

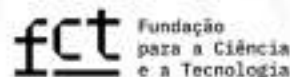


2nd International
Conference on Sound
and Image in Art &
Design'25

Multimodus '25

2nd International
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and Image in Art & Design

Proceedings | Livro de Atas





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CENTRO DE INVESTIGAÇÃO EM
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Por fim, um agradecimento aos alunos da Universidade de Évora e do Politécnico de Portalegre que enriqueceram este evento com os seus trabalhos artísticos.

Introduction | Apresentação

MULTIMODUS is an international scientific conference dedicated to sound and image within the contemporary context of art and design. Its inaugural edition took place in 2022, organized by the Departamento de Artes, Design e Animação of the Escola Superior de Tecnologia, Gestão e Design of the Politécnico de Portalegre (IPP). In 2025, the Universidade de Évora, through CHAIA – Centro de História de Arte e Investigação Artística, partnered with IPP to host the second edition of the event, which was held on April 2 and 3 in a hybrid format at the Escola de Artes of the Universidade de Évora.

This event has established itself as a prime space for discussion and reflection on creative processes in art and design, exploring their multiple possibilities in audiovisual production. It is an initiative arising from the desire to investigate, in a simultaneously creative and scientific manner, the intersections between these fields, which are fundamental to the creative industries. Furthermore, it reinforces the importance of decentralizing access to knowledge and culture, promoting a wider diversity of voices and perspectives on the national stage.

The programme featured renowned speakers whose scientific and artistic projects are widely recognized both nationally and internationally. In addition, six thematic panels brought together researchers exploring diverse theoretical and practical approaches, fostering dialogues between sonic, visual, and verbal languages.

Aimed at students, faculty, researchers, entrepreneurs, creative professionals, and technicians from various fields, the event extended beyond the scientific programme to include artist talks, workshops, film screenings, exhibitions, and concerts.

With this second edition, the organizing committee reinforces its commitment to the development of the artistic and scientific landscape by promoting new inter-institutional partnerships, expanding interactions, and strengthening interdisciplinary dialogues, echoing the very collaboration that gave rise to this edition.

The Book of Proceedings presented here compiles contributions from authors who volunteered to further develop the presentations delivered during the conference into full scientific papers.

The Organizing Committee

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A MULTIMODUS é uma conferência científica internacional dedicada ao som e à imagem no contexto contemporâneo da arte e do design. A sua primeira edição teve lugar em 2022, organizada pelo Departamento de Artes, Design e Animação da Escola Superior de Tecnologia, Gestão e Design do Politécnico de Portalegre (IPP). Em 2025, a Universidade de Évora, através do CHAIA – Centro de História de Arte e Investigação Artística, associou-se ao IPP para a realização da segunda edição do evento, que decorreu nos dias 2 e 3 de abril, em formato híbrido, na Escola de Artes da Universidade de Évora.

Este evento afirmou-se como um espaço privilegiado de discussão e reflexão sobre os processos criativos na arte e no design, explorando as suas múltiplas possibilidades na produção audiovisual. Uma iniciativa que surge do desejo de investigar, de forma simultaneamente criativa e científica, as interseções entre estas áreas, fundamentais para as indústrias criativas. Para além disso, reforça a importância de descentralizar o acesso ao conhecimento e à cultura, promovendo uma maior diversidade de vozes e perspetivas no panorama nacional.

O programa contou com oradores de renome, cujos projetos científicos e artísticos são amplamente reconhecidos a nível nacional e internacional. Além disso, seis painéis temáticos reuniram investigadores que exploram diferentes abordagens teóricas e práticas, promovendo diálogos entre as linguagens sonora, visual e verbal.

Dirigido a estudantes, docentes, investigadores, empreendedores e profissionais criativos e técnicos de diversas áreas, o evento foi além do programa científico, incluindo *artist talks*, *workshops*, sessões de cinema, exposições e concertos.

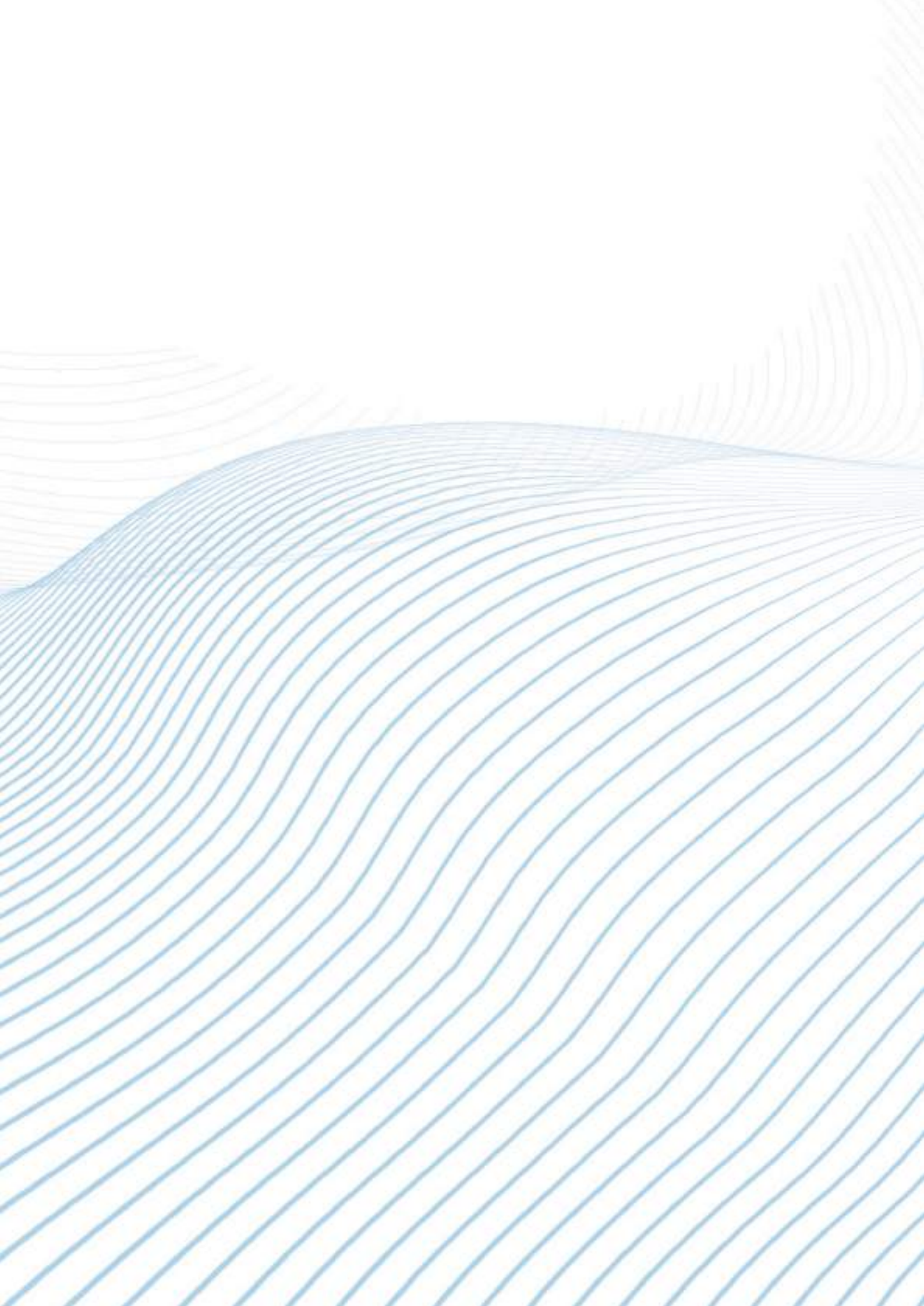
Com esta segunda edição, a comissão organizadora reforça o seu compromisso com o desenvolvimento do panorama artístico e científico, promovendo novas parcerias interinstitucionais, ampliando as interações e fortalecendo diálogos interdisciplinares, à semelhança da colaboração que deu origem a esta edição.

O Livro de Atas aqui apresentado reúne contributos de alguns dos autores que se disponibilizaram a aprofundar em formato de artigo científico as apresentações realizadas durante a conferência.

A Comissão Organizadora

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PAPERS | ARTIGOS

RETHINKING MEDIA ART: ON ZOMBIE MEDIA AND PERPETUAL INSTABILITY

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Abstract

Media art's unstable boundaries exist within overlapping territories — and theories — of a diverse range of technologies, practices, and discourses. As communication technologies become widely adopted in mainstream spheres, they often evolve, along with the ideas we associate with them. Thus, the meaning of terms such as “media art” seems to undergo constant renovation, shifting along with emerging media contexts, never to be confined to a specific tool, technology, or ideology. Newer forms of media join a seemingly ever-expanding and continually morphing realm of potential. But our current post-digital condition also produces several forms of media that, for a variety of reasons, fail to thrive but also do not completely die out, becoming a sort of undead, *zombie media*. This landscape of alive, dead, and zombie media, entails a variety of increasingly heterogeneous approaches building from, reacting to, or hybridising with other media forms. There is, therefore, a need for critical reflection on media art's relationship with zombie media, and the plurality of different states of media that may coexist with one another. This essay looks at the evolving theorisations of media art, from early discussions on media art and of its associated terms — such as new media art, digital art, etc. — and then delves into recent literature on media, technology, and art in order to develop an understanding of what zombie media are, and what roles they play in the media ecology and in media art.

Keywords: media art, art theory, art and technology, media studies, art history, zombie media.

Introduction

Media art's unstable boundaries exist within overlapping territories — and theories — of a quite diverse range of technologies, practices, and discourses. We can describe aspects of this phenomenon in terms of new media art (Manovich, 2001), digital art (Dekker, 2021), electronic art (Boden & Edmonds 2019; 2009), computer art (McCormack et al., 2014) or an abundance of other designations that have been developed to zero in on what sets experimental artistic practices with technology apart from other spheres of inquiry (Parikka, 2023; Zylinska, 2020). But splitting

hairs over terminology may not be the most productive endeavour (Carvalhais, 2016), and, what's more, we may be amiss in the very premise that such art necessitates its own category altogether.

As communication technologies become widely adopted by the mainstream, they often evolve, along with the ideas we associate with them (Bryant, 2014; Ludovico, 2012). Thus, the meaning of terms such as media art seems to undergo a constant renovation, shifting along the emerging media contexts, never to be confined to a specific tool, technology, or ideology (Lee & Carvalhais, 2024). Newer forms of media join a seemingly ever-expanding and continually morphing realm of potential but our post-digital condition (Cramer, 2013) also produces several forms of media that, for a variety of reasons, fail to thrive but also do not completely die out, becoming a sort of undead, *zombie media*. This landscape of alive, dead (Sterling, 1995; Ernst, 2011), and zombie media, entails a variety of increasingly heterogeneous approaches building from, reacting to, or hybridising with other media forms.

There is a need for critical reflection on the definition of media art, particularly now, at a time when computers and computational systems are ubiquitous and a plurality of different media coexist with one another (Carvalhais, 2023; Parisi, 2013). The pervasive presence of computation in art and in many aspects of daily life has led to its growing acceptance as a commonplace element, in contrast to its relative novelty as a field of artistic practice and theoretical inquiry, during the early days of media art (Lee, 2022). Given the profound transformations that computation brought to the media landscape, rather than as a fixed set of criteria or a time period, we may instead think of media art through the lens of instability, as being a set of evolving practices that regard media and their technologies simultaneously as being indispensable to art and as phenomena that are continuously shaping, resisting, and building a poietic tension with art (Carvalhais, 2022; Harman, 2020a; Noë, 2015). The zombification (Steyerl, 2025) of media may speak to aspects of the present media context, in which we recognize aspects of obsolescence reluctantly marbled into new forms of what already existed.

While it is possible for computation to generate new media forms that break from existing conventions, it just as frequently commingles the present with the past, reviving or diverging from previous methods and tools (Carvalhais & Lee, 2022). Currently, if many of the foundational forms of computational media lost their novelty, they have also been adopted — even if incidentally — by mainstream contemporary artistic practices, expanding its pool of available resources and influencing their meaning. Technologies such as digital photography, hypertext, 3D modeling or fabrication, or augmented, expanded, or virtual reality, for the most part no longer attract attention simply because of their usage in artistic contexts but they rather find their way into the practices of a variety of artists that do not

necessarily are ascribed to, or identify with, the label of media art, such as Pierre Huyghe, Hito Steyerl, Carsten Höller, Anna Ridler, Trevor Paglen, or Agnieszka Kurant.

Computational processes don't always significantly inform the meaning or experience of an artwork, and the incidental presence of computation, computers, or computational media in an artwork no longer cleanly distinguishes it as media art or computational art, from other spheres of art theory and practice. However, in spite of its complications, media art can nevertheless be a useful and meaningful term to describe a set of practices and stances, and a community and its discourses regarding media and art.

By understanding media and their ecology as techno-cultural phenomena, we may better comprehend how they help to shape the landscape of contemporary arts. In this essay we look at the evolving theorisations of media art, from its early discussions and those of associated terms such as new media art or digital art, and will delve into recent literature on media, technology, and art, trying to envisage what zombie media are, and what roles they play in the media ecology and in contemporary arts.

What Is Media Art, and Why Is It So Difficult to Define It?

Media art is a term that is quite widely used and accepted at this point, but the continually shifting nature of the technologies that are available to artists and the media that these help to bring into existence (Gitelman, 2008) entails a renegotiation of what qualities are referred to under this heading. On the one hand, the term media art addresses a fairly established field, a set of practices and of theoretical perspectives, yet at the same time, it retains certain inconsistencies that are relevant to consider.

It is notable that many of the pioneering media art festivals and symposia are now entering in their middle age, Ars Electronica was founded in 1979, transmediale and the European Media Art Festival in 1988, ISEA in 1990, to name just a few. For one, this means that the field has been established and institutionalised for a significant amount of time, that it has maintained its relevance, justifying the ongoing events and interest, and also that the conditions surrounding it have markedly changed since its early days. However, media art today is in certain respects almost unrecognizable from instances that may have been considered exemplary early on in its development, something that, as we will explore, is caused by several factors.

Some of the aspects that may have been considered specific to media art in its nascence have now become far more commonplace, even outside of artistic

contexts. Nowadays we see that digital technologies, electronics, and programming — along with the computational and generative media forms they afford — have become rather pervasive in comparison to the 1970s or 1980s when media art was becoming established. As a result, some of the central technologies, aesthetics, practices, and concepts that were defining for media art are no longer specific to it. What's more, some older formats, such as the CRT monitor that was so emblematic for much of early video and computer art, are at this point fairly outdated (Gaboury, 2021; Connor & Espenschied, 2019).

Following this, we understand that media art's engagement with technological media is subject to the ever-changing context around those media. Specifically, it is related to conceptions of *new media*, one of the terms that media art has been coexisting with. It is even arguable that media art may have usurped the place previously occupied by explorations of new media. If the new media are *new* because of their potential to continuously generate novel media forms from the articulation of their many affordances (Manovich, 2001), they are also *new* because of the constant possibility of new properties being added to them, transforming the media through software techniques (Manovich, 2013). Therefore, framing a practice through the lens of media art instead of new media enables focus to be directed to the discourse on the transformative consequences to an entire ecosystem of media forms (Fuller, 2005) and to the relationships with them, rather than specifically on the technical or technological aspects of one of those forms. Consequently, it can be more accurate to describe these as *emerging* media practices, given that certain new media may retain their relevance even if they may come to lose their novelty. Some examples of this could be digital media, screen-based technologies, or virtual reality, which have each been around in various forms for quite some time but keep being reinvented or used in new ways in media art (Zylinska, 2023).

Other terms within the same area of enquiry include digital art, electronic art, computer art, intermedia art, but there are even more than these (Kwastek, 2013), each term emerging to describe aspects of what has now mostly been absorbed into the category of media art. This specific phrasing has won out in terms of usage, popularity, and theory in comparison to the others, but in spite of media art's apparent victory over rival concepts, it seems to also attain a degree of ambiguity with each step in this direction. As such, media art has come to share overlapping territories with the many other designations that it may have overshadowed, instead of cancelling them out.

The definition of the term also seems to shift along with emerging technologies, practices, discourses, and is not confined to a specific tool, technology, or ideology. So, what, then, we might ask, is media art? As we've discussed in a previous paper (Lee & Carvalhais, 2024), the answer to this question is not quite

as straightforward as merely defining it as a term. But one aspect that offers a good starting point is to look at it through the lens of computation, as it is such a common element in many instances of media art. Computation and digital technologies have played an arguably fundamental role in what media art has become, but at the same time, the very ubiquity of these technologies may mean that they play less of a role in the shaping of meaning than they may have at earlier stages of media art's development as a field.

At this stage, computation is pervasive in many aspects of daily life as well as in art (Lee, 2024; 2023), and it can be dispersed in ways that make it difficult to distinguish forms of media that are computational in any exemplary sense. In contrast to this situation, in the early days of media art, computation and computational technologies would often have an air of novelty as a field of artistic practice and theoretical inquiry. Now that computation is commonplace in life and in media, it can be viewed as an ordinary, almost trivial aspect of many media forms, rather than to it being regarded as a defining feature of all the instances where it is found. As a consequence, the term media art describes a coalescence of heterogeneous methods and perspectives.

Zombie Media

Computation's transformative effect on the media landscape gives us a starting point to approach what the zombification of media might entail. The heterogeneity of the post-digital condition produces many forms of media that, for a variety of reasons, do not always thrive or that even if they do, they may at some point cease to be relevant. Ordinarily one would expect these media forms to become disused, unsupported, and die out, belonging only in archives, museums, history books, or dusty antique shops. But, as it happens, some of these media forms refuse to go quietly to their graves. Or even if they do, they may also, at some point, be reanimated without fully being brought back to life. We can consider such cases as a sort of undead media, between past and the future technologies, between being part of the media ecology and being defunct, in the condition of zombie media.

In the post-digital media landscape, alive, dead, and zombie media are entangled in a variety of increasingly diverse approaches that build from, react to, and hybridise with other media forms. We argue that technologies and media become zombie media when they exist somewhere between old and new, animate and inert, forthcoming but also retreating. To think of these as undead, drawing on dead media (Sterling, 1995) as much as new and emerging media, may enable us to also conceive of them as undergoing continual renovation and resurrection. What we mean by this is that as technologies become adopted in mainstream spheres, they often evolve, as do the ideas associated with them. This leads to the

emergence of new forms of media that take their place in a seemingly ever-expanding and continually morphing realm of potential that exceeds beyond the use of a particular technology or method.

This instability is the core of media art. We find it in the time-based qualities of many of its expressions, but also in the fact that even works that may seem to some extent be fixed do not seem to stay so for long. Many works of media art are not only time-based, but may also be interactive, generative, iterative, responding or adapting to the conditions where they are shown and to visitors' behaviour, so that their sensorial manifestations may constantly shift, never settling into a stable pattern of configurations, structures, or outputs. In spite of this variability, we often identify these as outputs of the same artwork instead of as multiple artworks (Penha & Carvalhais 2018), recognising the invariable core of the work at the root of all its variability.

Another factor is that the technology itself seems to be continually changing, and this quality of the instability of media art is something that may be more central and integral to works than some of the incidental aspects such as the specific hardware, software, or even code employed in the execution of a piece.

Instability in the Post-Digital Media Landscape

Alive, dead, and zombie media are entangled in a variety of increasingly heterogeneous approaches that build from, react to, and hybridize with other media forms. Although this tendency has been present throughout the history of media, it has become far more pronounced, and feasible, with the current digitalisation and convergence of, seemingly, all media. This is a consequence of the increasing ubiquity of computers and computational systems in all aspects of contemporary life, including – but not isolated to – art, something which further calls for a critical reflection on the definition of media art.

The pervasiveness of computation in daily life has led to its acceptance as a commonplace and unavoidable element of life, media, and art, and to the loss of the air of novelty that computational technologies had as a field of artistic practice and theoretical inquiry. If anything, computation is currently so ingrained in our ways of doing, thinking, and perceiving that it often goes unquestioned, accepted as a precondition for things to exist. And even if that may very well often be the case (Kitchin & Dodge, 2011), its critical questioning, particularly when in artistic contexts, should never be neglected. This is reminiscent of what Rosalind Krauss terms the *postmedium condition* (Krauss, 1999) in which she sees the obsolescence of a medium as a redemptive characteristic that allows the full exploration of its aesthetic possibilities only after its interest as a commodity of mass consumption has been lost (Bosma, 2011). In fact, the obsolescence of a

medium is predicated by Krauss on its previous theorisation, on it becoming a theoretical object and, in so doing, starting to lose its media-specific tradition and “fate”, on becoming aesthetic and thus leaving the field of strictly social use and entering the “twilight zone of obsolescence” (Krauss, 1999, p. 295).

According to Krauss, obsolescence is a means and a precondition for the very possibility of starting to reinvent a medium in and through art. This is a reinvention that does not necessarily lead to restoring its previous states but rather acts upon the idea of:

a medium as such, a medium as a set of conventions derived from (but not identical with) the material conditions of a given technical support, conventions out of which to develop a form of expressiveness that can be both projective and mnemonic. (Krauss, 1999, p. 296).

This obsolescence can therefore be seen as a stabilisation of the medium in techno-culture. Traditionally, art depends on this stabilisation and on the development of a familiarity with the medium that will then allow for its usage in art as a transparent and somewhat neutral support for the artwork.

What transformations has computation brought to the media landscape? As discussed in the keynote address presented at the Multimodus 2025 conference, and elsewhere (Carvalhais, 2024), in spite of computational media being largely conceived of as faithful simulations and remediations of analogue media forms, they inevitably bring to media forms a number of affordances that expand and transform them in unpredictable ways. With computation all media become dynamic, variable, interactive and multimodal to a point. And all media forms become unstable.

We cannot think about computational media as being equivalent to past media forms, much as we cannot think of computational technologies as being equivalent to the analogue technologies in which these media forms were developed. Rather, because computation hybridises media and tools, it also makes them ambiguous. Furthermore, computation is also an unstable vehicle for the information it encodes, as the contents of a computational medium are not signs — like they are in analogue media — or at least they are not the signs that the medium communicates to readers.

The contents of computational media are coded information, data, and the software and computational processes that allow the transcoding of that data that is necessary to produce signs that are accessible to its readers or other

recipients. In computational media there is always a differentiation between data and signs, between the *subface* of the medium — as Frieder Nake (2008) calls to the hidden layer of data, software, and computation — and its *surface* — the analogue, sensorial effusions that the medium produces. Data is transformed into signs, the subface is expressed through the surface, and in this process resides the inherent instability of computational media, its paradoxical nature (Carvalhais & Cardoso, 2023).

In computational media we not only find a fixation and stabilisation of signs but also their permanent rebuilding and renovation, a process that develops transformations that are not reversible or trivial, like they were in analogue media forms. The transformations at the heart of computational media are not dominated by the physical authority of any of the parts involved over the others (Aarseth, 1997), but rather determined and controlled by software that is in constant flux. Instead of having the authority of film over a projection in cinema, or of a vinyl over the sound that is played through a hi-fi system, we rather have a stream of data that is interpreted by software processes that are very often determined by that very data and that can be altered arbitrarily and at a moment's notice.

We can think of these transformations not as analogue and ideally reversible transformations — as they were in pre-computational media forms — but rather as non-reversible transformations that resist reduction and paraphrase (Harman, 2020b). As transformations that are not dominated by analogy but rather by metaphor (Carvalhais, 2024). At their core, artworks also resist reduction and paraphrase (Harman, 2016) in ways that resonate with the transformative capacities of media. Computational media are aesthetic in ways that analogue media are not, because in computational media the signs and the surface are different from the data and the surface in a way that makes literality impossible (Harman, 2020a).

The transformations at the core of computational media are not only developed once an instance is read or executed but often also when the medium is in states of apparent inactivity, as when a static image or text are presented on screen. There are mechanisms for checking and correcting errors, to guarantee the integrity of the data so that one can be certain that the signs that are ultimately reproduced do not stray away from the intended outputs of the medium, but these systems are not infallible, not only because they cannot be expected to filter out all possible errors or deviations, but also because computations tend to be irreducible (Wolfram, 2002).

What is Media Art, Now?

When a medium is obsolete in Krauss's sense, it is in a condition in which it may become a tool "for conducting an inquiry on the nature of art" (Krauss, 1999, p. 294). The stability of the medium and its familiarity to both audiences and artists allows the construction of new media forms that are *strange* (Noë, 2023). But although a medium may seem to be stable, it never really is. Media are part of complex ecologies, of networks of relationships with other media, systems, and their users. Furthermore, media are not built of technologies but also, or rather, by the cultural practices that are developed around and through those technologies (Jenkins, 2006), so they are continuously subjected to tensions with other media forms and their utilization.

The only stable medium is a dead medium - one that is not only terminally outdated but is also unused and out of the cultural zeitgeist. A living medium is something that is in permanent development and transformation. And this happens even if it is obsolete. Zombie media, however, are in a plane of existence between this liveness and the stability of dead media. Zombie media do not develop, but they may transform and give rise to new media forms as they are pushed by techno-cultural development. This condition is something quite particular to computational media forms, as it is made possible by their fluidity, their dual nature as protocols and data that turns everything into an endlessly malleable substrate that is in the zombie condition.

Media art is developed in a territory that intersects with the art world, but media art chooses to work with media forms that are not obsolete in Krauss's sense and thus, not accepted as media for art (Bosma, 2011). Because of this, media art is, somewhat oddly, not media-specific (Morrison, 2009), with artists operating across disciplines, remixing, reinventing, and redeveloping media forms, making use of both old and new technologies, analogue as well as digital. We propose that media art should not be defined by a fixed set of criteria or through any given time period but that we should rather think of it through a lens of instability, as an evolving set of practices that regard media and their technologies as being simultaneously indispensable to art (as it may not be produced or enjoyed without them) and as phenomena that are continuously shaping, resisting, and building a poietic tension with art. And while it is possible for computation to generate new media forms that break from existing conventions and protocols, it just as frequently commingles the present with the past, reviving or diverging from previous methods and tools.

As a set of practices, stances, communities and discourses, more than a particular toolkit of media and methods, media art exceeds the inadequacy of a given term to describe something that undergoes continual transformation. Media art

deliberately questions the media it uses, and in the process, it somewhat sabotages the goals of the media technologies and hijacks them to new ends. It looks behind the curtain and the media's mirror, beyond the illusion and trickery, focusing on the singular aesthetic potential of any given medium, and sometimes creating zombie media in the process. The media used in media art are not brought back to life in the sense that they are necessarily resuscitated and reintroduced back into the mainstream ecosystem of media forms, but they are frozen in a specific condition that is not the familiarity on which art traditionally depends, and is not a condition of stability or obsolescence. Rather, media art upends these relationships and because it also works the medium, it defamiliarises it, forcing us to focus on its strangeness.

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THE LANDSCAPE THROUGH THE EYES AND TOUCH OF GABRIELA ALBERGARIA

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Abstract

The term "landscape" emerged in the 17th century as a genre of painting, where the natural panorama became the primary theme. Initially regarded as a minor genre, landscape painting gained recognition by the 19th century. In the mid-20th century, reality, life, and vegetation became central themes in conceptual, environmental, and time-based art movements, transforming the artist's relationship with nature and emphasizing the act of walking as an artistic process. This shift also brought elements of nature into the artistic realm—not just as objects of study but as physical materials. Today, landscape spans multiple mediums, including painting, drawing, photography, film, and video, bridging art with common sensibilities. Gabriela Albergaria (b. 1965) exemplifies this evolution through her multidisciplinary practice that integrates drawing, sculpture, photography, and large-scale installations. Her work interrogates the contemporary concept of landscape, examining humanity's complex relationship with nature. Constantly traversing Portugal and the world, her nomadic artistic process—marked by numerous residencies—culminates in site-specific installations and exhibitions that reimagine the role of landscape in the 21st century. The work of Gabriela Albergaria not only redefines the landscape but challenges the dichotomy between natural and artificial. By repositioning natural elements within the context of contemporary art, Albergaria critiques humanity's impact on the environment while celebrating its fragility and resilience. Her contributions situate her as a pivotal figure in revaluing landscape as a dynamic, multidisciplinary field. This work is part of a doctoral research that aims to show how Gabriela Albergaria's work has contributed, through her multidisciplinary artistic practice, to the reinvention of the relationship between Art and Nature in the 20th and 21st centuries, integrating it into the continuity of a line of creative exploration of the landscape, initiated by female artists from postmodernism onwards. Therefore, this communication proposes to present the creative and exhibition process of Albergaria.

Keywords: Art, Landscape, Women Artist

Introduction

Gabriela Albergaria is a contemporary artist born in Vale de Cambra, a small rural village in northern Portugal. Her artistic journey began early. At the age of fourteen, she started traveling to Oporto, where she would later follow her studies at the Oporto Faculty of Fine Arts. There, she was mentored by two of the main Portuguese landscape artists, Ângelo de Sousa and Álvaro Lapa. These early experiences sparked a nomadic lifestyle that would continue throughout her life and career, moving between the serenity of rural landscapes and the dynamic culture of urban environments.

Albergaria's artistic practice is multidisciplinary and deeply rooted in her personal experiences with gardens and landscapes, shaped by her early connection with her family garden. Even after her father passed away and she moved away from home, she remained responsible for its care, often checking in with her mother over the phone. This ongoing connection to the garden profoundly influenced her artistic vision.

Living and working in cities like Lisbon, Berlin, London, New York, and São Paulo, Albergaria explores botanical and leisure gardens as sources of natural materials and conceptual inspiration. Each garden she explores carries historical, political, and ideological references—especially in places like Portugal and Brazil, where gardens often reflect a colonial legacy. Her work questions how representations of the natural world both influence and reveal transformations shaped by European colonial expansion. (Sardo, 2021)

A significant aspect of her research focuses on the global circulation of plant species during the colonial period. She investigates the natural and artificial migration of flora and how these species were inventoried, cataloged, and used to construct botanical and ornamental gardens. This research merges personal memory with broader cultural narratives, shaping her understanding of gardens as constructed representations of nature. In this way, Cachola (2019) states that Albergaria “(...) *understands the gardens as an elaborative construction, representation systems and descriptives mechanisms that synthesize a group of fictional believes that are used to represent the natural world.*”

On Albergaria's Creative Process

Albergaria's creative process begins with direct engagement: wandering, observing, collecting, sketching, drawing, and photographing. These materials are later restructured in her studio, evolving into artworks that blur the line between reality, memory, and fiction. Sardo (2021) describes it as a “(...) *wandering process:*

Of walking, observing, collecting, changing. To appropriate, save, design what a fine process of sensitive attention calls for.”

Her works invite sensory experiences, prompting viewers to reflect on how nature—both raw and constructed—is perceived and represented. According to Perez (2004) Albergaria effectively explores the relationship between how nature is perceived—whether raw or constructed—and the relevance of its representation in contemporary contexts

One of her earliest practices involved creating three-dimensional garden models, which are then photographed from various angles. The resulting series of photographs appears to depict a real garden, though in fact, the viewer is looking at a carefully staged model—blurring the line between memory, reconstruction, and illusion. As Albergaria explains: *“I try it again and again, but differently each time. I don’t use any living plants. I make everything artificially. What you see is an illusion.”* (Herbstreuth, 2004)

Her photographs (Figure 1), often produced in Lambda prints, evoke a sense of *“(...) sombre nature more reminiscent of a film set than of the actual world.”* (Gisbourne, 2005) Notably, Albergaria rarely includes fauna or human figures in her work, focusing instead on landscapes and vegetation.

Figure 1

Gabriela Albergaria, Grosser Weber, 2003 Lambda print



Note. Source: <https://galeriavermelho.com.br/artistas/gabriela-albergaria/>

Another core element of her practice is the creation of tree sculptures (Figure 2). After the study of the tree's species, Albergaria selects already fallen or dead trees which have the necessary qualities of dimension, density, balance and robustness, that will allow to be remounted as a sculpture. Firstly, the artist registers through photography and video the gathering of the tree that will manipulate, therefore including in the sculpture work all the preparatory process. Then, without a previous sketch, the tree is dismantled, the foliage is eliminated and through techniques that recall ancient pruning, such as cutting and grafting. Lastly, with mechanical maneuvers with screws, nuts and steel cables, remounted as a three-dimensional sculpture in the exhibition space. As Gisbourne (2005) puts it, it is "(...) *the transposition of that which was dead to a newly regenerated poetic life, something that is better described as an act of aesthetic reparation.*"

Figure 2

Gabriela Albergaria, Tree, 2004/2020



Note. Source: <https://galeriavermelho.com.br/artistas/gabriela-albergaria/>

Albergaria's drawings, created with numerous green pencil tones, are composed through layers of hatching and cross-hatching (Figure 3). These works aim to embody the emotional and physical essence of landscapes rather than depict them precisely. Her drawings often appear as diptychs, triptychs, or panoramic compositions. These works can consist solely of drawings or a combination of drawings and photography. They typically depict the main trunk and treetop of a tree and may be exhibited either vertically or horizontally. In the horizontal format, the composition conveys a sense of movement and evokes a landscape, as it includes not only the tree itself but also the sky and ground—natural elements of a broader environment. Although this orientation changes the viewer's perspective of the main subject, it allows for a detailed visual experience as the viewer walks alongside the work.

Figure 3

Gabriela Albergaria, From Límite urbano series, 2016



Note. Source: <https://www.gabrielaalbergaria.com/Li-mite-urbano-series>

Therefore, Gisbourne (2005) explains that Albergaria is “(...) able in these drawings to fuse together the thing seen (the object of study), with the thing felt and responded to (subjective and the psychological). In quite another sense she has attempted to realize an aesthetic reparation, the dichotomy that often operates between the feeling and seeing experiences of nature as landscape.” These works unfold in two moments: first, on-site documentation through sketches, photography, and notes—where the presence of a diary plays an important role; and second, in the studio, where the initial records are restructured and reinterpreted (Figure 4).

Figure 4

Gabriela Albergaria, *Nature Abhors a Straight Line*, Culturgest



Note. Source: <https://www.gabrielaalbergaria.com/Nature-Abhors-a-Straight-Line>

Albergaria has created several artist books. For example: *Duas Praças, Um Jardim* (Lisbon, 2012), which functions as a field diary documenting different perspectives of Praça Afonso de Albuquerque, Jardim Vasco da Gama, and Praça do Império—all located in the Belém area of Lisbon (Figure 5). The book includes practical information and maps with suggested routes through Belém and the wider city of Lisbon, alongside pages for personal notes and drawings, as well as artistic exercises related to Albergaria's practice.

Figure 5

Gabriela Albergaria, *Duas praças, um jardim*. Belém, Lisboa.



Note. Source: <https://www.tipo.pt/arquivo/edicoes/duas-pra-as-e-um-jardim-bel-m-lisboa/>

The gleaner activity is an essential part of Albergaria process. Throughout the years, Albergaria collects wooden fragments that she gathers along coastlines, from Colombia to Germany. In each small wooden fragment, Albergaria has a subjective reason to collect and save it. Later assembling them into sculptural compositions structured by lines (suggesting chronology) and grids (suggesting order). A notable series, *Entre Facto e Ficção* (2015), reflects her blend of fiction and fact.

In 2015, she joined a scientific expedition to the Amazon, working alongside a botanist and an ornithologist to collect DNA samples. As an artist, rather than follow a scientific method, she created a personal herbarium through photographs, drawings, and color-coded seed studies. Afterwards, all the collected material was taken to the studio, where it gave origin to a series of works, through chromatic, typological, formal and topographical cataloging. Thus, Albergaria reinvented the analytic relation with the natural world, producing shareable sensible knowledge. Some seeds were later cast in porcelain and presented using scientific display methods (Figure 6).

Figure 6

Gabriela Albergaria, Repair Recover, 2010-2020



Note. Source: <https://www.gabrielaalbergaria.com/Nature-Abhors-a-Straight-Line>

Albergaria's connection to Land Art is evident in works like *D28* (2015), an undulating brick path in Springhornhof Park, Germany (Figure 7).

Most of Albergaria's solo exhibitions feature multidisciplinary artworks. Whenever possible, she establishes a connection between the interior and exterior of the exhibition space.

Figure 7

Gabriela Albergaria, *D28*, 2015



Note. Source: <https://www.gabrielaalbergaria.com/D28>

This happens in the solo exhibition at Calouste Gulbenkian Foundation, where Albergaria aimed to bring the exterior—the garden—into the interior gallery space, drawing the viewer's attention to the ongoing relationship and dialogue between the Foundation's buildings and its garden (Figure 8). This connection is emphasized by the large glass windows that open onto the landscape, visually merging the interior with the exterior.

To achieve this, Albergaria created four ephemeral installations within the Foundation's buildings — *Garden* and *Escada*—and presented two performances in the garden—*Han* and *Disfarce no Jardim*—. The exhibition encouraged viewers to move between indoor and outdoor spaces, extending and deepening the exhibition experience:

Garden was a three-dimensional model representing Albergaria's memories and imaginative interpretation of the Gulbenkian garden. Through this model, she evoked her perceptual and physical experiences, her memories, and the garden's own layered history. The materials used were gathered from the garden and incorporated into the model, which the artist also photographed and drew.

Escada featured a wooden gardener's ladder, which Albergaria suspended from a horizontal beam inside the building, leading toward a large window facing the

garden. This created the illusion of a passage between the interior and the exterior.

Han, a performance-installation, took place in the garden itself. Albergaria intervened directly in the landscape to prompt viewers to notice what is already present. A eucalyptus tree, which predates the construction of the buildings, has roots that extend as deep as the building's foundations. To stabilize the soil around it, Albergaria constructed a wooden locking system, inspired by those used in construction. The title *Han* references the wooden beams used in Berlin (where Albergaria was living at the time) for public road repairs.

Disfarce / Performance no Jardim involved Albergaria covering the cement path in the garden with all the layers typically used in grass planting: drainage sand, thermal cloth, soil, and grass seeds. At the end of the exhibition, the resulting grass carpets were repurposed to restore bare patches in the Gulbenkian garden.

In *Thermal* (Lisbon, 2010), exhibited at the White Pavilion, Albergaria addressed the relationship between soil, heat retention, and greenhouse effects. Featuring a tree sculpture, soil installation, and drawings, the exhibition transformed the pavilion into a metaphorical hot-house.

Sardo (2010) describes *"The exhibition (apparently) makes it explicit how the conversion of the space of the White Pavillion into an enormous hot houses takes place, with the title referencing to the process of thermal preservation of fertile land which, possessing a reference to Joseph Beuys, constructs a machine which shifts through the metaphor heat and fertility, now subverted through processes of sterilization and museumization."*

Figure 8

Gabriela Albergaria, *Couche Sourde* 2010/2020



Note. Source: <https://www.gabrielaalbergaria.com/Nature-Abhors-a-Straight-Line>

Oréades (Brasília, 2021) was a joint exhibition by Albergaria and Brazilian artist Marcelo Moscheta, held at the Portuguese Embassy in Brasília. The exhibition title was inspired by the name given by botanist Carl Friedrich Philipp von Martius to the Brazilian biome of the Cerrado—the world's most biodiverse savanna, covering an area of 2 million km². The name *Oréades* itself originates from Greek mythology, referring to the mountain nymphs who were believed to guard and protect the forests, living long lives without aging.

For this exhibition, Albergaria created a sculpture using local red soil mixed with purple and black soil collected from other regions of Brazil. She also presented *Color Chart de Brasília* (2019/2021), a drawing resembling a pigment shop catalog, in which she recorded the varied hues of the region's soils.

The final piece was a tree trunk, cut in half, with its hollow section filled by an industrially manufactured wooden beam—highlighting the contrast between organic matter and human-made material.

In *Mouvement, Instability, Conflito II* (Coimbra, 2005), Albergaria draws inspiration from the Jardim das Sereias in Coimbra and a violent storm that struck in 1941, damaging all the trees, which then had to be replaced. The work explores questions such as: “How can the storm, which both forms and deforms, be made

visible? How can the wind—an invisible phenomenon—be translated into an artistic or aesthetic form?” (Berg, 2005)

Albergaria first created a three-dimensional model depicting the trees and the storm, which she then photographed. She also collected two different tree species—an acorn and a sycamore—and sculpted a single hybrid tree from them. This sculpture was placed leaning against the gallery window, evoking the force and directionality of a storm's impact.

Finally, she presented a series of her signature green *tratteggio* drawings, which individually depict the swirling movements of wind. When viewed together, they form a cohesive whole. Albergaria displayed them vertically, Berg (2005) describes the exhibition “(...) *starting at the foot of a tree firmly planted in the ground, the gaze moving upward along the trunk to the treetop. It then continues, picture for picture, in a downward arch behind the viewer's back (...) toward the ground.*”

Through a diverse range of media, Gabriela Albergaria redefines our relationship with the natural world. Her work challenges conventional views of landscape, blending personal memory, historical inquiry, ecological awareness, and artistic experimentation into a deeply reflective and sensory experience.

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VIRTUAL ADUFE – A VR MUSICAL EXPERIENCE

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Abstract

In this article we propose the development of a VR environment in conjunction with a sampling-based synthesis engine created for the traditional Portuguese instrument Adufe, as part of the TRADIGITAL project. This virtual experience is intended for preservation and educational purposes, either in schools or museums, as well as recreational ones for people that are curious about the experience of playing the Adufe but don't have the opportunity for such because of its physical nature.

This article describes the development of the virtual experience, from creating a sample based virtual instrument that can be played with the use of a VR headset without its controllers, to creating an immersive 3D environment based on a real-life location. The user can walk around a virtual Portuguese inspired village and grab the Adufe to not only play, but to learn about it and its sound. This article presents the ongoing work to develop a virtual environment for recreating traditional instruments. This project is part of the TRADIGITAL project, for the development of digital instruments inspired by traditional instruments and aims to provide an interactive experience for the musical use of the recreated instruments, as well as for the exploration of the imagery related to traditional music, and simultaneously with current 3D imaging and sound synthesis technologies.

Keywords: Virtual reality, Traditional Instruments, Unreal Engine, Virtual Instruments, 3D Environments

Introduction

The TRADIGITAL project centers on the study and development of digital instruments inspired by the instrumentation associated with traditional music from the regions of Beira Baixa (Portugal) and Extremadura (Spain). The project is part of the thematic line: Valuing Artistic and Cultural Heritage – Design and Innovation, of the TECHN&ART Research Centre. For this project, research was initially carried out into the instruments used in musical practices associated with traditional music, from which an instrument from each of the regions studied was

selected to serve as the basis and main references for the construction of two prototypes (Dias, 2024). As this is a project situated between the areas of digital musical instrument development (DMI – Digital Musical Instruments) and new interfaces for musical expression (NIME – New Instruments for Musical Expression), the selection of the target instruments mainly took into account technological aspects and accessibility of construction and use, as well as ergonomic aspects and their potential for musical performance. The areas of DMI and NIME already have a large number of projects and authors over the decades. Among the main references for this project is Proto-Langspil (Armitage, 2023) and the Magnetic Resonator piano (McPherson & Youngmoo 2010, Armitage et al 2023).

The work focused on in this text is an offshoot of the project, which proposes the creation of a digital version of one of the instruments studied, the Adufe, an instrument very present in the musical practices of Beira Interior Sul, Portugal, inserted in a virtual environment strongly inspired by the village of Monsanto, in the municipality of Idanha-a-Nova, where this instrument is particularly well known and used.

We wanted to create a cultural and educational experience based on the preservation of the traditional Portuguese music traditions in new and innovative media formats.

This article details the process of organizing and design of the virtual experience, to ensure a faithful and immersive representation of the traditional instrument and its environment, from recording the Adufe, to the creation of the 3D environment itself.

Motivations

This project's core motivation is the preservation of sound patrimony, by recording multiple one-shot sounds of an instrument, multiple times to get as many variations as deemed necessary, in order to create a digital instrument that will preserve its real-life counterpart's sound digitally and can be shared with people that are interested in learning about and listening or playing the Adufe.

Creating the Virtual Experience

Because of the multiple requirements from various techniques and technologies to create this project, we divided the work into two main parts, the Virtual Instrument and the Construction Kit. The Virtual Instrument is all that has to do with the audio and 3D representation of the chosen instrument, from the recordings to the programming implementation, and the Construction Kit is all

that has to do with the 3D environment, from the ambient audio to the 3D models.

Virtual Instrument

The Virtual Instrument was organized into 4 main development sections: Recording; Editing; 3D Model; Programming. We did initial tests for the instrument inside Unreal Engine with Adufe sounds recorded previously and then did one studio session to record the final sounds for this project.

Recording

The Adufe was recorded in a studio, in order to have the sound as dry and detailed as possible. The recording sessions were planned in advance in order to optimise and predict the number of needed samples to encompass a wide dynamic range as well as several different positions, as the timbre and decay features vary according to the position where it is tapped.

We recorded around 1 hour of Adufe one shot sounds with multiple dynamics and different tapping zones, as well as other sounds produced by the instrument, like the sound of the seeds shaking inside the Adufe. We used an AKG SE300 microphone to capture a mono signal and a pair of AKG 414 XLS to capture a stereo signal.

