TransMit;

A PROGRAMMING LANGUAGE FOR LIVE VIDEO PERFORMANCE

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Abstract

This dissertation examines the artistic and technological processes behind designing and implementing ***TransMit***, a culturally situated programming language for live video. I also developed an ***Ecology of Performing Bodies*** as part of this research-creation project. This open taxonomy maps the relations between digital artworks' bodies, agents, and technologies —explicitly drawing from digital media art practices and performing art practices. Simultaneously, I created two projects to test *TransMit*: ***encarnadas (f.) embodiments***, a dance-performance piece, and ***afrontaciones (f.) copings***, a digital mixed-media installation.

The dissertation combines personal struggles, academic journeys, and artistic explorations, reflecting on the socio-cultural experiences that informed this doctoral project. It aims to share technological and creative processes that could be extrapolated to other research-creation fields and projects. It also looks to normalize the fusion of personal narratives with academic and theoretical discourses, fostering a richer understanding of relational processes and shifting the focus from rigid final objectives to collaborative and dynamic explorations.

The dissertation starts by delving into the doctoral project's theoretical framework, exploring and analyzing various taxonomies and classifications and presenting an *Ecology of Performing Bodies*. This self-designed taxonomy integrates various artistic domains to understand complex relationships within artworks. This taxonomy is later used to analyze the two artistic works I created for this project, dissecting and analyzing them in the two last chapters. The *encarnadas (f.) embodiments* chapter explores this dance performance project that challenges traditional feminine bodily representation through movement and breathing. The *afrontaciones (f.) copings. Narrativas*

de la Memoria y la Violencia del habitar chapter explores this digital mixed-media installation and an auto-ethnographic storytelling project focusing on the complex layers of inhabiting a city crossed by violence.

TransMit ties together the theories and practices above. *TransMit* is a programming language for Live Video Performance. The second chapter focuses on this tool, exploring the artistic experiences connected to Live coding and Electronic Literature that influenced *TransMit*, as well as the technical approaches I followed to design it and implement it.

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Introduction

This dissertation examines the conceptual, artistic and technological processes behind designing and implementing ***TransMit***, a programming language for live video with a culturally situated syntax. As part of this research-creation project, I also developed the ***Ecology of Performing Bodies***, an open taxonomy that maps the relations between digital artworks' bodies, agents, and technologies —specifically drawing from digital media art practices and performing art practices. Simultaneously, I created two projects to test *TransMit*: ***encarnadas (f.) embodiments***, a dance-performance piece, and ***afrontaciones (f.) copings***, a digital mixed-media installation.

This dissertation draws from Sergei Eisenstein's ideas about the *montage-image*, which results from cultural intersections that occur when different images gather together in the space/time of the Film [Eisenstein, 1959]. The *montage-image* is the product of complex connections; each image used has its cultural histories that, when brought together, create a different and unique cultural assemblage. Similarly, by combining different artistic fields and sub-genres linked to digital media art practices (experimental film, digital mixed media, and electronic literature) and performing art practices (cyborg and virtual theatre, live coding, VJ/DJ sets), this dissertation looks to create and share cultural assemblages enriched by the multiple histories, artistic questions, and technological developments linked to these practices. This dissertation doesn't look to provide exhaustive answers but to share technological and creative processes that could be extrapolated to other research-creation fields and projects.

Finally, in this dissertation, I combine personal accounts —from struggles and explorations in the last six years— with academic, artistic, and technological frameworks. With this, I reflect on the

socio-cultural experiences that informed this doctoral project. In this sense, I am a Latinx-Mexican womxn who migrated to Canada to pursue this doctoral project. I see myself as an immigrant, now a permanent resident, looking for my place within this geographical socio-cultural and political space, making sense of my background and combining the new experiences and interchanges with local artists and scholars.

0.1 Description of Chapters

0.1.1 *Chapter 1, Ecology of Performing Bodies*

This chapter delves into this doctoral project's theoretical framework, grounded in digital media art practices and performing art practices. In the first section, I explored and analyzed various taxonomies and classifications that use flexible approaches, moving away from rigid art categories and focusing on broader behaviours and connections [Daniels and Naumann, 2015, Elleström, 2010, Bay-Cheng et al., 2015]. The examples explored are Luisa Riba's *Principles, Possibilities and Qualities of Digital Media* [Ribas, 2014, Ribas, 2013, Ribas, 2012], Lars Elleström's *Four Modalities of Media* [Elleström, 2010], Sara Bay-Cheng's *Taxonomy of Distortions* [Bay-Cheng, 2015], and David Z. Saltz's *Taxonomy of Performer-Media Interactions* [Saltz, 2015].

