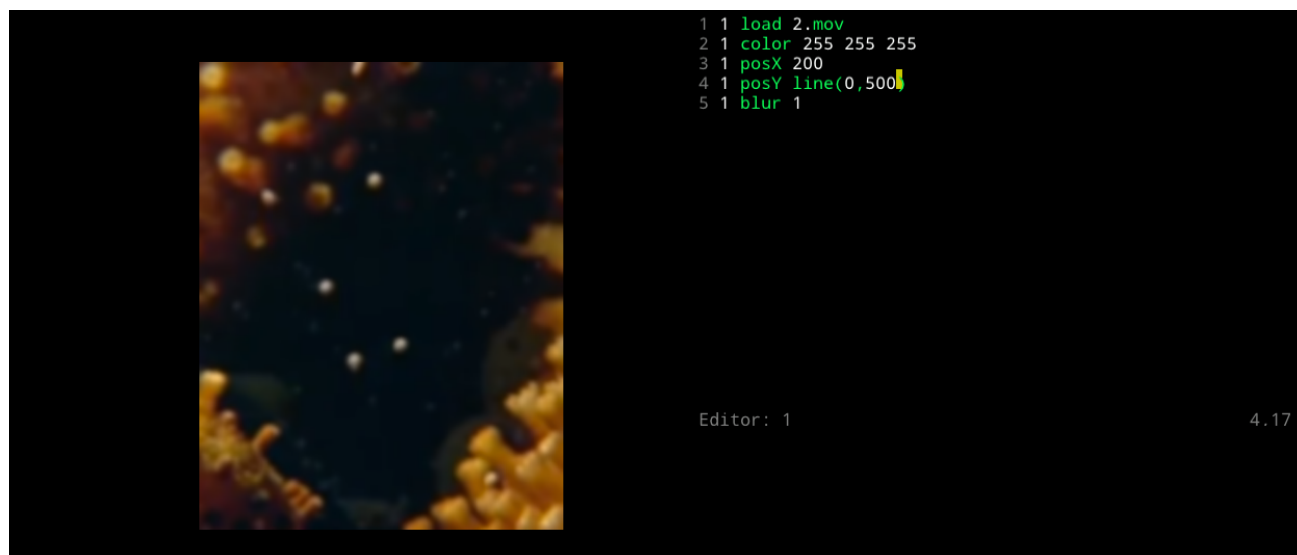


Figure 1. First draft of CineVivo language and output monitor. Screenshot © Esteban Betancur, 2017.

CineVivo can be used inside several new media practices such as algorithmic composition, electronic literature, live video performances, among others. It is surely embedded in live coding as the encapsulated media since it parts from the idea that code is an image that it is shared in a live-performance setting. Although it also can be used to developed fixed media or installation pieces.

Technically speaking, CineVivo started as two different modules that coexist in one app. The first one is a render engine built on top of C++ using OpenFrameworks, and the second one is a text editor capable of sending CineVivo Language instructions directly to the render engine using Open Sound Control (OSC) pro-

toCOL. The render engine let us draw up to ten layers of graphic material. This material can be pre-recorded images and videos, cameras, 3D models. With this material, we can apply masking, effects, and transformations.

CineVivo, as it is shown in figure 1 and as a base for specific explorations, is a mini-language of simple instructions represented by words (English words by default) and parameters. For instance:

```
1 load video
// This line will load a video-file named video in layer one 1
```

When we add specific question through particular artistic explorations (ex. adding the communication process of code/text as something that can communicate with the programmer and the audience rather than just the computer) the possibilities of code/text and therefore CineVivo expand. In the following line we have an example of how, by using the parsed option in CineVivo, we can exchange the stated instructions into our own selected words through a specific language.

```
I love bicycles
//This line will load == love, a video-file named "bicycle", in layer 1 == I
```

This line is equivalent to the previous example but can be extended in some other ways by adding different communication and visual characteristics embedded in other languages. That is to say, these three words with an evident English meaning can be parsed using words in other languages.

```
Yo soy robot
//This line will load == soy, a video-file named "robot", in layer 1 == Yo
```

As we mentioned before, CineVivo renders this information using OSC to receive communication from the outside. That means it can be controlled not only with the CineVivo language but with any application or language that can send OSC messages from the same computer or any place in the world. By adding this layer, we could say that CineVivo is a mini-language with a clear structure but flexible in the use of keywords and chosen platforms to control it. This means that we can not say that Cinevivo is a concept rather than a single app or a tool. The easy interaction through OSC protocol that CineVivo render engine has can be worked and have been used as a base to produce a multi-apps project, answering questions raised from specific projects and personal inquiries. Some of these projects connect CineVivo with Tidal (Jack Armitage), Pure Data (Daniel Monsalve), Bash scripting (Daniel Monsalve y Esteban Betancur), Chuck (Esteban Betancur), Python (ITM Acorde Team) and Arduino (Miguel Vargas and Esteban Betancur) using sensors to launch specific OSC messages with wekinator as bridge.

One example is *PiranhaLib*⁵ developed by Emilio Ocelotl. This is a SuperCollider library to connect and control Cinevivo. This project was a pre-starting point to later on hacked CineVivo's code and developed a specific app called *Orbit*⁶. *Orbit* is a live coding tool that connects SuperCollider and OpenFrameworks through OSC protocol. This explores the possibilities of 3D and Code/Image already embedded in CineVivo, adding vector drawing to produce a multi-layer visual interaction with sounds, queries that are deeply connected to Emilio's work and RGGTRN⁷ which he is part of.

