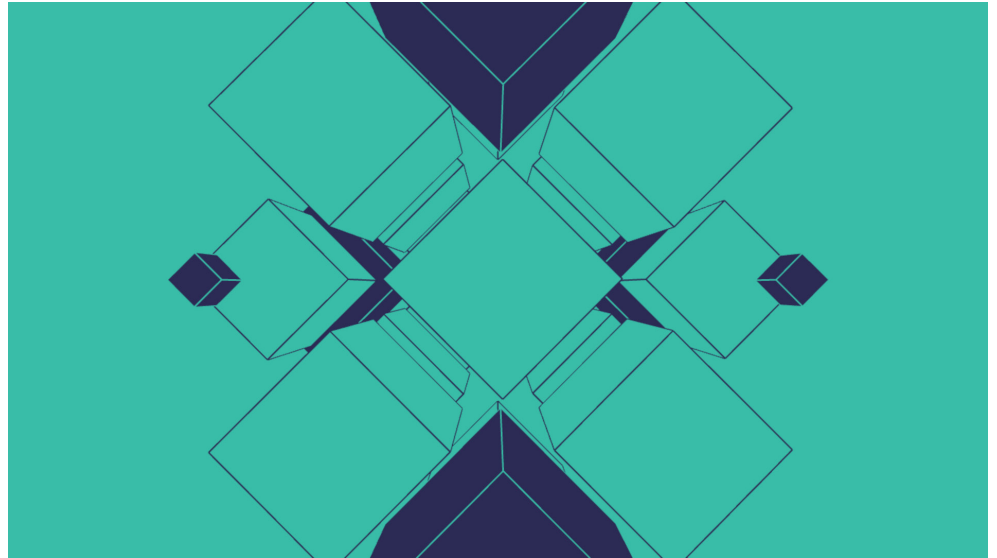




# Ritmo 2021: A Distributed Abstract Experimental Film Based on Computer Code



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*Ritmo 2021* is an abstract animation short film based on a formal experimentation with abstractions inspired by the short film *Rhythmus 21* by Hans Richter (Germany, 1921) and proposes computer code as a new materiality for audiovisual creation. This version, called “prototype” because the short film is a computer program, is a video representation of the original program coded in the creative programming language Processing. All images and sounds were generated by computer code in this language, thus questioning the old duality between image and words, since the whole proposal was written in instructions to be interpreted by a computer. Thus, this project is an experimental short film and animation, a piece of software art or a collaborative project to remix. The project is accompanied by a fanzine, an app and academic articles that extend its understanding in what we call “transmedia punk”. By making the source code of all media artifacts (mainly the short film) open, and therefore downloadable, we question the idea of interactivity, positing full access to the code and the possible adaptation of the piece as the real interaction instead of following pre-designed rules.

**Keywords:** Aesthetic Programming, Creative Coding, Open Source, Short Film, Abstract Cinema, Interactivity.

## Description

*Ritmo 2021* is the product of a research-creation process carried out at the Faculty of Arts of the Universidad Nacional de Colombia (Bogotá) by the research group “Espacio de Producción Abierta de Medios” (Open Media Production Space). It is based on a formal experimentation with abstractions initially inspired by the short film *Rhythmus 21* by Hans Richter (Germany, 1921) and proposes computer code as a new materiality for audiovisual creation in an analogous way to what celluloid represented a century ago in Richter’s short film. This version, called “prototype” because the short film can be considered a computer program, is a video rendering of the original program coded on the creative coding language Processing. All images and sounds were generated by computer code on this language, thus questioning the old duality between image and words, since the whole proposal was written in instructions to be interpreted by a computer. Following this, another paradigm of audiovisual production is re-experienced where the workflow is closer to software production than to normal audiovisual authoring. Although computer generated films are not new, joining sounds and moving images in a single textual artifact, and the free software ethics used, offer a novel perspective. Thus, *Ritmo 2021* is an integral experiment in form, product and creative process. Finally, this project can be seen as an experimental film, an animation film or a software art piece. Indeed, and as predicted more than fifty years ago, “the digital computer opens vast new realms of possible aesthetic investigation” (Youngblood 2020, 189)



Figure 1: Frame from *Ritmo 2021*.

The work resonates with several current discussions. Regarding its original conception, *Ritmo 2021* emerges as a proposal on how to approach to filmmaking at the beginning of the COVID-19 pandemic. Coming from a film school, the health emergency and so-called social distancing posed several problems to usual film workflows, stopping all the student and research projects being conducted at the time. As the live-action real scenario was not possible, many film making in academic environments shifted to the webcam/virtual meetings aesthetics looking for inspiration. However, we considered it suited better the concept of virtual communication to draw some ideas from the abstract realm. Although materiality of software and digital interactions is frequently asserted, we sensed that the body-less dimensions of the virtual realm were stronger with the pandemic. But instead of rejecting the lack of physical interaction and stopping from film making, we embraced digital culture and its forms of production and shifted from physicality to virtuality. In doing so, we decided to produce a film using the logic of distributed software production, where usually people collaborate using a global network infrastructure without the need of meeting physically. From this rationale the short film *Ritmo 2021* was born (Fig. 1).