The second section of the chapter presents an *Ecology of Performing Bodies*, a self-designed taxonomy that integrates various artistic domains to understand complex relationships within artworks. This taxonomy takes the shape of a mind map and is conceptualized as a mutable ecology. It views artworks as assemblages of three core bodies that perform together: the Sonic Body, the Visual Body, and the Virtual Body. Virtual Bodies include Artificial and Physical bodies, exploring notions of presence, co-presence, and telepresence [Féral, 2012, Giannachi et al., 2012, Auslander, 2008, Heidegger, 2001].

Inspired by cyborg theatre, the ecology aims to challenge the dynamics of virtual bodies in terms of representation, interaction, and agency. It does this by including Jennifer Parker-Starbuck's *Cyborg Theatre Taxonomy* [Parker-Starbuck, 2014, Parker-Starbuck, 2015], which maps the correla-

tions between organic/human and non-organic/human bodies and technologies in digital (performative) artworks.

The chapter systematically explores this ecology, using it to analyze diverse published artworks, including *Granular Synthesis* by Kurt Hentschläger and Ulf Langheinrich, *For this Land* by Jackson 2bears and January Marie Rogers, *Aire V.3* by *Interspecifics*, and *Anatomies of Intelligence & the Concept of Aesthesis* by Joana Chicau and Jonathan Reus.

0.1.2 *Chapter 2. TransMit, A Programming Language for Live Video Performance*

Chapter 2 delves into my artistic experiences and technical approaches to designing and implementing *TransMit*, a programming language for live video. The first half of the chapter focuses on the creative and technological frameworks, discussing the technological inquiries and processes I followed to design and implement *TransMit*.

Additionally, it gives an overview of the importance of two artistic practices, Live coding and Electronic Literature, that influenced this doctoral project. It also describes the iterative processes I used to design and implement this tool, which included the creation of two artistic projects: *encarnadas (f.) embodiments* (dance performance) and *afrontaciones (f.) copings* (digital mixed-media installation).

The second part of this chapter discusses how these projects influenced the visual design and implementation of *TransMit*. This encompasses incorporating TV-related terminology into its syntax and using a library for dynamic manipulation of 3-dimensional objects. I examine, in detail, *TransMit*'s lexicon, syntax, and semantics using coding examples, going through its artistic and cultural implications and influences.

0.1.3 *Chapter 3. encarnadas (f.) embodiments [Performance + Screen Dance Project]*

Chapter 3 explores *encarnadas (f.) embodiments*, a dance performance project created with dancer Angela Josephine and the *Earth Wind and Choir* members Babette de Jong, Teresa Caterini, and Bailey Duff. Rooted in live improvisation, the project challenges traditional feminine bodily representation through movement and breathing. This project artistically draws from ASMR social media videos to create a hyper-focused experience of socially 'unwanted' skin (wrinkles, fat, and cellulitis) and voice textures (whinings, breathings, blurps, grasps, whispers, etc.).

The chapter starts with the project's artistic framework. It highlights and exemplifies the influence of other artists, such as Colombian artist-performer Nadia Granados, Brazilian DJ-performer @KEBRA (Jenny Granado), @chakalanius666 by Chakala (dopamine), and Tim Hawkinson's Blindspot (Fat Head). The chapter also expands on previous experiences with deconstructed video and vocal-sound experimentations.

The chapter examines the processes used to create audio and video materials for this project, such as audio-visual assemblages and rehearsals, culminating in a performance at Factory Media Centre - Evil Empire on October 5th, 2023. The chapter discusses the influence of *encarnadas (f.) embodiments* on *TransMit*'s functions and visual behaviours and vice versa, showcasing how *TransMit* was used to create the live video projection. Finally, I use my *Ecology of Performing Bodies* to dissect and analyze the bodies and agents in this performance project, examining their conceptual and artistic connections and behaviours.

0.1.4 *Chapter 4. afrontaciones (f.) copings. Narrativas de la Memoria y la Violencia del habitar [Digital Mixed-Media Installation]*

Chapter 4 explores *afrontaciones (f.) copings*, a digital mixed-media installation and an auto-ethnographic storytelling project that focuses on the complex layers of inhabiting a city impacted by violence. This project used testimonies from people living in my hometown, Uruapan, Michoacan,

Mexico.