4. MOTHER: AN ELECTRONIC LITERATURE LIVE-PERFORMANCE

Figure 2. MOTHER Performance at ELO 2018 - Montreal, Canada. Photo © Hugo Marchand 2018.

MOTHER⁸ is a piece developed by andamio in a Production Residency at TOPO -Laboratory of Digital Writing in Canadá and presented as the final act of the Electronic Literature Organization Conference ELO 2018 at Cabaret D'Lion on August 17th. The piece explores the concept of the Mother as the main figure of the

⁵ Full project online: <https://github.com/EmilioOcelotl/PiranhaLib>

⁶ Full project online: <https://github.com/EmilioOcelotl/Orbit>

⁷ A mexican collective engage in algorithmic dance music and audiovisual improvisation informed by the Latinx context that revolves around its members. More information online: <https://rggtrn.github.io/>

⁸ Full project online: <http://andamio.in/prod/mother>

reader's history, exploring this element into different sound/visual layers. The text (written by Rolando Rodríguez), and therefore, the performance is divided into three parts: a) the first one, a much darker experience of death was developed -in its visual part- with *Hydra*⁹ using the text as a main and only visual resource, juxtaposing these, b) the second part was developed in Resolome Arena exploring the experience of a funeral, of chatting sound that comes with visual textures of benches, numbers, lights, and landscapes, and c) the last part explores the concept of the memory, through a Catholic Novena. This part was developed on CineVivo, using video-clips of flowers, adding -and connecting- the layer of code.

The relationship in the last part goes from the literary-text to the code-text that it is also connected with the image that each line of code displays. In Table 1, it is shown the parse between the English version of CineVivo, and the customized one from the performance.

Layer	Parse	General Commands	Parse
1	uno	load	duerme
2	two	pos	take
3	trois	opacity	colores
4	four	posX	sortir
5	cinco	posY	Romp
6	seis	size	mueren
7	sept	free	arrancan
8	huit	pauseAll	never
9	neuf	clean	antes_del_tiempo

Table 1. Parse for Mother's performance in CineVivo.

On the piece's parse, the use of Spanish, English, French, German and Purhépecha words was a common understanding, since the live-reader was already using Spanish plus a second layer of sound with an English-spoken version of the original text. All these words -but the layer's name- are part of these section of the literary text, and are -at least once- read during the performance. This also affects the names of the video files.

On the conceptual side, the last section is based on the Catholic Novena, using pre-recorded video clips of flowers. The scene is colorful in relation to the previous two sections of the performance. It is linked to a specific memory that goes from the past to the present. Therefore, during the performance, the Novena repeats itself twice, first with a set of video clips with colorful flowers with names like frió, rain, orphelins, rosa, sin, malvas, among others. The second one, in a much darker tone (using *cempasúchil*¹⁰, or Damasquina flowers) exploring the word mother in different translations, that goes from Spanish, English, French, and Purhépecha. Connecting not the word of a mother but the images that it is behind it. So, the basic line of code in this section is:

```
uno duerme MAMAN //plays video 01 in preselected position
two duerme MADRE //plays video 02 in preselected position
trois duerme MAMA //plays video 03 in preselected position
four duerme MERE //plays video 04 in preselected position
cinco duerme AMAMBA //plays video 05 in preselected position
```

⁹ A live coding language developed by Olivia Jack for visual synthesis. More information online: <https://github.com/ojack/hydra>

¹⁰ Closely related in Mexico to the festivity *Día de los Muertos*, or The day of the death.

```
seis duerme MAMA //plays video 06 in preselected position
sept duerme MERE //plays video 07 in preselected position
huit duerme MADRE //plays video 08 in preselected position
neuf duerme MOTHER //plays video 09 in preselected position
antes_del_tiempo //clears all videos
```

The following line of code follows the same logic as the text, while it is reading the last memory of a Mother, after that, in each part of the Novena, the different images within the word Mother sleeps -duerme-, until the end, when the sound text is matched with the code text and its output (`antes_del_tiempo` = before_the_time).

6. FURTHER EXPLORATIONS

CineVivo as a tool allows us to manipulate images and text thinking of them no necessarily connected when they are popping out from the screen. At the same time, CineVivo just like any other concept is filling in the bugs continuously. It is not closed to anyone who wants to improve it and hacked it. It is a block itself, like a gruyere cheese full of holes. We do neither need keys and doors to open it or to build another block to put it over the block. We already have the concept. Even the concept existed already, and probably it has been developing in different spaces, but in the same jus filling the bugs that we have found to make it better.

As a not definitive tool, but as a concept that represents possibilities, approaching CineVivo is difficult from an academic perspective. One of the possible academic works around CineVivo is mixing already existing dynamics in open source (FOSS) projects with Ethnography theories and methods. Tracking the existing projects where CineVivo functioned as a base to develop more specific and complex tools, and that are being used in different countries and therefore contexts. Exposing, describing and analyzing each one of them could be interesting in terms of how we hacked systems that already exist to respond to personal questions. This will also interfere in how a community around a specific software, language or tool is built and the elements that we shared together through them.

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