This approach aligns with the principles of audio-first VR, which emphasize the integration of high-quality dynamic audio into virtual environments to enhance the user's sense of presence (Çamcı & Hamilton, 2020) while at the same time ensuring that the digital version of the Adufe offers a large variety of sounds that help mimic the sound of its physical counterpart, therefore contributing to a more immersive experience for the users.

Editing

After recording, the sound files were imported into the software iZotope RX11, to clear them of any potential unwanted noises. After cleaning the sounds, we imported the files to the digital audio workstation (DAW) Reaper and separated them by transient, which helped the remotion of some of the sounds that didn't sound in pair with the majority of the others sounds, either because there are other noises overlapping, the reverberation of the room can be heard, are too quiet or wasn't played correctly (Figure 1). Overall, the criteria for choosing what sounds to discard wasn't too strict, because we were looking to maintain a certain level of real variation between sounds and not find the perfect sounds. The sounds were then divided into 3 sections: 1 - One shots, for the sound of the

Adufe being struck; 2 – Movement/Large, for large Adufe movement sounds; 3 – Movement/Small, for small Adufe movement sounds.

The mixing of the sounds with the stereo microphones and the mono one was done at this stage, as well as some light compression and equalization.

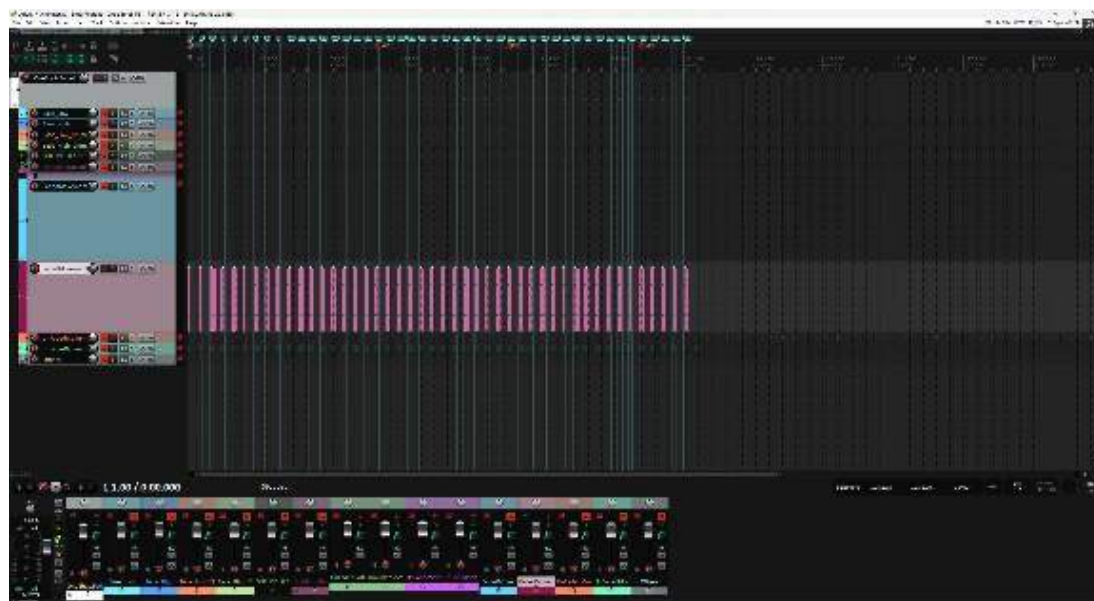
At this stage, we decided to export and name the sounds with identifiable names, based on their section. As an example of a sound name, we have “BaseFaded_OneShots_01”, which tells us that it is a faded sound, a one shot, and its arbitrary number based on the order it was situated on the timeline. We then reimported the sounds to another Reaper project, so that we would only have one file per sound instead of three, which would help us organize them dynamically.

After reimporting the sounds, we had to separate them dynamically, which we did using 3 Reaper extensions, those of which are SWS/S&M by Tim Payne, scripts by X-Raym and scripts by David Hilowitz. The use of these scripts was essential because we were working with almost 600 sounds and trying to organize them one by one would take unnecessary valuable time from other tasks for this project. First, we used a script to align all the sounds by max peak and then another script to space all the sounds with a 5 second spacing. The next step was then to place markers to define where each dynamic starts and separate the sounds vertically depending on what type of sound it was, for example, some sounds didn't have the chime timbre of the seeds inside the Adufe and some did, some were longer than others and some had more low frequencies than others.

The last part of the process was to rename the files again with a naming convention that helped us with the implementation which had the format “V01_Base_Low-001”: “V01” means voice 1, referring to the dynamic of the sound; “Base” refers to the type of sound, if it is a movement sound or a one shot, in this case, base is a one shot sound; “Low” refers to the timbre of the sound; “001” is the arbitrary number given to the sound.

Figure 1

Reaper project of the Adufe sounds editing

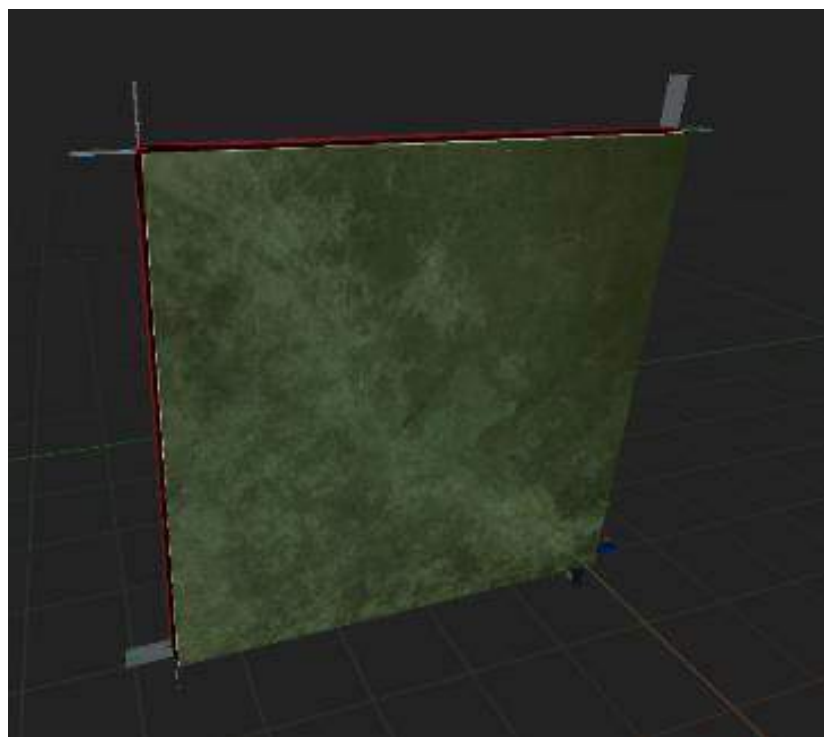


Note. Cockos Reaper. <http://www.reaper.fm>

3D model

The 3D model of the Adufe was made from scratch in Blender and textured from pictures of the recorded Adufe (Figure 2). We chose not to make the Adufe from photogrammetry because the ribbons would be an issue, as we wanted them to have physics and move around with the movement of the Adufe.

Figure 2

3D model of the Adufe

Programming

To create the virtual instrument, we used the MetaSounds audio system inside Unreal Engine. The first step was to import the sounds to unreal engine and assign them to different arrays. That allowed us to then call the different types of sounds in accordance with the required variables values, for example, if we softly tap the virtual Adufe, the system gets a random sound from the soft Adufe recordings, or if we move the Adufe around, it plays a random sound from either one of the movement arrays.

Each array has around 20 sounds each, and there are 6 different dynamics which gives the instrument a lot of possible variations, but in real-life, the possibility of variation is larger, and to achieve a larger pool of variations, we added some modulations to the sounds such as, a general gain control that is influenced by the tap strength on the Adufe, a lowpass filter that is also influenced by the tap strength, a random pitch modulation, a random minor EQ changes and a random resonant frequency notch equalizer and an envelope generator that changes the decay of the sound based on its tap strength.

Construction Kit

The Construction Kit was organized into 5 main sections: Environment Audio; Photogrammetry Models; Created Models; Textures; Other Assets, which include HDRI's and Heightmaps.

Because it was a 3D environment where the user needed to be immersed to play the Adufe, this pack became inspired and heavily based on the Monsanto village in the Castelo Branco district in Portugal because of its strong roots to the Adufe instrument.

A field trip was made to Monsanto, where we collected a lot of photographs and sounds to create some of the required assets. These assets were then later edited to fit not only a 3D environment, but a 3D environment that could be rendered in real time, so the assets needed to be optimized to fit an average VR ready computer while at the same time still looking immersive, sort of like a videogame.

Environment Audio

The environment audio is all audio that has to do with the 3D environment. This audio was recorded with a Zoom H1N in Monsanto, where we recorded the main ambient sound for around 20 minutes to get a good variation of sound from the environment. At last, we recorded more specific environment sounds, like the water from a fountain and the church bell. These sounds were then later edited and cleaned of any problems with the program from iZotope, RX 11.

Photogrammetry

Since we wanted some control over what 3D assets we put in the environment, as to make them fit each other, photogrammetry models were chosen to be able to be repeatable or very specific, like rocks, walls and a fountain. We also didn't know about the legal implications of making 3D assets from architectural works, so chose not to make 3D assets out of people's houses. To make these photogrammetry assets, we took around 20 photos per object with a Nikon D5100 in a clear day to reduce shadows with some overlap between photos. Because of consistency reasons and to be able to manipulate the photos with higher fidelity, all photos were shot in RAW with a short ISO and between an 18 and 24 focal length.

All the photos were then chosen and edited in batch to keep lens distortion and remove vignette, as well as some shadows. The final photos were then imported to Agisoft's Metashape and aligned in the highest setting so that we could then build the model with the depth maps with a high face count and ultra-high quality. Some settings were tweaked based on the results given, but for most of the models, the settings previously mentioned were the norm. We then exported

the high poly model to blender where we reduced the models with a couple million faces to around 10 000 to 30 000 faces and rebuilt the UV's. At this stage, we also cleaned the model a little bit because of rogue vertices and pieces of the sky or background that we wouldn't want in the model.

After cleaning the low poly model, we reimported the model to Metashape to build the texture maps from the high poly onto the low poly model and then exported the model out of Metashape. With the textured model exported, it was then imported again into Blender to fix the orientation and do further cleanup of the model, as well as some possible variants of the same model. As a final part of the process, the roughness maps and specular maps were created with Affinity Photo 2 based on the Diffused map and the whole model and texture maps were packaged in the construction kit.

Created Models

The created models were created in Blender and needed to have some modularity to them, so that they could fit each other and the terrain or could be modified if needed. All the houses were created this way because they had to fit each other, while at the same time having some variation, as a lot of pictures were taken in the field trip to Monsanto as a reference for future models, and since it is a historical village with very old houses, there is some significant variation between the houses.

Textures

Most of the textures in the environment were photos taken in Monsanto. But to choose what pictures to take for the textures, we had some criteria in mind, which was that the objects of choice could be repeated and couldn't have any highlighting elements. For example, a stone pavement without flowers in between stones would be a perfect candidate. All the photos were taken with a focal length bigger than 25 and with as little shadows in the environment as possible.

We then chose and edited the RAW images in Affinity Photo 2, where we removed lens distortion and vignette, as well as, as much of the shadows as possible. After that, we colour corrected, and colour graded the images and cut them to the resolution of 2048x2048, which is a good resolution used in many videogames to save on performance and keep fidelity. The images were then divided and reoriented into 4 pieces with the "Affine" tool and the creative work of making the texture seem seamless was done with the "Clone" tool to prevent as much repetition in the texture as possible.

The other texture maps (roughness, normal, specular) were then created with Affinity Photo 2, Gimp or Materialize, depending on which one gave us the better

result (Figure 3). After all the textures were finished, they were packaged in the construction kit and a master material was made in Unreal Engine to accommodate and make slight modifications to the textures if needed.

Figure 3

Creation of texture maps for the pavement in Materialize



Other Assets

Other Assets is all the other assets that were created to help the environment. Starting with the Impulse response, which was created by recording multiple balloons exploding in Monsanto for us to then use that sound to make a convolution reverb inside Unreal Engine. Multiple 360 photos were also taken with the app HDREye to then make an HDRI to import into Unreal Engine to help with global illumination. Another important asset used was the heightmap, which was acquired from topological data of around 8km around Monsanto with the program e-on Vue, and then transformed to a low poly 3D .fbx file with World Machine to create the background of the virtual village. At last, some 3D assets from the Unreal Engine store were used to add more details to the environment, such as doors, windows, streetlights and plants.

Putting it all together

After making all the required assets, we created the village based on a few photos taken during the field trip to Monsanto, such as the one seen in Figure 4a. After the village was done, we made the VR functionality of walking around the village by pinching two fingers to teleport around and the grabbing functionality to grab the Adufe. The next step was to make the Adufe playable by making a functionality that allowed the us to use the speed at which the hand was previously moving to calculate the tap strength the user used. All of this data was

then sent to the MetaSounds system where the virtual instrument was to modulate the variables.

Figure 4

Image (a) - Monsanto village photography for reference. Image (b) - Virtual village environment in Unreal Engine 5



Conclusion

In this project, we developed a prototype VR experience that allows the user to experience the sound of the Adufe with a VR headset. This experience embraces the user with not only sound but a virtual world where he can look around at the environment where the Adufe is usually played. But while the experience works as intended, there are parts of the process that need polishing, for example: with the ambient sound, that should have been recorded with at least four microphones, so we could take advantage of the Ambisonics system inside Unreal Engine for spatial audio; more photos for each model should have been taken for the photogrammetry models to enhance their fidelity; having a real Adufe musician or percussionist play the Adufe during the recording session would have increased the quality of the recordings, specifically because of the inconsistency of recording the same dynamic multiple times with pauses in between. In the end, we ended up with a VR experience that works as expected and can be expanded to other projects, from educational to museum ones.

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be found at <http://www.techneart.ipt.pt/tecnart/projeto.php?projeto=51>.



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DIGITAL INTERACTIVE SYSTEMS IN THE EDUCATION OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS AND DISABILITIES

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Abstract

This article argues the importance of digital interactive artwork systems as a tool for including children with Special Educational Needs and Disabilities (SEND), making the bridge between technology and arts, two identified prosperous areas working with students and, especially with students with SEND. Due to the abovementioned fact, in this article, interactive systems always refer to a performative/artistic role – artwork – designed to interact with the performer and/or the audience through digital means. In this way, we argue that interactive systems are technological paths that can provide SEND learners with inclusion from an artistic and social point of view. Therefore, this article is not focused on a specific system but on several features that a system should offer to become an inclusive platform for SEND learners. Regarding the structure, this article presents a literature review concerning the use of technology, arts, and educational strategies for children with SEND. Also, a chapter identifies the needs of this type of student, and finally, it reports an experience in Portugal at Irene Rolo Foundation (Tavira) following the installation of *Ligações Ocultas – Arte, Ciência e Tecnologia*. This work aims to promote a multisensory exercise between sound and painting, providing an inclusive approach by interacting with various art forms. It also portrays the authors' first-person experience regarding this subject. This project provides an example that connects arts, technology, and education to those with SEND.

Keywords: Arts, education, interaction, performance, SEND.

Introduction

Children with SEND can have their ability to learn affected, as well as their ability to socialise, read, write and express themselves. Also, they could face difficulties concentrating, understanding things and doing some physical movements (GDS, 2024). According to UNESCO (2011), education mediated by new technologies

promotes autonomy and explores individual characteristics when applied to children with SEND. However, Information and Communication Technology (ICT) is rarely explored in this type of education (Torres & Meirinhos, 2017). The UK government guideline "Children with Special Educational Needs" and UNESCO provides a thorough overview of policies and practices that support children with special educational needs (SEN). They outline the legal framework for inclusion and best practices for educators and emphasise the importance of early intervention and personalised learning strategies. Both documents serve as a valuable resource for understanding the rights and support available to children with SEN(D), not only in the UK educational system – specifically mentioning the UK government guideline -but also for understanding the global overview of this matter. This article argues that interactive systems can offer several features in both technological and arts fields. However, the first feature we would like to address is that the design of interaction systems can be planned to respond to any physical stimulation (Franinović & Serafin, 2013), creating adaptive systems that can be personalised for any individual, in opposition to a standard musical instrument. The interaction can be obtained using sensors, patches, algorithms, microprocessors, and DAWs – Digital Audio Workstations - which means the potentiality is more expansive and malleable (Deliyannis, 2012; Dix et al., 2004; Kirby, 2023; Rowe, 1999). The mentioned adaptability is essential to working with the individual specificities that SEND learners have.

Literature Review

Including digital technologies in education has proven valuable, particularly in supporting children with special needs in early childhood education settings. Various studies and publications highlight the potential of these technologies to promote learning, social inclusion, and skill development. In this context, we will reference literature that provides valuable insights and evidence supporting the use of performative digital systems in educating individuals with special educational needs (SEN), contributing to a more inclusive and accessible educational environment.

One of the most comprehensive studies in this field is the report "Digital Technologies to Support Young Children with Special Needs in Early Childhood Education and Care", published by the OECD—this analysis, led by Wyeth et al. (2023) explores how digital technologies can be used to support young children with special needs in educational settings. The research emphasises the role of these technologies in promoting cognitive and emotional development and facilitating the inclusion of children with different types of disabilities in classroom activities. The study reinforces the importance of tailored pedagogical practices integrating digital tools as essential to the teaching-learning relationship.

In the same way, several publications state the potentiality of technology to work as a tool for inclusive education, transforming students' learning experience with SEND (Sediyani, 2017; Unesco IITE, 2011; Yaskevich, 2021).

In the field of education for children with autism, the work "Digital Stories as a Method for Evidence-Based Practice and Knowledge Co-Creation in Technology-Enhanced Learning for Children with Autism", authored by Parsons, Guldberg, Porayska-Pomsta, and Lee, explores the use of digital stories as an effective methodology. These stories are used as tools for evidence-based practices, allowing for the co-creation of knowledge between educators and children with autism. The authors argue that digital stories promote communication, self-expression, and socialisation while serving as valuable resources for teachers and researchers in developing more inclusive educational strategies (Parsons et al., 2015). Additionally, there are several challenges regarding using technology, such as the school budgets to acquire the equipment needed, facilities conditions, and the training of actual and future teachers (Gottschalk & Weise, 2023; Okhrimenko et al., 2021).

Another topic related to this article is the paper on art in education and students with SEND, in particular. Art provides those students with an inclusive environment, differentiation through different projects, planning, links with artists, the use of Information and Communication Technology (ICT), and research work, among others (Earle & Curry, 2005; MacLean, 2008). Concerning sonic interaction projects for disabled people, The Paramusical Ensemble (Eaton, 2022) is an example of a system for people with brain paralysis and locked-in syndrome to interact through their brain activity with a string quartet. Another practical example of the application of digital technologies to promote inclusion through sonic interaction can be seen in the organisation Drake Music Scotland, which uses digital technologies to enable children and young people with SEND to participate in musical and artistic activities (*Drake Music Scotland*, n.d.). Even though this example was not designed for children with SEND, it is essential to emphasise the systems developed by Anders Lind Campo (Lind, n.d.) for people without academic music knowledge to interact with classical musicians through a notation system based on colours and electronic devices. This notation system is an excellent example of simplifying musical notation.

SEND Characterization

SEND encompasses many conditions that affect a child's ability to learn and fully participate in traditional educational settings. The Salamanca Statement and Framework for Action on Special Needs Education, adopted in 1994, emphasises the fundamental right to education for all children, particularly those with disabilities. It advocates for inclusive education as a means to promote diversity

and equal opportunities within the educational system (UNESCO, 1994). According to the UNESCO report on inclusive education, addressing the educational needs of children with disabilities is a moral and fundamental human right, underscoring the necessity of creating inclusive learning environments that cater to diverse needs. Earle and Curry (2005) identified the following different types of SEN: Asperger's syndrome; attention deficit disorder; autistic spectrum disorders; behavioural, emotional, and social difficulties; cerebral palsy, down's syndrome; fragile X syndrome; moderate learning difficulties; physical disability; semantic-pragmatic disorder; sensory impairment; visual impairment; multi-sensory impairment; severe learning difficulties; profound and multiple learning difficulties; dyslexia, dyscalculia and dyspraxia; speech, language and communication difficulties; and Tourette's syndrome. This means children with SEND need to be in supportive environments that recognise diversity and promote learning for all, stressing collaboration among families, communities, and educators to ensure that children receive quality education tailored to their individual needs. They also need strategies to break down barriers, creating adaptive educational environments that meet the diverse needs of all children, allowing them to engage with the curriculum and participate actively in their learning.

According to Farrell and Ainscow (2002), traditional subjects often fail to meet the needs of SEND students without significant adjustments. Katz and Mirenda (2007) provide evidence that including students with SEND in smaller groups improves their engagement and learning, highlighting that traditional subjects struggle to adapt without reducing class size and increasing personalisation. Inclusive teaching strategies are much more effective in smaller groups, where teachers can better adjust content to meet the needs of students with SEND, whereas large groups limit these adaptations. Also, teaching assistants in smaller classrooms are crucial for supporting students with SEND. However, even with this support, larger classes hinder the necessary personalisation of traditional subjects (Chalmers, 2014; Lindsay, 2007; Ofsted, 2006; Sharma & Desai, 2002). Lastly, Pijl et al. (1997) explores how effectively including students with SEND requires an adapted environment and closer relationships between teachers and students, facilitated in smaller groups, while traditional subjects in larger classes struggle to adjust their methods.

Fundação Irene Rolo's Project: Characterization and Example of Interaction with SEND

The Irene Rolo Foundation (FIR), located in Tavira (Portugal), is a private social solidarity institution founded in 1982 with the mission of promoting social inclusion and improving the quality of life for people with disabilities or those in

vulnerable situations its work covers various areas such as rehabilitation vocational training employment support inclusive education and projects aimed at autonomy and community integration among the main services and areas of activity of the foundation are support for the inclusion of people with disabilities through rehabilitation programs psychological support occupational therapy and skills development aimed at integrating people with disabilities into the labour market and society additionally the foundation promotes vocational training activities tailored to individual needs collaborates with companies to facilitate job placement and fosters social entrepreneurship in the field of social support for vulnerable families and communities FIR provides assistance to low-income families developing activities for social inclusion well-being and community cohesion fighting social exclusion FIR is a reference in promoting accessibility developing projects that improve access to public and private spaces for people with reduced mobility the foundation offers a range of health services such as physiotherapy speech therapy and hydrotherapy for the physical and cognitive rehabilitation of users ensuring an integrated and personalized treatment furthermore it develops innovative projects like the Resource Center for Inclusion (CRI) and the Center for Independent Living Support (CAVI) which provide resources to promote the autonomy of people with disabilities and support their integration FIR also has a room designed according to the Snoezelen concept a multisensory environment that is used daily by its clients to stimulate relaxation and well-being in addition to these services FIR also offers the Activities and Empowerment Center for Inclusion which promotes activities that empower people with disabilities for greater autonomy and social inclusion it also provides the Rehabilitation and Vocational Training Center a space dedicated to the rehabilitation and training of people with disabilities preparing them for the job market through the Early Intervention program the foundation supports the development of young children focusing on the prevention and minimization of developmental risks FIR also provides a Residential Home that offers shelter for people with disabilities who require ongoing support providing them with a safe and inclusive environment furthermore the New Projects Unit of the foundation is responsible for developing and implementing new initiatives aimed at improving the quality of life and inclusion of the people served by FIR in addition to its regular activities the foundation organizes events and awareness campaigns on social inclusion accessibility and the rights of people with disabilities being a pillar of the Tavira community in the fight for a more inclusive and equal society for more detailed information about the ongoing projects and initiatives please visit the official website of the Irene Rolo Foundation (<https://w.fir.pt/>)

Given the description of the Irene Rolo Foundation and the relevance of testing the use of digital performative systems in the education of children with SEND, it was proposed to present the project *Ligações Ocultas—Arte, Ciência e Tecnologia*

and analyse the performance results of this installation. The presentation resulted in positive feedback, with all participants and the foundation's management praising the experience.

This project, which emerged during an artistic residency at the Dr. Jorge Augusto Correia School Group in Tavira in the 2023/2024 academic year, aimed to explore the interrelationship between Art, Science, and Technology through research and experimentation with students. By sonifying a plant's biological data into sound, the project raised questions about how to express the emotions involved in creative acts like drawing and painting.

The open classes served as a creative laboratory, positively impacting the students, particularly in discovering new forms of expression and interacting with technology. This immersive experience enriched the participants' aesthetic sensitivity and fostered critical thinking about the relationships between Art, Science, and Technology, highlighting a new awareness of biological elements and the importance of environmental preservation. Figure 1 Shows some images of the performance described.

Figure 1

Hidden Connections - Art, Science and Technology: Performance at Fundação Irene Rolo, Tavira, Portugal (9 September)



Note. Source: author

Interaction Offer

During this article, and according to the authors' experience and the literature review, several features that an interaction system can offer will be pointed out. However, the features are systematically organised in this chapter.

- Adaptability to the SEND learner specificities – the systems can be designed for the individual

- Physical and sensory development – the physical abilities can be developed and planned through the systems' demand, helping to remove physical barriers;
- Instant reaction - children receive immediate response from their interaction, getting an immediate feeling of fulfilment;
- Creative stimulation – interaction systems are by themselves stimulation through their design and construction, but also, working in the arts field gives children the opportunity to experience colours, sounds, physical sensations and movements;
- Sensorial inclusion – many interactive systems combine several art forms, allowing a multisensorial inclusion;
- Social inclusion – learning with systems developed for their own, children with SEND have the opportunity to be included in collaboration work;
- Flexibility – flexibility to learn from their rhythm;
- Cognitive development – the tools from interactive systems help to develop cognitive functions.

To sum up, interactive systems offer several opportunities for children with SEND to learn in different fields related to their needs and specificities.

Conclusion

It is evident that the use of digital technologies in inclusive education supports the development of children with special needs and facilitates the creation of more accessible and participatory environments. From integrating digital stories to using innovative tools in arts education, these technologies offer new forms of learning and interaction, contributing to the transformation of education. Another fact is that arts education is also an excellent tool for achieving outstanding results in this subject. In this way, we state that digital interactive artwork systems combine these two fields. This combination could offer a valid contribution to this type of education.

Future Work

In the future, the authors pretend to make several digital artwork systems for children with SEND to collect data for a case study. This case study will expand on this article's conclusions.

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ESPAÇOS COMESTÍVEIS

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Resumo

Espaços comestíveis introduz o contexto em que foi criado o filme *Diz-me quem comes e eu direi-te quem és* (2025) que tem como ponto de partida uma residência artística realizada na associação Alfaia - Arte e Comunidade em Loulé, no Algarve. *Diz-me quem comes e eu direi-te quem és* (2025) foi realizado numa mina de sal-gema em atividade, situada 230 metros de profundidade e apresenta como processo de trabalho um *collage* de dois elementos da história da cidade de Loulé que falam de vida, morte, trabalho, medicina e matéria.

Enquadrado no tópico *Creativity in Art & Design: theories, processes and tools*, este artigo pretende apresentar o contexto em que o filme foi desenvolvido. *Espaços comestíveis* revela a importância de um espaço e a sua história associados a elementos teóricos e literários como fontes de alimento que influenciam o processo criativo. Como resultado, *Diz-me quem comes e eu direi-te quem és* (2025) tem uma duração de 20 minutos e tem como objetivo ser difundido tanto em espaços expositivos como em festivais de vídeo e cinema. O artigo *Espaços comestíveis* expõe aqui um exemplo de criação audiovisual produzida por um artista plástico no contexto das artes visuais.

Keywords: mina, filme, vida; alimento, Loulé, processo criativo

Introduction

Espaços comestíveis divide-se em 3 partes: Entrée (ingestão), Plat (digestão), Dessert (absorção). A primeira parte, Entrada (ingestão), introduz o contexto geográfico e histórico do filme *Diz-me quem comes e eu direi-te quem és* (2025). A segunda parte, Prato (digestão), descreve a produção do conteúdo do filme, a imagem e respectivos planos. A terceira parte, Dessert (absorção), a pós-produção, mas particularmente o som. A intitulação das 3 etapas do artigo permite criar uma analogia entre o processo criativo, o processo digestivo e abordar a relação entre cultura e natureza através da apresentação do filme *Diz-me quem comes e eu direi-te quem és* (2025) realizado durante uma residência artística em Loulé, no Algarve.

Este filme revela-se importante na prática artística de BRUNO SILVA pois introduz um meio nunca utilizado no seu trabalho: a imagem em movimento e o som. Durante a residência artística em Loulé e da visita à mina de sal, a investigação de BRUNO SILVA foi influenciada pelas características deste lugar. A imagem em movimento pareceu essencial como forma de documentar e transpor ao público a materialidade deste espaço enterrado a 230 metros de profundidade.

Entrada (ingestão)

“Le fantôme n’a pas de fin. Il installe en nous une temporalité qui dépasse toute imagination, et le temps sensible d’un être humain. Face aux fantôme, dont certains mettront plusieurs dizaines de milliers d’années à se dissiper, les humains apparaissent dans un “présent” sans fin, étalé, homogène, plat comme une plaque de fer, d’une durée intenable, quand la vie d’un individu ne se constitue que d’un présent instantané, discontinu mais toujours renouvelé et distinct.” (Fantôme, 2012).

Em 2022 a associação Alfaia - Arte e Comunidade, dedicada às artes visuais, acolheu 4 artistas e um curador numa residência artística de investigação intitulada Rumo ao planetário, durante o mês de novembro em plena época baixa, fora da euforia turística algarvia. Como premissa de trabalho, o seguinte parágrafo foi introduzido pelo curador independente, escritor e investigador David Revés, convidado a realizar a curadoria da residência artística :

“No contexto contemporâneo onde as emergências climáticas questionam a suposta supremacia do humano no mundo e de todo o seu aparato técnico de mobilização planetária, este projecto de residência pretende tecer um território constelatório potente, tanto crítico e investigativo, quanto artístico e criativo, tendo como pano de fundo um pensamento sobre as possibilidades constitutivas do corpo, da matéria, da linguagem e da técnica, nas suas múltiplas dimensões sensíveis, metabólicas, materiais, simbólicas, tecnológicas e imagéticas, privilegiando uma abordagem especulativa que permita imaginar novos horizontes possíveis para os modos de fazer-mundo, assim como acentuar uma

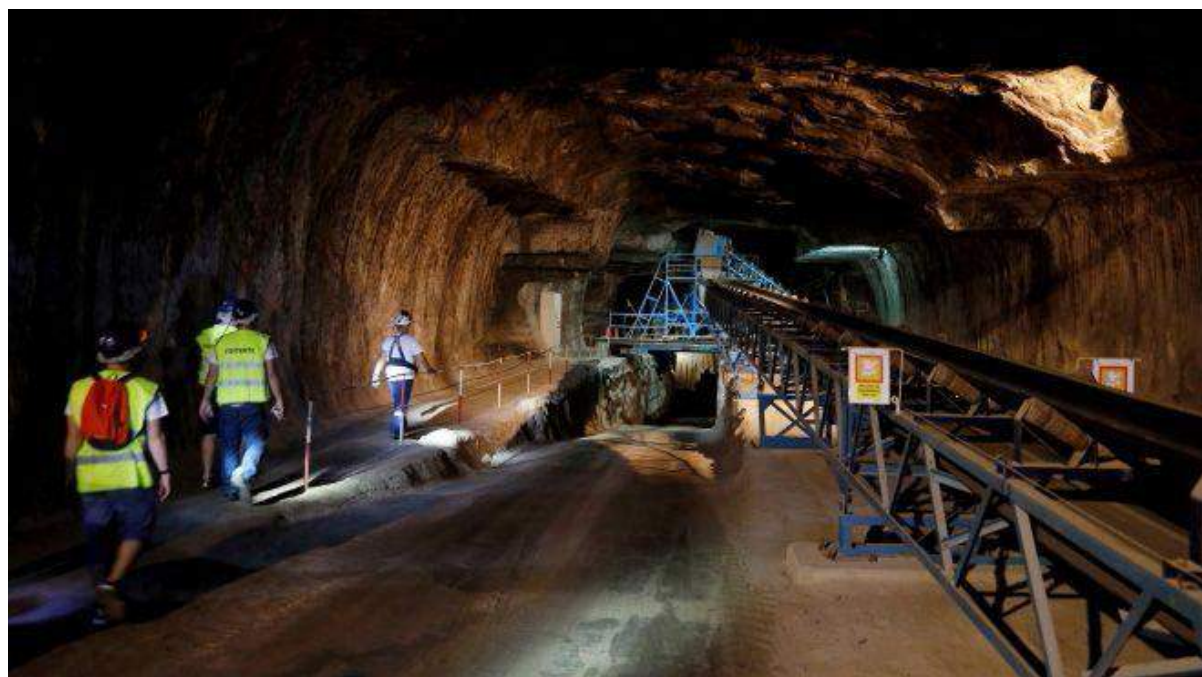
relação umbilical e primitiva do humano com a sua exterioridade radical, ou seja, com o planeta e os seus ritmos indissolúveis, propondo, nesse esforço, distintas cosmologias onde o humano, o natural e o artificial possam conviver num estado de não predação mútua” (Revés, 2022)

Loulé é uma cidade com cerca de 70.000 habitantes marcada por vestígios pré-históricos, Romanos, Muçulmanos e Cristãos que, ao longo dos séculos, alimentam de histórias o património local. Durante a residência procurei caçar histórias e perceber que elementos marcaram a passagem do tempo nesta cidade do sul de Portugal marcada pela travessia de diferentes civilizações. Uma cidade que em si é um *collage* de diferentes épocas, e que ingeriu e digeriu diferentes culturas, línguas e que ainda hoje continua a ingerir experiências de uma época marcada pela economia turística.

Após diversos encontros e visitas, um sítio em particular salientou-se, a Mina de Sal Gema de Loulé. O sentimento de deriva, a materialidade do espaço e o cruzamento entre objetos usados e elementos no limbo são características que foram exploradas na realização do filme *Diz-me quem comes e eu direi-te quem és* (2025). Como num processo de *collage* e *assemblage*, este filme procura reunir, reabilitar e contar histórias a partir de elementos que perderam as suas funções passadas, mas que em si continuam a viajar e a transportar marcas do tempo. Como num processo digestivo em que os alimentos são ingeridos, digeridos e absorvidos, *Diz-me quem comes e eu direi-te quem és* (2025) revela a vitalidade e possibilidade criativa inerente a todos elementos existentes e a investir um novo meio na minha prática artística essencialmente marcada pela escultura, uma nova forma de transmitir mensagens, materialidade e emoções: o filme.

Figura 1

Vista da Mina Sal-gema, Loulé, Algarve



Prato (digestão)

As minas de sal-gema de Loulé são conhecidas pela sua extensão que atinge cerca de 230 metros de profundidade e possui mais de 45 km de galerias. A formação do sal-gema nas minas de Loulé data de há cerca de 230 milhões de anos, no período Triássico, quando a área onde hoje situa-se o Algarve estava coberta pelo mar de Tétis que evaporou lentamente e deixou enormes depósitos de sal.

Figura 2

Localização da mina sal-gema, Loulé, Algarve



A exploração do sal-gema em Loulé teve início no final dos anos 1950, quando a exploração industrial começou a ganhar forma, alimentada pela procura de sal na indústria química e na conservação de alimentos. Durante décadas, as minas de Loulé foram uma fonte importante de sal para diversas aplicações, como na indústria de descongelamento de estradas, fabricação de produtos químicos e também para o consumo humano. Recentemente, as minas foram adaptadas a visitas turísticas, o que permite ao público explorar o ambiente subterrâneo, observar as formações geológicas e compreender a história da mineração na região.

À imagem de um sistema digestivo, a forma estruturada e labiríntica em que esta antiga porção de mar se transformou acabou por ser um elemento inspirador para a realização deste projecto que suscitou diferentes questões: Como representar um mar devorado pela terra? Como falar de espaços escondidos e engolidos pelo tempo? Como representar a invisibilidade e a vida subterrânea? O que uma imagem revela e esconde?

O espaço principal de *Diz-me quem comes e eu direi-te quem és*, situa-se numa zona central da mina: a antiga cantina dos mineiros. Anteriormente utilizada pelos mineiros para se restaurar, descansar, conversar, um espaço situado a 230 metros

de profundidade, onde o silêncio prevalece, a temperatura de 23° é constante e o dia e a noite não existem.

Figura 3

Plano da cantina, Diz-me quem comes e eu direi-te quem és, 2025



Esta cena desenha-se através de um momento de restauração entre 5 pessoas, de ingestão de uma sopa de tinta de choco que uma vez absorvida provoca alterações humorísticas no comportamento das personagens. Como instrução preliminar foi pedido aos participantes de começar por servir a sopa sem nunca se servir a si mesmos, de forma calma e ordenada. Aos poucos foi-lhes pedido que comecem a alimentarem-se mutuamente até que perdessem o controle de códigos de conduta. As acções que se sucedem nestes planos foram por si mesmas improvisadas aos poucos pelos personagens. Os planos foram assim filmados de forma mais rápida e improvisada à medida que o comportamento dos personagens alterava-se. Tudo foi filmado numa só gravação, sem ensaios ou testes prévios. O espaço não recebeu qualquer alteração sendo os pratos, os talheres e a sopa os únicos elementos adicionados. Este trecho do filme foi inspirado por diferentes elementos teóricos e literários como as obras literárias de Clarice Lispector como *A Paixão Segundo G.H.* (1964) e *Água Viva* (1973) em que a comida é frequentemente apresentada como um elemento que transcende o acto puramente físico de alimentar-se, tornando-se um símbolo de aspectos mais profundos da existência humana. Nas suas histórias, a comida pode representar temas como o vazio existencial, a busca de sentido, a alienação e até mesmo a

animalidade que reside dentro de cada ser humano. Clarice explora o acto de comer como um canal para questões existenciais e filosóficas, no qual a alimentação é usada para expor sentimentos complexos e revelações íntimas das personagens. No livro *A Paixão Segundo G.H.* (1964), a protagonista vive uma experiência extrema ao comer uma barata, um acto repulsivo que desperta uma reflexão profunda sobre a essência da vida e da morte. Nesta obra, Clarice Lispector utiliza a ingestão de um insecto como um ponto de interrogação existencial e explora a relação entre o humano e o inumano, o racional e o instintivo. Uma passagem que faz emergir a visceralidade da existência e as fronteiras entre o eu e o outro. No livro *Água Viva* (1973), Clarice oferece uma percepção quase orgânica das palavras e evoca a digestão e assimilação do mundo pela personagem. Neste caso, comer não é necessariamente o acto literal de alimentar-se, mas uma maneira de absorver o mundo, de devorar e ser devorada pela experiência. A narradora menciona, por exemplo, que quer "ter o sabor das frutas", o que sugere um desejo ao mesmo tempo sensorial e existencial. Este desejo de intensidade e apetite pelo presente ligam-se ao tema central do livro, que é a tentativa de capturar o *agora*, o presente. Assim, em *Água Viva*, a comida, ou a ausência dela, torna-se uma metáfora para o processo criativo e para o desejo de "engolir" o instante — uma fome por algo mais profundo do que a saciedade física. A leitura das obras de Clarice Lispector acabou também por influenciar a redacção dos diálogos presentes no início do filme, entre o plano do aquário e o plano da descida de elevador, o único acesso à mina de sal. Uma história de obsessão, de homicídio, de medo mas também de transformação e de desejo. As legendas aparecem no filme como uma história ficcional que ocorre em paralelo da imagem, como um novo filme a ser desenvolvido por meio do texto.

Figura 4

Plano da descida de elevador, Diz-me quem comes e eu direi-te quem és, 2025



A escolha da sopa de tinta de choco tem como início a leitura do livro *Vibrant Matter* (2009) de Jane Bennett uma teórica de filosofia política e ecologia que destaca-se pelo conceito de "vital materialism" (materialismo vital). As suas ideias apoiam-se em torno do agenciamento e vitalidade dos materiais e organismos no mundo natural. No capítulo 3 ("Matéria comestível") Jane Bennett analisa as transformações recíprocas dos alimentos e do corpo humano no metabolismo digestivo. Jane Bennett defende um papel activo para os alimentos (em vez de um estatuto inerte e homogêneo) com base no exemplo do papel do ômega-3 no humor e no desempenho psicológico. A tinta de choco, rica em ômega-3 é ingerida e devorada até que as personagens de *Diz-me quem comes e eu direi-te quem és* comecem a libertar o corpo, gestos, acções e a forma como interagem entre si e com o alimento. O ômega-3 é uma categoria de ácidos graxos essenciais que contribuem para a saúde do cérebro, do coração e de outras funções biológicas vitais. Inspirado por Jane Bennett, tentei explorar como a forma como o ômega-3 manifesta "vitalidade" dentro do corpo humano e na natureza, já que ele provém de fontes como peixes e algas, fundamentais em cadeias alimentares marinhas.

Figura 5

Plano da partilha da sopa, Diz-me quem comes e eu direi-te quem és, 2025



Um outro elemento essencial ao filme são os planos fixos de um aquário habitado por Gambusias. O Gambusia, também conhecido como peixe-mosquito, é uma espécie de peixe da família Poeciliidae, originalmente nativa da América do Norte e Central, mas que foi introduzida em várias partes do planeta como forma de controle biológico de mosquitos. Este peixe é pequeno, de corpo alongado e pode ser encontrado em águas paradas ou com pouca corrente. Em Portugal, particularmente no Algarve e em locais como Loulé, o Gambusia foi introduzido em algumas áreas devido à sua capacidade de reduzir populações de mosquitos, uma vez que se alimenta das suas larvas. Contudo, esta espécie foi considerada invasora em Portugal e pode ter impactos negativos nos ecossistemas locais pois compete com espécies nativas e altera o equilíbrio ecológico dos ambientes onde é introduzida. O Gambusia foi introduzido em Loulé como uma medida de controle biológico do paludismo (ou malária). Esta doença é causada por parasitas do género Plasmodium, transmitidos a humanos pela picada de mosquitos do género Anopheles. Com o desenvolvimento das larvas de mosquitos que se instalam na pele humana, o Gambusia, que alimenta-se dessas larvas, foi considerado uma alternativa para reduzir a população de mosquitos e, assim, a transmissão da malária.

Os planos de aquário foram filmados na exposição *A Saúde de uma Comunidade - Loulé na primeira metade do século XX* na Casa Memória do Século XX Engº Duarte Pacheco, em Loulé. Integrar estes planos no contexto deste filme é como um

retorno da alimentação como um acto de cura, uma entreajuda de animais a humanos, ainda que inconsciente da parte dos peixes.

Diz-me quem comes e eu direi-te quem és (2025), procura introduzir o acto de comer e ser comido.a, de alimentar-se a si e ao outro.a, o acto de partilha, de mistura, de transformação, o acto de comer como uma condição da vida.

Figura 6

Plano dos Gambusias, Diz-me quem comes e eu direi-te quem és, 2025



Sobremesa (absorção)

Uma vez que o filme foi desenhado e montado, um ingrediente essencial estava em falta: o som que aparece no fim do processo de produção. Bruno Silva procurou que o som fosse uma nova *collage*, uma nova leitura da imagem. Para tal, convidou o artista plástico Francisco Babo a imaginar uma composição sonora a partir da montagem já realizada. Após algumas conversas e troca de ideias entre ambos, Francisco Babo propõe compor o som através de um concerto *live*, onde ele pode improvisar enquanto observava o filme ao mesmo tempo que o público degustava um jantar num restaurante no Porto.

Uma composição de uma trilha sonora ao vivo enuncia uma recollecção e reactivação de memórias visuais, auditivas, da noção de tempo emocional e narrativo. Uma descida colectiva a um lugar através da partilha de

“temperamentos”, durante um momento. As primeiras texturas são criadas com auxílios de sintetizadores digitais; a tez do filme ainda está a ser reconhecida, um processo de cá e lá; Visual — Auditivo. Ainda não existem legendas. Torna-se claro que a imersão e a profundidade pautam as imagens. Pretende-se aguçar vontades. Despoletar a consubstanciação de cada corpo presente perante o aquário, a um pé de, um pé dentro; dentro mas ainda de fora; perante. A artificialidade dos sons iniciais puxa quem vê para longe da presença acústica do lugar real. As composições pré-feitas tem um carácter narrativo linear e um pouco romantizado que funcionam como âncoras, arquétipos sonoros que estabilizam tonalidades das quais serão irradiadas variações sonoras sobre o sinistro e o mundo natural. Uma das boas inspirações para a criação deste universo sonoro é a banda italiana Goblin, conhecida por trabalhar com Dario Argento em alguns filmes.

Estas composições subdividem o tempo do filme. Estas subdivisões são decididas disparar ao vivo durante a projecção. Aguçadas as vontades, absorvidas as cores e as profundidades, inicia-se a descida. O arco de violoncelo tenta adivinhar um percurso, um tempo de mergulho.