The chapter begins by providing the socio-political context of my hometown and surrounding areas in Michoacan State, which are linked to drug cartels, the avocado industry, the military, and harsh federal and local responses. I combine personal accounts with academic work by scholars exploring the multiple ways of coping with everyday violence due to state oppression and cartels [Gatti, 2011, Mac Gregor, 2009, Segato, 2003].

The chapter describes the various materials I created in connection with this project, including a self-testimony in the form of an autobiographical video, an audio diary, hand-made fonts, video and audio recorded testimonies, transcripts, mixed-media collage compositions, scans, and multiple video documentation. It delves into the details behind creating a series of digital mixed-media collages using *TransMit* with mixed hand-made fonts (to visualize the syntax), digitalized physical materials, video documentation, and testimonies.

Finally, the chapter dissects the opening event of this project's exhibition at Factory Media Centre—Evil Empire on October 5th, 2023. I use my *Ecology of Performing Bodies* to analyze the coexistence of the above materials within the space-time of the installation, highlighting how different physical and electronic devices can impact and modify the materials and the testimonies behind them. Additionally, I explore how the exhibition space served as a mediator between different types of existences (despite geographical dislocation), highlighting the connecting points found through shared memories.

Chapter 1

Ecology of Performing Bodies

1.1 Introduction

In the introductory section of this document, I mention digital media art practices (experimental film, digital mixed media, and electronic literature) and performing art practices (cyborg and virtual theatre, live coding, VJ/DJ sets) to set the foundational artistic and theoretical framework. Eisenstein's metaphor of the *montage-image* helped illustrate how conceptual and technological agents highlighted in these practices can be combined to create more complex cultural, technological, and artistic assemblages.

This framework sets the stage for my current doctoral project, which includes a self-designed taxonomy (or "ecology"). This taxonomy tracks the relationships between human and technological bodies within artistic projects. Specifically, it maps the dynamic roles and interactions of the elements artists employ when working on Digital Media and Performing Media Projects. These mapped interactions informed the design of a programming language (Chapter 2) and the development of two artistic projects, a collaborative performance piece with a dancer (Chapter 3) and an installation project (Chapter 4).

The present chapter showcases alternative and flexible approaches to taxonomic systems in the arts, emphasizing behaviours and connections rather than rigid categorizations. Drawing from

examples, discussions, and my artistic experiences over the past six years, I will delve into the "**Ecology of Performing Bodies**," an ecosystem characterized by shifting identities and interconnections among performing bodies.

1.2 On Taxonomies

Taxonomies are often used to classify subjects, objects, and behaviours strictly and hierarchically —e.g. the taxonomy of living organisms in biology [The-Britannica-Dictionary, nda]. These classifications are shaped by the specific perspectives and logic of the fields of knowledge that create them, aiming to rigidly assign roles and fixed positions. An example of rigid identities and hierarchical structures is Aristotle's elements of drama: plot, characters, thought, diction, music, and spectacle [Bay-Cheng et al., 2015]. This categorization is useful for analyzing traditional approaches to storytelling. Still, it falls short when bringing more intricate storytelling projects that work with non-linear structures —e.g. software cinema— or generative storytelling —e.g. electronic literature. In parallel, other theatre practices challenged these rigid categories, recognizing that art fields and their boundaries are more fluid. The rise of more multi-media practices (beyond theatre) started to embrace the complexity of joining various knowledge practices and art fields, each one with its theories, technologies, and histories, expanding our understanding of artistic creation and experience [Daniels and Naumann, 2015, Elleström, 2010]. The resulting taxonomies do not strive for exhaustive completeness but form alliances that can enrich the understanding and analysis of artworks [Bay-Cheng et al., 2015].

