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*Artículos científicos*

**El uso de la tecnología en el proceso creativo del compositor  
Pablo Rubio: dat.rec y Nosferatu**

***The Use of Technology in the Creative Process of Composer Pablo Rubio:  
dat.rec and Nosferatu***

***O uso da tecnologia no processo criativo do compositor Pablo Rubio: dat.rec  
e Nosferatu***

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**Resumen**

Este artículo surge a raíz de una entrevista realizada el 3 de marzo de 2022 al compositor Pablo Rubio Vargas (Aguascalientes, 4 de julio de 1984), cuyo objetivo, además de repasar su formación como compositor, fue indagar sobre dos de sus obras musicales que implementan recursos tecnológicos: *dat.rec* y “apariciones”, la musicalización de un fragmento de la película muda *Nosferatu: Una sinfonía del horror* dirigida por Friedrich Wilhelm Murnau. La información emanada de la entrevista permite vislumbrar cómo la música, sorprendentemente a la par de ser una herramienta para mitigar desastres ecológicos, es una de tantas facetas del quehacer humano que se ha visto beneficiada o enriquecida con el desarrollo tecnológico. El uso de la tecnología, desde la perspectiva del artista, permite ampliar el umbral del creador artístico y encontrar nuevos caminos para concretar propuestas musicales. Pablo Rubio, consciente de lo anterior, también desarrolla sus dotes en la improvisación musical, para hacer este recurso interpretativo diferente y más rico y así lograr una nueva propuesta, sin dejar de lado un ingrediente primordial, la ejecución musical, que funde, en su caso, al guitarrista con el compositor.



**Palabras clave:** composición musical, *Nosferatu*, Pablo Rubio Vargas, transdisciplinariedad.

## Abstract

This article arises from an interview conducted on March 3, 2022, with composer Pablo Rubio Vargas (Aguascalientes, July 4, 1984), whose objective, in addition to reviewing his training as a composer, was to inquire about two of his musical works that implement technological resources: *dat.rec* and "apparitions", the musicalization of a fragment of the silent film *Nosferatu: A Symphony of Horror* directed by Friedrich Wilhelm Murnau. The information emanating from the interview allows us to glimpse how music, surprisingly, as well as being a tool to mitigate ecological disasters, is one of the many facets of human endeavor that has benefited or been enriched by technological development. The use of technology, from the artist's perspective, allows to expand the threshold of the artistic creator and find new ways to materialize musical proposals. Pablo Rubio, aware of the above, also develops his skills in musical improvisation, to make this interpretative resource different and richer and thus achieve a new proposal, without neglecting an essential ingredient, the musical execution, which merges, in his case, the guitarist with the composer.

**Keywords:** musical composition, *Nosferatu*, Pablo Rubio Vargas, transdisciplinarity.

## Resumo

Este artigo surge de uma entrevista realizada em 3 de março de 2022 com o compositor Pablo Rubio Vargas (Aguascalientes, 4 de julho de 1984), cujo objetivo, além de revisar sua formação como compositor, foi indagar sobre duas de suas obras musicais que implementam recursos tecnológicos: *dat.rec* e "appearances", a musicalização de um fragmento do filme mudo *Nosferatu: A Symphony of Horror* dirigido por Friedrich Wilhelm Murnau. As informações emanadas da entrevista permitem vislumbrar como a música, surpreendentemente além de ser uma ferramenta de mitigação de desastres ecológicos, é uma das muitas facetas da atividade humana que tem sido beneficiada ou enriquecida pelo desenvolvimento tecnológico. O uso da tecnologia, na perspectiva do artista, permite ampliar o limiar do criador artístico e encontrar novas caminhos para materializar propostas musicais. Pablo Rubio, ciente do exposto, também desenvolve suas habilidades na improvisação musical, para tornar esse recurso interpretativo diferente e mais rico e assim alcançar uma



nova proposta, sem descuidar de um ingrediente primordial, a execução musical, que mescla, no seu caso, o violonista com o compositor.

**Palavras-chave:** composição musical, Nosferatu, Pablo Rubio Vargas, transdisciplinaridade.

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## Introduction

My interview conducted on March 3, 2022 with the composer Pablo Rubio Vargas (Aguascalientes, July 4, 1984) allows us to appreciate the creative process of composers when making works by implementing technological resources, in this case with dat.rec and “appearances”, the musicalization of a fragment of the silent film *Nosferatu: A Symphony of Horror* directed by Friedrich Wilhelm Murnau.