Não importa o espetáculo do músico, que se encontra de costas para o público, virado para o filme, como se um maquinista se tratasse. A relação com o instrumento, o baixo eléctrico, torna-se a lamparina para lidar com a liquidez do submundo. A mesa está posta. Reconhecendo os gestos do grande catálogo movimentos que caracterizam a motricidade da nossa espécie, o músico lança-se num jogo de gato e rato análogo aos movimentos e enquadramento que reconhece. Este jogo é apenas entrecortado pelo aparecimento do aquário em dois planos.

A amplitude das frequências graves e a sua adulteração, o ataque dos dedos nas cordas e a sustentação de pequenas repetições de frequências, submetem-se a um exercício de adivinhação do batimento cardíaco que passou e que virá, como se esse batimento pode ser adulterado a uma velocidade espantosa através da absorção do líquido negro.

O plano dos longos cabelos da cabeça da boca a beber a sopa, mergulhando definitivamente na adulteração das suas propriedades interiores é o ponto de fuga para introduzir de novo um dramatismo com composições pré-gravadas e adulteradas ao vivo. Lança-se todo um novo crescendo de tensões onde os comportamentos perdem ponderação. A introdução de um ritmo acentua esta tensão.

Por fim todos os elementos vão desaparecendo até restar apenas o baixo eléctrico trauteando uma simples melodia, singela, como o adormecer. Importa ainda realçar que a gravação foi feita em duas faixas: uma faixa com o som tocado e

uma faixa que conjuga o som tocado com a atmosfera do restaurante. Estas duas faixas foram à posteriori misturadas para balançar volumes e dinâmicas.

Diz-me quem comes e eu direi-te quem és (2025) é um *collage* de diferentes histórias e elementos, um prato com diferentes ingredientes, diferentes entradas, diferentes texturas. Este introduz um processo de trabalho criativo circular, onde, como numa sopa de letras, as palavras e definições se misturam e onde podemos procurar uma pluralidade de palavras e sentidos.

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ESTEREÓTIPOS E TABUS NOS PROCESSOS CRIATIVOS DA REPRESENTAÇÃO ERÓTICA MASCULINA

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Resumo

Este artigo analisa a representação da erótica masculina nas artes visuais em Portugal, com especial enfoque na segunda metade do século XX e início do século XXI. Através de uma perspetiva histórica e analítica, mapeia-se a evolução desta temática desde as influências clássicas e religiosas até às manifestações artísticas contemporâneas, confrontando o domínio histórico do nu feminino com a emergência e os tabus associados à representação do corpo e da genitália masculina. Discutem-se as convenções de género e os estereótipos sociais que historicamente moldaram a receção crítica e a visibilidade destas obras, tanto no contexto da cultura erudita como na arte popular. A investigação recorre a uma análise iconográfica de trabalhos de artistas como Mário Eloy, Almada Negreiros, Júlio Pomar, Paula Rego, Julião Sarmento e João Gabriel, bem como manifestações fílmicas e da cultura de massas. Conclui-se que, apesar da progressiva emancipação artística impulsionada pelo pós-25 de Abril, a representação do corpo masculino erotizado permanece confrontada com resistências institucionais e tabus morais no espaço público e museológico português, revelando a persistência de tensões entre a liberdade criativa e o conservadorismo cultural.

Keywords: Arte Erótica, Nu Masculino, Estereótipos de Género, Arte Portuguesa, Tabu

Introdução

O assunto arte erótica prima mais pelo que se tentou evitar representar e pela provocação contra a rigidez das regras sociais dos relacionamentos sexuais (que não passa de uma fantasia coletiva), do que pelo desenvolvimento de um tema ou momento deste assunto num processo criativo fluído surgido de impulsos proativos .

Antes de começar com uma brevíssima resenha histórica das representações eróticas visuais, assinalo que o objetivo deste texto é o de descortinar o lugar do masculino no erótico a partir de imagens visuais e mentais, principalmente, a partir da segunda metade do século XX em Portugal . Daí, a escolha de uma

composição dos membros inferiores de três rapazes representados pelo olhar de uma pintora como imagem introdutória (Figura 1a) .

No seu livro *Eroticism in Western Art*, o historiador de arte Edward Lucie-Smith afirma que o erotismo é fundado pela Igreja a partir do século III, em Roma, contra os excessos do paganismo (Lucie-Smith, 1972) . A partir daí, o que se observa nas artes visuais são representações eróticas femininas para satisfação sexual masculina, tendo as cenas violentas de cariz sexual contra as mulheres se tornado muito comuns nos séculos XVI e XVII (Lucie-Smith, 1972) . Um desses exemplos é o *Martírio de Santa Ágata*, de Sebastiano del Piombo, reproduzido na Figura 1b (Le Gallerie degli Uffizi, n.d.).

Figura 1

Imagem (a) - Daniela Guerreiro, The naked portraits, 2022-2023. Imagem (b) - Sebastian del Piombo, Martírio de Santa Ágata, 1520



Nota. A imagem (a) é um óleo sobre tela, 190 × 130 cm, a fotografia foi feita no Atelier Natália Gromicho. A imagem (b) 1520, óleo em madeira, sala Júpiter do Palácio Pitti, 132 × 178 cm

No século XIX, a representação sexual de deusas e santas deu lugar à representação de mulheres reais e conhecidas da sociedade, como foi o caso da polémica *Olympia* de Édouard Manet (Figura 2a), uma prostituta parisiense (Musée d'Orsay, n.d.) . É, justamente, nesse século que a representação sexual explícita masculina começa a surgir na obra de Peter Fendi (Figura 2b), em cópula com a representação feminina, e também no contexto austríaco com Egon Schiele, no momento em que o homem assume a sua própria autossatisfação sexual (Figura 3a) (Wilson, 2001) .

Figura 2

Imagem (a) - Édouard Manet, Olympia, 1863, óleo sobre tela, 130,5 × 191 cm. Imagem (b) - Peter Fendi, litografia de uma das suas 40 aguarelas, fotografia realizada no Museu Erótico de Barcelona



Nota. Imagem (a) – fonte: Musée d'Orsay [Em linha] Consult. 3 Ago. 2025. Imagem (b) – fonte: (Wilson, 2001, pp. 30 e 31).

No entanto, não é na cultura ocidental que a arte erótica mais se desvinculou dos preconceitos. É no Nepal, na Índia e na China que, já a partir do século XVIII, as pinturas eróticas surgem representadas segundo uma grande variedade de perspetivas e profundidade (Combalia & Lebel, 1999) . Imagens como as da Figura 3b, de uma pintura adquirida num antiquário de Borba, exemplificam essa diversidade cultural .

Figura 3

Imagem (a) - Egon Schiele, *Eros*, 1911, aguarela, guache e lápis preto, 55,9 × 45,7 cm, coleção privada.
Imagem (b) - Sem título, *China*, princípio do século XX, pintura sobre tela, autor desconhecido



Nota. Imagem (a) - fonte: (Combalia, & Lebel, 1999, p. 131-143). Imagem (b) – fonte : fotografia feita pelo autor num antiquário.

0 Contexto Nacional na Primeira Metade do Século XX

No final do século XIX e na primeira metade do século XX, enquanto a arte erótica já tinha atingido grandes desenvolvimentos em países como França e Áustria, em Portugal as propostas artísticas neste campo eram bastante incipientes e inócuas, o que demonstra um enorme conservadorismo na cultura nacional . Deste período destacam-se, no entanto, as quatro telas representadas nas Figuras 4a, 4b, 4c e 4d: a de José Malhoa, pela escolha original de representar o perfil traseiro completo do modelo nu; a de Emília dos Santos Braga, por ser uma pintora a retratar as costas de outra mulher, conferindo-lhes uma forte carga erótica; a de Eduardo Malta (Figura 4c), por representar uma mulher negra brasileira (Inês: Cabrocha brasileira), o que constituiu uma inovação temática em 1938 dentro do conservadorismo vigente; e, por último, a posição lânguida e livre da mulher representada por Sousa Pinto sobre um campo relvado oblíquo .

Figura 4

Imagem (a) - José Malhoa, Descanso do Modelo, 1894, óleo sobre tela. Imagem (b) - Emília dos Santos Braga, Nu, 1910, óleo sobre tela. Imagem (c) - Eduardo Malta, Inês: Cabrocha brasileira, 1938, óleo sobre tela. Imagem (d) - Sousa Pinto, O Estio, 1904, óleo sobre tela



Prevalecendo a representação erótica feminina, a representação erótica masculina em Portugal é historicamente menos frequente, uma vez que o foco visual se concentrava predominantemente no feminino . Todavia, encontram-se na primeira metade do século XX algumas representações do masculino, embora sob a forma de imagens estereotipadas .

Um desenho de Mário Eloy (Figura 5a) ilustra a dicotomia extrema da concepção clássica do homem versus mulher . Nesta composição, um homem nu demonstra a sua força muscular, simbolizando um ser todo-poderoso que domina fisicamente uma mulher, aqui representada de forma submissa e desprovida de energia (Segurado, 1982) . Esta associação do homem erótico à dominação é exponenciada por Almada Negreiros (Figura 5b), que a vincula à violência e à morte, traduzindo o domínio sexual absoluto em termos de posse física face ao sexo oposto (Acciaiuoli et al., 1984) .

Como estereótipo positivo, surge na direção oposta a idealização do corpo masculino como um ser proporcionalmente musculado, cujo toque delicado o eleva à perfeição . Como o escritor Joséphin Péladan descreve na sua obra *Do Andrógino*, "A beleza de um homem está no que ele tem de feminino" (Péladan, 2024, p. 47), apesar de o autor não tecer os mesmos elogios proporcionais ao

género feminino . Esta mesma mentalidade de harmonia formal idealizada encontra-se espelhada na escultura Desterrado, de Soares dos Reis, realizada no final do século XIX, constituindo uma proposta tardia face ao mesmo registo romântico anteriormente explorado por Auguste Rodin .

Figura 5

Imagem (a) – Mário Eloy, *Desmembrador*, 1941, desenho a tinta-da-china. Imagem (b) – Almada Negreiros, *Casal brigando*, 1948, desenho a tinta-da-china



Nota. Imagem (a) – fonte: Fotografia de Ângelo Sande, in “Mário Eloy, pinturas e desenhos”, p. 159. Imagem (b) – fonte: Fotografias de Mário de Oliveira e Gustavo Leitão, in *Almada Lisboa* 20 de julho a 14 de outubro de 1984, imagens 281 e 282.

A Segunda Metade do Século XX e a Transição Democrática

Ao analisar a produção artística da segunda metade do século XX em Portugal, observa-se que as representações de afeto entre corpos nus se baseiam amplamente num estereótipo de género em que o corpo masculino, posicionado pela retaguarda ou lateralmente, abraça o corpo feminino para desempenhar o papel de protetor socialmente preestabelecido (Figuras 6a, 6b e 6c) .

Este tipo de imagem, exaustivamente repetido nas artes visuais, estabilizou as conceções tradicionais de género . A fórmula mais conservadora deste estereótipo é estruturada pela introdução de um terceiro elemento — o filho —, consolidando um triângulo simbólico da estrutura familiar tradicional (Figura 6c, obra de 1947) . A escultura apresentada na Figura 6b, apesar de ser de um autor estrangeiro, reflete este mesmo gosto consensual ao ter sido encomendada pelo Município de Borba para o seu Jardim Municipal .

Figura 6

Imagem (a) - Alexandre Baptista, *Simple objects possessed by pleasure*, técnica mista, 120 x 120 cm, 2000. Detalhe. Imagem (b) - K. Whittaker, *Sem título*, s.d., Jardim Municipal de Borba. Imagem (c) - Leopoldo de Almeida, *A família*, 1947, gesso patinado



Nota. Image (a) – fonte: (Stoffel, Franco & Cândido, 2000), fotografia de Francisco Bento.

Pode considerar-se que o grande tabu da arte portuguesa de cariz erótico ou erótico-afetivo é, de grosso modo, a própria representação do pénis, que surge quase omissa ou reduzida a um simples detalhe anatómico. Este facto deve-se historicamente a vários fatores: a arte era frequentemente produzida por e para homens sob valores heteronormativos; a representação do órgão masculino excitado era moralmente conotada como pornográfica e não erótica; a excitação explícita era associada ao universo homossexual; e poucas mulheres se dedicavam profissionalmente à pintura de homens erotizados.

O impacto do 25 de Abril de 1974 proporcionou uma rutura significativa com o conservadorismo que caracterizou o Estado Novo. Registam-se, a partir daí, propostas como as de Alberto Carneiro, que fotografa o corpo desnudo em penetração tátil com pedras graníticas (Figura 7a); a produção feminina de Isabel de Sá, que problematiza o poder e a virilidade sexual masculina (Figura 7b); e a ousadia de José Escada, que ilustra diretamente cenas de sexo entre homens em recortes de cartolina (Figura 7c).

A obra pictórica de Júlio Pomar sempre incorporou elementos eróticos, mas, no final dos anos setenta, o pintor assumiu a representação explícita da genitália masculina dentro de um contexto heterossexual. A ele se devem várias composições ousadas para a época, que integram a realidade sexual em dimensões poéticas a partir de gestos simples (Figura 7d).

Figura 7

Imagem (a) - Alberto Carneiro, *Trajecto dum corpo*, 1976/77, fotografia a preto e branco. Imagem (b) - Isabel de Sá, *Triunfo e queda*, 1977, guache sobre cartolina. Imagem (c) - José Escada, *Sem título*, s.d., recorte em cartolina. Imagem (d) - Júlio Pomar, *La table de l'architecte*, colagem, acrílico e objetos sobre tela, 100 x 100 cm, 1977, Coleção Júlio Pomar, Lisboa, Fotografia Patrick Goetelen/Arquivo FJP



A partir dos anos oitenta, o trabalho de Paula Rego demonstra como as personagens do quotidiano constituem repositórios do inconsciente individual e coletivo, indiciando a complexidade das relações erótico-afetivas . Nas suas obras, observam-se mulheres masculinizadas pelas amarguras da vida, homens ora dominadores, ora submissos em afetos quase incestuosos (Figura 8a), ou mulheres que amparam homens maduros como bebés de colo (Figura 8b) (Bradley, 2002) .

Figura 8

Imagme (a) - Paula Rego, A Família, 1988, acrílico em papel colado sobre tela. Imagem (b) - Paula Rego, Naufrágio, terceira parte do tríptico depois de Marriage à la mode de Hogarth, 1999, pastel sobre papel montado sobre alumínio



Nota. Imagem (a) – fonte: (Bradley, 2002, p. 39). Imagem (b) – fonte: (Bradley, 2002, p. 103).

Julião Sarmiento é amplamente identificado como o artista plástico do desejo, explorando a multiplicidade de perspetivas sobre o corpo feminino (Melo, 1996) . Embora o seu registo tenha sido muito focado na fotografia, na pintura apresentada na Figura 9 observam-se três secções que representam o erótico-afetuoso, o erótico-simbólico (com a representação da excitação masculina) e o erótico-literário (Pinharanda, n.d.) .

Figura 9

Julião Sarmiento, Estratégias de sobrevivência, 1984, técnica mista sobre papel, 155 x 133 cm



Nota. Fonte: (Melo, 1996, p. 103)

0 Século XXI: Novas Linguagens e Persistência de Tabus

No início do século XXI, a arte portuguesa alcançou outro patamar no que concerne à representação erótica . No ano 2000, o realizador João Pedro

Rodrigues estreou o filme *O Fantasma* (Figura 10), que gerou forte polémica ao apresentar cenas de sexo oral explícito entre dois homens (Público, 2025) . A discussão pública centrou-se na transição da linguagem explícita dos filmes pornográficos para a linguagem fílmica de autor exibida em salas de cinema institucionais .

Figura 10

Cartaz do filme *O Fantasma*, de João Pedro Rodrigues



Nota. Fonte: (Público, 2025)

Em 2009, o artista Gabriel Abrantes apresentou duas reinterpretações de *Olympia* de Manet em projeção fílmica (Figuras 11a e 11b): na primeira, a nudez feminina assume um papel plenamente emancipatório no século XXI; na segunda, o género feminino é revelado através da plasticidade do masculino (Mah, 2023) .

Figura 11

Imagem (a) - Gabriel Abrantes, *Olympia I*, 2026. Imagem (b)- Gabriel Abrantes *Olympia II*, 2006. Ambas as imagens: projeções de 16mm, som. Duração: 3 min 40 s e 5 min 15 s, respetivamente.



Nota. Imagem (a) e (b) – fonte: (Mah, 2023. pp)

A masturbação masculina, censurada em múltiplos períodos históricos, assume na obra de João Gabriel (Figura 12a) um claro afrontamento ao pudor instituído

(Galeria Francisco Fino, 2022) . Este tipo de representação funciona como um ato de resistência do corpo sexual masculino através da prática artística .

Por sua vez, a instalação de duas glândulas transformadas em fonte pela dupla João Pedro Vale e Nuno Alexandre Ferreira, exposta no pátio da Galeria Francisco Fino sob o título *Água de Pau* (Figura 12b), enfrentou atos de censura direta quando apresentada numa exposição no arquipélago dos Açores (Funcionária da Galeria Francisco Fino, comunicação pessoal, outono de 2022).

Figura 12

Imagem (a) - João Gabriel, Sem título, 2022, óleo sobre tela, 200 × 160 cm. Imagem (b) - João Pedro Vale e Nuno Alexandre Ferreira, Água de Pau, 2021, bronze e sistema de circulação de água, dimensões variáveis



Nota. Imagem (a) – (Galeria Francisco Fino, 2022) [Em linha]. Consult. 23 Aug. 2025.

A observação mais surpreendente da representação erótica e sexual masculina na cultura imagética portuguesa não provém, contudo, da via erudita, mas sim da cultura popular . Pela via popular, o pudor dissipa-se de forma direta, recorrendo a formas e designações abertamente explícitas . Na gastronomia e doçaria regional, contam-se as "Caralhotas" de Almeirim, os "Colhões de São Gonçalo" de Amarante ou os doces fálicos comercializados em estabelecimentos urbanos como a "Pirocaria", no Porto (Figura 13a) .

A aceitação social desta arte erótica em Portugal parece depender do seu espaço de exibição: é tolerada nas ruas e nas festas populares — como no Carnaval de Torres Vedras, onde as identidades de género se interseitam —, mas torna-se problemática quando transita para espaços institucionais de reflexão erudita .

Nas Caldas da Rainha, por exemplo, o artesanato fálico é amplamente vendido no comércio local e exposto no espaço público através de instalações artísticas urbanas como os Chafalos (Figura 13b) (Gazeta das Caldas, 2025), contudo nenhuma destas peças se encontra integrada no acervo oficial do Museu da Cerâmica da cidade . Um distanciamento institucional semelhante observa-se no

Museu Erótico de Coimbra (Figura 13c), cuja exposição permanece confinada a uma sala reduzida no espaço de uma livraria, sem acolhimento ou apoio municipal para a sua expansão física .

Por fim, é de salientar que o maior contributo para a discussão do corpo, sexo e género masculino nos últimos anos tem surgido em Portugal pela via do humor, através das representações satíricas de humoristas contemporâneos como Guilherme Duarte, André do Karaté (Imperfectus) ou Dário Guerreiro .

Figura 13

Imagem (a) - Pirocaria, Rua do Carmo 21, Porto. Imagem (b) - Zélia Marques e filho Tomás, Chafalos, Rua da Liberdade, Caldas da Rainha. Imagem (c) - Peças do Museu Erótico de Coimbra



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WHEN WALLS SPEAK DIGITAL: AUGMENTED REALITY MEETS URBAN ART

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Abstract

The convergence of digital technologies and artistic practice is redefining the boundaries of public art. This article investigates the integration of augmented reality (AR) into urban art, exploring how digital overlays transform static, site-specific murals into dynamic, interactive, and context-sensitive experiences. Grounded in a series of artist-led case studies, the research examines both the conceptual and practical implications of AR as a medium for extending the lifespan, meaning, and accessibility of ephemeral artworks. The study demonstrates how AR enables sustainable interventions in public space, fosters participatory engagement, and challenges traditional notions of permanence and authenticity in urban art. Findings reveal that while AR offers innovative tools for artistic expression and cultural preservation, it also raises critical questions regarding technical accessibility, the integrity of physical artworks, and the balance between digital enhancement and material authenticity. By analyzing these tensions, the article proposes a framework for future artistic and technological co-creation in urban environments, advocating for AR as a catalyst for more inclusive, adaptive, and culturally resonant public art practices.

Keywords: augmented reality; cultural impact; sustainable art; interactive environments; urban art.

Introduction

The integration of digital technologies into artistic practice has evolved in parallel with the increasing availability of accessible tools, fostering a growing synergy between physical artworks and digital content. This evolution has enabled the adoption of new media particularly augmented reality (AR) in public and urban art contexts. As Geroimenko (2022) notes, AR has matured from an emerging

technology into a novel creative medium capable of transforming how we engage with space, time, and narrative in contemporary art.

When Walls Speak Digital: Augmented Reality Meets Urban Art is an ongoing research project that investigates this convergence, focusing on how AR can transform urban art and redefine the relationships among artists, urban spaces, and audiences. The foundations of this inquiry were laid during participation in the CHIC project (Cooperative Holistic View on Internet and Content), specifically its B2 strand, which aimed to develop innovative digital platforms for the promotion of tangible and intangible cultural heritage. Within this framework, the project explored multilingual communication, AR, and 360° video to enrich media content and promote Portuguese heritage. This context provided a fertile ground for experimenting with AR as a medium for creative intervention in public space, leading to a series of artist-led projects that form the core of this study. These experiments extend our previous work combining AR and graffiti using mobile applications, where we demonstrated the potential of digital augmentation to revitalize and reinterpret urban art (Silva et al., 2019).

Research Question and Objectives

This research is guided by the central question: How can augmented reality expand the expressive, cultural, and temporal dimensions of urban art while preserving the authenticity of physical interventions?

To address this question, the study pursues the following objectives:

- To explore how AR can extend the narrative, aesthetic, and experiential dimensions of urban art through digital augmentation.
- To investigate AR's role in documenting, preserving, and revitalizing ephemeral or deteriorating artworks.
- To analyze the impact of AR on audience engagement, interactivity, and participatory dynamics in public space.
- To identify technical, ethical, and aesthetic challenges in integrating digital layers with physical urban art.
- To propose a reflective framework for sustainable, accessible, and artistically coherent AR-based urban art practices.

These objectives are pursued through a practice-based research methodology, in which artistic creation serves as both the mode of inquiry and the source of knowledge production. In this way, the study aligns with broader debates about the temporality and transformation of public artworks. As Riggle (2010) argues,

street art inherently redefines the meaning of common urban spaces, and the addition of digital layers via AR further expands this transfigurative potential.

Methodology: Practice-Based Research in AR and Urban Art

This study adopts a practice-based research approach, in which the creative process itself functions as a primary method of investigation. As articulated by Sullivan (2010), artistic practice can constitute a form of research when it is systematic, reflective, and oriented toward generating new knowledge. In this project, each AR-integrated artwork is conceived not only as an artistic outcome but as an experimental site for exploring the affordances and limitations of digital augmentation in public space, a process that resonates with Gwilt's (2018) understanding of AR graffiti as a hybrid practice that engages both physical and virtual realities.

The methodology unfolds in iterative cycles of conception, creation, implementation, documentation, and critical reflection. Each case study involves:

- The design and execution of an original urban artwork integrated with AR components;
- The use of accessible AR development platforms (e.g., Unity, Vuforia, Spark AR) to create interactive digital layers;
- Deployment in real-world urban contexts;
- Documentation through visual media, user observation, and artist-led reflection;
- Thematic analysis of technical performance, audience interaction, and conceptual coherence.

The case studies are drawn from the artistic practice of the lead author, ensuring continuity in creative vision and technical development. This longitudinal, first-person approach allows for deep engagement with the material and digital dimensions of each project, facilitating nuanced insights into the evolving relationship between urban art and AR.

While the research is artist-led, it remains critically oriented, engaging with theoretical frameworks from media art, urban aesthetics, and digital heritage. The findings are thus situated at the intersection of creative practice and scholarly inquiry, contributing both empirical observations and conceptual propositions.

Case Studies: Artistic Practices in AR

The research is grounded in four case studies, each representing a distinct phase in the development of AR-integrated urban art. These projects illustrate the evolution of technical tools, artistic strategies, and audience engagement models.

From Concept to Application: GraffitiARt (2018–2019)

An early milestone in this research was the development of GraffitiARt, a mobile application designed to bridge physical urban art with digital context. The app allows users to scan a mural using their smartphone, triggering overlays of multimedia content—such as artist interviews, process videos, and conceptual explanations, directly linked to the artwork.

GraffitiARt functions as both an artistic intervention and a digital archive, transforming static murals into dynamic, educational experiences. It exemplifies how AR can enrich public art by providing deeper access to the creative process, thereby expanding the audience's understanding and appreciation.

Figure 1

Print screen of the GraffitiARt mobile application



Case study “Tied In” (2018)

“Tied In” addressed the challenge of preserving an urban artwork as it deteriorated over time. Originally painted in 2016, the mural began to fade and lose structural elements (e.g., painted water pipes) due to weathering. In 2018, AR was employed to digitally reconstruct these missing components and introduce ambient audio, effectively restoring the artwork in virtual space.

This intervention not only preserved the original narrative but expanded it, adding interpretive layers that responded to the theme of decay and memory. Tied In demonstrates AR’s potential as a tool for digital conservation and narrative extension, allowing ephemeral works to persist beyond their material lifespan.

Figure 2

Image (a) – “Tied In” (2016), original mural. Image (b) – “Tied In” (2018), AR intervention restoring missing visual elements and incorporating audio layers



For audiences, the AR-enhanced version of the mural offered a perpetual dialogue between memory and presence. The reconstructed visual elements and the ambient soundscape allowed viewers to “peer through time,” engaging with the artwork’s life cycle and its shifting meanings. The mural becomes less a fixed object and more a time-embedded narrative, responsive to loss and archival imagination.

Case study “Intemporal” (2019)

“Intemporal” explored the possibilities of dynamic AR interventions that respond to temporal and environmental conditions. The project experimented with time-based animations and layered visual effects, aiming to create a sense of fluidity between the artwork and its surroundings.

However, technical challenges emerged, particularly in device compatibility and rendering consistency across different mobile platforms. Additionally, the project raised conceptual questions about the balance between digital enhancement and the integrity of the physical artwork. Despite these challenges, “Intemporal” revealed AR’s capacity to support sustainable, non-invasive artistic practices that do not require permanent alterations to urban surfaces.

Figure 3

“Intemporal” (2019)



This approach aligns with sustainable urban art practices by avoiding permanent modifications to public surfaces, while still offering rich, layered experiences for those who choose to engage digitally. The integration of AR animations expanded the interpretive possibilities of the piece, allowing viewers to encounter different versions of the work across multiple visits. In doing so, “Intemporal” demonstrated AR’s potential to foster repeat engagement, create multi-temporal narratives, and imbue urban artworks with meanings that evolve over time.

Case study “Stay Hungry” (2020)

This project leveraged Instagram AR filters to enable mass participation and social sharing. Using tools such as mesh deformers, iris tracking, and touch interactivity, the filters animated the static artwork, allowing users to manipulate its form and meaning through their devices.

Figure 4

“Stay Hungry” (2020)

By distributing the artwork through a widely accessible social media platform, “Stay Hungry” transformed viewers into co-creators, blurring the boundaries between artist and audience. This approach highlights how AR can democratize artistic engagement and extend the reach of urban art into digital public spheres. Herrington (2022) highlights that AR face filters, often seen as playful tools, serve as an engaging and intimate form of AR art, enabling users to actively participate in art creation online.

Figure 5

“Stay Hungry” (2020), Instagram screenshots.



Instagram's Spark AR tool significantly reduces technical barriers to entry for creators, allowing non-experts to develop interactive filters and reach broad audiences. However, it is worth noting that, as of January 2025, Meta has discontinued Spark AR Studio for creators, potentially limiting future access to these tools.

Case study “240°” (2024)

The most recent project, “240°”, focused on audience agency and interactive transformation. Viewers engaging with the artwork via AR could reveal hidden digital layers—altering colors, shapes, and narratives in real time. Each interaction produced a unique visual outcome, making the artwork mutable and responsive. This case study underscores AR’s potential to create participatory, non-linear art experiences, where meaning is co-constructed through user interaction. It also raises questions about authorship, control, and the evolving identity of the artwork in hybrid physical-digital environments. From a research standpoint, the project raised critical questions around authorship and control. Who owns the outcome when the artwork is perpetually transformed by those who interact with it? How does the presence of multiple, unstable versions affect the coherence or identity of the piece? “240°” challenged the notion of a singular “original” by foregrounding the ephemeral and fluid nature of hybrid physical-digital artworks – a tension also noted by Gwilt (2018) in his analysis of AR graffiti as a medium that straddles impermanence and presence.

Figure 6

Image (a) - "240°" (2024), original mural. Image (b) - "240°" (2024), AR intervention altering the visual aspect and integrating animations, as well as the narrative of the work itself



Discussion: Opportunities and Challenges

The case studies collectively reveal several key impacts of AR integration in urban art:

- **Preservation and Longevity:** AR enables the digital documentation and reconstruction of ephemeral or decaying artworks, extending their cultural relevance beyond physical existence.
- **Sustainability:** By minimizing permanent interventions, AR supports environmentally and socially responsible artistic practices in shared urban spaces.
- **Audience Engagement:** Interactive features transform passive viewers into active participants, deepening emotional and cognitive connections to the artwork.
- **Narrative Expansion:** Digital layers allow artists to introduce temporal, historical, or speculative dimensions that enrich the original piece.

However, significant challenges remain:

- **Technical Accessibility:** Variability in device capabilities, operating systems, and internet access can limit inclusivity.
- **Authenticity and Integrity:** Overuse of digital effects may risk overshadowing the physical artwork or distorting its original intent.
- **Ephemerality of Digital Platforms:** AR experiences depend on proprietary software and hardware, raising concerns about long-term preservation and archival stability.

These tensions call for a critical, reflective approach to AR integration—one that prioritizes artistic intention, community relevance, and technological sustainability.

Conclusion and Future Directions

Augmented reality is redefining the field of urban art by challenging traditional notions of permanence, authorship, and audience engagement. As demonstrated through a series of practice-based case studies, AR enables artists to extend the lifespan and expressive potential of ephemeral works, transforming static murals into dynamic, interactive, and context-sensitive experiences. By layering digital content onto physical artworks, AR supports sustainable artistic practices that minimize permanent alterations to public spaces while fostering deeper cultural resonance and participatory engagement.

The integration of AR into urban art presents a paradigm shift from art as a fixed object to art as a fluid, evolving dialogue between creator, context, and viewer. Projects such as Tied In, Intemporal, Stay Hungry, and 240° illustrate how digital interventions can preserve decaying artworks, enable narrative expansion, and invite audiences to become co-creators. These interventions not only enhance accessibility and interactivity but also open new pathways for storytelling and cultural memory in the urban landscape.

However, this convergence also raises critical challenges. Technical limitations, such as device compatibility and platform dependency, can affect inclusivity and long-term accessibility. Moreover, the balance between digital augmentation and the authenticity of the physical artwork remains a central concern, requiring careful artistic and ethical consideration.

Looking ahead, this research advocates for the continued development and critical application of AR in public art. Future work will focus on refining digital tools to improve usability, cross-platform functionality, and open-access design, ensuring broader participation among artists and communities. A key objective is to foster collaborative, community-driven AR projects that reflect local narratives and values, promoting cultural ownership and social relevance.

Additionally, expanding access to AR creation tools will democratize the medium, empowering non-specialist creators and diverse audiences to engage with and contribute to digital-physical art forms. Finally, the integration of emerging technologies, particularly artificial intelligence, offers promising avenues for developing adaptive, responsive, and context-aware artworks that evolve in real time with their environments and users.

In sum, augmented reality is not merely a technological supplement to urban art; it is an integral component of its future. As artists and researchers, our role is to navigate this hybrid terrain with intention, creativity, and critical awareness, using technology not as an end in itself, but as a catalyst for meaningful, inclusive, and transformative artistic expression in public space.

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ANOTHER GAZE ON VOICE

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Abstract

Voice in academy has long been trapped in semantics. Because it didn't add meaning, it has been considered the remainder of speech. Logocentrism has prejudiced the uniqueness and the relationality of voice. To embrace the full potentialities of voice, I propose to approach it first and foremost as a sound. Recently, scholars in Sound Studies have shown an increasing interest in the vibratory, embodied, cultural dimensions of sound. Voice as a sound is a vibration that reaches out to the other person. It is produced through the body. However, Sound Studies resist to seamlessly incorporate voice, pointing out its specificities, notably the message it carries in the shape of words.

In the first section of this essay, I will discuss the lineage of this resistance. Then, I will inform the shift of perspective, bringing voices of sound practitioners and authors. In the last section, I will observe voice in a situation of dialogue. The objective of this essay is to bring another perspective and by doing so, raise awareness on how voice, and by extension conversation, can contribute to support contemporary struggles.

Keywords: voice, sound, language, listening, dialogue.

Voice in Western culture

Relegation of voice to insignificance (Cavarero, 2012), has multiple and complex roots, tracing back to Ancient Greece. Though the pleasure of vocality was celebrated notably in poetry, the uniqueness of voice was seen as an obstacle to philosophy. Orality in the West has rapidly been bounded to thought, rather than to speakers. Thought was meant to explain, decorticate the phenomena at work in the world. Individuality has been rejected as a strategy.

Western tradition is grounded in logos, an equivocal word which refers to “say, enunciate”. However, through this lineage, a whole dimension has been neglected, that of the reception of the enunciation. This is the position of Corradi Fiumara in “The other side of language: a philosophy of listening” (1990). Fiumara points out that the verb *legein*, unlike the noun *logos*, contains “propensities of

relationalities” (Fiumara, 1990, p.1). The relational dimension, that happens through the dialogical activity of saying and listening, has been eluded along with the worldwide acceptance of logos. Fiumara writes:

When western knowledge tries to frame the entire world and its history by making use of the power that basically emanates from the voice of our rationality, then, perhaps, an excessively logocentric culture emerges (...). In fact, there is one voice only as the accredited source of knowledge (Fiumara, 1990, p. 19).

The under consideration of voice in Western culture is thus grounded in the dominance of discourse, that is searching for meanings, at the expense of orality, and listening, which has long been considered as secondary. This makes it clear why voice has first not made its way to Sound Studies.

Before developing my perspective of voice as first and foremost a sound, I find it useful to listen to the testimony of French sound practitioner and author Daniel Deshays, who has 40 years experience in theatre and cinema. Deshays, in "Libertés d'écoute. Le son, véhicule de la relation" [Freedom of Listening. Sound, vehicle of the relationship], says:

After many years of being interested only in noise, I was forced, against my will, to tackle the sound of voices. For me, the voice was already overvalued by everyone; it was queen, the bearer of speech, that is, it remained in the written world, in everything that is not the wild and chaotic living world of sound. (Deshays, 2023, p.45)

Deshays' words echo how from the emergence of Sound Studies, voice didn't appeal as a relevant element, being the tool of the written. "First came the speech, then the substance. It was a polite, subdued simulacrum, the cold ectoplasm of the lively, noisy act produced by the gesture" (Deshays, 2023, p.45).

Recently, the voice has tried to gain space in art history, not as a remainder of speech, not as an accessory of image, nor as a medium but as a discipline in its own right (Kozlova, 2021).

In the following section, I propose to shift perspective, and approach voice as the human sound, unique and relational.

Voice as sound

It is obvious that when we speak, we sound. However, the relevance of this sound has been prejudicated by Western traditions of thought and also by the path Sound Art has taken from the 1960s, focusing mainly on the materiality of sound.

I argue that voice, rather than being held back by semantics, is an augmented sonic entity. I will bring anthological texts in Sound Studies to develop my argument.

“Auditory relations” is an article written by sound practitioner Brandon Labelle, which critically informs the different steps of sound art in recent history. The article starts with this sentence “sound is intrinsically and unignorably relational” (Labelle, 2012, p. 468).

Voice is relational by itself, although this dimension has been denied as we saw, and all the more so as a sound.

Taking voice as a sound immediately inputs the notions of the space.

The dynamic relation between sound and space is at the core of the practice of sound art. The question of the bound between the voice and the space where it has been produced, takes us to the cultural, anthropological dimension of voice. Amanda Wiedman, in her article “Voice” (2015), points out the contexts of production and reception of the voice, as constitutive of the voice itself. Voicing, that is, in our perspective, sounding, as well as listening, is entangled in cultural, social, political contexts.

Labelle continues addressing the condition of sound: “sound is produced and inflected not only by the materiality of space but also by the presence of others (...). Thus, the acoustical event is also a social one” (Labelle, 2012, p. 469).

Voice is not only a reach out, it is performed through our body. Voice is an embodied sound, addressed and circulating to another body, and as such is a social entity.

A number of recent publications take sound as a vibrational matter. It is not a new approach, but the insistence on the energetical aspect is, notably applied to architecture. Gascia Ouzounian, known for her work on sonic urbanism, recently published “On vibrational architecture” (Ouzounian & St. Werner, 2025). Ouzounian proposes to reroute architectural thought and practice, based on the highlighting, and not reduction, of energetic capacities, including audible and not audible phenomena. She asks: “How would the study of architecture change when architecture is considered not only or primarily in relation to solid, fixed, enduring

material forms, but also in relation to energies that are emergent, transient, ephemeral, and unpredictable?” (Ouzounian & St. Werner, 2025, p. 240).

Vibrations in vocal practices are well known. Spoken voice even in common events, is also a vibration, though often forgotten. In the following section, I bring voice into a situation of dialogue and see what happens when we speak to each other, from a sonic perspective.

The situation of dialogue

What we like when we speak, is precisely the vibration from one body to another, according to Daniel Deshays (2023):

It is the voice of the flesh that speaks. Standing before this vibrant body, not only a vocal body but a resonant body, a body that is entirely an amplifier, which constitutes the place of our listening pleasure. This is what we witness and what moves us, sometimes to tears. The meaning conveyed by the voice is as if displaced by the overflowing of the body. (p. 52)

Voice as a vibration nurtures and moves within a both extremely fragile and powerful zone of contact between us. It thus seems that the exchange of sonic energy is at least as important as the circulation of ideas, when we make conversation.

Before expanding this idea with Irigaray's concept of permanent recreation of language, I find it influential to say that at the source of sound always lies a gesture. In the Avant-propos of *Libertés d'écoute* (2023), Deshays recalls: “Apart from the sounds of industry and nature, all sound includes, in its very substance, the nature of the gesture that gives rise to it” (Deshays, 2023, p.1).

Voice is a gesture that carries a mode of engagement with the other. The sound of voice is the extension, “the fulfilment” (Deshays, 2023, p.1) of this gesture.

The ways of being with the Other through conversing is the preoccupation of philosopher Luce Irigaray. For her, the use of learnt language offers little help. She writes: “It is not possible to learn once for all how to speak – at each moment the creative work of inventing a speaking is imposed” (Irigaray, 2002, p. 64).

Irigaray challenges the universality of language, dominated by the Western heritage of “speaking to” and “speaking about”, at the expense of “speaking with”.

The latter is a mode of engagement, anchored in the present. It opens a space that allows to hold a relation to difference. She writes:

The interval between the other and me can never be overcome. It has to be cleared of a priori, freed from prescribed or solipsistic certitudes, arranged as a reserve of silence appropriate neither simply to me nor simply to the other, space between us where we are going our way toward one another through the gesture (of) speaking. (Irigaray, 2002, p.66).

Dialogue, as the situation of social deployment of voice, appears as a space to be conquered horizontally by two subjects with will and agency.

Conclusion

I have presented my path of arguments to shed light on the broad common grounds between voice and sound. Along this essay, I have been going back and forth between established and emerging approaches in Sound Studies and my practice based on human spoken voice as a sound. It challenges the resistance of Sound Studies regarding voice and language.

I argue that shifting our gaze on voice can raise awareness on how voice, and by extension conversation, can contribute to support contemporary struggles.

Based on this framework, in 2024, I implemented a voice-based project at grassroots level in the city of Luxembourg. It aimed to immerse in the realities of the residents of the 24 districts of Luxemburg capital, to improve the living together. I will present it and the outputs in a future piece of writing.

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THREE DISRUPTING VOICES IN SOUND STUDIES: DESHAYS, CHATTOPADHYAY AND OUZOUNIAN

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Abstract

Deshays, Chattopadhyay and Ouzounian have in common an extensive body of work in the realm of Sound Studies, grounded in a personal approach, and a critical position towards established western-biased, anthropocentric Sound Studies. Deshays, Chattopadhyay and Ouzounian have different backgrounds. They operate on the side of the field, aware of the dominant, objectifying, music-referenced approaches, and looking for undisciplined, not result-orientated, horizontal, free approach of sound.

Their starting point is the seminal work of Canadian composer R. Murray Schafer, who founded *The World Soundscape Project* in late 1960s. Schafer conceptualized the term “soundscape” as a combination of sounds emerging from an acoustic environment. He is considered as the pioneer of acoustic ecology. Schafer popularized the idea of a natural sonic tuning of the world. This theory has been challenged in the last 20 years for being rooted in an antique, biased vision of the world.

I will briefly present Deshays, Chattopadhyay and Ouzounian, and for each piece I have selected, I will present their position and their path of arguments to tackle the still referential notion of soundscape. I will show how their singular approaches and experiences with sonic material contribute to destabilizing and complexifying it, opening new perceptions and possibilities.

I will then discuss resonances between these three subjective voices in the field. The contribution of this paper is to make audible other voices, evolving in the realm of the sensible, intersubjectivities, and show how they manage to bring to the table of Sound studies a political dimension.

Keywords: sound, soundscape, scape, voice, listening.

Deshays, Chattopadhyay, Ouzounian

This essay starts with the voice of Daniel Deshays, French sound engineer who started writing about sound since the 1990's, which was not a common thing for practitioners at the time. Deshays recently published *"Libertés d'écoute. Le son, véhicule de la relation"* [Freedom of Listening. Sound, vehicle of the relationship] (Deshays, 2023), a sum of writings grounded in his 40-years practice of teaching and making sound for theatre and cinema. Non-academic, his work is of an engaged and reflexive practitioner, who has long embraced a critical position towards the way sound is categorized in the field of Sound Studies. For the needs of this essay, I selected a text of his publication, entitled *"Paysages?"* [Scapes?] (Deshays, 2023), because it traces back the notion of scape in Western lineage. It tells how this not neutral gaze has been transferred to sound world and even became a reference for Western musicians.

For Deshays, it is a nonsense that the "scape", a word that represents a static, harmonized, visible, slow-evolving version of the environment has been applied to the sonic sphere, as the latter is by nature intangible, invisible, and lively. In other words, he wonders how we can submit a phenomenon which unfolds out of visual realm to its authority.

Budhaditya Chattopadhyay adds another layer to the protest against R.M. Schafer's *"Soundscape: Our Sonic Environment and the Tuning of the World"* (Schafer, 1993). For the scholar and sound artist native from Global South, the term "soundscape" reflects a dominant, colonial relationship with the environment. Given that the scape is a Western construction, derived from intellectual and pictural lineage, which carries *"self-contentment"* (Chattopadhyay, 2023a) and control, the soundscape is an avatar of this representation of the world. In an essay written for the solo exhibit *"Co-sounding: Towards a Sonorous Land"* (Chattopadhyay, 2023a), Chattopadhyay tackles the discrepancy between the calm and harmonized Dutch paintings, hung in RijksMuseum, and the violent and extractive colonial subordination of Global South. He writes: "I feel unsatisfied with the tension between the two representations of the world, hold by one colonial power" (Chattopadhyay, 2023a).

In the exhibit, Chattopadhyay hangs on the traditional canvas, blank, and gives sounds to listen instead. The sounds come from extensive field recording in the land that he found represented in paintings. He aims to make heard, felt, what is in the shadow, in the blind spots, what emerges not from a gaze but from a participatory position which allows responsive, intersubjective experience of a space.

Chattopadhyay's exhibit intends to challenge visual, colonial Western structures, by bringing a sonic material, arguably harder to domesticate, to the static composition of time and space.

The antique categorization of sound, space and audience is what tackles the third voice of this essay. Gascia Ouzounian is a scholar and professor, musician, native from Armenia, based in UK. In 2022, she published *"Becoming Air: On Sonic Spatial Metaphysics. The Echo and the Trace"* (Ouzounian, 2022), where she defends the position that sound, the space where it is happening, and the audience form a whole. For her, the study of music as an object has cut the dialogue between sound and space. By space, she understands geographies, but also political and social spaces that music reflects and produces. Ouzounian departs from a personal experience of attending a concert of Armenian sacred music, in a fourth-century monastery carved into a mountain. She recalls the sensation of a community formed by the voices rising in the air, the architecture of sustained stones, and the audience, all intertwined in an emotional and situated ensemble. This experience goes against Western art music traditions, which by decorticating every stakeholder of sonic event, misses the invisible, metaphysical dimension of it, in other words, its intensity.