Figure 1.1: Visual Representation (created by Jessica Rodriguez) of the *Principles, Possibilities and Qualities of Digital Media* by Luisa Ribas

An example of the above is Luisa Riba's list of *Principles, Possibilities and Qualities of Digital Media* (Fig.1.1), which identifies media behaviours that can be applied outside the field of art to all digital communications [Ribas, 2014, Ribas, 2013, Ribas, 2012]. The list focuses on how digital information can be easily modified and transformed. Here are some key ideas:

- *Transmutability* refers to the characteristic of digital (raw and abstract) information materialized into multiple outputs —e.g., whether data can be translated into sound frequencies (*Sonification*) or a colour range (*Visualization*).
- *Performativity*, focuses on how digital systems run, highlighting the constant feedback loops of information being transformed (*Generativity*) and automatically generated.
- Ribas explores how digital systems function inside out (*Dynamics of Work-as-System*), analyzing computational processes (*Processuality*) and user-interface interactions (*Procedural Expression*).

Procedural Expression explores user-system interactions that act and influence each other to create audio-visual outcomes with fluid dynamics between users and systems. In this context, users "reveal" audio-visual experiences while the *surface* (the layer that allows interactions) reacts to users' inputs with different degrees of predictability.

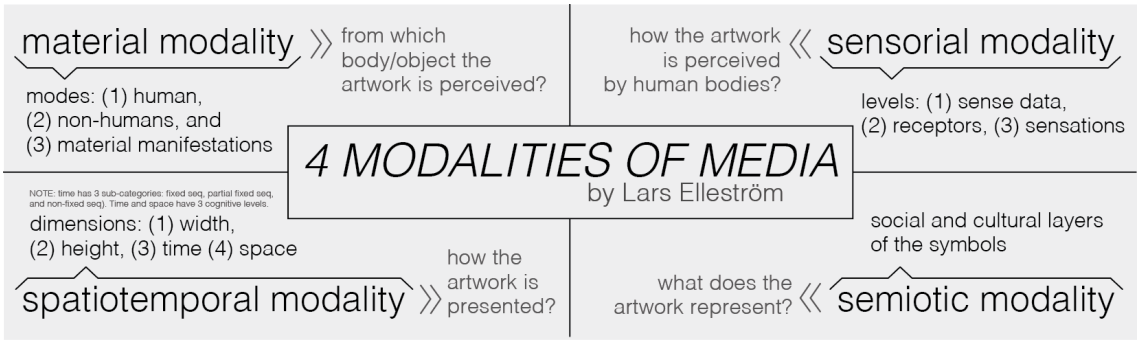


Figure 1.2: Visual Representation (created by Jessica A. Rodriguez) of Elleström' *Four modalities of media*

A second example is Lars Elleström [Elleström, 2010], who maps the relations between the materialities embedded in an artwork. For him, we must "determine to what extent certain qualities belong to the material aspects of a medium and to what extent they are part of perception" (p.15).

In other words, to analyze the artwork, we must dissect how materials physically behave and our perception of them. With this in mind, Elleström identifies *Four Modalities of Media* (Fig.1.2):

- The *material modality* analyzes perceptions through three modes: human bodies (e.g. performers), non-human bodies (e.g. speakers) and material manifestations (e.g. sound waves).
- The *sensorial modality* focuses on human bodies, specifically on the physiological and psychological effects of "perceiving"; it has three levels: sense data (how we perceive materials), receptors (nerve/organic impulses), and sensations (effects and stimulations).
- The *spatiotemporal modality* translates the interaction of sense data and feelings into conceptions of time and space, helping the audience ground the events of an artwork.
- The *semiotic modality* situates the perception within specific social and cultural conceptions and understandings, making sense of the conjunction of symbols in the artwork.

Elleström's taxonomy explores materiality, perception, time, and cultural context within artworks that can be applied to interactive and performative work beyond specific art practices. In the same line of thought, the authors of "Performance and Media. Taxonomies for a Changing Field" [Bay-Cheng et al., 2015] propose creating taxonomic systems that can map the behaviours in the performance space. Rather than exhaustive taxonomies, the authors develop diagrams of relations with movable and open-ended categories. The book offers a set of taxonomies with traced specific cultural knowledge meant to be used in conjunction —or as a taxonomic assemblage. The following are two examples from this book.