The virtual meeting with Pablo was triggered by the invitation extended to me by Dr. Cuauhtzin Alejandro Rosales Peña Alfaro to collaborate on a research project entitled "Transdisciplinarity in art, science and technology: contemporary sound and musical artistic practice". The project, added to my interest in the work of this artist, stimulated my interest in the world of technology applied to musical creation which, in the specific case of Pablo, goes hand in hand with his personal growth as a composer, triggered in a Queretaro area, a metropolis geographically close to Mexico City. In fact, it is worth pointing out that the demographic growth and the artistic and cultural transformation that the city of Querétaro has experienced in recent decades prompted Pablo to begin his professional studies in musical composition, to later continue his studies abroad. and thus acquire a theoretical-practical background to develop their artistic creativity.

The interview, aimed at the project and also at disseminating testimonials and useful information for music students regarding the work of the composer and the panorama of composition in Querétaro and Mexico, can be a subject of study and reference for those interested in applied technological resources. in musical composition and be inspiring for young composers, musicians or artists in general who are at the dawn of their professional adventure.

The conclusions that emerge from the interview can be a point of convergence for creators and musicologists regarding the use of technological resources in musical composition, encourage concern for young people to seek and acquire relevant information



for their professional development and an invitation to reflect on the panorama of musical composition at a regional, national and international level.

### The composer interview

Pablo Rubio was a student of composition, at the undergraduate level, at the Faculty of Arts of the Autonomous University of Querétaro (UAQ) of the composers Mauricio Beltrán and Ignacio Baca and thanks to the proximity of Querétaro to Mexico City, simultaneously and in the Later years, he had the opportunity to attend master classes and composition workshops with teachers Julio Estrada, Mario Lavista, Ricardo Son, Juan Trigos, Hebert Vázquez, Rodrigo Sigal and Javier Álvarez. Pablo finished his degree, but he kept the desire to learn from composers in Mexico and abroad. And on his account he continued to develop his skills for improvisation, an essential element of music, says Pablo.

In 2011 he had the opportunity to go to the University of California, Orange County, United States, to study for a master's degree with composer Christopher Dobrian, a fellow student of his former teacher Ignacio Baca. Dobrian is currently the director of the study program at said university and has in-depth knowledge of implemented programming,<sup>1</sup> to the extent of being himself the one who developed the first stages of the Max music programming languages, in their Max MSP, Max Ableton and Max for Live versions. A contemporary of Pablo's teachers, Dobrian honed his programming skills using much more limited computers than those available today. Fortunately, he and some of the composers from generations before Pablo managed to transition to faster devices and are now able to do incredible things. Along these lines, Fossati (2011)<sup>2</sup> argues that in recent years, in parallel with the development of technological tools for the production and dissemination of digital content, new creative practices have acquired special relevance. The Max language, says Pablo, is visual, based on compartments from which you extract sounds, like the pedals used by electric guitarists: delay, flanger or chorus, the combination of the sound of each pedal, or in the case of Max, from each compartment, he produces new sounds, which he uses in his compositions. For Pablo, "programming" is to propose spontaneous ideas, which can later be elaborated with greater breadth and depth; Programming is also generating sound materials automatically.

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<sup>1</sup> Modificar un código o programar nuevos elementos a una aplicación.

<sup>2</sup> Salvo indicación contraria, todas las referencias bibliográficas y las citas son del autor de la entrevista.



Subsequently, Pablo was accepted into the PhD program in Algorithmic Composition,<sup>3</sup> also at the University of California, but now in Santa Cruz, where he strengthened his interest in combining improvisation and technology. Composer David Dunn tutored him. However, due to health problems, Dunn took long absences from the university. The positive side of this situation was that Pablo had the freedom to experiment, which led him to explore fascinating fields for composition, such as eco-art, oriented towards ecology, which posits that through art we can provide solutions to ecological problems. from the actuality. For example, looking for ways to help mitigate climate change, preserve endangered species or reflect on our presence on earth, so that it is not so harmful to the environment.