Resonances

Those three voices disrupt established structures of Sound studies, in that they take a critical attitude towards visual-based, anthropocentric, subordinate representations of the land, as contained in the seminal notion of *Soundscape*. Instead, they defend a freer, broader, decentered approach of sound. This active repositioning builds upon the political force of sound. It is grounded in discontinuous sonic emergences and multiplicity of narratives. Below I discuss specificities of each author's development and attempt to build bridges amongst them.

By letting the land sound in the canvas, Chattopadhyay intends to generate a rereading of the problematic roots of artworks production in the West. He asks: "How to consider sound as a transgressive force that reveals layers of silenced realities: colonial extraction and plunder of land, displacing and dispossessing human and non-human life forms ingrained in the land?" (Chattopadhyay, 2023a).

Using auto-ethnography as a method, Chattopadhyay holds a decolonial voice in Sound Studies. He pleads for horizontality, and other voices to be heard. "Co-sounding" means equal participation and acceptance of plurivocal narratives. For him, it is the only way to reach the symbolic "*sonic confluences*" (Chattopadhyay, 2023b), between Global North and Global South. Hearing other stories is also the stance of Ouzounian's manifesto "*Counterlistening*" (Ouzounian, 2020). Considering

Sound Studies as trapped in Western lineage and culture, she insists on the necessity to impulse other dynamics, tuned to contemporary social and political issues.

Engaging with sound artists from Global South, she writes:

Counterlistening is listening against: against unequal systems of power and uneven modes of exchange; against official and hegemonic narratives of events, histories, places, territories, groups, communities; against normative and dominant cultures of listening; against one's own habits of listening, including those habits that have been engrained through culture and that are entrenched through disciplining. (Ouzounian, 2020, p.1)

The idea of undisciplined listening resonates with Deshays' pledge for decentering listening. For Deshays, even though the sonic representation evolved from a frontal diffusion to a circular continuity, the human remains at the center, physically and implicitly. The aleatory aspect of sonic emergences keeps being under-considered. Deshays's response to this inaccuracy is a "*choice for discontinuity*" (Deshays, 2023, p. 227) which corresponds to temporal sonic discontinuity as well as to the essence of our listening which is filled with oblivion. In Deshays's writings, it is an act of resistance to temptations of stabilizing and totalizing representations. This seamlessly echoes with Chattopadhyay's sonic ruptures and interference of chance and subjectivity in sound natural composition. There is no possibility to foresee all the sonic points of emergence, as well as there is no possibility to grasp all the sounds that have gushed out from a space. This awareness and acceptance of incompleteness in the dialogue between human and the sonic world is fundamental. In other words, sounds still need to conquer their autonomy, far from an anthropogenic, humanly controlled and utopically harmonized understanding.

I have drawn lines of intersection amongst three disrupting voices in Sound Studies, all three nurtured by self-observation through life experiences and sound practices. They all reach the necessity to release sound from different biases. The outcome for Ouzounian is political, as sound tells unheard stories. Chattopadhyay defends a decolonial position through sound to create a more horizontal dialogue between geographies. Deshays insists on the wildness of sound which, only when remained undomesticated, triggers poetics and sonic imaginaries.

Conclusion

This essay brings to the table of Sound Studies three subjective voices that have in common a critical position within the field. They tackle important issues such as Western bias, visual mistaken perspective, and objectification. They also share the idea that sound is where something can happen, in the realm of the sensible, the intersubjectivities, and the potential becomings.

These resonances appear in other spaces of respective works and arguments. I will further search for echoes in the way Deshays, Chattopadhyay and Ouzounian write about sound technology, the advent of audio recordings and loudspeakers and what it says about the methods and outputs of the field.

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FELIX – THE CAT – AND CONTEMPORARY MUSIC

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Abstract

This article presents an artistic experiment carried out during the development of two sound/music composition projects, *Felix*, *April Maze* and *Feline Follies*, as part of research into education and contemporary music. Based on sound design for two animated films from 1919 and 1930 by the cartoonist Patrick Sullivan, the projects were developed by undergraduate students in Art Education and Basic Education at a Portuguese higher education institution. They emerged from the application of contemporary music knowledge and digital technology, primarily audio recorders and editing/composition software. These kinds of resources were used to explore the principles of electroacoustic music, including recording sounds, mixing, and combining acoustic and digital sounds. Embracing the premises of contemporary music, namely sound exploration and experimentation, as well as the search for new sounds, it was possible to bring this musical typology into music education and, consequently, into sound-creative construction. The students created the musical compositions in the classroom under the guidance of the teacher and researcher.

Keywords: sound-music projects, digital technology, electroacoustic music, contemporary music

Introduction

Contemporary music is difficult to define due to the variety of aesthetic approaches that have emerged over the last century, the fusion of musical genres, and the advances in technology which are currently reshaping the roles of composers and performers. The aesthetics and compositional styles from Western classical music spread and influenced other genres, particularly rock and jazz. This has led to a growing interest in exploring and experimenting with sound through unconventional instrument playing, as well as creating and reinventing instruments, using sound objects and exploiting electronic sound potential.

Nevertheless, the difficulty of defining what is contemporary – due to the multiplicity of coexisting temporalities and music styles – is not insurmountable. We consider the concept of contemporary music in relation to the musical erudition of the 20th and 21st centuries and their distinct and differentiated aesthetic trends. We came to that conclusion not only because current music,

namely experimental music and electroacoustic music, "draws" from 20th century classical music, but also because, in chronological terms and looking at the entire map of Western music history, it is a short period without aesthetic dissociation.

The importance of dissonance and timbre emerged in the first half of the 20th century through expressionism and its inherent expressive intensity. In vocal music, for instance, screams, whispers, and guttural sounds were introduced. Musical themes also disappeared, opening up the range to atonal music and dodecaphonism - an aesthetic trend that loses its tonic (i.e. its gravitational point) and in which all twelve notes of the chromatic scale play an important role. Arnold Schoenberg is one of the main composers of this style. Futurism introduced noise and unconventional sounds into music, as well as unconventional ways of playing conventional instruments. John Cage's prepared piano is a notable example, where the placement of objects such as screws, coins and pieces of plastic between the piano strings produces sound effects that contrast sharply with the instrument's conventional sound. Technological advances in the 1940s and 1950s enabled sound recording and manipulation, as well as the exploration of new sounds through electronic means. This gave rise to electroacoustic and computer-assisted composition.

The purpose of this article is to present two sound-musical creation projects based on the principles of electroacoustic music, developed by students of education courses at a higher education institution in Portugal. These projects resulted from knowledge about contemporary music and applied premises of sound exploration and experimentation, the search for new sounds (acoustic and electronic) and the emphasis on timbre.

Electroacoustic Music

According to the definition provided by Ricardo Antão (2021), we understand electroacoustic music as a musical genre that uses electronically produced or altered sounds, whether mechanical or electronic in origin, for live performance or media playback. In other words, a definition that encompasses both *Musique Concrète* from the Paris studios and *Elektronische Musik* from the Cologne studios, which resulted in one of the aesthetic trends in contemporary classical music in the mid-20th century. The introduction of new ideas regarding the use of technology by composers visiting both studios quickly led to the unique definition of electroacoustic music, despite the markedly different compositional processes in France and Germany. In France, only recorded natural sounds were used, while in Germany, electronically generated sounds were used (Antão, 2021). The term *musique concrète* emerged in 1949 with Pierre Schaeffer, whose experience as a radio engineer led him to develop a new compositional approach based on the combination, repetition, transformation and organisation of sound objects (Lopes,

2021). Electronic music differed from concrete music in that it was produced by electronic means and initially recorded on magnetic tape. That is, concrete music should not be modified electronically, although the distinction between it and electronically synthesised sound has been disappearing (Kennedy et al., 2013). Thus, electroacoustic music came to designate the musical genre that applies all these forms of sound manipulation, synthesis and filtering techniques, currently not only by electronic means but also by computational means. Among the leading composers of this musical movement, we highlight Pierre Schaeffer, Karlheinz Stockhausen, György Ligeti and Luigi Nono. This trend has continued to such an extent that much of the classical music of the 21st century consists of electroacoustic works. Notable current Portuguese composers include Nuno Leal, João Pedro Oliveira, Olga Pereira, Isabel Soveral, Jorge Prendas, José Carlos Sousa and Jaime Reis.

Much electroacoustic composition is based on the intrinsic value of sound rather than on relationships between sounds (Kropfl, 1997). It means, harmonic, melodic and rhythmic relationships are replaced by the highlight in timbre and the appreciation of sound and their potential. This compositional approach, in turn, brings us closer to the principles of experimental music, such as sound exploration and experimentation, and the search for new sounds. These principles originated in the first half of the 20th century, with movements such as Futurism, which made use of all kind of noise and unconventional instrumental invention. Electroacoustic techniques have led to the inclusion of all sorts of sounds that were excluded from conventional music, such as: noises, ambient sounds (non-vocal and non-instrumental), previously recorded and manipulated sounds, or sounds generated by synthesis techniques, that is, sounds that do not have any physical acoustic source, except as a production model (Cádiz, 2003).

The introduction of the synthesizer and the computer came to enhance electroacoustic music, taking its premises to other musical typologies - notably jazz, changing paradigms and making it difficult to conceptualize what is erudite and non-erudite - and even embracing varied artistic movements. In this sense, multimedia performances have emerged, such as John Cage's *Variations*, which combines visual effects, body movement and live electronic music (Antão, 2021). The author adds that 'improvisation in electroacoustic music is also an area that has been explored since live performance became a reality' (Antão, 2021, p. 30). Consequently, we encounter several groups/projects focused on live electroacoustic music, such as *The Sonic Arts Union*, an American group active between 1966 and 1976, consisting of Robert Ashley, Gordon Mumma, David Behrman, and Alvin Lucier; *Musica Elettronica Viva*, based in Rome; and *AMM*, based in London (Antão, 2021). At the same time, in the 1970s, music research and computer music Centres began to emerge, such as the *Institute de Recherche et Coordination d'Acoustique et Musique*, inaugurated by Boulez, and the *Centre for*

Music Experiment and Related Research, under the leadership of composer Roger Reynolds. Also noteworthy are the *Centre for Computer Research in Music and Acoustics*, led by John Chowning, and the *Electronic Music Studio*, led by Barry Vercoe (Moore, 1992), among others.

There are an increasing number of music research centres that study and develop electroacoustic and computational music projects, publishing and promoting contemporary works and composers, such as the *Portuguese Music Research & Information Centre*. We would also like to highlight other initiatives that promote electroacoustic music in Portugal, such as the *DME* project, which was launched in 2003 under the artistic direction of Jaime Reis and focuses primarily on creation and training in the field of contemporary classical and electroacoustic music, as well as crossovers with other aesthetic approaches and artistic languages.

Electroacoustic music and the inherent experimentation with sound – emphasising sound and action on sound – has been widely studied and worked on by teachers/researchers, musicians and composers. Experimentation and sound research, crucial factors in contemporary music, resulted from a desire to find new sounds and to break away, to a certain extent, from conventional sounds. As a result, new instruments were invented and new ways of playing existing instruments were developed, everyday objects were included as sound sources, and different and diverse forms of vocal performance were experimented with. It was the restlessness in the face of new discoveries that led to the emergence of a wide variety of musical possibilities. Among several contemporary musical researchers, we highlight Leigh Landy, director of the *EARS2* project – among other projects, such as *Electroacoustic Music Studies Network; Intention/Reception* –, who advocates sound-based music (a term he coined himself), with sound (not musical notes) as the fundamental element of musical construction and the creative process. This project, which is primarily created for young people, is based on the principle that music composed through sound is accessible to everyone. Here, we refer to the community in general, including individuals without specialised music training. The project offers listening pieces, composition software and courses for young beginners. The courses cover listening skills, such as recognising sounds from the environment, understanding composition through recorded and manipulated sounds, and exploring, transforming and controlling sound digitally. Landy also emphasises the importance of listening experience for a meaningful understanding of sound creativity and sound organisation (Landy, 2024).

Sound-musical projects

The projects described here were developed by students from the Art Education and Basic Education courses (courses with a comprehensive and cross-disciplinary

approach to the arts), under the guidance of the teacher/researcher. Although they share the same objective – working with contemporary music premises by applying technical concepts from electroacoustic music and adding sound to silent animated films – we refer to them as two distinct projects because they took place at different times. The first project, *Felix – April Maze*, was carried out as part of research into education and contemporary music, while the second project, *Feline Follies*, followed in 2021 and built on the insights from the earlier study.

Felix – April Maze

Felix – April Maze was one of the animated films selected for the musical project carried out by five students from the Art Education Course, in the 'Musical Project Workshop' subject. This is a 1930 film, made by cartoonist Patrick Sullivan, without any sound. The film depicts the peculiarities of the month of April, when the sun and rain appear without warning. Thus, Felix the cat and his nephews go through various adventures in order to enjoy nature and have a picnic.

The result of the project was presented to children at a primary school. The sound was created in real time during the film screening, using pre-recorded and manipulated sounds and others produced on the spot (amplified acoustic sound). It is important to note that the children in the audience were asked in advance to participate at specific moments, using their voices and sound objects, resulting in a mass of sound that filled the entire auditorium where the film was shown.

Inspired by the sounds of contemporary works by composers such as Pierre Schaeffer, John Cage, Constance Capdeville, Karlheinz Stockhausen, and Meredith Monk, the students used electronic resources such as computer programs and sound amplification. The latter resource not only amplified the sound but also allowed certain acoustic sounds to be transformed. Although the relationship between image and sound was a key factor in the musical composition, the intention was not only to portray the various situations and characters, but also to create music through the exploration and experimentation of sound, in order to enable an encounter with the principles and sounds of electroacoustic music. By combining recorded and manipulated sounds with those produced acoustically, the students created a symbiotic relation between the familiar and the unconventional. In other words, although they were unable to divorce themselves from certain tonal melodies, they effectively embraced innovation and atonality. They used the *Adobe Audition CS5.5* sound editing programme to blend various sound sources and manipulate them through different filters. A *Zoom H4n* digital recorder was used for sound recording.

The sound result of the musical performance embraced elements of contemporary music, such as: pre-recorded voices with dissonances, usually minor second intervals, which were later manipulated through a filter in the sound editing programme; overlapping sound tracks; sound masses; ascending and descending glissandi; unconventional playing of musical instruments; playing of unconventional instruments (sound objects); spoken singing and onomatopoeia; clusters; single notes and struck notes. The imagery enabled musical construction based on premises of deconstruction and phrasal non-linearity, so that the departure from conventional musical structures and consonances was achieved naturally, in keeping with the film's own action. All the creative work culminated in the graphic record, that is, in the creation of a graphic score. It consists of conventional musical symbols and, for the most part, unconventional musical notation – strokes, lines, dots, and abstract and concrete figures.

Feline Follies

The *Feline Follies* project involved creating a soundtrack for the 1919 film of the same name by Patrick Sullivan. A student on the Basic Education course developed it in the 'Artistic Expression and Creativity Laboratory' subject. Similar to the project presented earlier, the protagonist of the sound film is the cartoon character Felix. The short film *Feline Follies* was the first film to be released about Felix the Cat and tells the story of Felix's courtship of a female cat. Felix meets the cat several times, sings her serenades promising his love, and while he is away from home, a group of rats wreak havoc in the kitchen, eating all the food and leaving scraps all over the house. Felix's owner, seeing the mess, kicks Felix out, leaving him homeless. The protagonist of the film turns to his cat for comfort, but as soon as he arrives at her house, he sees a huge litter of kittens and, realising that he would be the father of all those kittens, he reacts by running away towards a natural gas pipe, intentionally inhaling the gas and committing suicide.

For the film's soundtrack, sounds were recorded and manipulated using digital resources such as the *Zoom H4n* recorder, *Adobe Audition CC* sound editing software, and easy-to-use music composition software such as *Garage Band*, in order to include loops at key moments in the film.

Similar to the project described above, the student embraced elements of contemporary music, exploring/experimenting with sounds, recording and manipulating sound. However, despite the emphasis on timbre, melody and rhythm are not really dethroned, given that small tonal musical excerpts are interwoven with soundscapes and other sounds representative of the action: the movements, gestures and 'speech' of the characters are accompanied by conventional instruments and sound objects. Although there are small tonal

segments, atonality (i.e., the non-existent gravitational point) is also a constant throughout the entire sound-musical construction. Furthermore, the ostinatos play a prominent role in the final piece, bringing us closer to minimalism — an aesthetic trend characterised by repeated sounds — whose leading composers are Steve Reich and Philip Glass.

Final thoughts

Through these projects, among others, carried out in the classroom, it was concluded that in the context of training that is not geared towards specialisation in music, students are able to embrace contemporary musical aesthetic trends effectively and creatively – and in the case of the projects specifically presented in this article, the principles of electroacoustic music.

In the work carried out, we emphasised the importance of sound and sound objects, silence, movement, space, the voice in its many different forms, atonal construction, the recording and manipulation of natural sounds and multimedia, theatrical action, improvisation, happenings and unconventional graphic representation. The search for the new, from an unconventional perspective was, therefore, a constant.

In addition to achieving the confidence necessary for sound creation through the exploration and experimentation of resources, mainly technological resources, it was observed that the students acquired knowledge of the premises and particularities of contemporary classical music in order to create/improvise according to the sound characteristics of that type of music. Leaving technicalities aside, we understand that musical creation is within the reach of all those who seek, investigate and start from an intention (Porto, 2014). Consequently, the relationship between visual image and sound gave rise to a whole range of creative work, in line with contemporary premises of sound exploration and experimentation — particularly in experimental music — given that there is a concrete basis (the cinematographic image and the action of the film) that opens up a huge range of timbre potentialities and facilitates this composition/creation. We can argue that the unconventional and irregular sound, characteristic of contemporary musical (de)construction, is perfectly represented in the immense diversity of visual images that appear in a film, particularly in an animated film.

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THE MATERIALITY OF SOUND AND IMAGE IN INTERACTIVE DIGITAL NARRATIVES: A DYNAMIC FEATURE OF THE AESTHETICS OF BEHAVIOR

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Abstract

Interactive Digital Narratives (IDNs) arise from the interplay between humans and machines, creating a collaborative relationship between software operations and mediated socio-cultural contexts. They are multimodal, and elements such as sound and image serve a dual role within, functioning simultaneously as subjects that convey meaning and as objects that are deeply embedded within the operational processes of the computational system.

This paper examines how the interaction with auditory and visual elements involves the perception of an environment through action, becoming a sensorimotor experience among readers, and computational processes. When sound and imagery are carefully crafted and synchronized, they become affective tools that guide readers' attention, provoke emotional responses, and enhance narrative coherence.

By understanding the materiality of sound and image in IDNs, we will approach how these elements are enmeshed with the operational logic and playable model, their representations, and the code itself. Our analysis will center on two case studies: *What Remains of Edith Finch* (2017) and *Everything* (2017). These works demonstrate dynamic soundscapes that respond to readers' choices and visual components that evolve as the narrative unfolds. We will investigate how meaning arises from readers' physical interaction, thought, and perception alongside the mechanical and narrative constraints simulated by the system, in which the relation between sound and image plays a vital role. Moving between the computational and representational approaches, we explore IDNs as interactive systems promoting symbiotic relationships involving the readers' bodies and sensual capacities in how they assemble narratives, contributing to a profoundly affective experience.

Keywords: Interactive Digital Narratives, Sound, Image, Readers, Aesthetics of Behavior.

Interactive Digital Narratives are Living Structures

Computational systems are constituted by a group of external and visible commands underpinned by new media forms and genres that are relocated in varied forms of expression, turning the attention to the emergence of new languages. Driven by the ideas of automated creation developed by Alan Turing, early works such as *ELIZA* in the 1960s, *The Aspen Movie Map* in the 1970s, *Racter* in 1984, and the *Oz Project* in 1992 began to make their mark on what would come to be known as a dynamic medium. Here, interaction takes on sophisticated contours, enabling the audience to engage actively with cause-and-effect mechanisms. The readers¹ can generate actions and observe their consequences within the represented system (Crawford, 1984), oscillating between transparency and reflection (Bolter & Gromala, 2003).

The examples above are turned into expressive processes that “capture the world within a system of thought ... and a set of instructions that tell digital hardware and communication networks how to act in the world” (Kitchin & Dodge, 2011, p. 43). By enacting processes that produce events and diverse behaviors and outcomes, these artifacts possess an algorithmic nature characterized by articulating hardware, interface, and software. They transform the world and augment, supplement, and mediate new reading processes, becoming informational objects that cannot be separated from computation (ibid).

With this in mind, we start to observe the appearance of artifacts that work simultaneously as computational systems that can simulate a set of systemic relationships in the most profound and varied ways. In the end, it becomes a medium of *configuration* (Galloway, 2006a) that “compel us to act and to be acted upon through the procedures of their algorithmic structures, through the ways these structures are given representational form visually, narratively, and aurally, and through the designed intimacy of their interfaces and the contexts of our play” (Anable, 2018, p. 52).

From the interplay between a multimodal computational system and its graphic appearance and semantic value, we dive into artifacts that act as narrators. Works such as *Colossal Cave Adventure* (1976) and *Zork* (1977), use text commands to head north or west and see or manipulate objects such as a sword or a key, turning possible “to explore, get lost, and discover secret paths in these texts, not metaphorically, but through the topological structures of the textual machinery”

¹ We use “reader” instead of “user” due to its excessive proliferation across diverse contexts that are often unrelated to computation or digital media. While “user” is rooted in human-computer interaction, this terminology suggests merely a functional, tool-based relationship. This way, “reader” acknowledges that a human interacting with an Interactive Digital Narrative is simultaneously an actor, an interactor, and a spectator.

(Aarseth, 1997, pp. 4-5). There is a cybertextual process where the reader makes a non-trivial effort to play with the computer, either undertaking different functions or choosing from various possible paths, toward an understanding of how computational systems can function as narrative environments rather than mere interactive tools.

Building this foundation, interactive digital narratives (IDNs) emerge as a mature manifestation of procedural, participatory, spatial, and encyclopedic ergodic artifacts (Murray, 1997). The interaction between the reader and the computational system “always includes some kind of *sensory input*, *player output*, and *internal player cognition*” (Salen & Zimmerman, 2004, pp. 315-316), depicting a cybernetic feedback loop that uses interactivity as an essential part of its delivery mechanism (Galloway, 2006; Marino, 2020). From this standpoint, what is most important in the context of IDNs is not simply the ability to be made up of a system that has interaction capabilities, but how it presents that same interaction, through its operational logic and playable model, in order to constitute a dialogical relationship with the reader.

The operational logic involves the rules, objectives, and procedures that manifest themselves in the program. They are patterns indexed in the algorithmic processes behind the work that function as an expression of the design of their movements, as well as the way readers can interact with them, and what kind of outputs and thoughts define their creation (Wardrip-Fruin, 2012). When we start interacting with an IDN such as *Façade* (2005) from Michael Mateas and Andrew Stern, instead of just focusing on and engaging in a conversation with the young couple that we are visiting, we also start to interpret what our choices and interactions do or what they can do. In this case, as readers interact with the characters, they discover some of the couple's secrets and get involved in discussions, being asked to decide whether they want the couple to reconcile or separate. Through an interaction engine, readers are informed on how to interact with the computational system, based on established patterns and constraints that regulate and limit readers' actions.

If the operational logics provide the building blocks of readable rules (Osborn, 2018), the playable model derives from that and appeals to the system dynamics representing how something works in the narrative world, which readers can explore and understand through interaction (Wardrip-Fruin, 2020). Different logics are applied through objects, properties, behaviors, and relationships (Fullerton, 2014), explaining how the computational system works and can be played, usually through observable processes and behaviors, which are manifested on the screen and constitute the object's external appearance.

Different playable models employ different logics, depending on each other, and together, determining a constant feedback loop in which the reader sees an action on the screen, processes a response to that action, and sends a signal back to the computational system, which responds, starting the cycle again. This does not imply that readers will be able to read the code or understand the algorithmic processes, but rather that they comprehend how to capture sensed and embodied experiences in IDNs and know the "conceptual reality of the work" (Bootz, 2005).

In doing so, IDNs cross between the duality of the computational and representational approaches. There is the computational level that defines the changes triggered by its operations in the material world (Kitchin & Dodge, 2011), and there is the representational level, in terms of the different narratives and discourses generated through the sequence of images and sounds. Through this interplay, readers in IDNs can access and start paying attention to the materiality of image and sound and how the presented sequence intertwines with the operability of the system.

The Materiality of Sound and Image in IDNs

Having established IDNs as living structures that are part of a cybernetic circuit, with the observation and response to patterns of reader behavior in a self-examination and reconfiguration mode, we now examine the specific mechanics through which sound and image materialize in IDNs.

IDNs are constituted by a reflexive action dimension in a way that all the images and sounds composed are registered by observation and materially constructed by their logic of computation. The computational system constituted by its operational logic and the playable model becomes autopoietic and structurally coupled to the narrative space in which they are embedded and shaped. "Each living system thus constructs its environment through the 'domain of interactions' made possible by its autopoietic organization" (Hayles, 1999, p. 137). The medium's materiality becomes reconceptualized by the interplay between the signification and interpretation processes, between the physical characteristics and their suggesting strategies in an interchange that entangles instantiation (Hayles, 2004). Furthermore, this instantiation process happens on the material and the discursive level (Kitchin & Dodge, 2011). The constitutive actions define the material level, opening up new opportunities and possible directions, becoming a semiotic resource (Van Leeuwen, 2005) that conveys meaning and articulates arguments through its mechanics. The discursive level generates different narratives and discourses.

Therefore, the materiality of the audiovisual elements in IDNs becomes both perceptual – multisensory –, involving the perception of an environment through

action, and interactive – sensorimotor – because readers can act and move in the virtual environment, modifying the objects with which they come into contact, gaining new perceptual information about it (Casati & Pasquinelli, 2005). This dual materiality demands “the ability to read and write processes, to engage procedural representation and aesthetics, to understand the interplay between the culturally-embedded practices of human meaning-making and technically-mediated processes” (Davidson & Mateas, 2005, p. 101).

Sound and image in IDNs work as material agents within the technological apparatus, since they disclose and afford new modalities for exploring how the interaction process works and how the readers can play a role in that. The audiovisual elements are not merely representational artifacts to be decoded, but procedural elements that are dynamically reconfigured according to object-oriented ontologies that treat computational entities as actants with their own agencies (Harman, 2009). Therefore, sound and image become processes that readers must learn to *read* through interaction, their relation to one another, and the world around them, and *write* through their choices and movements within the computational system.

In that sense, IDNs allow for the arrangement and design of spaces, objects, and environmental storytelling elements to create a narrative without direct textual or mechanical interaction, turning visual and auditory elements into material objects that can tell and reflect stories, move readers, and allow for immersive imagination. IDNs become fundamentally rooted in the material and social underpinnings of computing, where code, algorithms, and human bodies are interconnected as relational objects endowed with performative agency, existing inextricably tied to cognitive and embodied processes.

We will now analyze how this dual materiality of the audiovisual elements finds concrete expressions in works such as *What Remains of Edith Finch* (2017) and *Everything* (2017), where sound and image operate as material processes that shape reader interaction through their dynamic elements. Exploring the interrelation between movement and perception alongside the mechanical and narrative constraints, we consider how the construction of meaning is entangled with the technical affordances of the digital medium.

Exploring Existence through Audiovisual Representation in *What Remains of Edith Finch* and *Everything*

After understanding how readers interact and access IDNs, we will observe how the relation between sound and image arises with a close reading of *Everything* (2017) and *What Remains of Edith Finch* (2017). This close reading will emphasize the interplay between the reader, the hardware, and the audiovisual

representation, turning the visual and auditory coordinated with the space around and other agents in that space through emergent and continuous interaction. Besides that, both works will expose hidden layers of meaning where the question of existence is addressed as the sharing of forms that are not human, as well as the relationship between ecosystems and nature. By focusing on the audiovisual elements of the presented IDNs, we will be able to highlight their beneficial relationship to the construction of meaning.

What Remains of Edith Finch (2017) opens with a black screen displaying the work's title, accompanied by a ferry horn, contextualizing us in the space where we find ourselves. Slowly, we begin to hear the waves crashing against the boat's hull, and when we look down, we see a diary and some flowers resting on our knees. Once we figure out the controls needed to move forward, the diary opens, and we can read the text, while a voice recites the exact text: "A lot of this is not going to make sense to you, and I am sorry about that." When we finish reading the text, the screen goes black again, and the letters from the diary float around. When the black screen dissolves, we are in the forest in front of the house drawn in the diary. We become Edith Finch, the main character and the last survivor of a cursed family. Each member of the Finch family, over several generations, has died prematurely and shrouded in mystery, and it is these mysteries that we are about to explore and discover. The work is presented as a trail where we are taken to each room of the house, unlocking a unique narrative about the deceased family members. The work, which won the Best Narrative award at the 2017 BAFTA Game Awards and Best Game at the 2018 BAFTA Game Awards, is structured through this collage of playable stories where the main objective is to discover the Finch curse by asking the reader to perform different actions that lead to the inevitable and premature deaths of Molly, Barbara, Calvin, Edie, Odin, Sam, Walter, Gus, Gregory, Lewis, Milton, Dawn, and Edith.

Besides that, there is always text being presented in all stories, with the text itself being a visual element that creates narrative variations and tensions full of different meanings that must be interpreted. It is a type of engagement classified by Astrid Ensslin (2014) as literary gaming, which consists in "a specific form of digital gameplay that happens when we interact with digital artefacts that combine so-called ludic (from Latin *ludus*: game or play) and literary (from Latin *littera*: alphabetic letter or plural *litterae*: piece of writing) elements" (p.1). Each of the triggered narratives presents a different style of gameplay and artistic perspective, with the audiovisual elements also being presented differently, with a very particular set of technical affordances understood by those who inhabit them. We will now analyze three characters of *What Remains of Edith Finch* that will demonstrate how the audiovisual elements work in relation to the mechanics of sound perception and visual production in a way capable of generating new information and environments.

Figure 1

The Finch family tree.



Note. Available at <https://ahamza-55107.medium.com/what-remains-of-edith-finch-and-every-finch-f2c094c89c76>, accessed in 25th of August, 2025

In the story of Molly Finch, the diegetic sound reinforces the sense of displacement between the real and the oneiric. Without seeing the animals visually, we hear the cat's roar, the rustle of the owl's wings, the shark's fluid movement, or the monster's silence, creating a fusion between physical space and psychological experience. The abrupt changes in perspective and animation are complementary to these auditory transformations. The written text is also playful and unruly. It is like the text climbs, flies, swims, and crawls, constantly teasing and tempting the reader to follow Molly. This characteristic of the images also relates to the non-diegetic sound, which plays a crucial role in creating an atmosphere that oscillates between enchantment and terror, suggesting that existence can be magical and frightening. The use of reverberating sound effects adds to the tension and is also important to mark the transition between different animals.

Figure 2

A screenshot of What Remains of Edith Finch shows the family member Molly Finch



The story of Calvin Finch, Sam's twin brother, is told through a letter that Edith finds, which takes us to an open field by the sea where we first see the swing, which becomes both a gameplay mechanic and a metaphorical expression of childhood, lived between safety and danger. We hear the rhythmic creaking of the metal swing, which becomes increasingly intense as we see the legs swinging frantically. At the same time, the visual perspective also oscillates between the movements of the swing in the first person and the environment around us, emphasizing the perception of the dangerous height of the cliff and the vast expanse of the ocean below us. In addition, the sound of the wind intensifies as the text floats and swings per the movement of the swing, becoming increasingly scattered and fragmented in direct relation to the loss of control that leads to Calvin's tragic fall.

Figure 3

A screenshot of What Remains of Edith Finch shows the story of the family member Calvin Finch



The story of Walter Finch takes us to an underground hideout beneath the house. That is where Walter stayed until the day he mustered the courage to go outside and died. His underground existence is corroborated by a claustrophobic sound design that alternates with the constant noise of trains passing overhead, where we can hear the subtle creaking of the earth and various constant mechanical noises, proof of life outside. The visual elements are represented by small, narrow spaces lit artificially. Walter's isolation is represented by the various layers of objects accumulated on the walls and in the daily routine of opening a can, which is repeated day after day for years, always at the same hour. There are also long periods of silence, which is characteristic of someone in isolation. After decades, Walter finally decides to emerge. Here, we see the sudden introduction of natural light, open space, and nature, contrasting with everything we had seen until then. The story ends with the sound of an approaching train that gets louder and louder with the appearance of a visual glow that eventually becomes blinding.

Figure 4

A screenshot of *What Remains of Edith Finch* shows the story of the family member Walter Finch



Through these three stories of the same work, we accept that the visual and auditory can trigger changes in the readers, while they can specify the nature of those changes.

On *Everything* (2017), readers are invited to experience perspectives and systems of scale, exploring the idea that objects, individuals, and ideas are separate entities only in our human conceptions. The non-diegetic sound is narrated by Alan Watts's voice, the philosopher responsible for bringing some Eastern philosophies, such as Zen Buddhism, to the Western world. Through archival recordings of lectures he gave in the 1960s, the voice guides us through a philosophical reflection where we observe the world and are part of it. The soundtrack works dynamically, adapting to the reader's actions and reinforcing the meditative tone of the experience. The reader can move things around, up and down, and can experience each represented entity. Each entity, such as a cell, particle, bear, or planet, has its own movement and distinct sound signature. For example, in an insect, the sounds tend to be subtle and rhythmic. In contrast, on planets or stars, the sound is ethereal and expansive, transforming the environment into a geographical state, capable of transmitting awareness of community and collectivity in the Universe.

Figure 5

A screenshot of Everything, a gameplay film by David O'Reilly, showing the animal scale



As already mentioned, there are different scales and dimensions, from the galactic to the planetary, continental, and geological scales, as well as the animal, human, microscopic, and molecular scales. For example, on a galactic scale, galaxies move slowly and solemnly, accompanied by musical compositions that use low and ethereal frequencies, while being represented by luminous spirals with particle systems that create trails of light and stardust. On the animal scale, each species is represented by a distinct sound characteristic—a bear's roar, a bird's melodious song, or a sea creature's aquatic sound. Their movements are characterized by a peculiar rolling motion, a feature that David O'Reilly has implemented in almost all objects, giving them a simultaneously absurd, yet familiar and beautiful movement. On the molecular scale, the sound environment consists of pure frequencies and digital processing that evoke the strangeness of chemical bonds. Visually, the particles are represented by simple geometric shapes such as spheres or cubes that move in patterns suggesting electromagnetic forces.

Figure 6

A screenshot of *Everything*, a gameplay film by David O'Reilly, showing the molecular scale



At each of these scales, gradual sound transformations connect the different visual landscapes. Through *morphing* and *crossfading* techniques, there is continuity between the sound environments, faithfully suggesting that all entities contribute to a unifying vision of the Universe.

Therefore, in both IDNs, the audiovisual landscape acts as a reinforcing mechanism that can shape the reader's interaction by exploring fundamental questions about what it means to exist, whether as an individual in a family line marked by tragedy or as a conscious particle in an interconnected universe. Through narrative fragmentation and diversity of perspectives, a poetic experience is formed where sound and image become important components of the ecosystem that carry with them the technical and sociological characteristics of the medium in which they are inserted.

The Perceptual and Interactive Experience of the Aesthetics of Behavior

The analysis of *What Remains of Edith Finch* (2017) and *Everything* (2017) demonstrates how the materialization of sound and image in IDNs allows us to think about them as affective systems that consider the behavior of the artifact and its association with the body and the idea of movement. They become perceived and recognized through rules and actions related to and entangled

between bodies and computational processes that produce meaningful effects (Ferri, 2015).

Our analysis concludes that IDNs are shaped by the algorithmic structures underpinning the narrative experience, contributing to constructing a mediated reality that emerges through this interplay. Exerting an influence on the narrative by determining the conditions under which certain sounds or visuals are layered and transformed, algorithmic structures allow the narrative to adapt to readers' inputs, creating a feedback loop where the multimedia elements respond to and influence their experience and interpretation. Therefore, the perceptual and interactive experience of the reader operates through three interconnected sources of information – multimodality, embodied experience, and vicarious interaction – that transform the reader into an embodied agent, where their specific movements change the audiovisual elements that happen in a continuum system of action-perception. These findings suggest that multimodality is the foundational layer through which both works convey meaning across different semiotic modes (Gibbons, 2012). Within a "multitude of modes," the computational system can reconfigure the readers' actions, creating new and emergent sensory combinations. An embodied experience conceptualizes the body as a visible object in contact with other organic or mechanical bodies, becoming both a sensor and a site where computational processes emerge as an extended bodily awareness. Throughout this embodiment, there is an extension of the reader's cognitive system into computational architecture, enabling vicarious interaction where agency becomes distributed across temporal rhythms and spatial configurations that are technologically distributed.

Collectively, the three sources of information contribute to the aesthetic of behavior, where the computational system can realize an intention, at the same time, that is sensitive to the changes in the environment (Penny, 2017), creating a topological space that allows for the creation of new aesthetic objects and experiences (Harman, 2018). The aesthetic of behavior is related to a matter of direct engagement with spaces, procedures, and social orders that pertain to the represented world, creating hybrid forms of IDNs that are fundamentally performative.

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NARRATIVAS TRANSMÉDIA, REALIDADE AUMENTADA E PORTAIS NARRATIVOS: UMA ESTRATÉGIA PARA A VALORIZAÇÃO DO PATRIMÓNIO CULTURAL

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Resumo

A era digital tem vindo a redefinir a forma como as comunidades experienciam, preservam e interagem com o seu património cultural, abrindo caminho para novas estratégias de valorização. Esta investigação explora como as Narrativas Transmídia (NT) e a Realidade Aumentada (RA) podem contribuir para a construção de Portais Narrativos (PN), analisando o seu impacto como mediadores entre comunidades e espaços culturais.

A comunicação foca-se na base teórica do projeto “*Anamnese, in Nexum*”, justificando a relevância da tríade NT-RA-PN na criação de ecossistemas narrativos híbridos – ecossistemas que unem o tangível-físico e o intangível-digital. A revisão da literatura contextualiza o papel das NT na construção de narrativas expandidas e na cocriatividade (Jenkins, 2006), enquanto a RA permite a sobreposição de camadas digitais ao espaço físico, criando novas formas de fruição patrimonial (Geroimenko, 2018). Esta análise é complementada pela perspetiva de Csikszentmihalyi (2008), relativamente ao impacto das experiências imersivas no envolvimento do público, e de Manovich (2002), sobre a transformação dos media digitais.

A investigação teórica é complementada por uma abordagem prática, sustentada pela metodologia a/r/cográfica e pelo estudo de caso, refletidos no trabalho exposto no 11º Retiro em Média-Arte Digital pela Universidade Aberta e Universidade do Algarve – Exposição Circuitos 2024 – com o mesmo nome “*Anamnese, in Nexum*”. Este projeto utiliza o caso estudo da vila da Golegã (espaço e comunidade), NT e RA para construir uma instalação artística que conecta narrativas pessoais ao património local, transformando a interação comunitária em experiências imersivo-interativas complementadas pela utilização de uma *app* móvel de RA. Discute-se a interligação entre tecnologia, narrativa e património, bem como os desafios e oportunidades na aplicação destas

abordagens à valorização do património cultural. Destaca-se, ainda, o potencial replicável deste modelo em diferentes contextos geográficos.

A interligação entre NT e RA revelou novas estratégias para aproximar as comunidades ao seu património, posicionando a Média-Arte digital e o Design como catalisadores de valorização cultural. Esta investigação pretende contribuir para o debate sobre o uso das tecnologias emergentes na construção de experiências patrimoniais híbridas, oferecendo uma perspetiva teórica estruturada para a sua implementação.

Keywords: Narrativas Transmídia, Realidade Aumentada, Portais Narrativos, Património Cultural, Média-Arte Digital.

Introdução

Os desafios contemporâneos da valorização do património cultural exigem, cada vez mais, estratégias participativas e relacionais que ultrapassem a mera preservação, incorporando processos ativos de mediação, interpretação e apropriação comunitária. Mais do que salvaguardar fisicamente os bens, importa ativar dimensões afetivas e simbólicas que permitam (re)significar os espaços e memórias à luz das experiências vividas. Como refere Burges (2019), as histórias têm um efeito transformacional que pode ser emocional, mental, físico e até espiritual, constituindo-se como instrumentos poderosos de conexão entre passado e presente. Neste contexto, estratégias como as Narrativas Transmídia (NT) e tecnologias como a Realidade Aumentada (RA) assumem-se também como instrumentos, mas, também, como pontes entre o tangível e o intangível, o local e o global, o passado e o presente. Esta convergência de linguagens, media e públicos é sublinhada por Jenkins (2006) como cultura de convergência - uma gramática participativa que transforma o público em cocriador, diluindo fronteiras entre produção e receção num ecossistema de inteligência coletiva (Levy, 1999). O projeto-investigação *“Anamnese, in Nexum”* exemplifica esta abordagem, explorando a forma como as NT e a RA podem ativar Portais Narrativos (PN): interfaces de entrada e transição entre mundos físicos e digitais, operando como ecologias híbridas de mediação cultural enraizadas na dimensão simbólica e afetiva do património local, mas abertas à coconstrução global. Delineado para o 11º Retiro em Média--Arte Digital na Exposição Circuitos 2024, o projeto-investigação *“Anamnese, in Nexum”*, enquanto obra artística imersiva e interativa, explora as relações entre o passado e o presente, o tangível e o intangível, utilizando a vila da Golegã como local/caso de estudo. A aplicação das NT, RA e PN serviu como base de entrelaçamento das narrativas-memórias dos habitantes e indivíduos associados à vila da Golegã com o espaço que “habitam” física e/ou emocionalmente. Desta forma, a determinação geográfica permitiu criar pontes intergeracionais e interculturais através da recolha de histórias-testemunhos

singulares, servindo como espaço comum para partilha de vivências, nostalgia, saudade e rituais, reforçando laços sociais e afetivos através da tecnologia e da arte, que foram dados a conhecer a outros indivíduos e comunidades, fora da área geográfica da Golegã, na Exposição Circuitos 2024. (Borges, 2019)

Assim sendo, a interseção entre arte, tecnologia e comunidade está no cerne do projeto-investigação “*Anamnese, in Nexum*”, que partiu de uma motivação em três vertentes – (1) o interesse profundo pela interseção arte-tecnologia e o seu potencial transformador, (2) o papel das narrativas transmédia como base estratégica para usufruto de múltiplas plataformas e (3) a realidade aumentada como camada interpretativa enriquecedora da percepção – para recolher informações e direções para a construção de um potencial modelo replicável de mediação patrimonial expandida. Os objetivos centrais foram: (1) explorar a reconfiguração do património local da Golegã pela tríade NT-RA-PN transformando-o em experiência imersiva e interativa, (2) promover experiências afetivas que convoquem memórias, nostalgia e rituais que estimulem um sentido de pertença e ligação comunitária dos participantes contribuidores de histórias, (3) mediar e dar a conhecer o património e a comunidade na sua diversidade intergeracional e simbólica ao público extraterritorial, e (4) analisar as reações emocionais e o *feedback* qualitativo recolhido na apresentação pública para identificação de potencialidade e/ou limitações em futuras iterações. Por tudo isto, justifica-se a relevância da tríade NT-RA-PN para a criação de ecossistemas híbridos de experiência patrimonial, reforçada pelos resultados da recolha informal (*word-of-mouth* e formulário *Google forms*) de comentários e testemunhos da audiência do 11º Retiro em Média-Arte Digital 2024 sobre o projeto-investigação.

Enquadramento Teórico

O projeto-investigação “*Anamnese, in Nexum*” situa-se na intersecção de várias áreas: Narrativas Transmédia (NT), Média-Arte Digital (MAD), Realidade Aumentada (RA) e Comunicação. Da fusão das áreas culmina na conceção de Portais Narrativos (PN) que se objetivam como veículos híbridos (físico-digitais) de contemplação e valorização do património cultural – comunidade e território da vila da Golegã na Exposição Circuitos 2024. Através da percepção e aplicação das diferentes áreas foi possível extrair contributos conceptuais que serviram como base para a obra artística resultante nas suas vertentes: simbólico-afetiva (NT e cocriação comunitária), interativa (RA e ecossistemas híbridos) e imersiva (MAD, imersão e *flow*).

Vertente simbólico-afetiva: Narrativas Transmídia e Cocriação Comunitária

As Narrativas Transmídia recuperam a tradição milenar do *storytelling*, dispersando elementos do enredo por diferentes plataformas e linguagens sensoriais. Jenkins (2006) define que “transmedia storytelling represents a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience” (Jenkins, 2006, p. 97).