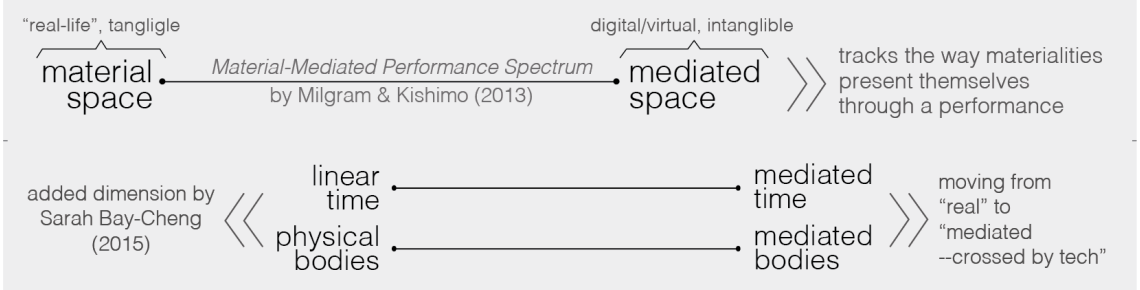


Figure 1.3: Visual Representation (created by Jessica A. Rodriguez) of Milgram and Kishimo's *Material-Mediated Performance Spectrum* with added dimensions by Sara Bay-Cheng

Sara Bay-Cheng's *Taxonomy of Distortions* [Bay-Cheng, 2015], rooted in "Mixed-Reality Performance," views space and time as a *continuum* —a dynamic process where boundaries between art practices blur. Within this *continuum*, trajectories emerge as artworks traverse cultural spaces. Bay-Cheng's work connects to Milgram and Kishimo's *Material-Mediated Performance Spectrum* [Milgram and Kishino, 1994], which traces materialities along this *continuum*. On one end (Fig.1.3) lies *material space* (physical, real-life), while the other end represents *mediated space* (digital, virtual).

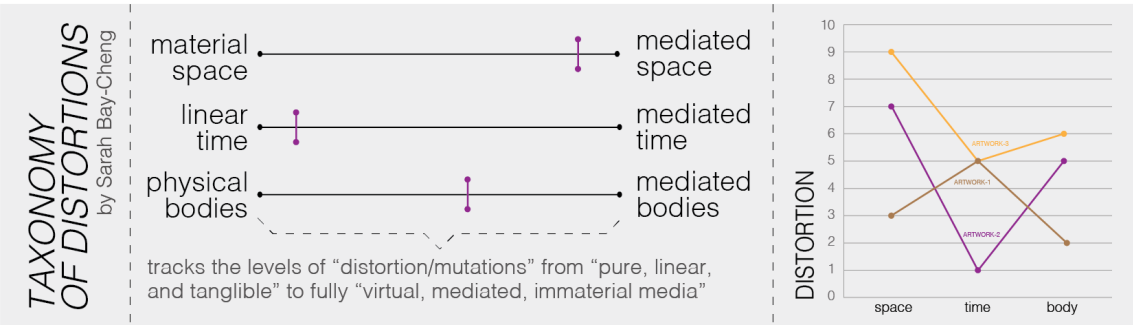


Figure 1.4: Visual Representation (created by Jessica A. Rodriguez) of Bay-Cheng's *Taxonomy of Distortions*

Sara Bay-Cheng expanded Milgram and Kishino's Spectrum, introducing two dimensions: *time* and *bodies* (Fig.1.4). The *time* dimension tracks the movement between *linear time* —a narrative that grows and has an arc in traditional terms— to *mediated time* —multiple timelines and jumps in time. The *bodies* dimension tracks the movement from *physical* (real-human) *bodies* to *mediated bodies* (virtual, cyborg bodies, artificial intelligence, avatars, and technological hybrids).

Bay-Cheng also considers *material spaces* as physical and tangible environments, while *mediated spaces* are representational ones born from immaterial media. Additionally, she examines the *level of mutation* within each dimension or the transitions from unmediated materiality ("pure/natural") to entirely mediated perceptions in virtual/digital environments.

Figure 1.5: Visual Representation (created by Jessica A. Rodriguez) of Saltz's *Taxonomy of Performer-Media Interactions*

In the *Taxonomy of Performer-Media Interactions* (Fig.1.5), Saltz examines how performers engage with media objects in performance and theatre practices [Saltz, 2015]. Additionally, Saltz's taxonomy illuminates the dynamic interplay between performers and media objects across diverse time and space configurations. These are some of the critical dimensions of this taxonomy:

- It has two points of view, *Character Perspective* and *Performer Perspective*, and three main variables or dimensions: *Dramatic function*, *Time* and *Space*.
- The *Dramatic function* deals with the performative, imaginative, technical and mechanical interactions and the position of the character and the performer in the narrative arc.
- *Time* and *Space* deal with the *Here & Now, There & Now, There & Then*, and *Virtual & Now*. They all reflect on "presence" in different time/space configurations: real-presence/with-audience performances, telematic/synchronous performances, asynchronous performances, and purely virtual experiences.