When Pablo began his studies under the tutelage of David Dunn, the professor had been working for some time on research for the United States Department of Agriculture and Forestry to mitigate the plague of the Park Beetles, a family of 3,000 variants of beetles whose only natural brake it is the cold, so the warming associated with climate change has caused its accelerated expansion across the continent, even today they are already detected in Alaska. Dunn's project originally used transducers<sup>4</sup> and a chaotic system of oscillators,<sup>5</sup> so that the beetles would stop reproducing and even devour each other, that is, an alternative strategy to pesticides, which are highly polluting. However, the procedure caused some species of birds to stop reaching the forest, so the composer changed the strategy to the use of ultrasound,<sup>6</sup> with a frequency that the birds could not perceive but the beetles could, because the latter, although they do not have the ability to hear, are capable of feeling the vibrations through their legs. The foregoing aroused in Pablo the need to give a use to his music, to make it transcend beyond the simple task of the composer per se: to generate an interaction with the world, thinking of a community, between humans and the different species of animals. and vegetables.

The proximity of Santa Cruz, California, to Silicon Valley means that the university community of which Pablo was a part is constantly thinking about technology. Also, "everyone has the latest generation devices and accessories", so they implement these technological resources in each of their fields. In the music that Pablo composes, technology

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<sup>3</sup> Creación musical utilizando algoritmos matemáticos.

<sup>4</sup> Bocina de audio colocada frente a una superficie rígida.

<sup>5</sup> Circuito que produce una señal periódica.

<sup>6</sup> Ondas sonoras de alta frecuencia, imperceptibles para el oído humano y para algunas especies de animales.



is another participant in the ensemble, which cannot be seen, but which sounds. López-Cano (2018) considers that digitization produces a new volatilization of music, taking it from the object plane to the virtual one.

### The creative process of *dat.rec*

*dat.rec* es un destello hacia una puerta muchísimo más grande de intereses que he ido desarrollando a lo largo de varios años de trabajo artístico.

PABLO RUBIO VARGAS

*dat.rec* is a multidisciplinary composition by Pablo Rubio that involves music and video through instrumental improvisation and the participation of Andrea Martínez, a visual artist. The work was conceived in times of a pandemic, so its premiere took place over the Internet, using five video cameras (see figure 1) to emulate the security cameras on public roads, which permanently record what is happening without pedestrians or cars realize that they are being recorded. The cameras used for *dat.rec* had different light filters, which allowed a different view for each of them.

Figure 1. Video presentation of *dat.rec*



Source: self made

Pablo improvises on the meta-instrument, which consists of a guzheng<sup>7</sup> processed in two layers in the computer, with digital technology resources, such as reverb and grain,<sup>8</sup> subsequently the computer performs a process of defragmenting the sound into particles, which pass to the guitar and produce a reverberation effect based on the timbre quality of the instrument, the sound returns to the computer and is finally distributed in eight speakers through an octophonic system. The session is captured with a binaural microphone,<sup>9</sup> that allows capturing 360 degree sound spheres, to listen to dat.rec with stereo headphones.

The composition itself is not written on a score, in this case and intentionally, there is no record of its interpretation process. Andrea, not being a musician, received verbal instructions from Pablo to perform the play, which was finally recorded on video and in a written script, like the one used by actors to stage plays.

To conclude, dat.rec consists of three elements: improvisation, visual recording and audio processing. It is a reflection of Pablo's creative process, constantly developing his improvisational skills and enjoying the process of being the one performing his own music. Pablo considers that these two elements of music, interpretation and improvisation, are ephemeral, even for works like Beethoven's Fifth Symphony, of which a current interpretation will sound very different from its premiere in 1808 in the Vienna theater, due to , probably, because with the passage of time the instruments have been perfected, the strings, previously made with animal gut and now with steel, make the current instruments produce a different sound, even the tuning and tempi<sup>10</sup> with which the symphony is performed has also varied by tradition over time. The foregoing gives as a consequence that Pablo does not seek later recreations for dat.rec, his interpretation is unique and unrepeatably, a single event, which was recorded on video, the challenge for this work was rather to generate its sound result.

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<sup>7</sup> Instrumento tradicional chino, de la familia de las cítaras, antecesor del koto japonés.

<sup>8</sup> Técnica de síntesis y de procesamiento de audio que se desarrolla en términos atómicos; como el sonido no es materia, propiamente no está hecho de átomos, por lo que se sustituye el término por el de “grano”, cada uno de ellos se presenta en fracciones de 150 a 25 minisegundos. Nota de Pablo Rubio Vargas.

<sup>9</sup> Escuchar con los dos oídos.