Assim, mais do que prolongar histórias, as NT convidam à participação, à cocriatividade e à autoria coletiva. Para o património, esta perspetiva revela-se essencial, pois a inteligência coletiva pode ser mobilizada em torno da memória partilhada, de símbolos e identidades locais, permitindo (re)significar e disseminar de forma colaborativa as histórias. Esta lógica liga-se ao conceito de inteligência coletiva de Lévy (1999) reforçada por Jenkins quando diz: “*No one knows everything, everyone knows something, all knowledge resides in humanity*” (Jenkins, 2006, p. 4). Nesta mediação cultural expandida, as próprias comunidades tornam-se autoras das narrativas, definindo e valorizando conteúdos que ganham um novo alcance simbólico-emocional que pode ser aproveitado pelas tecnologias, como a RA, para uma maior e mais eficaz dispersão e significação pela vertente interativa.

Vertente interativa: Realidade Aumentada e Ecossistemas Híbridos

No âmbito interativo, tal como já fora mencionado, a RA opera os conteúdos simbólico-afetivos das narrativas e da cultura para a obtenção de resultados mais cativantes. Segundo Geroimenko (2018), a RA instaura novos paradigmas em que os locais patrimoniais, neste caso particular, as suas captações fotográficas, tornam-se “palimpsestos”, enriquecidos por camadas digitais de contexto, acessíveis via dispositivos móveis. Para o autor supramencionado, estas tecnologias confirmam o potencial de fruição, descoberta e envolvimento “enables users to see the real world, with virtual objects superimposed upon or composited with the real world” (Geroimenko, 2018, p. 2).

Por conseguinte, estas tecnologias não só democratizam o acesso, como também aprofundam o sentido de descoberta e ressonância emocional, concedendo que o passado seja reatualizado no presente. No contexto patrimonial, a RA atua como camada interpretativa que amplia a experiência sensorial e, como tal, a imersão, criando ligações mais profundas com o espaço. O projeto-investigação adquire pela vertente interativa, uma forma de conexão com o utilizador que não tendo conhecimento e/ou envolvimento emocional prévio com o conteúdo, sente-se motivado a explorar e desvelar a substância informativa/a(s) mensagem(ns).

Quanto mais desenvolvido o conteúdo-forma-interação, mais vincada é a sensação de envolvimento do utilizador e, como tal, a vertente imersiva.

Vertente imersiva: Média-Arte, Imersão e Flow

O culminar da vertente imersiva está aliado, tal como já fora referenciado, à articulação das vertentes simbólico-afetiva e interativa. Estas vertentes, representadas na convergência entre arte e tecnologia pelo domínio da Média-Arte Digital, associam-se à modularidade e variabilidade dos conteúdos que favorecem experiências personalizáveis e narrativas que evoluem com a participação da comunidade: “Modularity and variability become key principles of new media, allowing for adaptation and participation” (Manovich, 2002, p. 36).

Desta forma, o projeto-investigação consegue apresentar diferentes experiências de visualização do conteúdo dependendo do utilizador e da abordagem do mesmo à interação – os utilizadores podem não começar no mesmo portal, ou navegar pela mesma ordem, ou visualizar os mesmos conteúdos. Em paralelo, a dimensão imersiva conceptualizada por Csikszentmihalyi (2008) como *flow*, demonstra que as experiências ótimas surgem quando ocorre a fusão de desafio, concentração e proximidade afetiva, ou seja, imersão plena. Este enquadramento é particularmente relevante para a mediação patrimonial, onde o conteúdo, a tecnologia e a participação são cruzadas de forma rizomática e evolutiva – quanto mais cativante a interação mediada pela tecnologia, mais convidativo o processo de revelação do conteúdo e, consequentemente, mais atrativa a experiência da(s) mensagem(ns). Desta forma, o projeto-investigação consegue reunir arte, tecnologia e comunicação de forma a simbólico-afetiva, interativa e imersiva, confluindo o seu esforço na concretização de ecossistemas híbridos: os portais narrativos. (Csikszentmihalyi, 2008, pp. 49–65)

Forma e definição: Portais Narrativos

Os Portais Narrativos (PN) podem ser definidos como pontos de entrada digitais que sobrepõem informação e conteúdos interativos ao ambiente físico, permitindo a fruição de histórias de forma imersiva e interativa. Funcionam como pontes conceptuais e tecnológicas entre o tangível e o intangível, entre a presença física e memória digital, ativando lugares como espaços narrativos vivos e ecossistemas comunicacionais. Na figura 1, pode visualizar-se uma imagem dos portais narrativos do projeto-investigação “*Anamnese, in Nexum*”. Na imagem, do lado esquerdo, representa-se a caracterização física (duas cúpulas semiesféricas com imagens panorâmicas imersivas de dois espaços emblemáticos da vila da Golegã, o Café Central e a Associação Cultural Cantar Nosso, que contêm gatilhos visuais ativadores da tecnologia da RA) e, do lado direito, a representação digital (a

vertente interativa ativada pela tecnologia da RA da *app* Artivive que permite a visualização dos vídeos das histórias-testemunhos, ou seja, das camadas que pretendem ser capítulos da narrativa ampla que é o património cultural da vila da Golegã). A necessidade de adicionar conhecimentos em várias áreas-chave para o desenvolvimento destas soluções artísticas e interativas permite a utilização das NT para a valorização do património, o impacto emocional e comunitário das experiências imersivas e, não menos importante, a criação de formas de envolvimento cultural e revitalização comunitária.

Figura 1

Montagem de imagens dos Portais Narrativos e da sua utilização



Metodologia

Abordagem A/r/cográfica

A opção metodológica recai na metodologia a/r/cográfica (Veiga, 2020), articulando arte, investigação e comunicação. A prática artística é entendida aqui como um processo reflexivo e rizomático, onde cada etapa – da conceptualização à prototipagem – é documentada num diário de bordo. Mais do que um produto final, a instalação pretendeu ser um percurso narrativo e visual devolvido ao público, permitindo que este aceda ao processo criativo construído em colaboração com a comunidade da vila da Golegã - as suas histórias e património cultural com a visão da investigadora-artista no território de experimentação artística e social para a criação de Portais Narrativos.

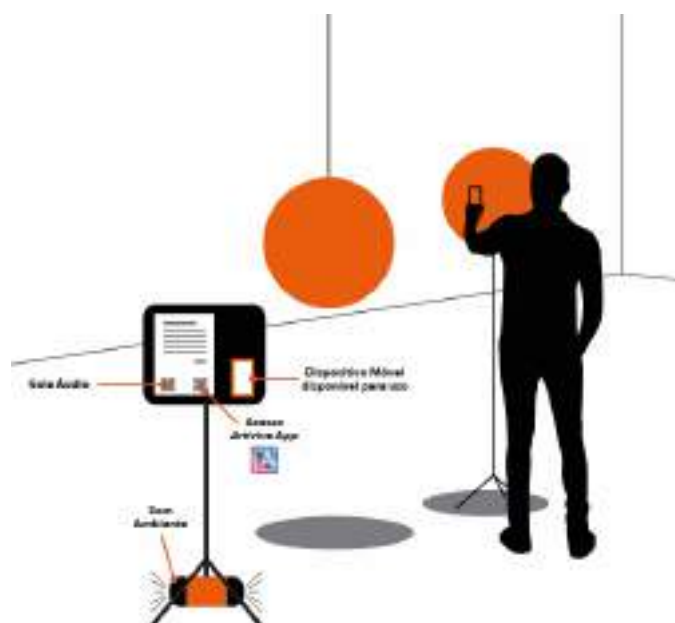
A metodologia do projeto-investigação incorporou:

- Identificação de coletividades de relevo cultural na vila da Golegã e a seleção de uma para contacto e pedido de participação: a Associação Cultural Cantar Nosso (ACCN);
- Colaboração com a ACCN para a identificação de 8 indivíduos disponíveis para a recolha de histórias-testemunhos em formato vídeo (a seleção dos indivíduos foi realizada em sequência, numa lógica de 6 graus de conexão (Milgram, 1967), onde o primeiro indivíduo foi voluntário e os seguintes sugeridos pelos anteriores) – abril 2024;
- Pesquisa e identificação de locais públicos emblemáticos da vila da Golegã e elaboração de uma lista – abril 2024;
- Conceção de um guião para as entrevistas que incluía: (1) recolha de dados demográficos, (2) questionar como é que o entrevistado se relaciona com a vila da Golegã ou com o local de referência da ACCN (esta segunda vertente só foi aplicada ao primeiro entrevistado), (3) revelação da lista de locais emblemáticos da vila da Golegã ao entrevistado, (4) pedido de seleção de dois locais da lista com os quais o entrevistado mais se identifique, (5) pedido de histórias pessoais do entrevistado passadas nos locais por ele identificados, (6) questionar o entrevistado pela existência de outro local não identificado na lista que na sua perspetiva o faz relacionar com a vila e (7) agradecimentos e pedido de recomendação de um próximo entrevistado que possa contribuir para a investigação – final de abril 2024;
- Recolha informal dos oito testemunhos-vídeo/entrevistas/histórias, privilegiando narrativas espontâneas e memórias captadas em “dois dedos de conversa” com um smartphone e tripé – captação de vídeo entre os dias 4 e 5 de maio 2024;
- Criação de conteúdos digitais, através da seleção e edição de partes das entrevistas-vídeo (imagem e som) nos softwares Capcut e Quicktime Player – entre os dias 6 e 10 de maio 2024;
- Captação de fotografias panorâmicas dos espaços exteriores mais abordados nas entrevistas com máquina Canon 750D e iPhone 15: a ACCN e o Café Central (decisão tomada para economia de tempo e recursos) – 6 maio 2024;
- Investigação, desenho e aquisição de materiais para a instalação interativa em materiais híbridos (cúpulas semiesféricas, panorâmicas fotográficas, vídeo, som, imagem, seleção da tecnologia de RA *app* Artive) – esquema da instalação final na figura 2 – março e maio 2024;
- Prototipagem dos elementos tangíveis e intangíveis (*processo detalhado no ponto 4 do artigo*):

- o Tangível: cúpulas semiesféricas com imagens fotográficas panorâmicas dos locais emblemáticos – 14 abril a 8 junho 2024;
- o Intangível: preparação e colocação dos gatilhos visuais que ativam, via aplicação Artivive (*BringArtToLife* - Artivive, s.d.) os vídeos-testemunho, assim como uma *playlist* de sons captados nos ambientes locais – 10 maio a 8 junho 2024;
- Transporte e montagem da exposição nas instalações da Universidade Aberta na Rua Almirante Barroso em Lisboa – 15 de julho 2024;
- Avaliação responsiva através de observação participante e recolha de *feedback* oral e escrito durante a exposição – 16 a 19 de julho de 2024.

Figura 2

Esquema da instalação e consequente interação do projeto “Anamnese, in Nexum”



0 Projeto “Anamnese, in Nexum”

Concebido para o 11º Retiro em Média-Arte Digital, o projeto-instalação materializou dois portais narrativos referentes a dois espaços emblemáticos da vila da Golegã: o Café Central e a Associação Cultural Cantar Nosso. A abordagem foi dialógica e bifásica, separando elementos tangíveis e intangíveis:

- Tangível: cúpulas semiesféricas que exibiam as imagens panorâmicas fotográficas dos dois locais, funcionando como pontos de imersão visual e física;
- Intangível: os gatilhos visuais integrados nas imagens tangíveis que, quando visualizados através da aplicação Artivive, ativavam vídeos-testemunho em primeira pessoa com histórias e memórias ligadas a esses locais.

A prototipagem dos elementos constituintes dos portais narrativos, na sua duplicidade tangível e intangível, requereu o seguimento do processo metodológico mencionada no ponto 3 deste artigo, assim como a aquisição de materiais físicos e softwares digitais, a par de um planeamento e execução na seguinte ordem:

- Edição das imagens fotográficas panorâmicas captadas no dia 6 de maio 2024 para melhoria de contraste e redimensionamento, através do software Adobe Photoshop;
- Aquisição de duas semiesferas acrílicas com 40cm de diâmetro no website Amazon.es e uma subscrição da aplicação Artivive;
- Instalação do plugin Flexify 2 para o software Adobe Photoshop;
- Conversão das imagens panorâmicas planas em imagens de 12 gores equiretangulares (modelo de planificação dos globos terrestres) pelo plugin Flexify 2;
- Exportação e redimensionamento das duas imagens convertidas ao tamanho das semiesferas;
- Impressão em papel *couché matte* 140g, tamanho A1, a cores e sem margens;
- Recorte e *assemblage* das imagens panorâmicas convertidas no formato semiesférico com fita-cola e cola líquida;
- Montagem das impressões compostas com fita-cola de dupla face nas semiesféricas acrílicas;
- Captação com iphone 15 de quatro zonas de cada imagem composta impressa e colocada nas semiesferas;
- Acesso ao website Artivive e atribuição dos gatilhos visuais (imagens do ponto anterior) aos respetivos vídeos-testemunho previamente editados para as restrições de tamanho e qualidade suportadas pela *app*;
- Testagem e ajustes da experiência do projeto-investigação;
- Elaboração de uma *playlist* composta por sons captados nos locais emblemáticos respetivos.

Cada portal foi pensado como um “capítulo” de uma narrativa mais ampla, convidando o público a transitar entre os limiares físico e digital e a relacionar história individual com o património coletivo. A participação comunitária foi central – os próprios habitantes tornaram-se autores e narradores das suas memórias, reforçando um sentimento de pertença e de devolução simbólica do território. A instalação foi concebida como mediação expandida, cruzando estética, tecnologia e voz comunitária, cujo processo de montagem foi simples e com uma necessidade reduzida de recursos: um tripé de altura variável, fio de coco, coluna *bluetooth* sem fios para a *playlist* de sons, tesoura, fita-cola de dupla face e a identificação de uma zona bem iluminada para usufruto de uma interação agradável, desimpedida e natural.

Resultados e Discussão

O projeto “*Anamnese, in Nexum*” esteve aberto ao público durante a exposição Circuitos 2024 decorrente nos dias 16 a 19 de julho de 2024. O espaço expositivo situava-se num contexto díspar da vila da Golegã, pela sua localização nas instalações da Universidade Aberta em Lisboa, tendo resultado numa apreensão de público/visitantes que desconheciam a realidade e contexto do projeto. Pela observação das interações no contexto da exposição, assim como os testemunhos recolhidos através de um formulário Google (acessível ao público num QR Code impresso e colocado ao lado do artefacto), a disparidade resultou num impacto real com conotação positiva. Os visitantes descreveram as cúpulas como “universos pessoais” que despertam curiosidade, imersão e vontade de partilha. Entre os testemunhos recolhidos destacam-se três deixados em formulário:

- “Uma caixinha de memórias, pessoas, lugares e objetos, histórias de vida e da comunidade a que tive acesso através da realidade aumentada, tecnologia e criatividade planeada” – Andreia Pintassilgo;
- “*The installation sparks curiosity and invites to watch the immersive images. The AR app displays the content in an effective way, engaging the public to interact and learn stories about people, places and their heritage*” – Chiara Kiro;
- “A instalação estava surpreendente e muito bem trabalhada plasticamente. Dá vontade de entrar naqueles universos pessoais (cada esfera), e gostei muito de descobrir as histórias/narrativas” – Patrick Santos.

A integração entre NT e RA enriqueceu simultaneamente o conteúdo e a atmosfera dos espaços patrimoniais, transformando-os em ecossistemas híbridos onde presença e ausência, nostalgia e descoberta, são cruzados. Este processo reforçou que a tecnologia pode amplificar memórias e respeitar o contexto cultural e afetivo de uma comunidade sem perder a essência do tangível, ainda

que o utilizador não esteja presente no espaço da comunidade. O trabalho desenvolvido permitiu recolher informações que apontam positivamente para a conceção de um potencial futuro modelo replicável a outros contextos geográficos, mas evidenciou desafios:

- A acessibilidade tecnológica para públicos menos familiarizados ou com necessidades específicas (nem todos os indivíduos poderão ter *smartphones* disponíveis para aceder à experiência, assim como capacidades para compreender e aceder à interação);
- Sustentabilidade do envolvimento comunitário, que requer estratégias de continuidade e não só eventos pontuais dependentes da intervenção de uma pessoa para a construção de novos portais, assim como a alimentação de mais histórias nos mesmos;
- Dependência de um contato físico permanente com a comunidade, como condição para garantir autenticidade e apropriação local;
- Dificuldades na criação das cadeias de testemunhos e na obtenção de contatos por escassez de comunicação e dificuldades de agendamento/disponibilidades;
- Custos de aquisição de materiais e subscrições para construção dos portais narrativos;
- Impedimentos de expansão por restrições do *software* Artivive – limitado em número de visualizações, assim como no tipo e peso dos ficheiros suportados.

Ainda assim, os Portais Narrativos mostraram-se eficazes como ecossistemas comunicacionais, ativando o lugar não só como espaço de representação, mas, também, de experiência entre a comunidade alvo da vila da Golegã que se permitiu conectar a uma rede mais ampla de partilha cultural, o projeto enquanto artefacto-obra expositiva e o público que o visitou.

Conclusão

O projeto “Anamnese, in Nexum” demonstrou que a conjugação entre Narrativas Transmídia e Realidade Aumentada oferece novas possibilidades para a mediação inovadora do património, validadas não só teoricamente como empiricamente, através da participação ativa da comunidade goleganense na construção do conteúdo veiculado, como do *feedback* recolhido na exposição Circuitos 2024. A apresentação pública do artefacto ocorreu num contexto distinto do da sua conceção – Lisboa e não a vila da Golegã – o que resultou no facto de a totalidade dos visitantes não conhecer previamente o território ou as histórias apresentadas. Ainda assim, pela observação direta da interação dos visitantes e

pelos testemunhos recolhidos presencialmente e posteriormente num formulário *Google forms* disponibilizado via *QR Code*, o dispositivo conseguiu gerar envolvimento, curiosidade e empatia, indiciando o potencial eficaz da mediação através de ecologias híbridas mesmo quando o público não partilha um enquadramento prévio com a comunidade de origem. Este dado reforça que os PN não dependem exclusivamente do contexto local para serem eficazes, podendo mediar entre comunidades e públicos culturalmente afastados.

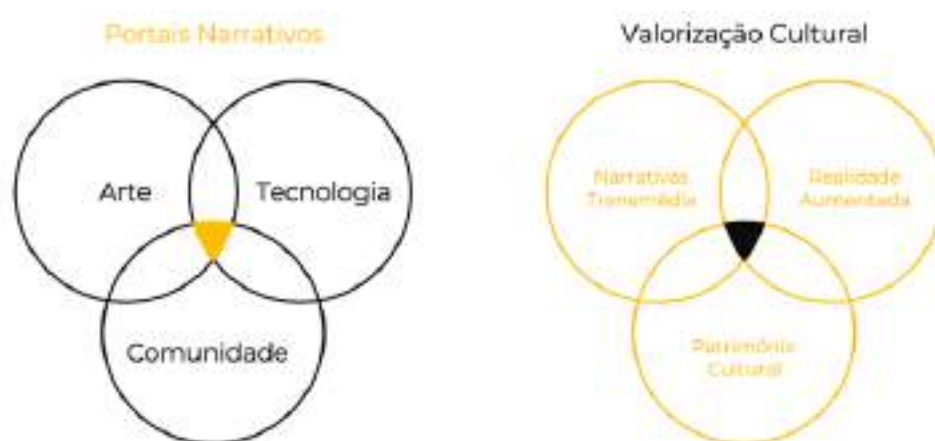
A investigação, que partiu da intenção de explorar como NT e RA poderiam contribuir para a criação de PN como estratégias de mediação cultural, concretizou o seu propósito pela conceção e exposição do artefacto-instalação. Por conseguinte, verificou-se que os PNs funcionaram como mediadores entre comunidades e espaços culturais, ligando memórias locais a públicos externos, permitindo que histórias singulares ganhassem uma dimensão coletiva e dialógica – uma ecologia híbrida. Nesta senda, o *storytelling* ao estar ancorado em memórias pessoais, nostalgia e rituais, manifestou-se como instrumento pedagógico-lúdico capaz de estimular reflexão, comunicação e (re)significação dos espaços. A ótica bifocal – entre o global e o local, entre o tangível e o intangível – emergiu como um dos contributos conceptuais centrais, permitindo que o projeto pudesse posicionar-se como valorização interna e, simultaneamente, como projeção externa do património cultural da vila da Golegã. O contributo original desta investigação reside na demonstração de que a tríade NT-RA-PN tem potencial para melhor entender, metodologicamente, um futuro modelo de mediação patrimonial replicável, articulando práticas artísticas e tecnológicas em processos de valorização cultural. O caso da apresentação em Lisboa confirmou este ponto, demonstrando que, mesmo em contextos de receção afastados, os PN mantêm a capacidade de gerar empatia, curiosidade e envolvimento. A experiência permitiu, ainda, identificar potencialidades e limitações. Entre as primeiras destaca-se a capacidade dos PN para gerar envolvimento emocional e construir pontes entre comunidades e públicos alargados. Entre as segundas, sobressaem os desafios da acessibilidade tecnológica, da sustentabilidade participativa e da dependência de recursos externos.

Este projeto-investigação contribuiu para ter mais informação e perceber um pouco mais sobre estratégias de valorização cultural asseguradas pelo cruzamento de arte, tecnologia e comunidade, especificamente portais narrativos – esquema da figura 3 – e um potencial futuro modelo replicável e adaptável a diferentes contextos socioculturais. Contudo, adverte para a necessidade de ponderar: (1) mecanismos de continuidade e manutenção que evitem a efemeridade da experiência, (2) formação e literacia digital comunitária para garantir inclusão e (3) diálogo contínuo entre os potenciais artistas, investigadores e comunidades que atentem expandir este projeto-investigação e/ou um modelo replicável e adaptável para a preservação e autenticidade do património cultural.

Em suma, a investigação aponta o potencial e entendimento dos Portais Narrativos como dispositivos vivos de valorização cultural, capazes de manter canais abertos de comunicação entre comunidade-território e memória, numa lógica de mediação expandida e evolutiva. Constatou-se que, mesmo em contextos de fruição distantes da sua origem, o artefacto mantém a capacidade de envolver e transmitir património cultural, confirmando a relevância desta abordagem e abrindo caminho para futuras investigações em projetos de mediação cultural para diferentes geografias.

Figura 3

Esquema representativo da interconexão entre os Portais Narrativos e a Valorização Cultural



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DIGITAL PHOTOGRAPHY IN MEDIA ART: CREATIVITY, TECHNOLOGY, AND NEW VISUAL PARADIGMS

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Abstract

Digital photography has revolutionized artistic creation, offering innovative tools to capture, manipulate, and disseminate images. Its impact is undeniable: it extends beyond mere technical evolution, significantly influencing visual narrative, the democratization of artistic production, and the intersection of art, technology, and society. This article precisely analyzes the dynamic vectors that underpin the influence of digital photography in contemporary art, exploring the relationship between aesthetics, technique, and technology within the context of digital media art.

A theoretical review and critical analysis of best practices and digital tools are fundamental to understanding how digital photography expands creative possibilities. It allows for the adaptation of classic techniques to contemporary approaches and fosters hybrid practices that integrate installation, performance, and generative art. We address methods of recording and research for artistic creation and practice in digital media art, such as a/r/cography and digital logbooks. We apply these to digital photography to create experimental post-photographic visual artifacts.

Photography is undoubtedly a medium for critical reflection and social activism, through which environmental, political, and cultural challenges are documented and questioned. The impact of artificial intelligence and new technologies on image manipulation is a reality, as are the new paradigms in the creation and consumption of digital art and their impact on the audiovisual content production sector in Portugal and the Cultural and Creative Industries (CCI). The study clearly shows how digital photography is crucial in creating innovative visual discourses, highlighting its importance at the intersection of creativity, technology, and society in the current artistic context.

Keywords: Digital Photography, Digital Media Art, Creativity, Artivism, A/R/Cography

Introduction: The Post-Photographic Condition in the Age of Digital Reproducibility

The analysis of the work of art in the age of its technical reproducibility, proposed by Benjamin (1936/2012), is an essential starting point for understanding the trajectory of the image in the 20th century and its metamorphosis in the digital era. Benjamin diagnosed the loss of the "aura" of the work of art – its unique presence in time and space, its *hic et nunc* – as a consequence of mechanical reproduction. This loss, however, did not represent a degradation but rather an emancipation: by freeing itself from its ritualistic function and its cult value, art acquires a new potential, grounded in political practice. Photography, and subsequently cinema, were the catalyzing agents of this transformation, democratizing access to the image and radically altering its reception, which shifted from contemplative absorption to a collective and distracted appreciation.

In the contemporary context, Walter Benjamin's reflection is amplified by digital reproducibility, which elevates his thesis to a new reality. Osborne (2018) argues that digital culture has shifted the function of photography from a record of what "has been" (Barthes' *ça a été*) to a practice of "commemorating the present". The digital image, instantaneous and infinitely replicable, does not merely document the past but becomes an instrument to actively constitute and interrogate the present. This transition is supported by the dialectic identified by Benjamin himself: "an experienced event is finite [...] a remembered event is infinite, because it is only a key to everything that happened before it and after it" (Benjamin, 1970, as cited in Osborne, 2018). By facilitating the incessant circulation and recontextualization of images, digital photography amplifies this dialectic, allowing the past to erupt into the present to become critically legible. This process culminates in what Benjamin termed the "now of recognizability" (*Jetzt der Erkennbarkeit*), an instant in which the past is illuminated in the present, revealing the historical forces that shaped it.

In a context characterized by a continuous flow of images, the digital artist assumes a curatorial and critical role, creating artifacts that interrupt the flow and compel immediate recognition. The loss of popularity does not represent an endpoint but rather the starting point for the emergence of digital activism. The image, stripped of its cult value, is transformed into a political tool par excellence, with the capacity to intervene in the social fabric and question power structures.

Digital Media Art: Convergence, Hybridism, and the Creative Ecosystem

Digital photography achieves its most radical expression in Digital Media Art, an artistic domain defined by its intrinsic dependence on technology. According to Alves da Veiga et al. (2023), digital media art encompasses “every form of artistic or aestheticized creation that cannot be conceived and/or materialized and/or exhibited without the use of digital technologies, and whose content and aesthetic and cognitive appreciation vary as a function of time”. This definition is supported by two fundamental pillars: technological necessity as a condition of existence and temporality as a material dimension of the work. In contrast to static photography, which immortalizes a specific moment, media art operates in duration, transforming time into one of its primary creative materials.

This artistic practice develops within a complex “ecosystem” where human agents (artists, public, curators) and non-human agents (hardware, software, networks) interact, generating hybrid and collaborative creative processes. In this ecosystem, the role of the spectator is often reconfigured into that of a “prosumer”, an agent who not only consumes but also participates and produces, thereby influencing the work. This interactive and procedural dynamic is one of the distinctive marks of media art, which ranges from video art and interactive installations to generative art and augmented reality.

This ecosystem is part of the Cultural and Creative Industries (CCI) sector, which, though dynamic, faces substantial challenges. The analysis by Cortez and Teixeira (2021) of the audiovisual sector in Portugal reveals a central paradox of the digital era: while digital tools have democratized the means of production, allowing more artists to create content, the structures of distribution and visibility remain highly concentrated, dominated by global streaming platforms. This tension places artists in a vulnerable position, where creative autonomy does not necessarily translate into economic sustainability or cultural impact. In this context, the role of activism becomes even more pertinent, using technological accessibility to critique a system in which it simultaneously struggles to survive. The growing social and environmental awareness in the CCI, as observed by Cortez and Teixeira (2021), triggers “new paths of creation and development”, reaffirming the importance of artistic practices that adopt a critical engagement with society.

The A/R/Cographic Methodology as Artist Praxis

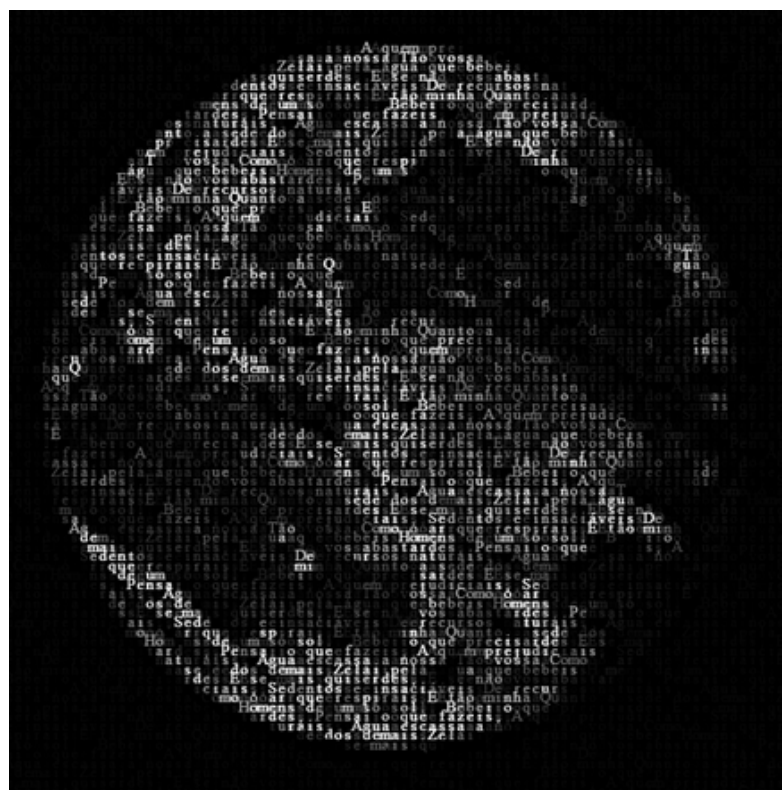
Navigating the complexity of the digital media art ecosystem requires methodologies that integrate creation, research, and communication. The a/r/cographic method, proposed by Alves da Veiga (2021), emerges as a robust framework for this purpose. This methodology is structured around three axes: Art

(A), Research (R), and Communication (C). It consists of seven iterative and generative stages: inspiration, trigger, intention, conceptualization, prototyping, testing, and intervention. Instead of a linear path, a/r/cography proposes the metaphor of an "arc," an exploratory journey that values continuous reflection and the possibility of revisiting and reorienting the creative process.

This methodology proves particularly effective as an activist practice, as it formalizes intentionality as a foundational moment of the creative process. As demonstrated in the practical application of the method by Ligarretto Feo (2024) in the creation of post-photographic artifacts, the "trigger" and "intention" phases are fundamental to "focus and give a communicative meaning to the work/artifact under construction". By demanding a clear articulation of the work's purpose from the outset, a/r/cography transforms the artist into a communication strategist, ensuring that the final result effectively serves its critical function.

Figure 1

Project "Terra", Miguel Lima (2021)



The generative art project "Terra" (Figure 1) serves as a case study illustrating the implementation of this methodology. The inspiration and trigger for this initiative stem from the urgency of the climate crisis and the imperative need to promote water sustainability. The objective is to create an activist artifact that uses the

aesthetics of generative art to raise public awareness by merging digital photography, poetry, and programming. In the conceptualization and prototyping process, a photographic image of planet Earth is deconstructed and used as raw material for an ongoing algorithmic process, in which pixels are replaced by characters from a poem about water. The final result is an artifact that embodies the post-photographic condition, as the original photograph ceases to be a final product and instead becomes the starting point of a dynamic and endless process. The work is no longer a static object but the process itself in continuous execution, a living manifestation of the relationship between image, text, and code that materializes the principles of media art: technological dependence and temporal variation.

Case Study: The 'cidade'ART+Porto' Project and the Resignification of Urban Space

With a similar methodological structure, the “cidade'ART+Porto” project further explores digital photography as a tool for reinterpreting daily life, focusing on events and symbols of urban art in the city of Porto. This project materializes as digital artifacts of generative photography that, like the “Terra” project, follow the structure of the a/r/cographic method to merge multiple layers of meaning into a single interactive object. Each work, illustrated by the pieces “Semáforo” (Traffic Light), “Pombo” (Pigeon), and “D. Pedro” (Figure 2), originates from a black-and-white photograph that captures an iconic or mundane element of the Porto landscape. To this visual base, two other dimensions are added: the ambient sound, captured at the moment of the photographic registration, and an original poem, specifically conceived to establish a dialogue with the image. The integration of these three elements is carried out through Java programming on the open-source platform P5.js, resulting in an interactive media art artifact.

Figure 2

Project “Cidad’ART+Porto” - Miguel Lima (2025a, 2025b, 2025c)



The technological component is central to the aesthetic experience. The gray tone of each section of the photograph is analyzed by an algorithm, which dynamically overlays the characters of the poem, creating a textual animation that seems to emerge from the image itself. The user can interact with the work, starting or pausing the animation and the soundscape, which allows them to control the pace of their own individual experience and reflection. This process transforms the static photograph into a temporal event, a living artifact that invites contemplation and the discovery of new narratives about urban space,

demonstrating the potential of generative photography to create complex and multimodal discourses on the identity of a city.

Conclusion: Horizons of Digital Photography as a Critical Tool

The new visual paradigms driven by digital photography in media art are ultimately characterized by their potential for critical inquiry and social intervention. The trajectory initiated with Benjamin's (1936/2012) reproducible image, which freed it from its ritual function, is completed in contemporary digital artifacts, where the political function becomes explicit and intentional. Digital technology has not only expanded the visual lexicon but has also consolidated the artist's role as a critical agent, capable of manipulating the codes of visual culture to generate new meanings and question the present.

Projects like "Cidad'ART+Porto" demonstrate that even approaches that dialogue with more traditional formats, such as photography and poetry, can function as tools for the resignification of urban space when imbued with a critical intention. By creating new narratives about the city, these works challenge dominant perceptions and encourage a new way of observing daily life. If the "aura" gave the work of art a charm derived from its uniqueness and tradition, contemporary media art proposes a form of "re-enchantment" of the digital image. This new enchantment stems not from ritual or originality, but from the power of the artist's ethical and political intention. The relevance of the work derives not from its material singularity, but from its capacity to mobilize affects, generate reflection, and intervene in public debate.

In this context, digital photography transcends its recording function, asserting itself as a plastic and conceptual language. This transformation enables a reflection on the world and action upon it. Art has the responsibility to persevere in the impossible mission of "saving the world". Persistence and the refusal to accept reality as given and immutable are, therefore, what lend strength to the new visual paradigms and what defines the horizon of photography in the digital age.

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BEING TOUCHED – THE EXPERIENCE OF SOUND AND IMAGE: THE CHALLENGES OF INNOVATION AND SUSTAINABILITY IN ART & DESIGN

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Abstract

The capacity to put into action the full potential of human spontaneity and creativity has been a long-standing drive for the development of civilizations across the history of humankind. The experience of sound and image, which digital media explores until it reaches saturation levels, is itself a reflection of contemporary societies' challenges. Political thought has explored the seducing mechanisms of idealisation and of abstraction, discursively creating a *modus vivendi* that risks eliminating the possibility of life on the planet. Ecological and social dimensions of present time pluri-crises include climate change, loss of biodiversity, escalating economic inequalities, migrant crisis, loss of democratic power in democracies and raise of non-democratic regimes. Sound and image are the medium through which new and old media vehiculate a consumerist and alienating message. Nevertheless, it is precisely by exploring the full potential of these stimuli of human emotions, sentiments and affects that it is possible to envision an alternative possible future. Radically new approaches and illuminating explorations are already available in contemporary societies, mainly performed by active militant research and social movements, often unaware of the beacon of hope that they represent to humankind and to the survival of life in the long run. The question that is raised for Art & Design is to identify, acknowledge, recognise and cherish the potential that is already available when the right conditions for the emergence of a safe space for creation are enabled. Examples of transnational movements that are setting new standards, even if through frail institutional settings, include civic movements like Degrowth, MAD Africa, Outras Palavras platform, Agroecology Network, Transition Network, DiEM25, Extinction Rebellion, Abolitionist Network, the International Playback Theatre Network, Rizoma Integral Cooperatives and the Global Ecovillages Network. If art is considered as the human activity able to reinterpret reality and produce artefacts that capture and

enhance the experience of existence, offering radically new alternatives and pathways, thus producing new possibilities at all levels of society, then this art is itself an example of highest political quest. Several authors have explored this relation between art and political reality, understood as the search for the common good. Archetypical and symbolic interpretations have helped to dismount the mythic side of technoscience and to re-signify the importance of socio-technical systems. Driving logos and myth as inherently interconnected introduces disturbing and disruptive perspectives. Both art and design capture this movement through dissonant disquietness that simultaneously offers new grounds to be explored, in theory and in practice. Denouncing a dystopian reality is also a form of announcing new utopias. The access to minimum levels of literacy in psychopathology can help to explain the cognitive-emotional saturation of all senses that leads to apathy and blocks creativity, whilst this same knowledge can produce disruptive thought and action, protecting and caring for the necessary conditions that may enable transformative experiences. Exercising social regulation and control implies denying emancipatory agency on behalf of citizens, which can be inverted by using the mechanisms of artistic production as an explorative safe way. Sound and image, through Art & Design scholarship, are already present in contemporary thought. Innovation for sustainability is itself a challenge that invites open reflexion, productive critique and the creation of safe spaces for fertile debate.

Keywords: metamodern intersubjectivity; non-analytical experiments; ecological integration; existential regeneration.

Introduction

Radical times impose the need for radical texts, yet powerful and transformative texts have already been produced. Texts are images, the text-image, and textual sound is also present, i.e., the unavoidable textual and interpretable structure of everyday reality (Ricoeur, 1981). The issue is that of process, cadence, rhythm, as a continual presence and as the possibility to connect to the safe and risky space of text production and consumption.

Image and sound are the essence of the essence of the presence and flow that texts, written texts, aim at witnessing and, again, the message is that there is the need to hold that space, that time-space reality aesthetics and ethics crave for capturing (Lee, Carvalhais, 2024). Tarik Barri's (2009) work on the process of creating visual music is a significant example of artistic and educational training breakthroughs. The hypothesis that humans, on a planetary scale, have failed to create the necessary conditions for species survival – their own and of life on Earth – is overwhelming. The social, political and ecological emergency that is pressing current populations and territories is a mandate for change and

transformation. The answers, the solutions and resolutions, in multiple forms and with varied protagonists are also in process, simultaneously ready-at-hand and fragile and fuzzy.

In the year 2025 ends the first quarter of the first century of the third millennia of our common era. As with any historical period, different generations from different latitudes position themselves according to their contexts, circumstances, memories, desires and will. The plethora of these back-and-forth movements and their contents is both the product and the producer of novelty (Graeber, 2015). That is, as future anthropologists, ethnographers and historians may report, it is possible to see novelty emerging, novelty that is itself a rebirth or reinvention of what was there, already available and ready-at-hand, and that which is simultaneously unique and universal like human spontaneity and creativity, individual and collective.

“The old world is dying and the new world struggles to be born; now is the time of monsters.” (Gramsci, 2020). This citation from Antonio Gramsci's *Prison Notebooks* of the 1930' captures the way the cultural hegemony that sustains dominant thought shapes beliefs that themselves are fed on anxiety. Two scientific and geopolitical conferences can illustrate this emergence of monsters, or, rather, the scientific, legal, moral and social legitimisation of monster production at an industrial level and on a planetary scale: the 1884 - 1885 Berlin Conference (Munene, 1990) that produced the regulatory peak of the Scramble for Africa and the drawing of the African colonial borders; and the 1923 Lausanne Conference (Beriker, Druckman, 1996) that created the massive deportation and genocide conditions in the Mediterranean area that were copied and reproduced worldwide until present time, using clockwork pride, expertise, rigour and excellency.

This paper's argument is that the monsters and morbid symptoms that Gramsci refers to are like deep more water currents and tides or tempests, that show different degrees of visibility, of early signalling and of the possibility of raising awareness and alertness, collectively triggering the urgency to take action.

Theories of economic growth versus theories of economic degrowth, post-growth and anti-growth, represent an entry point to the perplexities, ambiguities and enigmas of contemporary societies (Parrique, 2023). Three main points and a central argument may be presented, as the present text proposal, which takes sound-image and the central role of texts in sound-image production and consumption as the social imaginary reading matrix of contemporaneity.

The three main points are that the discussion of the growth-degrowth perspectives is metaphysical and existential, first. It is trivial and essential, simultaneously, implying a deep-dive into invigorating self-discovery controversies

and paradoxes, second. And third, the answers are already there, ready-at-hand, individually and collectively, locally and globally.

Consequently, what is needed are better questions that are able to expand the horizons of thought and action that may enable imagining new possible futures, here and now, and anywhere and anytime.

The monster in potential is confronted and contrasted to human's reality, independently of space-time historical or territorial contexts. This contrast is existential and metaphysical, capturing intimate, singular and personal experience of existence and the fiction that contexts offer to digest and process existential anguish (Jaspers, 1997). Aesthetics and ethics cannot be understood without this creative tension that is irrecusably there, ready-at-hand (Lacoue-Labarthe, Nancy, 1991). That is why being touched, like the effects of a deep-water current, are unavoidably present, independently and regardless of being intentional, desired, acknowledged and recognised.

Being touched is the experience of sound and image. The five senses of sight, hearing, smell, taste, and touch are the tip of the iceberg of lived experience that texts, art, design and every act of human creation fails to exhaust. The role of art and of ethics is the holding of the safe space and time for human and beyond human expression of the real (Bertmark, 2022). The social, political and ecological emergencies that are collectively shared across the planet are but a test, a survival test for engaging in the deep-water currents already ready-at-hand yet in constant need for renewal (Arendt, 2017). Baudrillard's (2001) hyperreality, simulacra and simulation, as well as Han's (2022) infocracy help to illustrate the backbone structure of societal crises.

Presentations and debates in scientific conferences and the processes, institutions and procedures used for publishing and disseminating those time-space situated productions are the opening of a new window of opportunity for novelty to emerge. Being touched is the experience of metamodern intersubjectivity that non-analytical experiments are able to tackle, to capture, to witness and to report. Ecological integration at planetary level implies existential regeneration at social and political level, not as a new geopolitical order or a new governmental structure but simply as a bottom-up *sentir-pensar* Sumak Kawsay Buen Vivir, as was experienced in Ecuador and Colombia in the 1980, understood as a real-life political alternative. Diana Leafe Christian's work (2007) is a practical example of a change in mentality that has crossed several generations.

The text-image, the text-sound, or the textual structure of sound and image, the texture of a sound or of an image, the tactile nature of a text, how does it smell or how does it feel when being touched, and who touches whom when reading or

writing a text, since the emergence of history and the invention of the alphabet reality is accessed by reality as text. To read-write is to produce and being produced by the texts one is exposed to, individually and collectively (Baudrillard, 2001). Millenary traditions become fixed in texts, and once in a text structure it becomes an artefact, ready at hand and ready to use by anyone who can see it fit for whatever purpose. Signification is a production line that uses the simple accept-reject structure. To signify is to produce yes-no structures as meaning calls for further meaning, in a never-ending process.

Meaning is a discriminating process whose latent inner structure is itself open to new uses, that is, to new functions, roles, applications, positions and intentions (Calhoun, 1997). To pick a text and to rewrite it or take it out of context is to shift, reinterpret, reinvent, reformulate, repeat or deny its original message, disseminate or reject it, the initial meaning-making purpose of whoever and of whatever context that enabled the production of such text, of such message (Ricoeur, 1981). Art produces ethics and it is the product of ethical positioning, which are trackable, traceable, easily identified, recognised, creating identity, feeling of belonging, of being at home and safe, and of being desired, as a person, individual and singular, or as a moving projection of co-constructed institutionalised structures, practices and procedures.

The creation of the monster

The creation of the monster is an eighteen and nineteen centuries romantic production of a psychiatric school of thought that assumed it possible to label dissidence, marginality, indigency, transgression, rebellion and civil disobedience as techno-scientific innovative knowledge production (Jaspers, 2014). It is romantic in its passion for nature, idealised nature that made it seem plausible, natural, obvious that monsters do exist and have to be dealt with, socially and politically. Economic regimes would fuel the production of discriminatory legal frameworks, locally and globally, using the ways already opened by trade, technology, science, art, religion or even sport events (Arendt, 1961). Psychiatry in particular and social sciences in general, assume that they need the inputs from non-exact sciences or from the humanities, yet the scientific project is itself problematic. Specialisation over specialisation, the gap between fiction and reality becomes wider. The history of the use of sound and image can be traced to these subtle, latent, implicit and informal processes that determine how humans organise themselves until present times. The practices of sound and image production and consumption have paramount importance to understand what it means to be human in contemporary times.

Heroin, opium or morphine, and other examples of narcotic, psychedelic and hallucinogenic substances, their use for medical purposes or else for leisure, for

artistic and intellectual production, or for spiritual and religious rites, have been present across every civilisation. The effort to create knowledge structures, including science and technology, able to regulate and control the social world, the factual and objective and the fictional and subjective, naming, describing, classifying, ordering and defining mandatory and interdict limits related to what may be perceived as threatening and menacing, individually and collectively, which are illustrated by psychopathology in contemporary societies, has been present across the evolution of humankind. Sociatry is the new science that cures society, as psychiatry cures the individual, which has emerged one hundred years ago in parallel with “Civilisation and its Discontents”, by Moreno (1947) and by Freud (1930).