The above authors exemplify how artistic fields and theories can be combined to create open taxonomic systems. Riba's classification focuses on algorithmic/digital systems and the possible ways the constant flux of data produces audio-visual behaviours. Elleström provides classifications that explore how media artworks are produced and perceived —from physical to purely conceptual and cultural. Bay-Cheng and Saltz exemplify non-exhaustive taxonomic systems, reflecting on how space and time affect relationships between performers and other human bodies as part of the artwork assemblage.

Finally and most importantly, in the introduction to "Performance and Media. Taxonomies for a Changing Field" [Bay-Cheng et al., 2015], the authors invite artists to create taxonomies that are not focused on hierarchical classifications but visualize/trace relationships. With this in mind, I combined this framework with my academic, creative, and personal experience to design an *Ecology of Performing Bodies*. In the next section, I will analyze and exemplify the concepts I use for this *ecology*.

1.3 Ecology of Performing Bodies

This *Ecology of Performing Bodies* (Fig.1.6) dissects, traces, visualizes, and analyzes the interactions between human and technological bodies within artworks. It draws from diverse art practices, including Virtual and Cyborg Theatre, Live and Telematic Performance, Experimental Video, Installation, Multimedia, New Media Practices, and sub-genres like Live Coding and Electronic Literature. I chose a series of artworks exemplifying this *Ecology* to dissect the relations between its central assemblages.

This dissertation defines the 'artwork' as a *montage-image* [Eisenstein, 1959], a multi-layered product blending cultural, technological, organic, and virtual agents or ecology of bodies that perform together. I identify three core bodies as interconnected central assemblages: ***Sonic Bodies***, ***Visual Bodies***, and ***Virtual Bodies***. From here, I trace information from performers, users, algorithmic systems, technological systems, avatars, and interfaces, analyzing the dynamics of virtual bodies in terms of representation, presence, interaction, and agency.

The present concepts, relations, and behaviours reflect my current practice as a womxn media artist working with live coding, electronic literature, auto-ethnographic storytelling, installation, and dance performance. With the new possibilities resulting from this *Ecology* and inspired by the artworks that help me exemplify it, I created two artistic projects that I will further explore and analyze in Chapters 3 and 4.

1.3.1 Visual Bodies - Sonic Bodies - Audio-Visual Bodies

Sonic bodies include sonically (audible, hearing sense) perceived images —dispersed through speakers, musical instruments and vocals. *Visual bodies* encompass visually perceived (seen, sight sense) images —experienced through projectors, screens and physical objects. *Audio-visual bodies* are interrelated entities of both *visual* and *sonic bodies*. These complex products of perception combine modes, concepts, and sociocultural understandings. This section delves into how these bodies interact through intricate structures, exploring technical and symbolic connections between

sonic and *visual bodies*. In other words, this ecology identifies audio-visual relations at a technical level (***source/output relations***) and a conceptual level (***compositional relations***) (Fig.1.6).

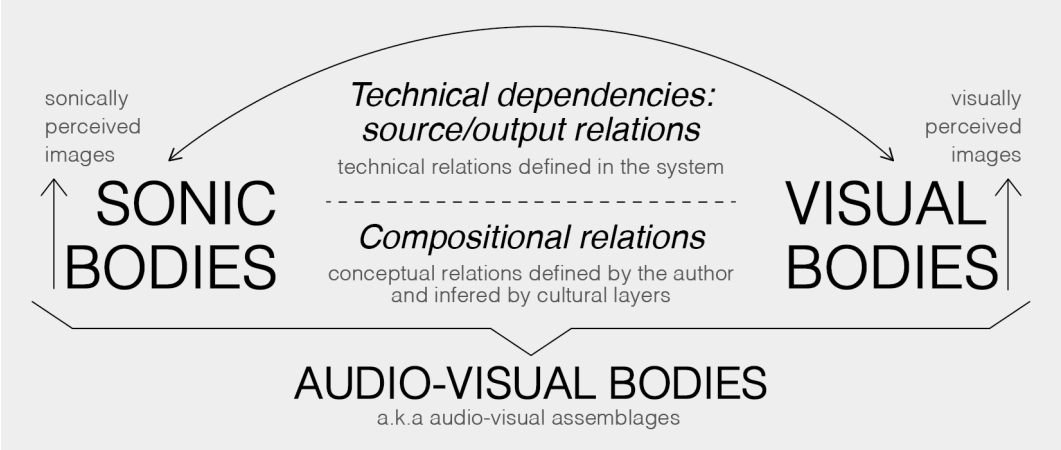


Figure 1.6: Visual Bodies - Sonic Bodies - Audio-Visual Bodies

Technical dependencies: source/output relations (technical —on the system)