<sup>10</sup> Tiempo en italiano, referente a la velocidad con que se interpreta la música.



## The creative process of the musicalization of "apparitions", a fragment of the film *Nosferatu: A Symphony of Horror*

In 2019, Pablo Rubio musicalized a segment of the film *Nosferatu* filmed in 1922 and directed by the German filmmaker Friedrich Wilhelm Murnau, which the composer titled "apparitions". The project took place within the framework of the Interciclos collective festival, in collaboration with the Philharmonic Orchestra of the State of Querétaro and the initiative of maestro Ludwig Carrasco, at that time chief conductor of the Querétaro Philharmonic. Ludwig coordinated the work of five composers: Ignacio Baca, Pablo Rubio, Juan José Bárcenas, Germán López and André González, who randomly distributed the fragments of the film and had nine months to each compose their segment. Pablo had to musicalize one of the cover moments of the film, when Orlok (see figure 2), the vampire character of the story, sails from Transylvania to his hometown to meet his beloved, but already turned into a living dead, taking with them rats, the plague, and the dead crew.

**Figure 2.** Video of *Nosferatu: A Symphony of Horror* with Maestro Ludwig Carrasco and the Philharmonic Orchestra of the State of Querétaro



Source: self made




The project was a challenge for the composer, as he is used to working with performers who like new or avant-garde music, which is generally not the case with symphonic musicians. When Pablo has participated with ensembles that have a different dynamic, another way of understanding musical art and a pre-established program, as is the case with orchestras such as the Querétaro Philharmonic, he has to compromise with the musicians.:

Transmit an idea to them, like a seed, and they are the ones who make it germinate, so they must be encouraged to get involved with the work, starting from a common point, such as the melody and generate other mechanisms so that they feel that they are in familiar terrain, but without leaving the idea that I am looking for.


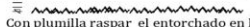
Pablo was interested in experimenting with musical texture, with a wide range of timbres (see figure 3) and making the harmonic and melodic context translate into a kind of modulated frequency synthesis, a sum of timbres. It should be noted that the interpretation of avant-garde music must be present in the study programs of our country, as is the case in the United States or Europe, places where the performance of this music is not “foreign” to the performers. In Mexico, in music education at a professional level, we are not used to exploring with the sound of our instruments, Pablo considers.


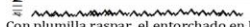
**Figure 3.** Extract from the score of *Nosferatu*, with instructions for musicians on how to produce the sounds that the work demands.


hasta encontrar nueva indicación en la dinámica.

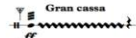
**Accelerandos y rallentandos**  
  
 En el caso de los alientos hacer estacatos y articulación con la lengua, lo mas rápido casi a llegar al flatertong.

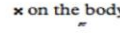
**Alientos:**  
 -Nota largas y sostenidas.  
 En pasajes con notas sostenidas y de duración larga, se puede respirar tanto sea necesario, siempre se tendrá que atacar de forma que sea imperceptible la nueva entrada.

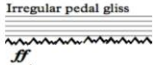
**Arpa:**  
 -Rapado de entorchado  
 con plumilla raspar entorchado de la cuerda  
  
 Con plumilla raspar el entorchado en la cuerda indicada





**Piano:**  
 -Rapado de entorchado  
 con plumilla raspar entorchado de la cuerda  
  
 Con plumilla raspar el entorchado en la cuerda indicada


-Cluster  



**Percusiones:**  
 -Frotado de membrana  
  
 Frotar con la baqueta "super ball" el parche del membranófono.  
 Generar un sonido tan constante como sea posible frotando constantemente el parche.


-Percutir en el cuerpo  
  
**x on the body**


**Irregular pedal gliss**  
  
**ff**  
 Timbales, hacer movimiento de pedal irregular mientras se ejecuta la técnica indicada sobre el parche.


**Baquetas:**  
 super ball  
 baqueta regular  
 Escobilla  
 Baqueta de madera


**Cuerdas:**  
 -Posición del arco  
  
 sul ponticello → sul tasto  
 Transitar de una posición del arco hacia la otra

- Glissado lineal  
  
 Glisar de una nota a la otra

-Glissado irregular independiente  
  
**ppp**  
 Toda la sección de cuerdas comienza en la nota indicada y comienza a glissar a diferentes puntos independientemente.

-Gliss de armónicos  
**harm. gliss**  
**Sul D**  
  
 Glissar sobre la cuerda indicada para obtener diferentes armónicos.