The economic theory of degrowth argues that the growth theory has been holding a hegemonic and dominant position for the last three centuries, since the emergence of modern science and of the industrial revolution. The degrowth perspective contends that this is similar to a case of collective addiction, self-induced hallucination, and contagious terminal illness.

Saturation, in the neo-baroque style of exhausting all possible sources of stimuli; the exponential growth and acceleration in a hyperbolic choreography of the programmed society, as Alain Touraine (2013) explained; these are used in growth strategies, tactics and techniques, in a self-destroying fashion, destroying life in the planet, according to the degrowth rationale. A programmed-society is characterised by creating the tacit and symbolic structures that define its reality and the problems that it has to face are the problems originated from that same structure. Chaos theory offers a more positive prophetic position, presented as an order yet to be deciphered.

A disciplinary society may contain the seeds and the antidotes for its own malaise, yet that is the challenge that is already being answered by every new generation. Existential-phenomenology, onto-hermeneutics, language and action, immanence and transcendence, subjectivity and intersubjectivity, existential anguish, imagination, spontaneity and creativity, and even a dark sense of humour, may be considered as fruitful starting points for dislocating and reframing the focus of discussion (Graeber, 2015). The argument is that the growth-degrowth schism is worth considering, and it should not be a taboo or sacrilege as an object of discussion. More importantly, the capacity to hold safe spaces for debate is more important today than ever before. The answers are already available and yet new questions are needed to open up new worlds of possibility for collective thought and action to emerge.

Economic growth theory is based on the assumption that only through the creation of higher levels of wealth creation is it possible to achieve higher living

standards, such as greater levels of well-being and of quality of life (Parrique, 2023). Within this assumption is implicit the validation of the hypothesis that measuring the growth of Gross Domestic Product is an effective metric to evaluate the state and evolution of an economy.

Open science is part of the effort to make alternative narratives more accessible, including degrowth and ecological transition. Working to make education and access to knowledge more effective and affordable, several non-profit institutions create special platforms and search engines, as can be illustrated by the work of Ithaka and of JSTOR, which stands for storage, a digital library of academic journals, books, and primary sources (Thatcher, 2007).

Modern science assumptions, from early seventeenth century, were that natural sciences were an adequate model to be followed by all science (Lacoue-Labarthe, Nancy, 1991). These included the humanities and social sciences, from sociology to theology, from philosophy to history, as they would claim their specific scientific position and their own epistemology, in the sense of organising different schools of thought within their scientific discipline. The gradual use of myth, philosophy, religion, science and technology, as historically valued manifestations and socially treasured positions and models of rationality, implied a dance of hide-and-seek, exposing and explicitly exhibiting some links, connections and interpretations, whilst unavoidably and unintentionally evading and denying others (Graeber, 2015). To know is simultaneously to not-know because when an idea, concept or abstraction becomes crystal-clear it is already obfuscating other possible alternatives, implying the need to revise positions and to explore new starting-points and new perspectives from which to consider whatever appears in the arena of thought and action, individually and collectively.

The limits to growth

There is no single theory of degrowth because it represents the claims from the broad scientific movement that emerged from the historical publication of “The Limits to Growth”, in 1972, by Donella and Dennis Meadows and their colleagues. The use of the term “degrowth” by this movement is often accused of being offensive and shocking to the public opinion, especially to the voters of democratic regimes, who may lack sufficient literacy in economic basics. In defence against this accusation is the principle that there is the need for a shocking and disturbing message in order to break through the ubiquity of the massive propaganda, publicity, marketing and continuous bombardment from the new and the old media that contemporary societies are permanently exposed to (Thatcher, 2007). There are multiple theories and models that proclaim the need for an alternative to the economic growth theory, which is usually presented as hegemonic and that tends to accept no criticism or discussion, as if it were a

taboo and a sacrilege even to discuss it, let alone to make it a programmed electoral proposal.

Degrowth discussion in political public contexts has occurred occasionally, including in the Netherlands parliament and in the European Union Parliament that held parliamentary sessions under the proposal of the Green parties to discuss growth-degrowth challenges. The Green European Foundation is financed by the European Parliament and holds a platform called Geopolitics Post Growth to host its publications, reports and tools to promote further research in the area. Nevertheless, as occurs to every paradox, controversy and conflict, it is important to explore every possible opportunity to discuss them further and to try to understand why they pose the conundrums and enigmas that are so hard to cope with, as groups, as individuals or as a society.

The argument that is explored is that it is essential to guarantee safe spaces for debate and for discussion. It is more important than ever to secure open, free and plural inquiring modes of dialogue. Individually and collectively, through inner and outer conversations, inside the self-conscious modes of examining and searching for answers, in the interstices of subjectivity and inter-subjectivity, it is in the no one's land of curiosity, imagination, memory and fiction that a burning desire and a strong will might emerge through new questions and new starting positions that may be able to breakthrough impotence, frustration and powerlessness (Touraine, 2013). The argument that we are all on the same boat, as humans and as living organisms, individually and as a species, is the argument that we need more and better questions, and that we need them more than we need more and better answers.

Still holding to the same argument, these statements paradoxically confirm that the answers are already there, somehow, emerging in subtle ways, in the real lives and concrete situations of populations and territories of present times. In art, sport, science, technology, religion, philosophy, myths and laic spirituality, the sparks of inspiring creativity and spontaneity are already present in the subtle and often invisible and silenced expressions of human knowledge (Lacoue-Labarthe, Nancy, 1991). The yet to be discovered questions are the ones able to spread the word and the good news that that reality is already available. The task is then to disseminate and propagate not ready-made solutions but the necessary dispositions and action and thought possibilities that secure the conditions for the plural and dialogical inquiry to proceed. Karl Jaspers (2014) was inspired in Max Weber's historical analysis of the conditions of possibility that led to the emergence of revolutions in order to propose the concepts of action-possibilities and of thought-possibilities. Safe spaces for debate and for open dialogue are themselves part of an agenda to expand and to further explore broader and wider possibilities.

The scientific movement that claims for economic degrowth argues that humans are looking for answers in a backward fashion that leads to the destruction of the conditions of life in the planet (Parrique, 2023). The fast or slow, direct or by delegation suicide is mistaken for a void promise that creates a self-sustaining equivocal. The alert has been voiced, scientifically, in multiple formats and it has been disseminated through plural channels, apparently speeding up the negative consequences and creating unprecedented levels of denial. The denial, individual and collective, is the ultimate defence response and it is possible to measure the damage of a primordial cause by the violence of the denial symptoms that it is able to unleash and to provoke.

It is necessary a new grammar able to articulate the subtleties of the lived experience of concrete individuals, groups and populations, within concrete territories and communities, that is formatted by the institutional regulation and control mechanisms of contemporary societies (Arendt, 2022). The proposal is to explore a critical position, which considers the possibility of re-signifying taken-for-granted assumptions and re-formulating belief systems that intentionally and consciously or otherwise condition current thought and action, individually and collectively, locally and globally. The rationale is to simultaneously try to reject anthropocentrism and to explore supposedly nature-based and nature-loving Cosmogonies, whilst acknowledging the limits, frailties and unstableness of the subject, ourselves and others (Graeber, 2015). Navigating these ambiguous waters might enable raising a sharp wake-up call and urgency regarding the meaning of life in its provisory and pathetic soothing mechanisms. That is, human social organisation imposes knowledge, language, action and meaning in ways that may be alienating and nihilist or else they may be empowering, liberating and effectively enable radical and fundamental change, institutionally and personally (Calhoun, 1997).

Degrowth, post-growth and anti-growth economic theories are based in the last three centuries of technoscience evolution, which can be traced backwards to the origins of social organisation, the emergence of written language and the growth of the first cities. The point is that it is not merely an issue of cognitive logical deduction but one of self-reflection that emerges from authentic, intensive and dense concrete lived experiences (Banks, 2024). Reading-writing a text, a label or a precise instruction, illustrates the ongoing mechanisms that are worth raising attention to. As occurs in every existential inquiry, questions are more important than answers. Moreover, there are no right-wrong, desired-undesired, adequate and appropriate or not answers, but the radical and fundamental need to protect, secure, sustain and promote safe spaces for open debate, discussion, confrontation, exploration and sharing the joy of inner and outer dialogues and conversations.

Complexity versus simplicity and complicatedness as entropy

Economic growth, marginalist economics, and classical and neoclassical economics of the 17th-19th centuries are still influential as structuring matrixes for the interpretation of reality. Economic reality is inherently and irrecusably ecological (Traverso, 2019). Neoclassic economics assumes that the production factors, such as labour, capital or use of land, are homogenous and show diminishing marginal returns and diminishing returns to scale. These concepts define the fluctuations of production input and output and they imply that an increase in the incremental use of one of the factors or else the increase of all factors simultaneously will eventually lead to less results. Diminishing marginal returns are an effect of increasing input in the short-run, while at least one production variable is kept constant, such as labour or capital, whilst returns to scale, on the other hand, are an impact of increasing input in all variables of production in the long run.

Complexity and simplicity are part of the same process of making clear and illuminating an attitude, a positioning and a role that was not there beforehand. As this paper argues, texts, in particular the study of the institutional arenas of sound-image production, offer a paradise for economic, social and political analyses (Arendt, 2022). Economic growth and the knowledge economy of the information society of the 20th and 21st centuries present paradoxical inversions of previous theoretical assumptions. Indeed, there are many controversial and polemic interpretations and schools of thought related to the definitions of “economy” and of “society”, which create and define limits and horizons of thought that, in turn, condition other assumptions, including the definitions of knowledge and of information (Lacoue-Labarthe, Nancy, 1991).

Assuming that Modernity corresponds to the break with deterministic ancient thought and that the Renaissance, the Enlightenment and the industrial revolution were raised under the assumption of the universality of science and of its benefits for humankind, implying that present times technoscience, i.e., the effective power of technologic mediated scientific production, are heirs of these historical movements, then knowledge and information represent embodied and embedded ways of being, language use and participation in social practices (Parrique, 2023). These assumptions revert, turn upside down and inside out neoclassic assumptions, as both knowledge and information gain in value as they are used and the greater their use the greater their value. From a situation of infinite needs and limited resources, which is the classical economic problem related to scarcity, the situation is inverted to a paradigm of abundance. From the perspective of knowledge and information understood as historicity through cultural forms that bring greater authenticity, density and intensity to human experience, plural and diverse, in time and space, then the needs are limited and the resources are

infinite (Thatcher, 2007). The era of abundance is proclaimed, and knowledge production and sharing are supposed to benefit humans and beyond humans alike.

Economic growth, decolonialised economic theory and the Global North and the Global South contexts bring extra levels of complexity to the analysis of the growth-degrowth conflict. Economic growth discourses avoid integrating the discussion about the perpetuation of social inequality and the raise of economic injustices within and in between countries, regions and continents. Climate injustice is a double menace for the poorest populations in the world, who suffer most from ecological destruction and have not benefited from proper housing, health and education (Touraine, 2013). Economic decolonisation includes acknowledging the challenges of the Global North and the Global South contexts (Vieira, 2018).

The definition of nation states, of international trade relations, of national and regional legal systems and of the role played by professional associations and by international institutions worldwide represents a setting that creates certain conditions of possibility that each generation has to validate, maintain and reproduce or else reject, re-invent and innovate (Graeber, 2015). The interconnected existence of mutual dependence and the risk of survival of biological and symbolic inheritances, the urgency to calibrate value and belief systems and to re-signify modes of existence, including science and technology, emerging as pluri-crises and as limit-situation crises, calls for a radical democracy mandate. The last two centuries have seen the independence of previously colonised states and the raise of movements related to civic rights, human rights, children rights, women rights, original people rights, fundamental rights, rights of animals and rights of nature. Science and technology, which traditionally served the status quo and the interests of privileged groups across the rich world, have emerged as a source of empowerment, dignification and edification of under-privileged groups, and a freedom seeking and revolutionary force for the creation of more cohesive, diverse, plural and integrated communities. Decolonised science and technology have shown their power and potential to serve the interests of humans and beyond humans.

Economic anti-growth represents a position that specifically calls for the accusation and denouncing of the criminal, unethical and immoral consequences that are presented as collateral damage of progress and civilization (Esteves, et al., 2021). These may include crime related to modern slavery; the deaths of children provoked by curable diseases; the deaths, physical and mental disturbances, and the injuries caused by traffic accidents; by over-dose and substance addiction; by vices related to legal activities, including gambling and pornography; by excessive consumption of deficient quality food, including fast-food and over-processed food, causing obesity and cardio-vascular diseases;

alienation and an excess of consumption of mental health medication; labour market related burnout; and a mass-media exposure to idealised role models and referents that creates an eternal consumerism vicious circle; the links between unsatisfaction as a trap that is answered with apathy, together with the perception of no political agency; and an over exposure of the most vulnerable and frail to the inequities of an over programmed and self-serving system.

Economic post-growth implies a longer-term perspective. It is argued that post-growth is the future, taken as the only possible alternative because either by ecological, political, economic or social collapse, disruption is already occurring. The future is constructed through the dreams and utopias that foster novelty, promising a better world where no one is left behind. Denouncing present dystopias and announcing possible futures is an inevitable task for present and future generations (Parrique, 2023). Change occurs with, without and regardless of the good and bad intentions that support present action. The uncertainty of current settings imply that mitigation of damage and prevention of known risks is a priority. The future is now and it is already present and active through social innovation, social change and social creative spontaneity.

Open science, open innovation, citizen science and open-source technology are already producing and have a strong potential to further produce radical change. Preaching to the converted, self-fulfilling prophecies, path-dependency dead-ends and locked-in mechanisms are part of the plethora of self-induced fallacies that only a dark sense of humour can enjoy, appreciate and tolerate (Pérez-Troncoso, 2022). This implies understanding futility, trial and error, fair-play, an artistic spirit, and the acceptance of the absurd and the pathetic as part of the paradoxes of the real or else fictional fears that must be overcome. These fears are part of the Pandora box package related to what it means to be human in contemporary societies. Tigers will not lose their tiger-ness, yet humans can and may lose their humane-essence, which refers to the here-it-is and not-yet readiness that is permanently in the state of becoming, announced as the brave and marvellous new world.

It is always too early until it is too late

The reason that justifies the discussion of the paradoxes that are mutually confronted by the academic perspectives in favour or against economic growth are urgent and unavoidable precisely because they capture crucial existential positions that illustrate central life-or-death and survival-extinction perspectives. That it is always too early until it is too late, is part of the human experience of existence, individually and collectively.

Civic movements take a common structure, which makes it an attractive sphere of action for sound-image analyses. The degrowth civic movement, together with the agroecology or the Extinction Rebellion movements, are first and foremost scientific projects, as they capture political and philosophical quests of contemporary societies. Nevertheless, the degrowth or climate emergency movements may also be experienced as if they belonged within religious and laic spirituality settings. To a certain extent, the ecological movement that has been developing for the last one hundred years is similar to the process of emergence of a new religion (Graeber, 2015). In non-metaphorical terms, religion may be divided into the worship of diluted and non-diluted deities. Diluted deities worshipping religions are the ones focusing on the philosophical *modus vivendi*, the *modus operandi* and technicalities of what can be acquired and practiced as a pathway to spiritual illumination. These diluted versions are common across oriental religions, including the influences from Buddhism, Hinduism, Taoism or Confucianism. Non-diluted deities are concentrated in monotheist religions, which include Judaism, Christianity and Islamism, and all prior experiences of a personal deity that were incorporated in pre-classic civilisations.

If the ecological scientific and then civic and popular movement follows the pattern of the emergence of a new religion, with different sects claiming for a space and voice and each contributing to the cocktail of new perspectives that will somehow become institutionalised with stable rites, rituals, signs and symbols, then it is worth acknowledging the evolution patterns of belief systems. Belief systems are not exclusive to religious and laic spirituality settings because they are unavoidably present in the institutionalisation process of every knowledge creation (Lacoue-Labarthe, Nancy, 1991). Popular knowledge and civic power are the default mode that permanently and unavoidably produce that which will then become institutionalised, certified, approved, legitimised and formally come into existence. Before that it is diffuse and diluting it all in life itself, carefully weaving different ambiguities and elaborating on current paradoxes, navigating the troubled waters of existence by pragmatically going forward with life as it is lived quotidianly.

Ecology can be taken as a new religion by using both ends of the spectrum, both with and without a centralised deity. The sacred and worth of worship reality is firstly experienced as being there, ready at hand, for everyone to profit from, from a perspective of abundance and plentifulness (Arendt, 2022). Then being faithful to oneself and others and to the belief systems one thinks to profess, is a different story altogether. That is, ideal and reality, fiction and concreteness, inner and outer, are a flow, presence and process, in the sense of the provisory and unstable nature of the subject, of subjectivity and of intersubjectivity. This non-fixed interpretation of reality may be interpreted as relativism and as a heretic or agnostic position. Then it is question that is itself secondary and superficial in

relation to the central position of permanently questioning, revising and confirming or otherwise, where one stands, individually and collectively.

Rejecting past beliefs and embracing new ones involves facing the life-giving and the life-taking inner demons, monsters, deities and life saviours. The personal deity, the universal otherness, is appropriated inwardly as my own self, which I then can project into those of my choice and use that criteria to filter the ones that I will reject and deny the right to exist, the inner fear of death that I project into the other, the proscrip. The diluted and non-personalised deity, the life philosophy style, the oriental mysticism and influences from an ascetic perspective, apparently manages to secure a position that can do without a prophet or a messiah, a leader-follower tandem, because it claims its universality from the start, without a creator and a single-story myth of origin, yet it paradoxically seems to promote gurus and the ones that claim not to be gurus but portal openers and gatekeepers, safe guardians of the paradise that is the land of the illuminated and the blessed ones (Lacoue-Labarthe, Nancy, 1991).

Paradox, in science and in society, in personal and institutional life, in groups and in groups of groups, is itself a mirror, a reflection, a testimony and a way of exposing the frailties and vulnerabilities of the humble and provisory state of existence that is shared by humans across human history and beyond (Calhoun, 1997). If humans are able to appropriate themselves of their own fictions, convictions and certitudes, and if they are sufficiently faithful to their own beliefs, meaning that they can take for long enough their position and are able to hold the tensions necessary to surpass frustration, impotence, confusion and lack of clarity, still holding to their certainties, then it is possible that new beliefs emerge, out of the mixture and mingling of different blends, tonalities and modalities. If myths are important, then new myths can be created and recreated.

The growth versus degrowth economic theory and the practice and actual lived experience that supports the civic and popular movements that sustain the confrontation between both positions is a priority subject for present day societies because it illustrates active paradoxes from both sides of the equation. The argument is that both individually and collectively paradoxes imply that it is forceful the need to expand one's own horizon of thought and action, inevitably facing fears and incertitude (Touraine, 2013). Navigating troubled waters is not a question of bravery, courage, coherence, consistency and lucidity, because these may easily be contaminated and intoxicated by previous experiences. The attitude of trust and openness towards the unknown is more related to the letting go feeling, relaxation and tension-free perspective that is able to be achieved either by certain degrees of naivety and innocence, or by pure distraction and random change, a situation that anyone may find one self in. In other words, the argument

is that trust and openness are themselves energy creators and synergic sources of integration that enable vibrant attitudes to emerge, individually and collectively.

Too much of a good thing

Intoxication, in food-poisoning, sensitiveness or un-sensitiveness towards pain, or when creating resistance or over-reacting to stimuli, neurologically or in relation to exposure to virus and bacteria, or when considering allergies and self-immune disturbances, these health-related examples illustrate the disposition, prior disposition, preparedness, or else vulnerability and frailty of an organism in relation to an external impact (Parrique, 2023). Considering the world of ideas, abstractions and fictions, and the way they exercise their attraction or rejection power, it is curious to reflect upon the possibility of extending, stretching and expanding the capacity to be exposed to novelty and change. The praise of openness is not a celebration of relativism but the acknowledgement that some mental gymnastics and practice in the living laboratory of thought experiments could be useful and bring greater stamina, flexibility and energy.

In the first art exhibition that inaugurated Centro Cultural de Belém, in Lisbon, Portugal, in 2000, in one of the rooms it was written in large capital letters, next to the ceiling, that “the reason we have round heads is for ideas to go round”. Ideas are behind technology and are themselves technology when incorporated as a practice, a way of doing which conditions and determines a way of being, which in turn supports Cosmogonies in the form of myth, philosophy or religion. Technoscience, science that is the product of tool making and tool use, of material and symbolic artefacts, is itself part of the supply chain and value chain of the conditions of possibility of thought and action of living populations. The actual lived experience, the experience of awe and wonder of being alive, can be said to be creative and spontaneous to the extent that there is an appropriation which unleashes a resolution and determination to feed that source, presence and flow, which is shared with all material reality across the universe yet is more visible in living systems, in whatever scale, historical epoch or geographical region.

The use of the term degrowth is considered a banner of the degrowth movement, which advocates the urgent need for rethinking taken-for-granted assumptions that are misleading and self-destructive. The scientific production related to the degrowth movement has an impressive history since the publication of the report that became known as the Club of Rome Report or Meadows Report (1972) that dealt with critical challenges for the future development of humanity, which included the environment, technology, population growth, energy, pollution, sanitation and health.

More than half a century later, the issue of degrowth is more divisive than ever and an open and constructive debate is imperative. The degrowth critique argues that the idolatry of growth is a not-so-innocent fallacy that causes dependence and addiction, just like the metaphor of the relationship between heroin and a heroin addict. Equally serious is the accusation of suicidal, self-destructive drift, as a consensual madness. If the case is in the order of psychopathology, it is worth remembering the works of Sigmund Freud and of Jacob Levy Moreno, his contemporary in Vienna, since both psychiatrists defended the need for a clinical practice directed at a sick society. Sociatry would be psychiatry applied to society, the new science created by Moreno, a work published in 1947. In the books towards the end of his life, Freud developed the perspective of social analysis and collective neurosis, with "The Future of an Illusion" (1927) and "Civilization and its Discontents" (1930).

In an explicit reference to growth interpreted as an absurd belief, the North-American economist Kenneth Boulding ironically argued that only a madman, or an economist, could imagine that permanent growth was possible in a finite world. Although ecology emerged from biology, this author was one of the first to develop ecological economics. The image of planet Earth as a spaceship was used by Boulding to highlight the finiteness of available natural resources, developing eco-dynamic and evolutionary approaches to economic theory (Banks, 2024). The fierce rejection and attempts to discredit the degrowth movement have been compared to the anti-communist campaign of the American senator McCarthy in the 1940s and 1950s. The opposition between saviour capitalism and demonizing communism follows in parallel growth as undeniable and inevitable and degrowth as deviant and impoverishing. These positions take on phobic and paranoid traits, projecting fears and insecurities from the collective imagination.

In a secularized society, belief systems and the definition of what is forbidden, taboo, sacrilege or a source of distrust, the opposition between what is desired and what is feared, takes on curious forms. An example of these unusual connections is the congress on economics and theology, organized in 2010 and the proceedings published in the following year (Badham, 2011). After the 2008 financial crisis, "theological" reflection on the economy and the banking system, under the theme of a "paradigm shift", argued that economic stability depends on beliefs and is based on faith and trust as much as any religion. This approach, from what is considered to be the theology and economics of the 21st century, as a special issue of the publication *Liberal Theology in the Contemporary World*, dedicated to the financial crisis and the need to strengthen faith in the banking system on a global scale, asserts itself as the basis without which chaos and the collapse of the economic system arise.

On the other side of the spectrum, the eternal dissatisfaction that is fuelled by consumerism, which creates alienation and dependence, appears as another belief in which it is consumption that liberates, edifies and empowers, individually and collectively. Repeating the argument of John Maynard Keynes, the illustrious British economist of a hundred years ago, who accused politicians and public opinion of perpetuating and amplifying past ideas without realizing it, a new parallel emerges (Quiggin, 2012). With the title *Zombie Economics*, published by Princeton University Press, one of the most prestigious universities in the world, the author reinforces the idea of “dead ideas that continue to walk among us”. Thinking, interpreting and debating economics involves deciphering different codes, which include fiction and horror. In the same vein, following unusual and apparently obscure parallels, also from a renowned publisher, John Hopkins University Press, the stereotypes of science, scientists and scientific production are compared to fictional profiles and to stylized and artificially constructed personas, moralists and moralizing (Haynes, 2017).

Historicity as in-process, in presence and in flow

Each historical epoch is characterised by numerous conflicts that themselves are the openings and ways through the next stage in the process of human development (Arendt, 2022). Development here, when entered through contemporary economic theory or through psychopathology systematisation, from both political science and from health science perspectives, and, more generally, from biology or astrophysics perspectives, the same principle applies that the existence of two different realities will influence one another and development is not dependence but the creation of the possibility of independence. Adult-child relations or two balls falling, both illustrate relationships that cannot ignore their mutual influence. Two balls falling are already influencing one another. As the adult and the child grow to become an old person and the child becomes an adult, development can be said to occur if in each stage both individuals achieve some degree of autonomy and non-dependence. In economic terms, two nations or world regions may explore their interdependence, yet in order to create autonomy it is necessary to be careful regarding the use of the term development (Thatcher, 2007).

It is harder to see the frailty and ambiguity of economic growth-degrowth than of the development versus some sort of post-development rationale (Parrique, 2023). Or it could be the opposite as both are connected and it could depend on the level of sensitiveness towards paradox and conflict. The relationship between a nation that is a financial donor and a nation that is a receiver of developmental aid cannot be one of creating trade dependency, subjugation and neo-colonisation.

Dominant thought is dominant because it supports and protects a world-view that secures the interests of the social groups that are able to exercise an abusive power over other social groups or because the ones that are being abused somehow adapt, adjust and become blind and docile to being dominated. Power relations are relationships that mirror the structures of command of those whose interests are being secured (Traverso, 2019). Dominance and exercising power are effective forms of colonising and of being colonised because in order to succeed the domination has to be effective, seductive, manipulative and convincing. Preaching to the converted is the natural state of group creation. In other words, subjugation is possible over a prior disposition that is docile and vulnerable and for this reason it is easy to watch a perpetrator to blame the victim, as if it were the victim's fault their own vulnerability.

That killers kill, robbers rob and corrupt individuals and institutions create a corrupt world of economic relations is a matter of discussion, of the us and them, ourselves and our secure and safe worlds and the others, the rest, the not-belonging to my reality. Metaphysics and physics were part of specific groups answers to the wonders and puzzlements of the paradoxes and conflicts that were experienced in person. The need to confront the myth and the logos was simultaneous to the political need to define sides, the us and them. If science validates technology and vice-versa because they both claim for universal purpose and use, then the us and them divide perpetuates itself (Haraway, 2016). We, the science and technology users versus the others is a divide between what is proper and what is improper, what is constitutively interpreted as a stable subject or else as a provisory and in-process subject. An aversion towards the mixture, the indefiniteness and the otherness tend to create closure and distrust.

Fear is the fear of being dissolved and of losing one's ground, whilst an existential fear acknowledges the process nature of existence. Under this reasoning, being in presence and acknowledging the flux, flow and movement of reality, one's own and what could be expected of the reality of others, then there could be a possibility of being surprised, positively and negatively surprised. Positively when what was expected is confirmed and negatively when there is clarity regarding the obstacles that confirm that there is a dead-end, an equivocal and a mismatch and misleading understanding of our previous interpretation.

Inspired in Giorgio Agamben concepts of impotence and inoperability, "La Comunità che viene" (1990), "The community that has no end" directly connects to the future because it reflects upon the importance of creating safe spaces for debate and for open reflection. The future can only open up new horizons for thought and action by understanding what brought present reality alive.

What positively and negatively contributes to my freedom is what I acknowledge that enables my autonomy and independence and what clearly hinders and blocks it. Moral judgments regarding positive and desirable versus negative and undesirable shift the focus towards social norms and power relations. As individuals and as groups of individuals, tool makers and tool users, the social norms and the social regulation and control rules are inner-outer movements in a permanent state of flux that reflects, mirrors and illustrates the state of affairs of current reality. Time and space contexts become blurred when connecting to intimate yet universal perspectives. They are intimate because they struck chords that one did not know existed within the personal portfolio of existence and by so doing, they enable a projection towards a wholesome and dilution of the self that is itself the mechanism that enables generalisation. Inner and outer projections become fixed when there is the need to acknowledge them otherwise these projections, in the form of automatic and unavoidable drive, impetus and impulse are merely taken as the unfolding of existence.

The point is that existential fear, of death and decay, and the rejection of self-destructive modes of existence by consciously and intentionally promoting life, securing desire for plenitude and for life fullness, is itself an unavoidable and inescapable reality test that every individual and groups of individuals face continuously and uninterruptedly. Social norms and social regulation and control mechanisms and automatisms are undisputable arenas for the confrontation between alternatives (Touraine, 2013). Moreover, the mere possibility of the existence of an alternative is itself a sign of individual and group awareness, sensitiveness and recognition towards inner unknown territory, the self and non-self, the proper and improper, the one's own and the alien, strange, weird and potentially menacing. The trick is this confusion between that which emerges as fearful or else as merely unknown and yet to be sorted out if it is a menace or not. Trusting and open positioning towards the unknown is itself not stable as it may occur as a flash or as the analogic opening of the lens when taking a photograph. The interdict and the compulsory are part of the life-supporting reactions that were adequate to respond to the challenges of specific contexts and are open to be disputed and contested when new situations call for breaking, transgression and disruption of the previously established norms.

It is a double movement that works as a choreography by inner and outer confrontation between trusting and doubting, whilst acknowledging the need for interrogating the us and them perspective, us having certain rights and privileges and others being denied even their own existence. Moreover, and significantly an illustration of the challenges that each historical era faces, this us and them perspective works for the privileged, the ones that are supposed to have the right to exist, to prosper and to enjoy life in fullness and plenitude, and it works for the under-privileged, the marginal and the proscribed from the social universe

(Parrique, 2023). Like a trick in perspective, an optical illusion and mirage, there are perfect-fit encapsulation from both sides. The ones that are excluded find ways to justify such exclusion that enable them to survive because there is a perception that through some mysterious workings, they themselves are to be destroyed as they are to be blamed by whatever fiction. The ones that are privileged and benefit from the position of dominance are as if fused into the idea of wholesomeness, of unity and of universality. They are themselves their own universe and the us and them works as a wrong interpretation of the existential anguish. Instead of facing vulnerability and the inevitability of decay and death, there is an option that seems to be the perfect fit to eradicate, eliminate and evade that reality by using others, the proscribed, as a scapegoat.

As Pedro Levi Bismark (2024) argues: “(...) A logos turned into myth, the myth of logos: Civilization and Colonialism, Humanism and Racism, Reason and Genocide, Modernity and the Holocaust: in short, Idealism on one side, Capitalism on the other. Reason itself as the (founding) myth of Capitalism and the moral superiority of its class, the bourgeoisie. The empire of Reason as the reason for the Empire. And the subject of Reason as the subject of the Empire: sovereign, proper, unique, self-identifying – a Universal without an Other”; “(...) Aimé Césaire (1950) would rightly say that “what the very humanist and Christian bourgeois does not forgive Hitler for is not the crime itself, the crime against man, it is not the humiliation of man in himself, it is the crime against the white man, it is the humiliation of the white man, and for having applied to Europe colonialist procedures that until then had only covered the Arabs of Algeria, the coolies of India and the blacks of Africa.”” (pp. 32).

From a privileged position, killing others is a way to kill our own death and to secure, prolong and protect our status quo. More importantly, a deficient and defective position, which is based in a deficient and defective interpretation of an intimate and unique personal experience of existence that is thought to be diluted and fused into some kind of wholesomeness, from which universal laws emerge, grows exponentially, transforms and metamorphoses itself by permanently guaranteeing its own reproduction.

If myth, philosophy, religion, science and technology create an age of the myth, an age of philosophy, an age of religion, an age of science and an age of technology it is because the philosophy was able to kill the myth and to project it in the proscribed, the religion proscribed the philosophy, and so on (Esteves, et al., 2021). If I am enchanted with technology, I see it as being able to perpetuate my plenitude and ecstatic pleasure of existence, of feeling a whole with the universe, of plenitude, grace and glory, enabling me to be spontaneous, creative and free, and of doing everything that I can possibly think of to share my happiness and

certitudes and to invite others to join me, the others like myself, my friends and like-minded people that I have not yet met but that I know that exist.

The myth is an effective fiction that is based on an interpretation of origins, which itself justifies the us and them divide projected outside (Lacoue-Labarthe, Nancy, 1991). That is, the existential anguish that is a matter of fact for every generation and that each civilization organises into formatted arrangements of existence, perfectly serves the logic of the ones who dominate and abuse and the ones that are dominated and abused by offering a fictional myth of origin that explains, acknowledges, recognises and justifies that order of reality. That it is possible to dominate without abusing is a matter of time because domination itself only perseveres by increasing its level of abuse. The spectrum between the two confronting positions is stretched until breaking point and collapse, setting the conditions for a new era to emerge from the ruins of the past civilisation. Yet if culture is the process through which there is a depuration and reinvention of new ways of being and novel perspectives on existence, embodied in answering existential fears by setting new myths, new fictions and new Cosmogonies, then humankind will continue its race towards self-destruction by creating ever more sophisticated forms of establishing the conditions of survival of the few against the many, the privileged few against the under-privileged many.

Individual and collective death, of humans and of life in the planet is unavoidable. Sometime into the future, the star Sun will itself approach its end and when it cools down it will destroy the conditions that preserve life over the surface of the planet Earth. Meanwhile, it is possible that this same death and decay process is accelerated and precipitated, leading to complete destruction by human thought and action that has been caught into its own traps and wrong-doing (Parrique, 2023). Moral, ethics, justice, mercifulness and compassion are examples of fictional descriptions that point towards distanced past or distanced future, to distanced places and regions of the universe, projecting dreams, illusions, ambitions and projected expectations. In an old painting a figure becomes visible by its contrast with its background scenery. A visually attractive image helps the focus on a spot or perspective, whilst diluting the details and the apparently unimportant setting. When acknowledging one's own thought and action processes and modes of existence, individually and collectively, within our intimate inner dialogues, indoors, in our zone of comfort, and inside our circle of friends and like-minded people, our cosy group of pals, there is a survival instinct that is present in this acknowledgement process (Banks, 2024). That is, I wrongly persuade myself or I am persuaded by others that it is safe to be in that position. The focus is on positioning and being able to differentiate between different positions and modes of positioning. The us against them perspective is the assumption that some, my group, we have the right to exist and others, somehow, do not have the right to exist and there is nothing that I can do about it.

Reaching saturation levels

Consumerism, individualism, egocentrism, autism, self-centredness and the illusion that each ego, or the special ones, are the centre of the universe could be interpreted as a civilisational conquest and achievement (Agamben, 1990). Certain institutional framings must generate the conditions for the emergence of these inflated existences. Self-serving institutions would justify themselves as being the products of some kind of societal need, implying the acknowledgement of some kind of social benefit that they pay back to the society that generated them. Whatever the scale, individual, group, institutional, community or society level, the pattern of occupying available space, meeting needs and wants, offering satisfaction and promising the guarantee of eternal access and availability, is tempting, seducing and induces manipulative and dependent relationships.

Saturation is the mechanism that enables switching positions from the urgency to achieve satisfaction to the surprise of having had enough. Plenitude, full presence, trust and confidence in the unknown and the bewildering awe and wonder of expectations that even when they have been broken, independently of moral judgments and of social norms, still leave a flash of hope, unleashing broader horizons of thought and action, is saturation at its best.

Imagining that it could be possible to ride a bicycle in total darkness, merely by trusting that one knows well the way and that there are no obstacles to stop us or injure us, then it is like breaking the speed of light limit and entering into a process that feeds itself, not linearly but exponentially. Greater and higher levels of intensity would be needed to achieve the same stimuli-reaction effect. Imagine that there is a glass that may be filled to the brim, corresponding to maximum satisfaction, and then it is emptied and something occurs, such as a feeling of need, of desire, of craving for the repetition of satisfaction and of succeeding in guaranteeing access to the securing of the experience of plenitude, abundance and fullness (Thatcher, 2007). Resistance to frustration, the it is there, in front of us, here and now, versus the expectation that it will somehow occur in the future, the resistance to frustration that is able to sooth and cool down the urge and searching process and to invert the process, occurs by an appropriation and an inner resolution mode, not as a discipline that is exterior and externally imposed but by a self-discipline mode of existence that has been acquired by previous positive experiences or by somehow being able to project into fiction that idealised realisation of plenitude.

The history of human knowledge and the use of language illustrate this shift in perspective. For instance, theology evolves by capturing the experience of transcendence and the metaphysics of existence by the deductive logos and use of linear rationality models, whilst mystics escape this trajectory and short

circuits finding a fast track to the same procedure. In order to go from A to B, theology elaborates a step-by-step approach that laboriously and meticulously proposes its conclusions, whilst mystics invert this and appropriate the process as a whole, somehow not arguing but exhibiting the evidence that A and B are a whole, or are the same, or are both already there. The point is that some positions enable pre-determined possibilities, whilst others do not. Literature is perhaps closer to capturing the emergence of new philosophy than the whole of contemporary philosophy put together precisely because there is an unavoidable and immediately self-explanatory mode of presenting reality that is already there, for all to see. Biology may enter into a dialogue with quantum physics and with metaphysics, aiming to grasp mystery and wonder in ways that may be harder to capture and to be performed by the humanities precisely because of the contamination and retro-effects that have already intoxicated the starting position. History of science and sociology of science have explored and exposed these frailties and vulnerabilities that are also part of the conditions of possibility for achieving better results in the future.

Trust and confidence that leads to openness versus mistrust and lack of confidence that provokes closeness and self-enclosure are part of the picture that aims at capturing the process through which individuals and groups of individuals find themselves in a position of the us-and-them divide versus one of we-are-all on the same boat (Haraway, 2016). Both sides claim for universality and wholesomeness, of a dilution and fusion into a universal and general eternal law, principle or conviction that sustains whatever belief. The second one claims for more universality arguing that if the boat is destroyed no one will benefit whilst the first group may argue that if I can afford it, I will enjoy it while it lasts. And, moreover, if in the past humans have survived so far by inventing new artefacts, thought and action artefacts, then it is only a question of time that a new invention will succeed in guaranteeing not just survival but that the best of the best possible worlds will become reality. In the us-and-them divide, the trick is that the vicious circle starts with projecting into the need for the death of the other, the different and the proscribed as a solution, a too easy and too attractive and seducing solution to the inevitability of human's individual and collective decay and death (Lindqvist, 2001). That there are other alternatives to soothing existential anxiety is a matter of acknowledging the fictional contamination of what may be considered non-fiction, including science and technology.

Science and technology are available in contemporary times and in the functioning of the rich, wealthy, highly programmed and disciplined societies that a small part of human population lives in (Banks, 2024). These science and technology represent and were able to develop and to evolve according to the interests and the world-visions of particular groups who were effectively in power, in charge and in command of the world order across centuries and millennia. If these

assumptions are valid, then it is this same science and technology that needs to be de-contaminated and reinvented, decolonised and unleashed from imperialistic, dominant and abusive powers.

Potpourri, the perfume of a mix of petals, herbs and spices

The power of a promise is the creation of an expectation that connects to a real, objective and concrete lived experience. The rationale of the present text is that there is a slip of interpretation and a misleading equivocal that has self-destructive consequences, individually, collectively and to the larger than human world.

The argument is not that growth and degrowth academic positions have a right or wrong answer, in moral or scientific terms, neither that growth and degrowth are equally positioned so that they may be confronted in direct and objective terms (Parrique, 2023). The argument is that nihilism, nostalgia and existential anguish that can be experienced in diverse degrees by different individuals and groups of individuals is itself a rich field to be explored. In other words, the proposal of the present text is to force the questioning and inquiring mode, as an invitation for a doctor to take his or her own medicine.

Moreover, when experiencing the naïve expression that every day is a new day, it is possible to connect to the experience of wonder of a child or of someone who discovers something new, in herself, himself or others, something that they can connect to. The argument is that if developed to sufficient levels of clarity, humbleness, objectiveness and clearness then the confrontation between economic growth and degrowth theories would be diluted because a new language and a new grammar would be able to solve the ambiguities and paradoxes that both positions point to and raise awareness towards the need to a wakeup call (Traverso, 2019). Breaking of the magic of expectations is to explore wonder and awe, by fuelling the search process itself.

Securing safe spaces for debate and guaranteeing that confronting positions can be challenged freely, assuming the impact of the inherent strain and difficulty, is the central argument of the present text. The aim of free and open debate is to practice the stretching exercises that create unbalance and discomfort within a setting that is itself not menacing (Banks, 2024).

In the sense that a text is just a text and nothing more than a text, a conversation is just a conversation and yet, their openness, of a text or of a conversation, is the key for the emergence of novelty (Esteves, et al., 2021). Even in isolation, through a monologue and inner dialogue, the disquietness of searching activates newness and change. By shaking the subject of its certainties and inviting novel, different,

unusual twists and turns, open conversations aspire at being able to explore the paradoxes and ambiguities that inhibit thought and action.

To enable the sudden acknowledgment of the Eureka moments of artists, scientists and creators and also the Ah!-Ah! flashes of professional gamblers, focusing the process itself, is a possible way through which to imagine the creation of safe spaces for open debate. The history of humankind and the evolution, revolution, transformation and metamorphosis of thought and action must have involved inspiring instances of free thought and open conversations.

Purposeful action

It is not the purpose of the present text to elucidate the readers upon the advantages and disadvantages of two opposing positions, regarding the growth versus the degrowth economic theories. The argument is that degrowth theories are similar to a wake-up call and to the loss of innocence of the blind acceptance of the world as it is presented and represented by dominant thought. More importantly, it shifts the discussion towards an inner dialogue mode, as a thought experiment and, literally, an effort to trace the spontaneous and creative process where openness and trust enable new breakthroughs to emerge.

A text about degrowth theory implies drawing a road-map of the key figures and protagonists that perform the choreography of economic reality. Models, concepts and schools of thought converge into the need for better and more constructive debates, not to reach low-hanging fruit results but to face the frailty, vulnerability and uncertainty of the process itself (Parrique, 2023). Navigating uncertainty, and valuing and cherishing divergent positions and interpretations, whilst keeping open a safe space for debate, is itself a huge conquest to be achieved and celebrated.

Sociatry is a science directed at studying and curing societies. As psychiatry is applied to individuals, sociatry is applied to social organisation, as the identification of the forms of social regulation and control, and the forms of civil disobedience, resistance, transgression, subversion and renewal of the social norms. Psychiatry elaborates on psychopathology, systematising and setting limits regarding the mandatory and the interdict that govern inner and outer worlds. Heroin, as a therapeutical drug, a profitable criminal market, or a self-alienation escape route, is an example of the multi perspectives that are present when considering opposing and incompatible perspectives such as the growth-degrowth debate. It is not possible or it is almost irrelevant to consider the two opposing sides because there is not much to discuss regarding the growth position, which is to keep things as they are, socially, politically and economically.

The debate starts within the degrowth movement itself, as it forces re-signifying, decoding and recoding existence, stretching all its possible limits in terms of what it means to be alive, diving into the most intimate and subtle unique singular experiences and, simultaneously, the most universal ones, independent of time and space. Time and space set the scenery that can be literally anywhere, any geographical region, and any historical era, from the cave ages to present times. The rationale is that individuals' and groups' experiences of existence are the tissue upon which social organisation emerges, so that the historical development of societies and of civilisations is itself the reflection and the mirror of the life experience that continues to be shared by present living populations at the world level (Arendt, 2022).

The abyss vortex of economic degrowth theory is its power to dismantle, to decode and to scan the belief systems and Cosmogonies that are active and operative. Whilst growth theory is basically the dominant hegemonic and orthodox thought that supports old industrial powers' economic growth, in the form of the richness it is able to produce, the degrowth theory is non-dominant, it is fragmented and unites a multitude of plural voices and of heterodox diverse and even conflicting positions (Lacoue-Labarthe, Nancy, 1991). The debate includes the new industrial powers that want to take a leading position and not be restricted by social and ecological concerns, and also the different parties, interest groups, and areas of influence that exist within and in between nations and geo-strategic regions.

If the absurdity of existence and the frailty and finitude of human life calls for some degree of trust in the unknown, the debate around degrowth represents one of the richest and more fertile one to take precisely for its capacity to uncover and reveal not pathways, not new directions, but rather a mirroring process of contemporary societies experience of existence, in all its complexity. Stars have a life cycle and when the Sun cools down life on Earth will perish. Long before that, the human species and the mineral, vegetal and animal world as they are known today will endure radical change. The point is to acknowledge the existential anguish as raw energy for constructive and rewarding action (Touraine, 2013). Tensions are potential for action and creative tensions are precisely the breaking of vicious circles of self-destructive modes of existence. To a certain extent, the degrowth movement calls attention to social and ecological pressures that even if they were not present, that is, if there were no economic inequality, neither natural resource constraints, the present state of affairs would be considered self-destructive and suicidal. Not only degrowth questions the status quo dominance of growth theories but it also enables radically entering into an open inquiry process, individually and collectively.