Adopting a software methodology brought up several issues that directly resonate with the concept of collaboration and film history. The two coders of the project, the director and a research assistant were in different geographical locations (Colombia and Germany) collaborating using a repository for their Processing sketches coded individually. On a temporal scale, the discussions led us to delve into the past, finding in the classical abstract film *Rhythmus 21* from Hans Richter<sup>1</sup> the source of visual abstractions to start with. But more than a “remediation” (Hayles 2002, 5) using code instead of film, the process posed the question on how to update the principles of that film; therefore, we decided that color, 3D and synthesized sound should be fundamental in our approach. Another feature that has to do with the scale of digital infrastructures was the file size of the film and its potential based on the semiotic dimension of computer code. Being a film entirely made out of a programming language not only represents a conceptual challenge to the popular adage of “A picture is worth a thousand words”, it represents a real impact on the bandwidth used to transfer the film. That is, this is a short film that is written; therefore, it could be given away on print-outs or on a plain text file. The only condition is that the receiving person has the Processing programming environment and the ability to run the code to complete the transmission of the film. This is a conceptual gesture, where visual abstractions are paired with code abstractions (such as classes and object-oriented programming) and with the tradition in computing of using plain text files. In this way, we came up with a sort of text copy/paste streaming method with notable results: whereas the regular mp4 rendering of the film has a size of 204 MB, the code is just 1.6 MB. This entails several interesting possibilities: paper publications based on the code, the designing of other digital “carriers”, such as mobile offline applications that recreate the film executing it locally instead of retrieving it from a data cloud, experiencing the film with a low carbon footprint.

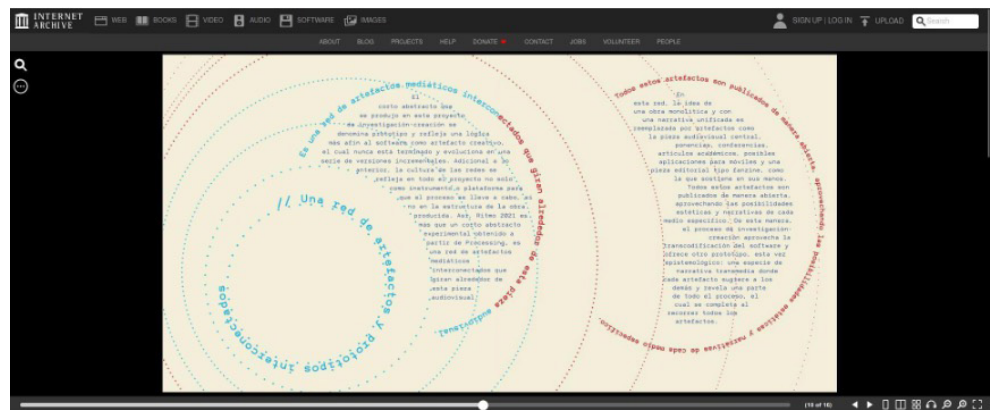
There is also a political reading of the proposal. Being a short film, film festivals are one of the main exhibition venues. However, these festivals usually impose conditions like exclusivity, meaning that the piece cannot be online for public viewing. In order to comply with the free/open-source software ethics that are intertwined with the film but with the festival’s requirements as well, we decided to provide a “festivals hack” (bypass) based on the source code/binary form dichotomy of the software industry. Therefore, the “binary form” of the film (render) is not available for the public viewing, thus meeting film festivals standards. Conversely, “the source code” of the film can be reached easily at GitHub granting a free/open distribution of the film in its more basic form. With this simple but meaningful gesture, we want to bring to the foreground the power relationships present in the circulation of cultural artifacts and the

artificial scarcity that affects digital media. This position acquires a new meaning by considering that Universidad Nacional de Colombia, the University where the film was made, is a public institution closer to cultural/educational global movements, as Open Science or OpenGLAM.

Summarizing, although the short film coded in the Processing creative coding language can be considered the main media artifact, there are other complementary artifacts. These are created using free software tools and ethics: 1) An explanatory fanzine designed on Scribus and Inkscape and published on the archive.org for free downloading; 2) An experimental app for the android system where the film can be watched on mobiles phones using just 3M of storage; 3) Academic papers from different stages of the project published in open access conferences and journals; 4) The final film was rendered out of the Processing source code using only open source tools: ffmpeg for moving images and audacity for sound capture.

In this way, *Ritmo 2021* offers a network of artifacts reflecting on the main short film piece where the free software ethics are embodied in the used tools, prototyping process and distribution channels. Moreover, the whole project develops our own concept called “Transmedia Punk”, in which free software practices are hybridized with the alternative media tradition (fanzines) or current related academic debates as open access and open science tenets (Fig. 2).

Figure 2: Two-page spread from fanzine hosted on archive.org.



Finally, we believe that the most interesting consequence of our approach lies in the possibility of global collaboration. Using a programming language to make a short film not only expands new forms of media authoring but also questions the software and media arts themselves. Modern software and art pieces posit interactivity as a must, but our short film favors a non-interactive linear approach similar to the sequential film used by Richter a century ago, something kind of contradictory with a tool like Processing. In doing so, we translate interactivity from a software interface to human-to-human collaboration based on computer networks. The availability of the code grants that every interested person can adapt and remix the short film, defying the art-spectator dichotomy at a global scale. And that for us is the real interactivity: not to follow a

predefined script pretending to be part of an art piece but to have total control to adapt it following one's interests. For this reason, we think *Ritmo 2021* is a simple yet powerful work that embodies the possibilities of what have been called "Aesthetic Programming" (Soon and Cox 2020, 14).

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### Media Artifacts

*Ritmo 2021* is a short animation film generated by code but it is completed with another media artifacts (experimental Android app, a fanzine, GitHub source code and an academic paper) which can be reached here: <https://linktr.ee/ritmo2021>

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