-Arco circular  
  
**circular bow**  
 Hacer movimiento del arco de tal manera que cree un círculo moviéndose del tasto al ponticello constantemente.

-Scratch  
**Scratch**  
  
 Producir sonido áspero, rasposo, sin nota ininteligible.

Source: Personal library of the composer Pablo Rubio Vargas

*Nosferatu* resulted in a score with "classical" notation, based on cells or musical gestures assigned to each section of the orchestra, which are repeated for a certain period of time (see figure 4), in correspondence with what is happening in the orchestra. the movie.

**Figure 4.** Extract from the score of *Nosferatu*, with the indication "Repeat the musical gesture within the indicated bars for the indicated time"

A  
P  
A  
R  
T  
I  
C  
I  
O  
N  
E  
S

Source: Personal library of the composer Pablo Rubio Vargas.

The orchestration of the work was enriched by sound effects produced by the instruments, such as “strumming” the strings with the bow ribbon,<sup>11</sup> to which pre-recorded sounds are added by means of a sampler.<sup>12</sup>

<sup>11</sup> Técnica conocida como *scratch* u *overpressure*. Nota de Pablo Rubio.

<sup>12</sup> Sonidos tomados de una fuente externa o MIDI.



## Musical Composition Considerations

Pablo's creative process to develop musical content that is related to the visual depends on the nature of the project. In Mexico there have been some antecedents such as the musicalization of the film *La noche de los Mayas*, by Silvestre Revueltas, and that Juan Vicente Melo<sup>13</sup> described as "a lesson for current Mexican authors of film music" (Pareyón, 2004). Probably in *Nosferatu*, where the image existed many years before the music, Pablo conceived of his composition in a more contrapuntal style. The image can raise something in particular, but the music can make a counterpart that is not only a function of the image. "Almost always this is how film music composers work", says Pablo, the sound is subject to the message of the image and becomes a reinforcement. For *Nosferatu*, the music proposes a point parallel to the image and, returning to the case of *dat.rec*, the visual and the musical appear in parallel. The one who observes, that is, the spectator, is the "curious" one who is seeing from various angles how a situation arises spontaneously out of nowhere and becomes, by seeing and listening to the work, a participant in that spontaneity, although not strictly speaking. is at that moment and in that specific place, as it happens with a security policeman, who in front of several cameras can fix his attention on a particular one, even zoom in and then return to the panoramic view of all the cameras, although in *dat.rec* no viewer interaction possible to choose a camera.

For Pablo, the current role of the composer is complex and he asks himself, why create new compositions if there is already a large repertoire? but fortunately there is still interest in the cultural market for commissioning works. Today Pablo is working on the composition of a work for orchestra and on a piece commissioned by guitarist Manuel Alcántara, with whom he is collaborating based on the qualities of the instrument's sound, but almost all of Pablo's compositions arise out of his need to make music. What consumes the most time in Pablo's creative process is the moment of technological implementation:

If the work for Alcántara were for solo guitar, it would be ready in two or three weeks, but when electronics are added, such as a distortion, the instrument becomes more complex, so two weeks of composition can turn into two or three months of work.

Constancy, Pablo specifies, is necessary to consolidate the opportunities that arise in the professional life of the composer, it is nothing more than discipline, that when the muses

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<sup>13</sup> Veracruz, 1932-1996.



come down “they find you working”. You also have to try to be consistent in continuing to motivate and be passionate about what you do. It is common for inspiration to be lost, but it is worth taking a moment to “breathe”, to give a new perspective to what is being done. When Pablo was a student, he had the urge to know how to express his ideas in the score, over time he realized that the role falls "short", so now he chooses to present an idea to the musician and let him magnify and interpret it. better than the original proposal, hence Pablo understood the need to integrate elements of improvisation with the musician and later integrate the work with technological tools. The above is what has allowed him to stay interested in creation.

Pablo believes that in Mexico we continue to talk about strategies and aesthetics proposed by composers like Silvestre Revueltas and Carlos Chávez. "Depending on who you talk to, you're going to find passionate visions between these two schools." But this, more than giving us a memory or a lineage, has not helped us, and it also reflects a centralism of Mexico City, because both composers or those who cultivate them originate or made their musical career in the Mexican capital. However, there are composers throughout the republic, such as Mauricio Beltrán, Ignacio Baca or Francisco Núñez, who live in Querétaro, or the consecrated Miguel Bernal Jiménez, who is an example of the few Mexican composers who have remained on the periphery of the big capital. The guild of composers in our country is very broad, but the spotlights generally point to Mexico City.