Connected to Riba's "visualization, sonification, and transmutability principles" [Ribas, 2012], ***Technical dependencies: source/output relations*** trace how *source information* transforms into *audio-visual outputs*. Digital and mechanical technological gadgets and software use discrete data as raw material that translates into different modes of perception. In this ecology, the ***output modes*** are *visual*, *sonic*, and/or *audio-visual*, considering the following scenarios (Fig.1.7).

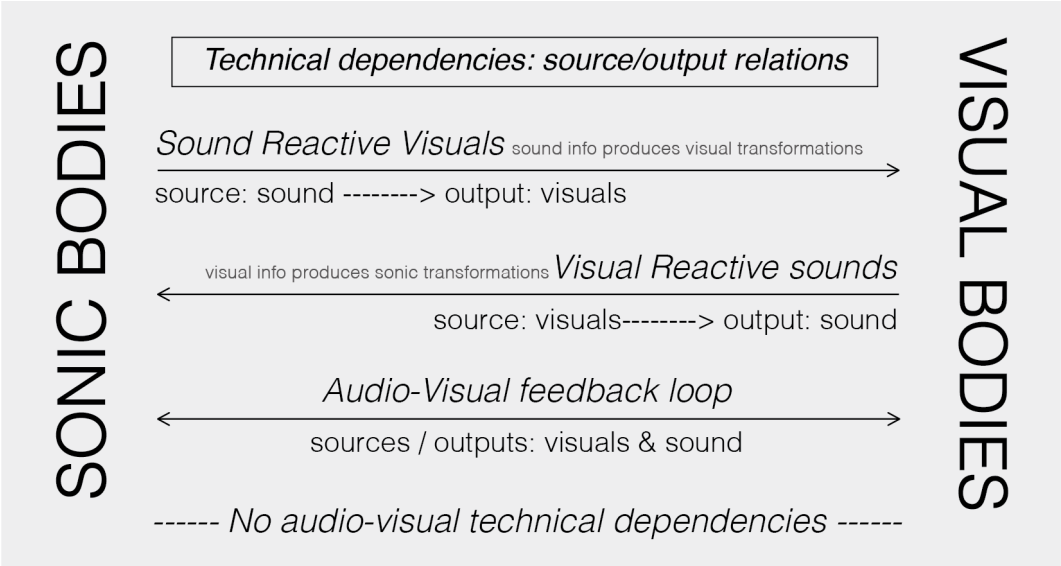


Figure 1.7: Technical dependencies between Audio-Visual Bodies

1. ***Sound Reactive Visuals***: visualization of sonic data. Information from *sonic bodies* (*source* info) transforms visual events (*output* info) —e.g. size, colour, movement, brightness— producing *visual bodies* in motion (constantly changing).

2. ***Visual Reactive Sounds***: sonification of visual data. Information from *visual bodies* (*source* info) transforms sonic events (*output* info) —e.g. gain, frequency, panning— producing *sonic bodies* in motion.

3. ***Audio-Visual feedback loops***: bi-directional trans-codification. Both *visual* and *sonic bodies* function as *sources* and *outputs*. Although not that common, this type of assemblage creates an interrelation between visual and sonic information, constantly feeding and transforming each other.

4. ***No audio-visual technical dependencies***. This option considers artworks without technical connections between *source-output* information.

Compositional relations (conceptual —on the author and the audience)

Connected to Elleström's ideas on human and cultural perception [Elleström, 2010] and drawing from Chion's concept of *synchresis* —understood as the mental fusion of seeing and hearing— [Chion, 2011], ***compositional relations*** follow *symbolic connections* (cultural connections) and *perceived dependencies* (physiological perception) of audio-visual events (Fig.1.8). For example, a *symbolic connection* would be having a high pitch sound play alongside a brighter (yellow) colour, where there is a cultural relation between both ranges of sound-colour [Sun et al., 2018]. In the same example, a *perceived dependency* would be when audiences notice that the high-pitched sound's volume controls the opacity of the bright (yellow) colour.