Life is a risky business; when entering into a conversation, an inner or outer dialogue, and when reading a text, one's own or somebody else's, whilst paying attention to how thought develops, it is possible to capture changes in direction and the exploration of new starting points. These switches in perspective that usually go unnoticed need some degree of distraction, of serendipity and of wondering around because, otherwise, the pressure to get quick results and to follow one's own regulation and control system gets in the way. Like the geometric figure of a vector, which offers a starting point and a direction, the interpretation process is an open, trust-seeking and forward-looking movement, an endless choreography of twists and turns (Esteves, et al., 2021). Artists tend to be more conscious of the need to create some void in order to open space and to make room available for new creations, even when such creative process is merely a thought experiment.

Theory of music acknowledges human's attraction towards predicting the next steps and also the need to introduce some change and surprise within the repetition pattern. It was the Greek mathematician Pythagoras who started to elaborate on the science of music, developing the octave scale. The point is that before there are opposing ideas and confrontation of positions, there is the construction of an information field that enables the development of the narratives that are able to capture the paradoxes, ambiguities and conflicts, which are in a state of latency, ready to emerge (Agamben, 1990). Under this perspective, taking sides is a step-forward in relation to an undifferentiated amalgam of multiple influences. Moreover, conflict between polarised positions is a provisory, reductive and circumstantial step within the longer-term process of pushing forward new and yet to be discovered perspectives. Cosmogonies are themselves as fragile and as provisory as the construction of the subject and of the subjectivity from which they have emerged.

If modernity broke with ancient thought by rejecting determinism and a universal law that would endlessly repeat itself, in a close circle, then the subject of modern thought is itself open to this rejection of a homogenous and stable entity. If the subject of the Enlightenment, after the Renaissance, was the European white educated male, the decolonisation of the subject and the creation of new forms of subjectivity and of inter-subjectivity are still part of the same rejection of deterministic thinking. Being able to hold the tension that is necessary to consolidate an inquiry position takes energy, and this energy has to pay off. Results, certitudes, convictions and beliefs are themselves wishful thinking movements that are crucial for breaking through the unknown (Banks, 2024). Consciously, intentionally and formally or otherwise, some degree of acceptance of the unknown is needed, a kind of gentle or violent surrender movement, a void that is permanently ready to be occupied and colonised.

Heroin, morphine, opium and their derivatives have therapeutical applications that contemporary societies use to prevent severe pain. Their counterindications and addicting power force social regulation and control through law enforcing mechanisms. The power of metaphors is to use the argument of the as-if image. Nevertheless, when addressing fractal perspectives, through complex theory and chaos theory influences, the borders between real-fiction, material-symbolic, inner and outer, formal and informal, explicit and latent become blurred (Lindqvist, 2001). A fractal is an organisation of a pattern, a form, that can be identified across different scales, enabling the recognition of repetition, of moulding and of formatting. Creating identifiable and recognisable figures, Gestalt manifestations, zooming-in and zooming-out, the scaling mechanism that fractal theory proposes is not a metaphor. Moreover, the use of the term metaphor is misleading. If words kill before wars take place and guns take rule, the words voice a lived experience that creates the conditions for the emergence of new realities.

Perplexities

If wars are themselves a strategy for selling technology, this same technology has lost its centre, its core and kernel significance. If thought and language-use are technologies-in-action, then selling technology is selling the type of formulation that supports whatever purpose that is being put forward. Many are prepared to see the drop of water in the ocean, but not many people are prepared to see the ocean in the drop of water. Rhetoric and manipulative uses, of technology as thought processes, as language, or as arms, guns and bombs, the playing with menace and fear, is not a metaphor, it is not as-if, because it merely shows the walking over thin ice nature of reality, permanently provisory and unstable. Taking photographs that freeze the flow of the moving-pictures course of reality helps to both identify and contrast different view-points in time and space. Technology is an enabler of human action and it is thought-in-action, in the sense that new thought processes constitute new reality. Selling strategies that are directed towards making wars are the acceptance of the failure of understanding the power of technology to indeed escape the suicidal mode of operation. Existential anguish attracts the absurdity of existence until it is able to hold and to navigate the creative tension of the unknown.

Psychopathology is the knowledge area that classifies deviant functioning of mental health manifestations (Jaspers, 1997). It addresses what is to be considered not adequate or acceptable within the prevailing set of social norms. By naming and describing states of being that social regulation and control mechanisms operate, it offers an inverted mirror image of what is to be feared. Fear is understood as a positive survival reaction and as an adult responsible

response. Value systems are necessary to register and process the intensity of sensations, emotions and affects, forming individual and collective memory. That is, the density and authenticity of the lived experience, singular and in groups, pre-condition and reveal the inner structure of the sequence of primordial experiences and the narratives that justify them (Haraway, 2016). If every generation repeats and reinforces past inheritances or else reject and create new realities, then cultural processes, of flow and in-presence mechanisms, take the left-overs of dead and past civilizations creating new possible futures.

Direct lived-experience occur in first, second and third forms, in the sense that being a witness of the experience of others and having contact with the available artefacts that reveal anonymous experiences, which anyone can profit from, is itself being a testimony of what it means to be alive. Limit situations, both positive and negative, or oneiric and dreamlike experiences, both pleasant and relaxing or else fearful and dreadful, are pieces of the endless puzzle that individuals and civilizations process and re-process (Parrique, 2023). Myths, philosophy, religion, technology and science, or else the logos-myth spectrum, are not an epistemic positioning of shadows or grades of perfect and stable positions but a living lab and active cocktail that continuously opens new grounds to be explored. Creating social and environmental destruction is suicidal because it is a refusal to recognise, identify and acknowledge the abundance and richness that is already available.

Explaining the growth-degrowth debate in one sentence is to confront too causational links. The degrowth argument is based on accepting the assumption that the social and ecological costs that economic growth imply are not tolerable (Parrique, 2023). On the contrary, the growth position rejects and denies this link, in its strongest forms. Or else, by proposing an apparently mild form and interpretation of economic growth, the result is even worst, because it forces an exponential acceleration towards ever more intensive, invasive and pervasive forms of economic growth.

The ubiquity of the economic growth paradigm creates different wave lengths that enable a succession of possible arguments, from evading confronting the costs, to arguing that only further economic growth itself can pay for correcting the social and ecological costs (Christian, 2012). Moreover, technology and innovation acquire messianic and prophetic status, imposing the mechanism of followership-leadership tandem, locking the follow-the-leader position of the no-alternative dead-end.

The theory regarding the degrowth academic, civic and political movement is a stand-alone event that has more to see than meets the eye. Like the perfect storm, multiple factors contribute to the emergence of this scholarship; and like

the eye of the storm, it offers a privileged panoptical eagle's eye view of human existence. As any existential question, it raises an open inquiry that never stops; like a Pandora box, it opens a kaleidoscopic horizon expansion phenomenon; it forces rethinking taken-for-granted assumptions, and this performance, this production, is back-and-forth, so that progress can be recognised only a posteriori.

When revolutions elapse and come to an end, looking back, there are those that are the revolutionaries, those that are anti-revolution and those that are distracted and have no clear idea of what is going on (Bateira, Vasconcelos, 2002). The argument is that these last ones, the distracted ones, are crucial. The ones who are not distracted are too contaminated to be able to see clearly the opportunities that are opening up. The point of this argument is that every revolution is itself a clique, a flash, like being struck by lightning, in one moment it is not there and in the next moment it emerges; that is, there is a before and an after, from that point onwards, individually and collectively.

In existential terms, inner and outer worlds become fuzzy and it is at the level of the inner dialogue and the confrontation with what is there to be seen that action is triggered (Banks, 2024). As being caught by virus or bacteria, there is no way to escape and the immune system is put to the test. The test of time is itself the existential experience per se. Acknowledging the finitude and vulnerability of being alive and of sharing with every life form a similar life-cycle, since biology emerged in the planet, is both too big to be confronted and too inescapable and unavoidable. The bad news is that it is hard to face and the good news is that it is, somehow, easy, all too easy, in the sense of embracing the disquietness of doubt, of inquiry and of questioning. Good questions are more important than good answers because they decentre attention and create room for new perspectives to emerge and to new life experiences that may create new possible futures.

According to Bismark (2024): "(...) However, if belief is not only the dogma of truth, but the unthinkable – that which cannot but escape thought itself as that which is beyond memory and beyond words – this makes it possible to make less obscure the original function of myth in modern Western politics. On the other hand, if politics remains intact in this domain of the religious, in the unquestionability of dogma, in the truth of a belief, it is precisely because the glory of the modern Western political apparatus is based on a founding and immemorial operation that transubstantiates the economic policy of capital into the political economy of logos." (Bismark, 2024, pp. 34).

Experiencing reality as abundance and not as scarcity, the existential process of working towards a better world for present and future generations, is a work-in-

progress that is open to all who care to take notice of the subtle and not so subtle manifestations of reality. Reality manifests itself and to participate or not is not an option; individual and group experience of existence is the walking of the path of this participation-manifestation creative tension (Mann, 2018). Change occurs with, without and regardless individuals' and groups' intentional efforts either to prevent or to provoke change. Yet, a posteriori, concrete situations emerge that could not have been possible without the efforts of concrete people (Lindqvist, 2001). The rationale is that within an individual life span there may not be immediate rewards and gratifying results. For this reason, the change process is not a linear cause-effect predetermined pathway but rather a gratification process that is already there by focusing on abundance and plenitude of the process per se as it unfolds and emerges.

Dissidence, crises and conflict as the life of the group

In every sphere of social sciences intervention, from social work to education, from institutional development to municipality organisation, or from therapeutical interventions to public health global issues, different cosmogonies support unique and varied epistemic positions (Esteves, et al., 2021). In turn, each brand or cosmovision will develop and become individualised, creating a unique group identity, which will ferociously or cordially defend its territory. In the military or the arts, from sport to space exploration, commercial and symbolic world visions will justify and help to hide - or else to expose - the tricks of the trade. The greater the symbolic power, the more effective a new positioning will become because it will be able to ride the waves of the collective fantasies that support thought and action for each specific region and population, physically and geographically situated and contextualised (Touraine, 2013). For each group, the life of the group is the life of the conflict within and without, in private and in public, Intramuros or in the competing arena of likeminded groups. Often, civil wars are able to show higher degrees of violence because in fratricide conflicts novelty is emerging faster than in between different generations. Precisely, inner conflicts and inside group conflicts can embody and materialise the cataclysm that is being announced elsewhere.

Inspired by Sophie Bank's (2024) work, who is a prominent advocate for the Transition Network, "inner transition" is a set of subjective changes mobilized by this community that emphasize the role of the self to tackle the climate crisis (Carvalho, Ferreira, 2024). The focus is on personal resilience, community connections, psychology, and spirituality. Key topics include perceptions of inner transition; transition and self-transformation; habits and lifestyle changes.

Fascinating examples of creative tensions exist in civic movements as activist networks are at the forefront of political breakthroughs, no matter the time-space

territorial or historical context. The ethical and social justice commitment of Playback Theatre illustrates the ultimate quest for humanity of living life to the full. The desire and need to embrace all that life has to give is an impulse and drive that Playback Theatre captures, processes and shares. The ethical commitment and the life-passion are understood from their political implications as the collective search for common good (Mann, 2006). Contemporary authors offer rich reflections that perform an interpretative operation that is similar to that of Playback Theatre. Authors that address the role of myths and their economic, social and political impacts are a powerful resource for the Playback Theatre community precisely because of the parallelism that they share. That is, Playback Theatre captures the symbolic rationale of spontaneous accounts through the improvised enactment. This performance embodies and manifests essentially mythical influences, even if diffused, subtle and disguised. By bringing to the surface these connections, the works of these authors help to reveal how and why applied and experiential areas such as Playback Theatre have the engaging and attraction power that they have and which is already there, whether it is noticed or not.

The power of imagination

The drive to unlock the full potential of human spontaneity and creativity has been a central force behind the development of civilizations throughout history. This creative urge also fuels metaphysical and fictional creation as a means of exploring existential questions. A basic understanding of psychopathology can help explain how sensory overload leads to apathy and blocks creativity. This same knowledge, however, can also foster disruptive thought and action, safeguarding the conditions needed for transformative experiences. Social regulation and control often suppress emancipatory agency, but this can be reversed by using artistic production as an exploratory, safe space for creativity (Parrique, 2023). Sound and image, through the study of art and design, already play a significant role in contemporary thought (Bertmark, 2022). Innovation for sustainability presents an ongoing challenge, inviting reflection, critique, and the creation of spaces for productive dialogue (Mann, 2018). Today, we find ourselves in a period of Neo-baroque and Neo-Renaissance renewal. The experience of sound and image, which digital media amplifies to saturation, reflects the complex challenges facing contemporary societies.

Dystopias and utopias are both products of the collective imagination, born from the exploration of existential anxiety. Negative, self-destructive narratives and positive, empowering ones shape our understanding of the world. Challenging the current dystopian dominance of hegemonic thought is itself a form of resistance, a way to announce new utopias. These new utopias are not abstract or

subservient—they are active visions of better futures that can unleash new energy and provide the social cohesion needed for collective action.

The concepts of intersectionality - highlighting how different forms of exclusion and discrimination intersect, leading to polycrises - have profound consequences on the social fabric (Bertmark, 2022). The passive acceptance of oppression, as if powerlessness were a natural state, signals increased vulnerability across populations and territories. Current ecological and social crises, such as climate change, biodiversity loss, economic inequality, the migrant crisis, the erosion of democratic power, and the rise of non-democratic regimes, are all part of this broader crisis. Political discourse has examined how idealization and abstraction can be seductive tools, crafting a way of life that risks rendering the planet uninhabitable (Mann, 2006). This pressure breeds both messianic and apocalyptic narratives, reinforcing the status quo and perpetuating dominant hegemonic ideologies.

Numerous thinkers have explored the link between art and politics, particularly in the search for the common good, in both art and politics, which have created a rich scholarship of critical thought (Touraine, 2013). Archetypal and symbolic interpretations have helped dismantle the myth of technoscience, highlighting the importance of socio-technical systems. By intertwining logos and myth, art and design provoke new, disruptive perspectives that challenge dominant narratives (Bertmark, 2022). Denouncing dystopian realities is itself a form of creating new utopias. Art, in this sense, is the human endeavour that reinterprets reality, producing creations that capture and enhance the human experience, offering radical new alternatives at every societal level. This form of art is not just about aesthetics—it represents the highest form of political engagement.

Militant science plays a vital role in pushing the boundaries of human creativity, embracing diverse epistemic perspectives to sustain the emergence of novelty. Science is never neutral and claims of neutrality are often a political void, not an emancipatory stance (Banks, 2024). New, radically different approaches to reality, often driven by active research and social movements, already exist within contemporary societies, offering a glimmer of hope for humanity's survival and flourishing. Expanding horizons enables both individual and collective thought and action to reach their full potential, locally and globally. This fosters human creativity, resilience, and spontaneity, creating the necessary conditions for positive alternatives to emerge. The direct experience of this expansion occurs through the material embodiment of sound and image, which serve as vehicles for both the consumerist and alienating messages of new and old media (Haraway, 2016). However, it is by fully exploring these stimuli - sound and image - that we can imagine a different, more hopeful future.

For art and design, the central challenge is to recognize and embrace the potential already present when the right conditions for creative expression are nurtured (Lee, Carvalhais, 2024). Trust and openness are key ingredients in fostering social, political, and ecological engagement (Lindqvist, 2001). Examples of transnational movements that are pushing new boundaries, even in fragile institutional contexts, include civic initiatives such as Degrowth, MAD Africa, Outras Palavras, Agroecology Network, Transition Network, DiEM25, Extinction Rebellion, Abolitionist Network, the International Playback Theatre Network, Rizoma Integral Cooperatives, and the Global Ecovillages Network. These grassroots movements, through global and local interactions, create new opportunities for raising awareness, fostering responsibility, and inspiring collective action.

To become attached to an idea and attracted to a particular way of thinking, especially when confronted with the choice between incompatible alternatives, is revealing of the existential and metaphysical position that one holds in life. “Sink into healthy selfishness, that is, delve deeper into yourself and what you want for your life. Respond to your own perspectives and learn to disappoint those of others.” (Pérez-Troncoso, p. 21, 2022). Following a pattern that is conservative and risk averse tends to lead to adherence to dominant thinking, whilst the restless search for alternatives and for change will give preference to non-dominant thought (Lacoue-Labarthe, Nancy, 1991). Dominant thought tends to present itself as being exclusive and universal, and is criticised for being myopic, monolithic, homogenous, orthodox and doctrinarian. On the contrary, non-dominant thought is fragmented, dispersed, heterodox, carries a heavy dose of self-criticism and takes to the extreme its inquiring capacity. If the life cycle of ideas could be considered, then one could imagine the attempts to classify knowledge production that would connect dominant thought with self-assurance, maturity and old age, after which decay and death occur, whilst non-dominant thought would be still in its infancy, insecure and dispersed, rushing for novelty and full of energy.

The power of imagination is the capacity to use already available resources in an unprecedented fashion. Imagination and symbolism have a connection; myths explore that oneiric dimension through a narrative that somehow seems plausible (Esteves, et al., 2021). The expression, “good enough for now, and safe enough to try”, referring to evolutionary connections in collective governance settings, captures the provisory nature of first guesses that emerge from spontaneous and creative interaction through inner and outer dialogues (Parrique, 2023). Language use creates the habits that structure the rules that govern grammar. Fiction is similar to habit, both emerging from patterns that are already there, already available. The scope and spectrum of possibilities that are accessible is tied to previously explored and experienced efforts to intentionally and consciously or not, individually and collectively, make visible what was not there before. That thought and action are structured as language helps to understand how it is

possible to realise that infinite combinations are possible from a finite set of rules. Translation between languages illustrates the difficulties between match-making terms and expressions. Mathematics, geometry, poetry, games and gamification, communication among humans and beyond humans, every expression of human knowledge involves this translation that assumes as given the myths, symbolism, narratives and language use that make those knowledge expressions possible.

If it is true that all there exists are myths of origin, this origin is already oriented and disposed in a certain fashion. Science and technology, or the principles and purpose of specific groups, from criminal organisations to respectful recreative societies, share the power of imagination. Facts and objective reality are tied to specific contexts and acquire the relevance, status, importance and weight of the context. Limit situations, positive and negative alike, explore, reveal and delimit horizons of possibility. The use of terms related to judgmental criteria and the calibration and exposure of the standards that are being used in each particular instance of formal, non-formal and informal knowledge creation and sharing, is present across civilisations and historical eras. Moral, ethics, right and wrong, good and bad, beauty and ugliness, good taste and bad taste, illustrate the provisory, contingent and conditional essence of whatever is lived authentically and in an intense and dense form (Mann, 2006). Being lost and trying to find the right words, breaking through whatever challenge, crisis, difficulty or the different situations that are present when discovery occurs, share that fictional power of imagination. It is literally impossible to capture, to see, to identify and to recognise an expression, a reality, a situation, that is not part of the available code and the set of resources and combinations of resources that are compatible and translatable from an alien to a familiar universe. Surprise occurs when connections are made that were seemingly impossible as they were not there before, not yet available to be digested and ruminated, integrated and made one's own.

“The sculpture is already complete within the marble block, before I start my work. It is already there, I just have to chisel away the superfluous material.”, as Michelangelo commented, is also true for the biological history. Life in the planet is shared by all living entities; it is the same life process that is shared from generation to generation, across different scales of the biological world. Intimacy, familiarity, calling something our own, proper and unique, is also the universal, including the capacity of awe, of surprise and wonder. The alien from within, that which seems unfamiliar, positive or negative, can only be reached and recognised, and made into one's own by an expansion of the horizons of possibility. In language, in biology, in the stranger-within, in whatever dimension that is simultaneously unique and universal, it can be said that language speaks through my use of language, biology continuous through me, and inner and outer universes

of meaning are singular and individual and also are ready-at-hand for anyone to take, as a contagious virus or bacteria that never stops spreading (Agamben, 1990).

Children that survived isolated and were raised in the wild, and that have acquired specific competences that are different from those raised in social settings, exemplify the need to acknowledge a hard to manage sequence that organises and orders what may be considered to be available knowledge. If three drawers contained what is known, then what is known that is not known and finally what is not known that is not known, imagination would be the special key that could connect to the unknown. Memory, will, desire and ambition are examples of the hard to track and the traces and vestiges of the maps, the codes, the structures and hidden links and connections that are permanently available; they are already there and, yet, need to be dreamt, imagined and made into figures, protagonists and antagonists of whatever narrative that is emerging. Discovery, in technoscience, in literature and performative arts, in sports or urban planning, whatever the context, follows the same pattern of language use (Bateira, Vasconcelos, 2002). Habit emerges from practice, which induces familiarity that in turn triggers acceptance, appropriation, inculturation, socialisation, rule-making, and the definition of codes and standards, the criteria and the calibration tools, the tool box that itself contains the seeds for the next horizons of possibility of language use. Nihilism, surrealism, dadaism, or else efforts to create new collective decision-making techniques, including sociocracy, holacracy and bottom-up governance, and even the followership-leadership innovations, illustrate the in-process creative tension, the movement and change instance that is permanently already available and yet needs some spark to trigger its emergence. Organised action, from criminal organisations or from a supreme court of justice, share the same dependence of the in-process emergence of fiction that becomes possible, achievable, doable and desirable.

Playback Theatre paradigmatic example

Sound and image can become immediate and direct on stage or in the improvisation settings or else in the formal scenario of Playback Theatre (Roberto, 2025), which is understood by many as a powerful place to explore, dismount and reframe the essence of the essence of being human because it offers easily shared inner-outer movements of change, of creativity and of spontaneity. The scholarship on image and on sound is an influential source for academic breakthroughs because of its capacity to relate theory and practice in a way that is transversal to societal sectors and spheres of action (Mann, 2018).

Navigating the troubled waters of the twenty first century, a few comments and hints help to grasp what is left to be done by the Playback Theatre community, methodologically and operationally. Jacob Levy Moreno (1947), the father of the

Theatre of Spontaneity, of psychodrama and of group therapy, considered the future development of social theatre through the use not only of live narrations but also of texts. Moreover, besides using texts that were already written, Moreno considered the importance of the writing of new texts. The writing of texts as a practice and methodology, as well as reading and enacting texts, may come as a surprise yet it may open up fertile grounds for further development.

The psychologist Kurt Lewin argued that “there is nothing more practical than a good theory”. Theory, the term and the concept, in its origin, was connected to play and drama, so that to put in scene, to make visible, was what a theory was meant to be. That is, it enabled seeing differently, from a different angle and viewpoint. The magic of Playback Theatre may be inspired by powerful and inspiring texts, those already written and those yet to be written.

Portugal is celebrating the fiftieth anniversary of its democratic revolution – 25th of Abril of 1974-2024 – and the celebrations have taken a three-year period, 2023-2024-2025. Several editorial projects have emerged for the occasion, including the publication of translations and of new texts. Portuguese is a Latin language and many speakers of other sister families can read it, so the idea is to promote an interest for ground work that brings in clever ideas. Playback Theatre has a core structure that is transgressive and disruptive by placing at the centre the story to be told, through the protagonist eyes and voice. It assumes that all stories are worth being told. That is, that there is always the possibility to tell a story, no matter the circumstances.

Playback Theatre has an intrinsic political character in the sense of acknowledging politics as the search for common good. Playback Theatre may also be understood as art and science; art, in terms of artistic expression, production and fruition, and science, as the doctrine, the theories, models and techniques used. Arts and science are, have been, and may become even more so, revolutionary and transformational, individually and collectively (Traverso, 2019). Arts and science are human creations that recreate reality, literally enabling new possible worlds. There is no such thing as neutrality in science, neither in arts, as both represent universal languages, inheritors of ancestral codes and grammars that ultimately, have the potential to benefit humanity as a whole.

Both Playback Theatre's intrinsic arts and science are, somehow, constitutively politically active because they address inner and outer worlds experiences of existence, permanently in search for and at the service of a higher good (Roberto, 2025). Understanding, grasping, acknowledging, identifying, recognising, nurturing and fostering the deep-level and deep-dive political engagement that is already present in the smallest instance of Playback Theatre's initiatives is urgent and

mandatory. It is a huge and pathetic waste if it is left unexplored and shared only within a fraction of its reach, forgetting the potential it already holds.

There is a change in paradigm when the structural foundations that supported a specific epistemic position fall and need to be renewed (Vieira, 2018). The hypothesis that in Antiquity, the different schools of philosophy, or the monasteries, cathedrals and theological schools, in Medieval times, of Eastern and Western influences and religious traditions, or the research centres and think tanks of the early industrial period, in the Southern and Northern hemispheres, and now the grassroot civic movements, took the role of incubators of novelty forcing the rest of society to react even by or through rejecting, ignoring and omitting the new message (Traverso, 2019). The bearer of negative news, the messenger that brings home news of loss, is rejected, yet novelty emerges from new answers, new perspectives, attitudes, positions and functions that have to be experimented with in first, second or third hand. That is, whatever novelty is grounded in someone's experience that is fixed in some kind of production that enables the question to be raised of who lived what in order to be able to produce such artefact, method or technique. There is a practice that becomes a bureaucratic procedure, institutionalised and turned into techniques but long before reaching the crystallised stage it fed from life's drive, impulse and charisma, understood as the inner-outer, individual and collective experience of creativity and of spontaneity, which is visible in art, in sport and in every human endeavour with different degrees of transparency and of visibility.

Every present-day social movement, civic gathering under a common banner, concentration of energy, of commitment and of unstoppable motivation for change and for renewal shares the capacity to create unique, unprecedented and irrefusable existential positions (Parrique, 2023). That is, it is like a virus and a contamination, or a passion and a love affair, or an addiction and a compulsive behaviour as all these situations illustrate changes in existential states and a before and an after specific events. These events, as happenings, may be subtle or else violent, may be visible from the outside or only lived through inwards, may be more or less dispersed and spread across cultures, populations and geographical areas, yet they become easily recognisable after a certain stage. A critical mass, a tip over effect and a turning point emerges by the statement of it is there whilst beforehand it could not be traced, identified or acknowledged (Haraway, 2016).

The issue is that future historians will say that today's social causes take the role of archetypical myths, or of freedom theology liberating doctrines, present in all religious traditions, or else of technology, of science and of new techniques that materialise new possibilities (Cabral, 1990). What was there as an antagonism suddenly gives birth to an unexpected angle of production of human reality. As gardening, midwifery, gastronomy or excelling in a particular game, play or

performance, the inner structure of what makes humans human becomes visible. Again, this is true in every quotidian and routinary futile and trivial task that is able to connect to the magic of existence. That is, it is an existential experience and, as such, it may or may not be acknowledged, recognised and identified. A posteriori, or from a certain critical distance, the paramount power of social change can be traced to this or that context, situation or circumstance that created the safe enough conditions for renewal. Every spiritual, laic or religious spirituality indoctrination builds on this experience of uniqueness, of novelty and of impossibility to be refused (Agamben, 1990). To a certain point, the starting conditions, being able to create safe and secure time-space events is crucial, for humans and beyond humans. What is negative or self-destructive may then be turned into positive and constructive, driving the waves of creative tensions, individually and socially.

Movements like agroecology and ecovillages, or the degrowth and the Extinction Rebellion, or the Rizoma Integral Cooperatives (Duarte, et al., 2025) and Ethical Finance, or the Theatre of Spontaneity of Moreno and varied applied outcomes of social theatre, or different currents and schools of thought in arts, sports, therapy or education, are important spheres for contrasting conflicting and incompatible positions that then lead to the emergence of novelty, within groups or imitated, copied and repeated as a new trend. As is argued by Baudrillard's (2001) simulacrum theory, imitations, derivatives, copies, hacking the precious novelty is itself part of the creative drive that then leads to social change.

Conclusion

Every generation reinforces, repeats and strengthens its heritage or else rejects it and is forced to produce something new. The message from studies of image and sound captures a critique that is simultaneously subversive, dangerous and menacing, as well as it forces a breakthrough in action and thought, among humans and beyond humans (Touraine, 2013).

Human experience is based on appearances, perceptions, sensations, memory and will, as drive and as impulse (Mann, 2018). The history of civilization is itself the journey of death and renewal, individually and collectively, as reality and as fiction. Reality needs canons, doctrines, rules of regulation and control that can themselves be revised, reinvented, transformed and metamorphosed into something new. Play, life as art and art as a game, does this trick, this choreography of co-construction that enables trespassing the barriers of space and time, in science, in fiction and in reality.

If science is the search for new answers and of new narratives of death and renewal, then sound and image and space and time go hand-in-hand in a

pantomime that recreates the experience of existence (Graeber, 2015). Sound and image in art and design are an exercise, an experimental exploration of self-knowledge, that pushes forward art, design and knowledge as an opportunity and an occasion for death and renewal, reinventing the new (Haraway, 2016).

The core message is that canons of authenticity, of density and of intensity may well help to digest the heritage from the ideals and fantasies of kindness, beauty and truthfulness, whilst simultaneously transcending and trespassing past borders between ethics and aesthetics, fiction and reality, and will and desire (Lee, Carvalhais, 2024).

The metamodern experience of existence, its metaphysical structure of immanence and transcendence, of inner and outer worlds of experience, constitute illuminating narratives for the exploration of novelty (Esteves, et al., 2021). As social and ecological concerns are transposed to the political arena of formal decision-making and of legal local and global platforms, as gentrification and commodification Taylorism represents a co-option of the best of human spontaneity and creativity, then this greenwashing is also the Trojan horse for novelty, novelty in disguise (Banks, 2024). That is, human drive and human desire are not a conquest adventure of domination onto the other, the alien and the foreign, but into selfhood and quotidian contemporary experience of existence. If this means that ecology is a new religion and if there are moral concerns about the desire and need for a new religion, it is important to state that in secular societies science, technoscience in particular, inherits the interdicts and mandatory obligations of past institutionalised rites and rituals (Bismark, 2024).

Coding, recoding and decoding using rhythm, as a co-curating experience (Pérez-Troncoso, 2022), as if methodological and technical use of scientific criticism can play the role of the judge and of the shaman, then the mere experience of participating in the performativity of the image and sound production and consumption is itself the game of art, of life, of design, of searching and questioning, and of exploring the subtle breakthroughs of existence.

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SENSORY ETHNOGRAPHY: THE INTERPLAY OF ART, ETHNOGRAPHY, AND TRANSMEDIALITY IN HUMAN EXPRESSION

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Abstract

Ethnography has analyzed artistic products from various perspectives, from a self-reflexive approach to fieldwork to a tool for interaction and mutual understanding between the various participants in the research. At the same time, there is an increasing interest in this methodology to problematize the different ways of creating an ethnographic narrative, starting with its relationship with contemporary art. Currently, the emphasis is on a critical stance towards ethnographic work, especially at the disciplinary borders with art. However, the artistic object has been asserted as a tool for individual expression, providing greater significance as a form of expression or materialization of existence (Manfredi, 2022, p. 178). Nonetheless, a phenomenological approach to the investigation of artistic practices can be taken with an emphasis on sensoriality, collaboration, and transmedia strategies during the process of producing and transmitting knowledge (Pink, 2009, p. 42). Thus, the conceptual and theoretical approaches discussed in this article seek to understand the ethnographer's experience of the artistic object and the methodological possibilities resulting from experimentation and understanding emerging forms of creation. By reflecting on the intersection between the practice and production of knowledge between art and anthropology, this analysis deepens the convergence between sensory experience, reflexivity, and artistic experimentation in the development of anthropological knowledge production.

Keywords: Art, ethnography, sensoriality, artistic experimentation, reflexivity

Introduction

The matters pertaining to the relationship between art and ethnography can be addressed through the conceptualization of participant observation and the construction of an ethnographic narrative. In addition, through multisensoriality, this intersection is not just reduced to individual visual, sound or textual expressions, but carries with it a greater openness to the performance of subjectivity in the creation of different perspectives (Pink, 2009, p.96). In this sense, the theoretical approach described in this essay aims to understand the ethnographer's perspective on the artistic object and the methodological

possibilities created by experimenting and understanding emerging forms of creation. Based on reflection on the ways of doing things and the production of knowledge shared between artistic disciplines and anthropology, this analysis will explore the intersection between sensoriality, reflexivity and artistic experimentation in relation to the production of knowledge as understood by anthropology (Hammersley and Atkinson, 2007) . In this way, the aim is to stimulate collaborative fieldwork practices, based on a horizontality in the ethical and political relationships that guide fieldwork. Therefore, by creating a symbiotic experimental space on the border between anthropology and art, I argue that it is possible to expand the epistemology of both fields of knowledge.

Art and ethnography: At the intersection with sensoriality and experimentation

Emphasizing the growing production of knowledge associated with the epistemological intersections between art and anthropology, we highlight sensoriality in the construction of collaborative fieldwork practices. This approach offers an important disciplinary contribution by emphasizing political and social issues at the heart of these collaborations, especially in projects that cross the subjective and the empirical realms. It therefore combines perspectives and scopes from different areas in approaches that cut across knowledge domains (Pink, 2009, p. 23-24). In this way, the literature on collaborative practices has focused on sensory and emotional representations of the ethnographic context in which artistic activities can be inserted (Pusseti, 2018, p.2).

According to Schneider and Wright, the pertinence of analyzing the relationship between ethnography and artistic experimentation lies in the subversion of a disciplinary tradition that belittles experimentation in its various fields of activity (Schneider and Wright, 2010, p.3). Mainly in relation to the expansion of research methodologies and designs developed in the course of anthropological work. However, it also restricts the epistemological broadening of the discipline by making elementary divisions between anthropology and art. These categorizations restrict the development of innovative and original artistic knowledge and scientific discourses that challenge canonical conventions and create heterogeneous directions of individual expression. In this way, the aim of this analysis is to encourage new paths of collaborative experimentation, resulting in new dynamics and ontologies for contemporary artistic practices, such as broadening the scope of scientific production in the context of anthropology.

Experimentation is therefore a key concept for understanding how anthropology originates new forms of work and knowledge from its relationship with art (Schneider and Wright, 2010, p.10). However, the epistemological implications of

the triad of art, anthropology and experimentation are still some way off. Especially in the development of new ways of doing ethnographic work and ways of presenting scientific work. However, as the authors point out, differentiation can be a useful resource in the disciplinary crossover between art and anthropology. Through a variety of links that address the materiality, action and relational aesthetics of artistic objects and sensoriality, theorized around themes such as authority, spirituality, the spread of globalization and new political ideologies (Schneider and Wright, 2010, p.5).

The audiovisual: experimental field or ethnographic tool?

By way of illustration, it is possible to conceive of the cinematographic image as the fruit of a combination between the camera and the body, revealing the materiality of the spectator and the filmmaker. As a result, the audiovisual medium produces a corporeal image that creates a sensory horizontality in the subject. Michel Chion (1993) characterizes the audiovisual medium as experimental, being the object of study of the ontological perception of the image (Chion, 1993, p.175). Thus, the emphasis is on the articulation between sound and image, in which the audiovisual narrative is structured from a framework of references from various sensory spheres and categorizations. In this way, by overlapping, they share an experimental field where a broader sensory complementation is possible (Pink, 2009, p. 13-29).

Increasingly, art has taken on the role of economic, social and political critique, stimulating a renewal of the objects of study of the social sciences (Canclini, 2010, p.29). Thus, artists and anthropologists find their convergence in exploration and analysis. The cultural and social changes caused by capitalism and globalization have also broadened anthropology's objects of study and fields of study. The anthropological critique of Eurocentrism has disqualified canonical discourses on the nature of art, replacing them with a questioning of the artistic social context. However, we are far from placing art as a form of knowledge opposed to scientific empiricism, presenting itself as a way of expanding and complementing anthropological and scientific concepts about the social and economic context of subjects (Canclini, 210, p. 41).

At the same time, it is necessary to understand art as an epistemic experience, which renews ways of questioning and working with the subjective and the ephemeral and promotes a reconsideration of the articulations between ways of perceiving the present (Canclini, 210, p.47). Thus, the expansion of art outside its epistemological domains, the horizontality of social relations and the economic, political and media valorization of artistic works have led artists and anthropologists to act in areas of intersection. As a result, the experimentalism of creators interacts with the perception of audiences, institutional rejections and

institutional attempts at assimilation. In this way, the meaning attributed to these artistic processes is an integral part of the epistemological approach in which anthropology is particularly interested. Consequently, the research questions must be reformulated and the respective conclusions sought in a very different way to the procedures established by the ethnographic tradition. This implies an attempt to understand the underlying processes that guide artistic practice, which is socially constructed (Miller , 1991, p.179).

Considering artistic processes as “methodological tools”, it is essential to reflect on the characteristics of the practices that constitute the referential structure of fieldwork, exploring how artistic practices can contribute to anthropological research, enabling new forms of knowledge. Thus, artistic practices in the context of fieldwork can be used to access new dimensions, overcome social barriers, facilitate social cohesion and cultural mediation. They can also highlight the non-verbal dimensions of being, exploring the “paralinguistic” and grasping imaginary, sensory and emotional worlds, illustrated by the audiovisual medium, as mentioned in the previous paragraph. Together, they allow for a re-evaluation of anthropology as a field of knowledge production, discussing disciplinary boundaries and rethinking ethnography as an empirical practice and relational process, subverting the hierarchical relationships between ethnographer and participant in fieldwork (Pusseti, 2018, p.6).

Therefore, an experimentalist position between art and ethnography blurs the boundaries between epistemological fields, in its materiality, process and experimentation, expanding pre-existing categorical distinctions. Consequently, it makes it possible to develop new possibilities for understanding the social context and its power dynamics, as well as establishing new collaborative relationships (Pusseti, 2018, p.6). Through an approach focused on socialization and reflexivity, this relationship has contributed to a dialogical approach in anthropology and fieldwork practices (Pink 2009, p.11).

The reflexive component of ethnography

In addition, the reflexive dimension of experimentation contributes to a deeper understanding of the data generated by the research, as well as influencing the research process itself and the interactions between the participants in the field and the object of study. As Hammersley and Atkinson (2007) argue, “ethnography is best understood as a reflexive process, which recognizes social research as part of the world it studies” (Hammersley and Atkinson, 2007, p.3). The knowledge gained through artistic conceptualization can generate conclusions that, in combination with other methodologies, can give rise to new theoretical knowledge in the field of artistic practice and in the patterns established in ethnographic fieldwork practices (Wright and Schneider, 2010, p.12). This approach encourages

the researcher to interact with the artistic context in a deeper way, based on reflection and introspective analysis. This perspective aims to have a deeper impact on the understanding of the object of study and the processes associated with it, rather than placing the ethnographer in a position of external agent to the process of artistic creation (Schneider and Wright, 2010, p.59).

By distancing themselves from the binary conceptualizations between art and anthropology, artists and critics have been able to integrate discourses related to semiotics, contextualization and the relativization of the subject into their debate on the objects produced in the field of disciplinary experimentation. Thus, ethnographers must adopt a diachronic position with the disciplinary structures of a given genre or medium, focusing on the social dimension. This horizontal expansion of artistic expression is fundamental for a reflection on the disciplinary intersections between art and anthropology. Based on this epistemic broadening, artists and critics need to familiarize themselves with the structure, context and history of the culture represented, and not limit themselves to making a descriptive narrative about the artistic object, which cannot plausibly be separated from its original context (Foster, 1996, p.202).

As a result of the reflexive ethnographic approach, one can expand non-standard dialogues in collaborative fieldwork relationships, particularly in projects where the subjects come from different cultural and economic backgrounds. Only through a dialogical approach centered on the integration of different discourses can a truly hermeneutic field be constituted with regard to the dialogues between anthropology and art (Wright and Schneider, 2010, p.21). Thus, for artistic practice, anthropology can be the field of reference par excellence for mediating between discourses, providing critically evaluated epistemological resources and a framework of theoretical references, which can help artists to critically participate in the social realities of the artistic object (Wright and Schneider, 2010, p.49). Therefore, from a dialogical and reflexive approach, it is possible to analyze the ways in which the social relations of artistic objects are represented throughout the ethnographic work. Based on a dialogue centered on transparency and reciprocity, the development of self-reflexive research methodologies and scientific production are as relevant for artists as they are for ethnographers.

However, the study of artistic practices can be a complement to the observation of individuals' daily lives, since it carries with it "expressive marks of otherness" (Kapchan, 1995, p. 479). Artistic expression can be a vehicle for the manifestation of a "story, identity or artistic artifact", and we can relate it to the ethnographic method through its interpretative dimension, since it is directly linked to the meaning of the subjective and intersubjective experience of a given group of people. It is also conceivable to articulate art with the ethnographic method due to the stimulation of the reflexivity of the public and the different participants

and in the ethnographic field, by combining various sensory dimensions (Kapchan, 1995, p.484).

Ethnography in the sensory universe: A complementary perspective on fieldwork

With the sensory turn in anthropology, the ethereal experience of the senses, which constitutes one of the crucial elements of artistic practice, is widely recognized as a crucial aspect of fieldwork (Wright and Schneider, 2012, p.62). As an example, it is possible to discuss the function of sound and image in forming “paralinguistic” structures that can be a resource for expressing cross-cultural experiences that language itself is unable to articulate. However, as Michel Chion (1993) points out, the “verisimilitude” factor intrinsic to sound can constitute a figurative value to convey the effectiveness of a given description, always depending on its cultural and visual context (Chion, 1993, p.22).

In light of this, Sarah Pink in *Doing Sensory Ethnography* (2009) explores ethnography as a form of multisensory research, providing a reference point for understanding sensoriality and perception as tools for experimentation. These resources are a means of understanding and reflecting on the daily lives of the individuals taking part in the research and on how ethnographic practices are constituted in the context of fieldwork, highlighting reflexivity. Pink reiterates that, in an exponentially more active way, ethnographic practice must be theoretically and methodologically aware of the sensory world (Pink, 2009, p. 11).

However, the approach and conceptualization of artistic material can be a resource for revealing meanings and conveying sensory information in the context of the fieldwork experience (Wright and Schneider, 2012, p.62). Thus, art constitutes memory and representative places, based on a crystallization and materialization of visual and sound aspects, and is a useful tool for reconstructing everyday environments. A reflection on these artistic practices is significant for anthropology, since it fills in the gaps created by the documentary and descriptive function of fieldwork practices based on traditional ethnographic methods, which are generally visual and written (Wright and Schneider, 2012, p.86).

Conclusion

Ethnographic debates in anthropology and art hold significant relevance beyond academia, reflecting an interest in subverting traditional fieldwork methods through epistemological experimentation. Through a horizontal dialogue between different disciplinary practices, we can develop diverse forms of engagement and dialogical methodologies that foster cooperative relationships. Thus, through a

reflective and sensory approach, one can interpret more faithfully the experiential, individual, and contextual nature of artistic practices. Additionally, the multisensory approach proposed by Pink (2009) enables an understanding of the culturally informed categories, conventions, and knowledge of artistic experience through the production of knowledge based on a phenomenological approach to the senses (Pink, 2009, p.199).

In conclusion, this perspective has provided crucial ways of accessing the knowledge generated through artistic practice, which should not be separated from the ethnographic process as a whole (Wright and Schneider, 2012 p. 99). Rather than focusing on objects in terms of their aesthetic qualities, social use, or cultural meaning, attention has shifted back to practice and performance (Wright and Schneider, 2012, p.160). The way individuals use sensory knowledge and engage in practice can be understood as an expression of subjectivity, through which it is possible to comprehend the world in a culturally specific manner. This practice is also shaped by experiences and ideological positions that extend beyond the individual context. In this way, it can enable an individual's positioning in relation to social institutions and to other individuals—an understanding that must be connected to numerous other markers of identity (Pink, 2009, p.62).