It is common for Ignacio Baca's compositions, for example, to be performed more frequently abroad than in our country. Despite the fact that composition has been one of the great tasks of national culture, composers and singers are the ones who stand out in the musical field, instrumentalists are not at the same level. Composers, thanks to globalization, can spread their works and achieve a more outstanding projection and even win international competitions, which is why, in Pablo's opinion, composers in Mexico have been left without performers who make them second. In order for Pablo to be able to listen to his works, he often has to turn to fellow musicians who live outside of our country, and it is rare in Mexico that he has the opportunity to access the few musicians who have sufficient level so that their music is embraced as he requires it to be. Fortunately, the new generations of Mexican instrumentalists are “getting their act together”, there are a couple of string quartets in Mexico City and Monterrey that sound incredible and like to encourage collaboration with composers.

In Querétaro there are groups of composers such as Interciclos de José Bárcenas that have the support of consolidated teachers such as Ignacio Baca and orchestra directors such



as Ludwig Carrasco or groups such as Ensamble 91 and Aleph, which did not exist when Pablo left Querétaro to continue his studies. The UAQ has contributed to the development of composition in the city, thanks to the teaching work of Baca, Beltrán and now Luis Obregón, Vicente Barrientos and the creation of the degree in Musical Composition for Audiovisual and Scenic Media of the Faculty of Arts. Querétaro, in addition to the UAQ and the José Guadalupe Velázquez Conservatory, also has private institutions, such as the University Center for Musical Studies and the Music City College, which teach music at a professional level and this tells us that there is a need to satisfy part of the young people who come to these institutions.

## Conclusion

The information emanating from my interview with the composer Pablo Rubio allows us to glimpse how music, surprisingly as well as being a tool to mitigate ecological disasters, is one of the many facets of human activity that has been benefited or enriched with technological implementation. . The use of technology, from the perspective of the artist, allows the threshold of the artistic creator to be expanded and new ways to be found to materialize his proposals. Pablo, aware of the above, also develops his skills in musical improvisation, to make this interpretive resource different and richer and thus achieve a new proposal, without neglecting a primary ingredient, musical execution, which blends, in his case, , the guitarist with the composer, making them a single creative entity, a dumbbell, which gives life to musical creation.

The visual also finds a place in the new musical discourse, from musicalizing the first silent film version of Nosferatu to resorting to the use of several cameras, with different filters, that record digitally manipulated improvisations, to give the above a new character and discourse to music composition.

The staging of Nosferatu is one more example of the need that currently exists, in the educational programs of professional music teaching institutions, to expand the range of musical languages that students and performers in general must learn and manage, so that in the orchestras the experience does not remain in the "weekly anecdotal", but that the musicians have more interpretative tools to develop the idea of the composer, this without discarding the good will and good results on the part of the members of the orchestra, for this particular case.



Finally, the composer is not only "born", but also "made", from the search for and assimilation of knowledge and its development or evolution; from daily work, which allows him to be "surprised composing" when the muses come down or when inspiration strikes. To the extent that the young generations of composers realize this need, they may experience firsthand the positive results that only discipline can probably provide.

## Future lines of research

This article intends to show the general panorama of some resources that composers like Pablo Rubio have to develop their art, which are directly linked to technology, the reader will be able to delve into each one of them and be attentive to the technological advances that surely in a short term they will be experiencing.

Both digital sound processing and audio and video recording resources are constantly being perfected. Creators with the artistic line of Pablo Rubio can develop new skills with what is currently available, be aware of the new and more sophisticated technological proposals to implement them in their works or even propose new paths to those who are dedicated to developing technologies. Those of us who are attentive to the technological resources applied to music will also have to pay attention to what is being implemented.

The sounds that emanate from the instrumentalists and the combination of these in musical ensembles also tend to develop, which links composers and performers to develop and apply the sound results in new musical languages. The musical interpretation and its respective writing is also under the lens of music scholars, to address it in research such as the one presented here.

The musical direction also has a link with technological resources, especially when it comes to interpreting music for movies or television series, although this article does not address the subject, the way is open for those who intend to study the phenomenon of applied technology. in the music.

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