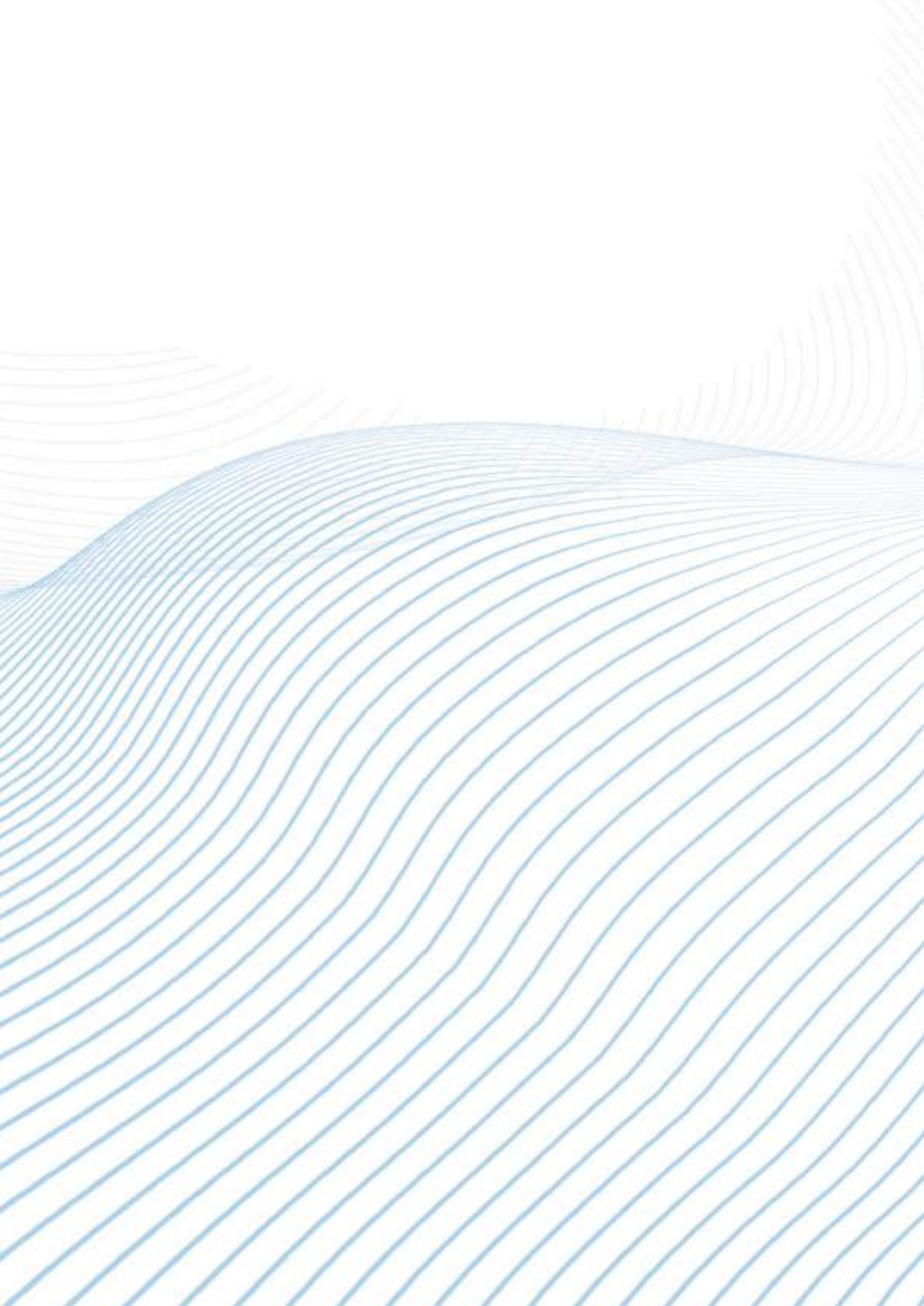
Funding acknowledgment

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KEYNOTE SPEAKERS | ORADORES PRINCIPAIS
ARTIST TALK | CONVERSA COM ARTISTA



Miguel Carvalhais

Keynote title

From Analogue to Metaphor: Art in the computational turn.

Biography | Miguel Carvalhais is a designer, artist, musician, and Professor of Design at the Faculty of Fine Arts of the University of Porto. His research explores computational art, design, and aesthetics, topics to which he has dedicated two books: “Art and Computation” (2022, V2_) and “Artificial Aesthetics” (2016, U. Porto Press). His artistic practice is developed between computational music, sound art, performance, and installation, collaborating with Pedro Tudela in the @c project, and often with other sound and visual artists. He runs Crónica, a label for experimental music and sound art, and the xCoAx conference on computation, communication, aesthetics, and x.

<http://www.carvalhais.org>



Tarik Barri

Keynote title

Creating Visual Music

Biography | Tarik Barri is a builder of audiovisual worlds. As an audiovisual composer and software developer, he programs his own tools for performance and composition. As co-founder of Showsync, he co-developed Videosync – software that extends Ableton Live into an audiovisual engine for controlling visuals alongside music. While his work is built on technical foundations, his approach is guided more by intuition than analysis – seeking that resonance between sound and image where they become inseparable. His work takes various forms including installations, videos and AV performances. Barri frequently collaborates with artists like Thom Yorke, Ben Frost, Nicolas Jaar, and Robert Henke.

<http://tarikbarri.nl/>



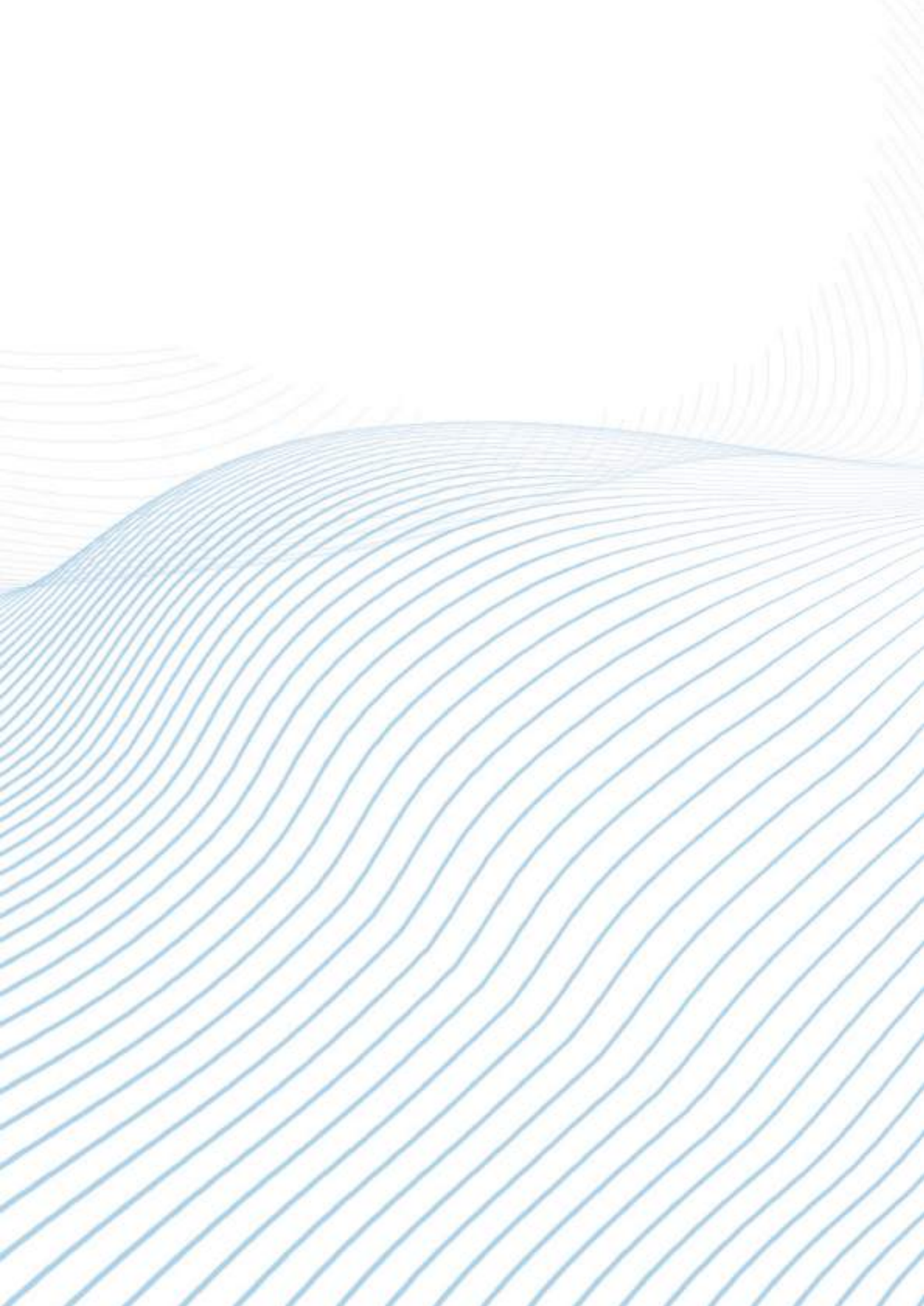
Fernando Mota

Artist Talk

The Creative Process

Biography | Composer, musician, and performer, Fernando Mota has been developing a multidisciplinary approach that blends music, theatre, visual arts, and poetry to create performances, installations and film. He regularly composes music for theatre, dance, and cinema. His work is shaped by the intersection of diverse languages, geographies, and tools, as well as the exploration of the expressive and symbolic potential of natural elements and spaces, alongside the creation of experimental musical instruments.

www.fernandomota.com





WORKSHOPS | OFICINAS

Creating visual music with Videosync

by Tarik Barri



Synopsis | Audiovisual artist Tarik Barri will show how to get started with Videosync, software that allows musicians and visual artists to create real-time visuals that evolve with sound — or stand independently as purely visual works. Videosync extends Ableton Live's creative workflow into the visual realm. Videos can be looped, processed, warped, while visual instruments and effects work alongside Live's audio devices, using MIDI, automation, and signal routing. You can combine live improvisation with precisely pre-composed elements, develop your own audiovisual interactions, and build unique visual worlds. Initially the domain of tech enthusiasts, with Videosync these techniques are now accessible to creators from all backgrounds.

Biography | Tarik Barri is a builder of audiovisual worlds. As an audiovisual composer and software developer, he programs his own tools for performance and composition. As co-founder of Showsync, he co-developed Videosync – software that extends Ableton Live into an audiovisual engine for controlling visuals alongside music. While his work is built on technical foundations, his approach is guided more by intuition than analysis – seeking that resonance between sound and image where they become inseparable. His work takes various forms including installations, videos and AV performances. Barri frequently collaborates with artists like Thom Yorke, Ben Frost, Nicolas Jaar, and Robert Henke.

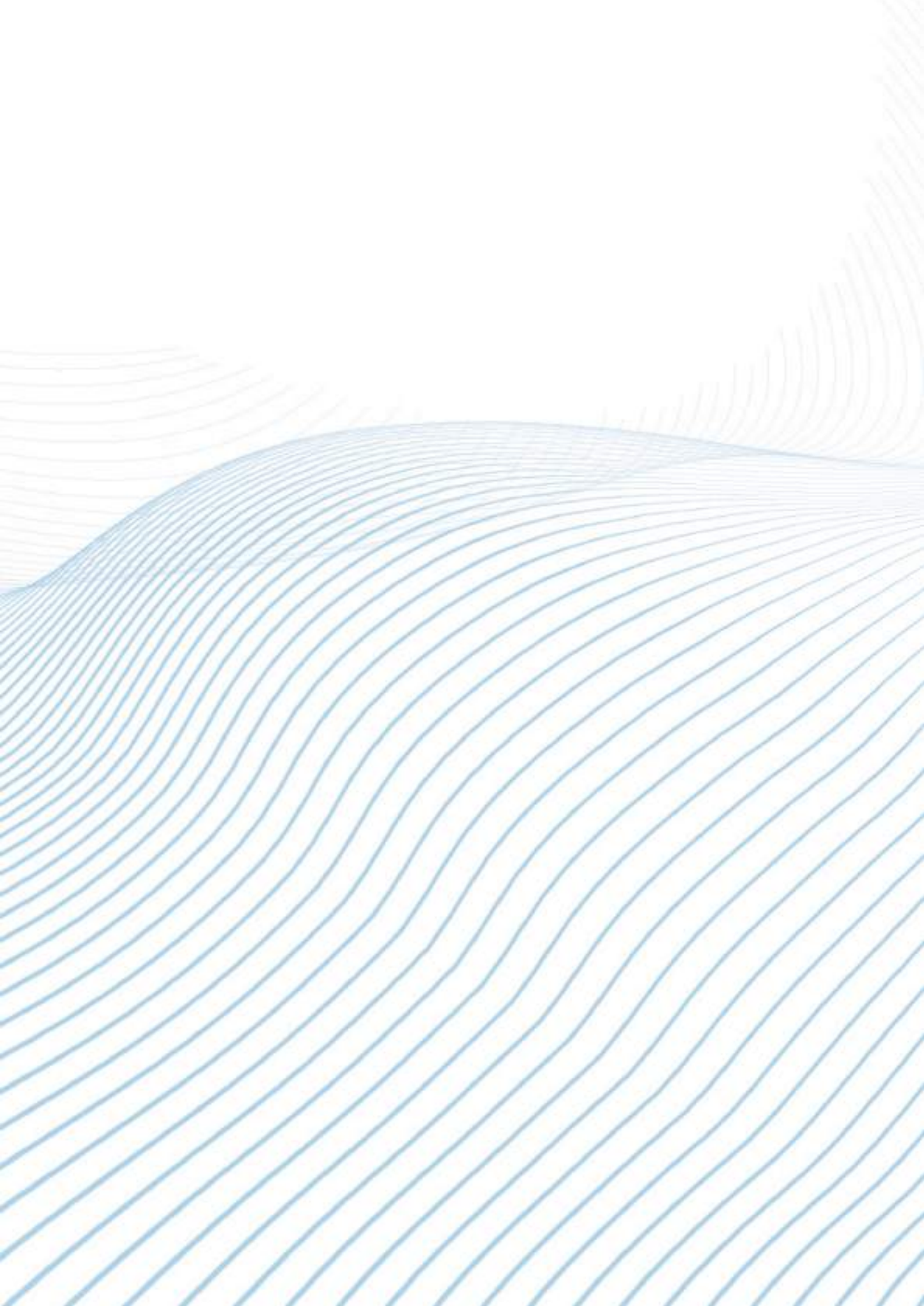
Exploratory Music & Creative Practices

by João Silva



Synopsis | This workshop is designed for students seeking to deepen their practical knowledge in contemporary music creation and real-time creative performance: by applying their own understanding of musical elements in an interdisciplinary environment – characterized by extensive collaboration with their peers and interaction with visiting lecturers –, participants will be encouraged to engage both critically and creatively with music and sound, learning to convey their ideas and emotions, while reciprocally fostering responses to their own and others' musical materials.

Biography | João Silva is a trumpeter, educator, and researcher with a diverse background in music. His eclectic and multifaceted career is particularly focused on the instrument's contemporary repertoire, having played at some of the most important festivals and venues throughout Europe. In recent years, he has developed a particular interest in music for trumpet and electronics, a genre he has delved into and explored, working together with composers and frequently performing in Portugal and abroad. João is also avidly dedicated to improvisation, participating in various experimental music performances, often combining multimedia elements and multidisciplinary intersections.





EXHIBITIONS | EXPOSIÇÕES

ELABORARTE

Student Exhibition

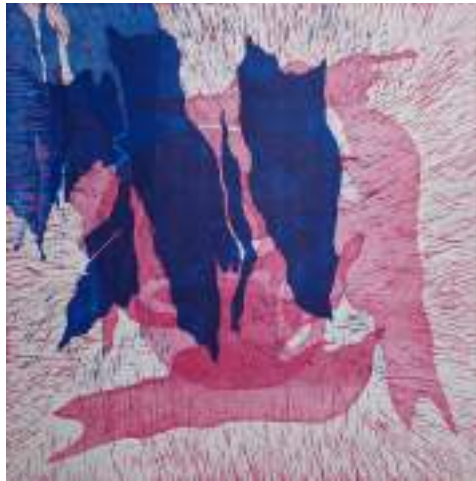


The “ELABORARTE” exhibition, produced for MULTIMODUS’25, showcases a selection of works by students from various curricular units of the Degree in Animation and Multimedia Design (DAM) at the Department of Arts, Design, and Animation of the Higher School of Technology, Management, and Design at the Polytechnic of Portalegre. This exhibition offers a behind-the-scenes look at the creative process, featuring sketches, storyboards, character and environment designs, animation tests, and other materials that trace the journey from concept to final execution. “ELABORARTE” celebrates the artistic process—embracing experimentation, trial and error, and moments of discovery. It highlights the dedication, talent, and creativity of students as they bring their stories to life, transforming ideas from paper to screen.

Illustration by Petra Fernandes.

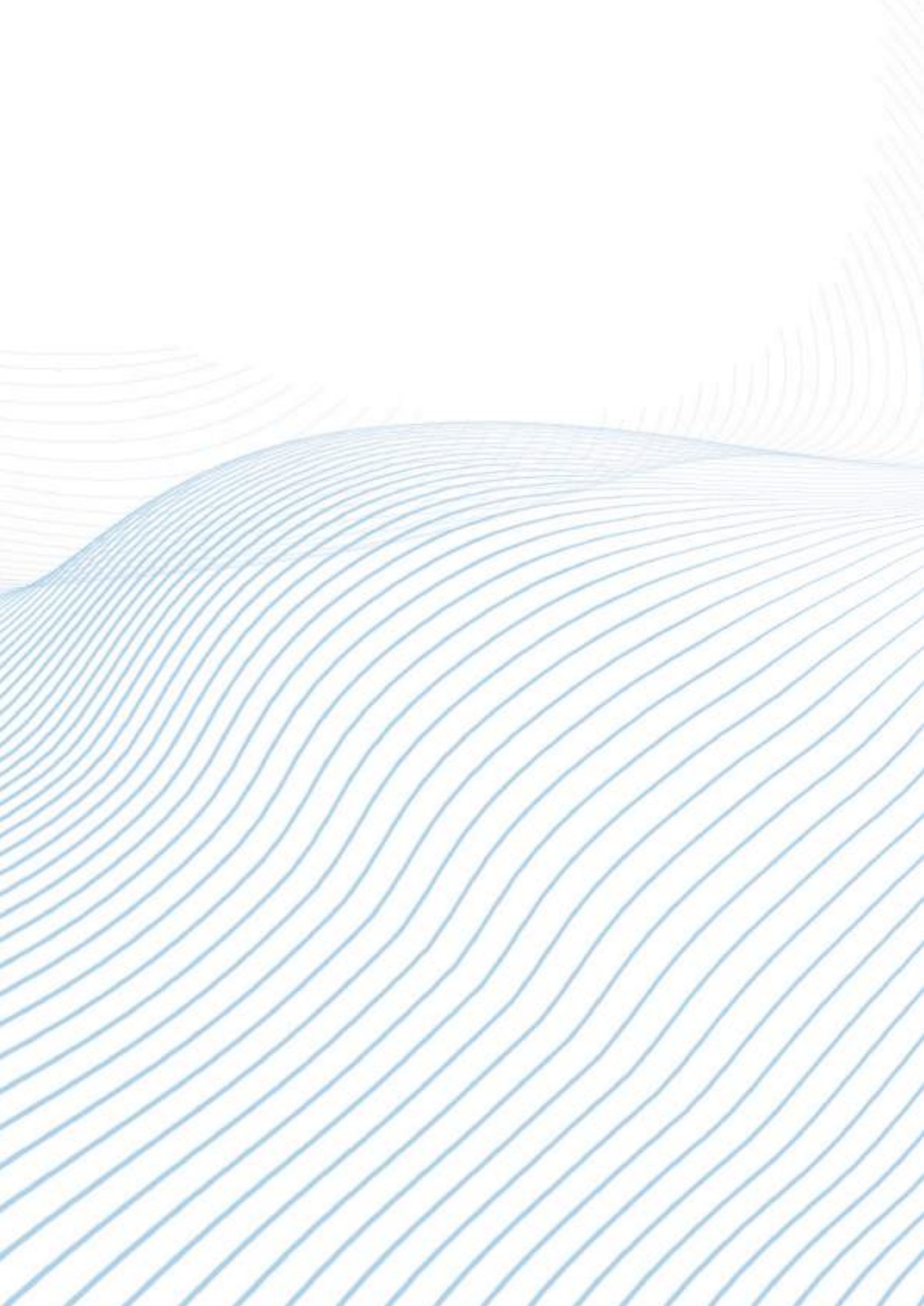
MODUS PRINT

Student Exhibition



“4 States of Matter” is an abstract animation film whose main theme is “matter”. It is developed in four different acts/movements, each one with a distinct graphic and sound universe, globally constituting a journey through the four major states of matter: solid, liquid, gas and plasma. This exhibition displays the objects and equipment used in the production of the short film.

Image by Carolina Condeço

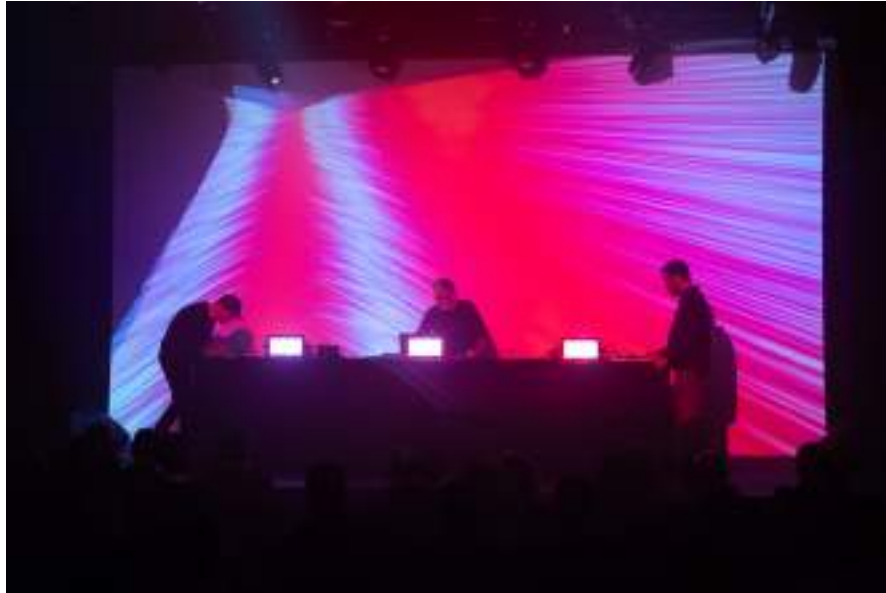




AV PERFORMANCE | CONCERTO AV

30×N by @c + Visiophone

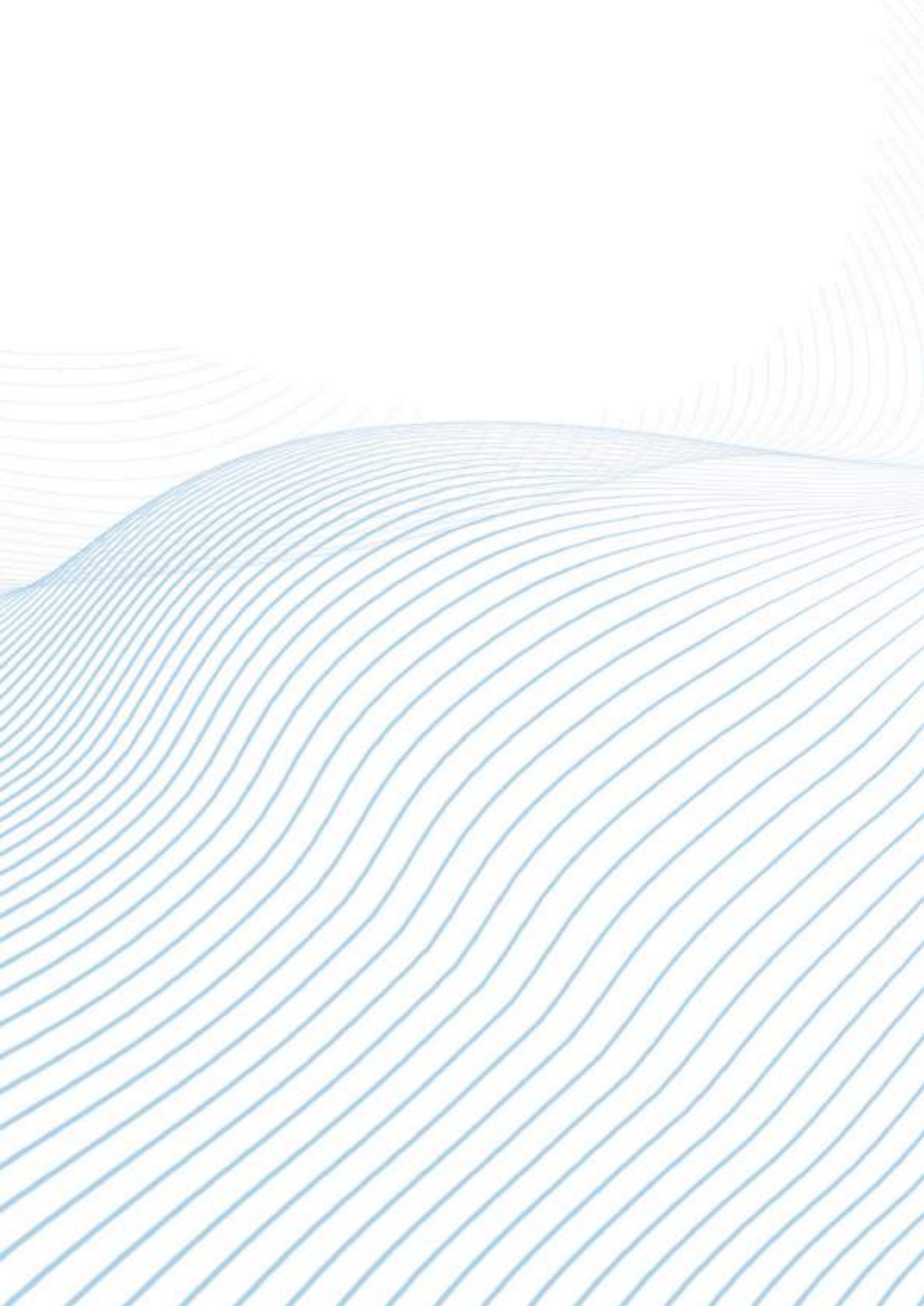
By Vitor Joaquim

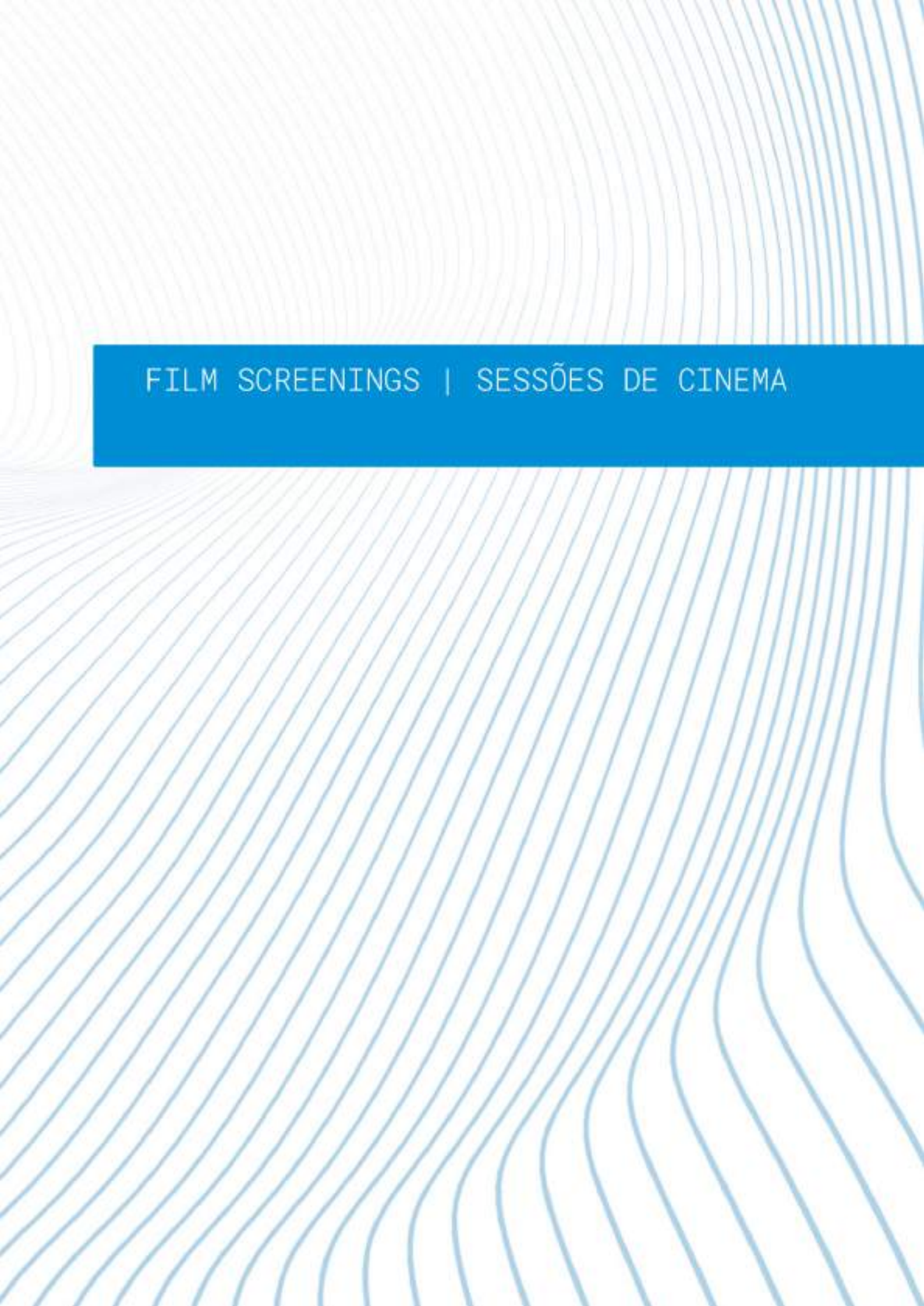


Synopsis | Audiovisual performance developed with a modular system with which the three performers interact in a continuous exercise of generative composition with sound, lights, and visuals. 30×N explores a territory in which computers are used not only as instruments or tools for visual and sonic production but rather as agents and creative partners. 30×N emerges from a meeting between performers, audience, and machines.

Artists | Miguel Carvalhais & Pedro Tudela: computers, sound; Rodrigo Carvalho: computer, lights, visuals.

<https://at-c.org/performances/30xn/>





FILM SCREENINGS | SESSÕES DE CINEMA

MONSTRA Festival – Monstra à solta 2025

Extension – selected films



Since 2000, MONSTRA | Lisbon Animation Festival has as main goals to celebrate artistic transversality and to promote encounters between people with different artistic backgrounds by using the most basic and multidisciplinary language we know: the one of Animation Cinema. Throughout the years, the Festival has developed into a concept... MONSTRA on the Loose. Firstly, taking over Lisbon, in multiple places and finding publics of different interests and sensibilities. Then, MONSTRA is set loose across the country, visiting more than 40 cities each year.

Shortfilms

Título	Ano	País	Duração	Realizador(es)
Circle	2024	South Korea	0:06:50	Yumi Joung
Croak Show	2024	India	0:04:12	Suresh Eriyat
Tennis, Oranges	2024	United States	0:10:53	Sean Pecknold
Extremely Short	2024	United States, Japan	0:05:18	Koji Yamamura
Silent Panorama	2024	Belgium	0:05:09	Nicolas Piret
Glass House	2024	France	0:05:16	Boris Labbé
The Night Boots	2024	France	0:12:29	Pierre-Luc Granjon
Brush Me	2024	Austria	0:02:00	Nikolaus Jantsch
A Night at the Rest Area	2024	Japan	0:11:34	Saki Muramoto
The Wild-Tempered Clavier	2024	Germany	0:07:22	Anna Samo

Punta y Raya Festival

Extension – Best of 2023

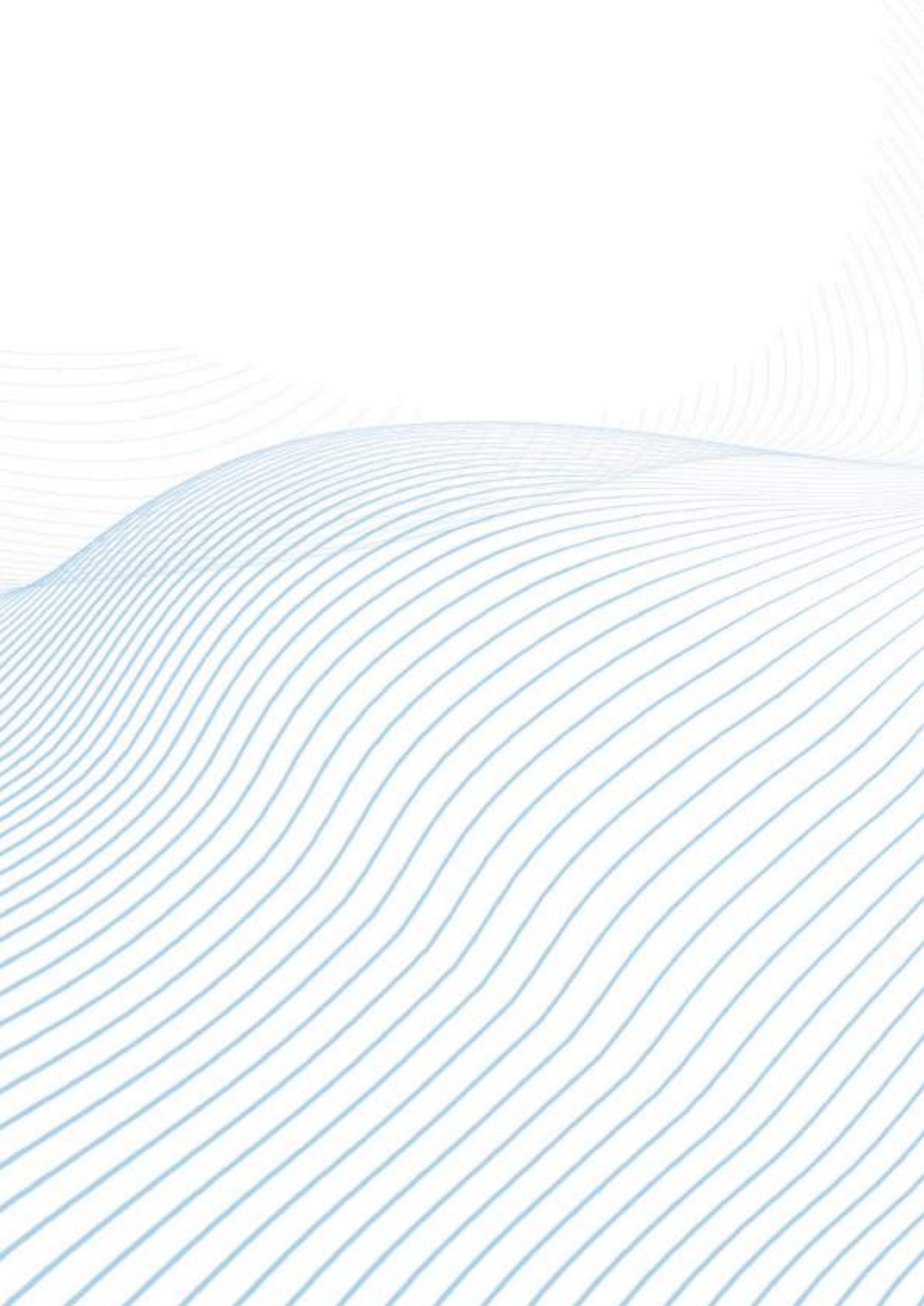


The world event for Abstract Art in Motion brings together the Punto y Raya community in various cities. The Festival celebrates the latest achievements in abstract film, animation & new media, and recovers & contextualises great classics, providing a creative meeting point between artists and general audiences. It invites experimenters to take the genre's possibilities to the limit, and motivates new audiences to take an active role in the creative process.

Shortfilms

Título	Ano	País	Duração	Realizador(es)
4:3	2019	United Kingdom	0:04:48	Ross Hogg
dunes	2021	United Kingdom	0:01:12	Simon Holmedal
Evanescence	2022	Spain	0:04:42	Blas Payri
.-=+*#%@	2023	United States	0:03:23	Luke Shannon
Earl Grey - False Horns [INP031]	2020	Germany	0:05:32	Gilbert Sinnott
The Immortality of the Crab	2019	Italy	0:02:20	Giacomo Manzotti
Making Patterns Move	2021	United Kingdom	0:04:25	Ian Helliwell
Bildraum	2022	Switzerland	0:05:45	Dirk Koy

The Faults	2021	China	0:01:41	Gao Yang
Transcience	2022	Poland	0:04:34	Sylwia Zolkiewska
Hillocks	2020	United States	0:03:45	Maria Constanza Ferreira
Intersextion	2022	Canada	0:04:05	Richard Roger Reeves
Help Desk	2023	United Kingdom	0:03:10	Edwin Rostron
Pneumomania	2021	Iran	0:01:11	Ghazal Majidi, Behrang Najafi
O/S	2023	Germany	0:05:00	Max Hattler
Moving Movements	2023	Netherlands	0:05:52	Gwendolyn Lootens
&More	2022	Hong Kong	0:03:14	Ho Tsz-wing



CONFERENCE SESSIONS | PAINÉIS

Conference Session 1

Moderator: Paulo Simões Rodrigues

- Exploring social issues through image in a gastronomy experience
 - o José Simões, Ricardo Bonacho
- Exploring the Intersection of the Portuguese Revolution, Multimedia Technology
 - o José Maia
- Estereótipos e tabus nos processos criativos da representação erótica masculina
 - o Nuno Lourenço
- The landscape through the eyes and touch of Gabriela Albergaria
 - o Laura Rebelo

Conference Session 2

Moderator: Paulo Maldonado

- Communicating the City's Heritage through Design
 - o Cristina Santos
- Virtual Adufe - a VR musical experience
 - o João Ramalho, Rui Dias
- Artistic collaboration: lessons learned from the case study Five Centuries, 50 Years – A Remembrance of the University of Évora - Video Mapping, Music, and Theatre
 - o Hugo Marques, João Cordeiro
- Digital Interactive Systems in the Education of Children with Special Educational Needs and Disabilities
 - o André Conde, Rui Travasso
- Between Body and Code: A LMA driven Generative Audio-Visual Creation in the Performative Space of VR
 - o Rui Antunes

Conference Session 3

Moderator: Pedro Matos

- Entre a arte e a ciência: nos bastidores do projeto Memórias da Azinhaga por Saramago – oito curtas documentais
 - o Júlio Silva, Ana do Carmo, Manuela Silva, Maria Romana, João Cordeiro, Luís Santos
- A crítica rancièriana da função mimética da “imagem”. Os desdobramentos do imaginário no regime estético das artes
 - o Erika Rodrigues
- Sound, Rhythm, and Tapestry - The Aesthetic Convergence of Sound and Image in Portalegre's Contemporary Tapestries
 - o Telmo Lopes
- Sound Spatialization Approaches as a Performance Tool
 - o Suse Ribeiro
- Pierre Hébert Performances e Resistência
 - o João Mendes

Conference Session 4

Moderator: Inês Secca Ruivo

- Espaços Comestíveis
 - o Bruno Silva, Francisco Babo

- When Walls Speak Digital: Augmented Reality Meets Urban Art
 - o Miguel Mazeda, Manuel Silva, Luís Teixeira
- Fotografia Digital na Média-Arte: Criatividade, Tecnologia e Novos Paradigmas Visuais
 - o Miguel Lima, Luís Teixeira, Mirian Tavares
- Proximação: a Apresentação de uma Performance Interativa como Diluição das Fronteiras entre Arte e Vida
 - o Jorge Marques

Conference Session 5

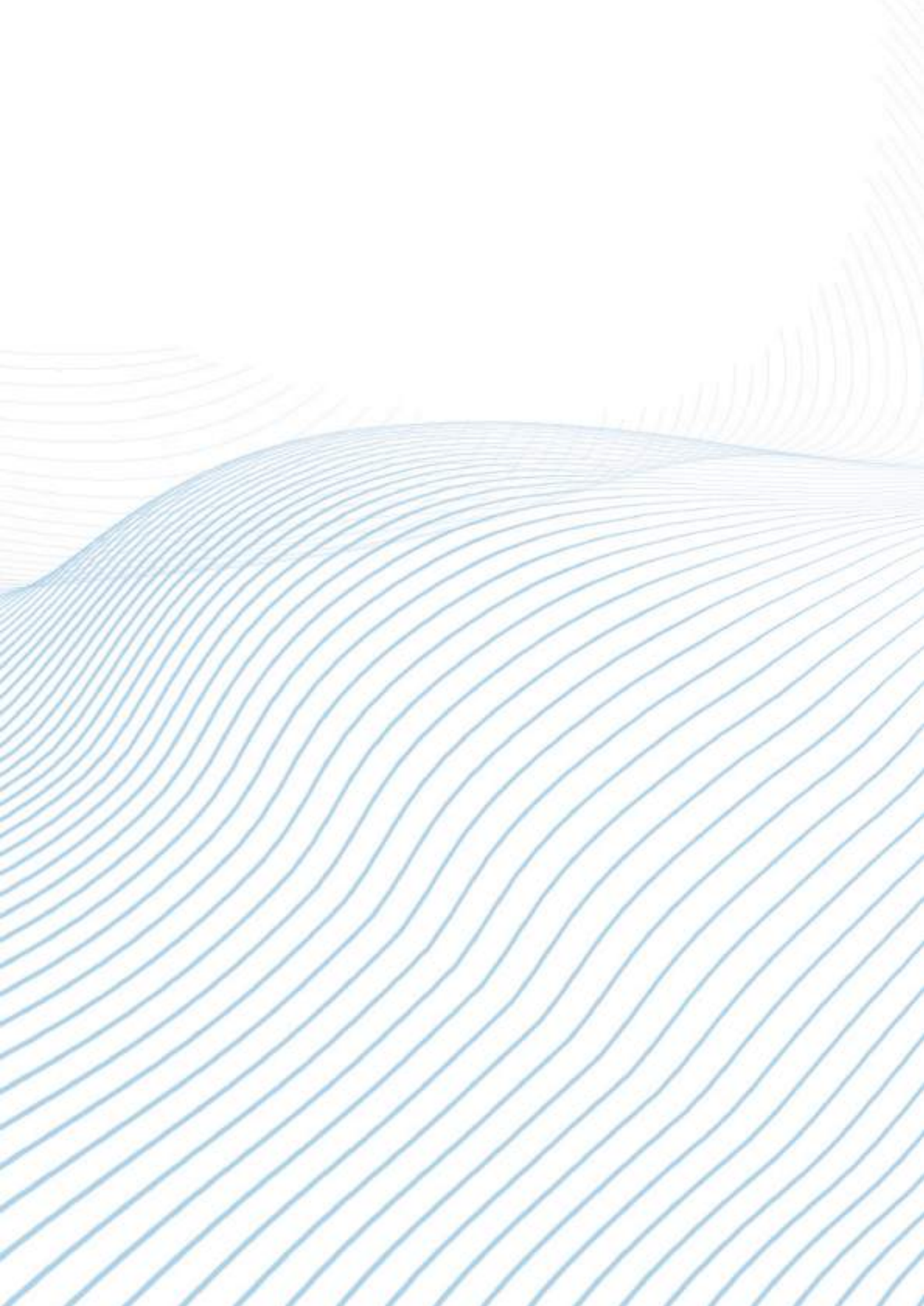
Moderator: Paula Reaes Pinto

- Immersive Storytelling: Exploring the Intersection of Spatial Audio and Live Theatre
 - o Gerald Estadieu, Sandra Olga Ng Ka Man
- Do and Understand: Rethinking the impact of participation via physical and digital mediums
 - o David Thomas, Vicki Fong
- Another gaze on Voice
 - o Laetitia Kozlova
- Three disrupting voices in Sound Studies: Deshays, Chattopadhyay and Ouzounian
 - o Laetitia Kozlova
- Being touched – the experience of sound and image: the challenges of innovation and sustainability in Art & Design
 - o Ângela Lacerda-Nobre, Amandine Gameiro, Rogério Silveira, Miguel Cunha-Lima
- Symbiophone - interfaces for unheard communications
 - o Jéssica Gaspar
- Felix - The Cat - e a Música Contemporânea
 - o Susana Porto
- Subverting TikTok and Mass Media in Education: Leveraging Digital Media for Engaging Classroom Presentations and Innovating Pedagogical Strategies
 - o Anna Unterholzner

Conference Session 6

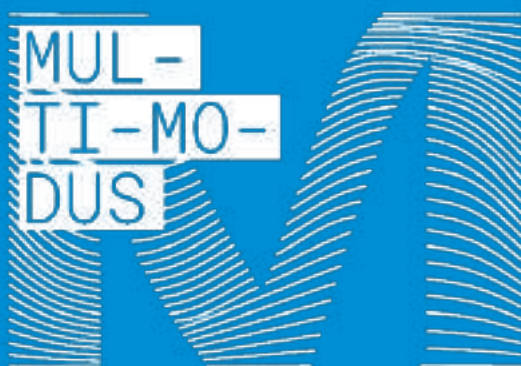
Moderator: Leonel Alegre

- 30×N: Composing for the modular, unrepeatable, and irreducible
 - o Rodrigo Carvalho, Pedro Tudela, Miguel Carvalhais
- The Materiality of Sound and Image in Interactive Digital Narratives: A Dynamic Feature of the Aesthetics of Behavior
 - o Ana Monteiro, Miguel Carvalhais, Rui Torres
- Narrativas Transmídia, Realidade Aumentada e Portais Narrativos: Uma Estratégia para a Valorização do Património Cultural
 - o Ana Gouveia, Isabel Carvalho, Paulo Maldonado
- Sensory Ethnography: The Interplay of Art, Ethnography, and Transmediality in Human Expression
 - o Rita Santos
- Rethinking Media Art: on zombie media and perpetual instability
 - o Rosemary Lee, Miguel Carvalhais
- Co-creative Processes: Between Human and Artificial Creativity
 - o Sara Orsi, Nuno Correia, Miguel Carvalhais



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