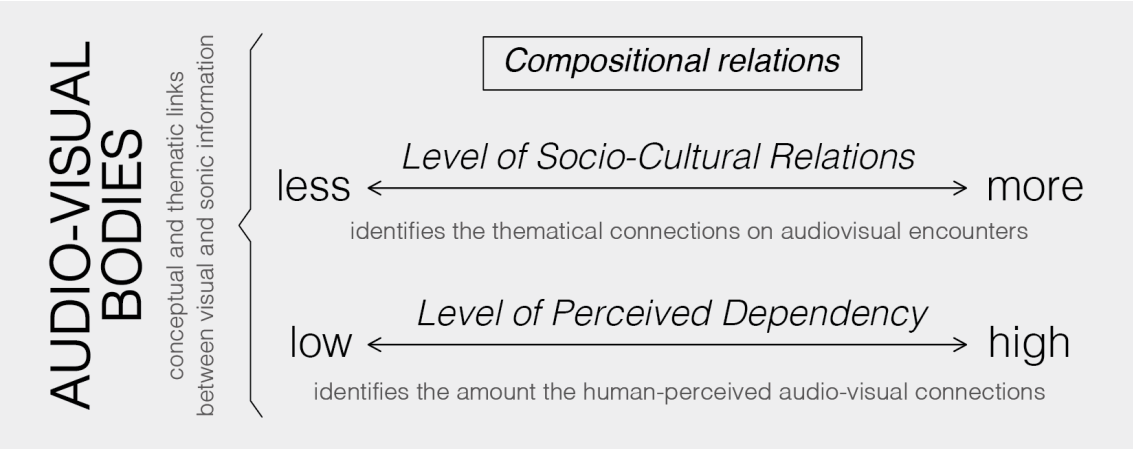


Figure 1.8: Compositional relations between Audio-Visual Bodies

1. ***Level of Socio-Cultural Relations***. *Audio-visual bodies* contain culturally situated assemblages of images planned by the authors and perceived by the audience. The *level of socio-cultural relations* analyzes audio-visual encounters, identifying how sonic and visual images are artistically and thematically connected to their counterparts, composing *less* or *more* coherent cultural discourses.

2. ***Level of Perceived Dependency***. *Audio-visual bodies* contain technological or structural planned encounters; this level identifies the perceived connections between *Sonic* and *Visual behaviours* as a response to each other. I must note that we experience audio-visual encounters through our physiological human senses. With this in mind, even if the author(s) creates a highly technological audio-visual reactive piece, the audience may not experience audio-visual connections, resulting in *low levels of perceived dependency*. Contrarily, an artwork with *no audio-visual technical dependencies* may be experienced by the audience with *high levels of perceived dependency*.

Example: Granular Synthesis

Kurt Hentschläger and Ulf Langheinrich created a *machine for granular audio-visual synthesis* for performance settings. Granular synthesis is a process that technically divides sound into grains (small information units) and then re-constructs it at a micro-time scale. For *Granular Synthe-*

sis[1], the authors use U-Matic players (an analogue recording videocassette) in which both visuals (a face) and sound (voice) have the same source: a human model (hidden from the audience). The performance is the visualization-projection of the human model through the filters of this recording/playing device, creating an audio-visual experience with robotic and erratic head and face movements and deconstructed voice textures. The audience experiences audio-visual images that are constantly rearranged through techniques such as time-lapse, slow motion, real-time video scratching, enlargement, amplification, dissolution, juxtaposition, and repetition. The piece aims to produce a process of de- and re-contextualization of the human face to create a robotic self. This organic element is portrayed through a hyper-technological view in which time flows in many directions.

This sound-image generator/machine breaks traditional video editing techniques by including connections to sound synthesis, specifically sampling, looping, layering and polyrhythmic textures. The grain's rearrangement metaphor is inherited from sound art, which works with bits of information instead of time content. With this in mind, the **source-material** of the piece is both organic and audio-visual. Organic because it uses a human model as the input source material that is then de- and re-constructed. Audio-visual because it translates sonic and visual metaphors that affect and transform each other in an **Audio-Visual Feedback Loop**. All audio-visual materials/textures are processed and separated into two **technical outputs**: screens as **visual outputs** and speakers as **sonic outputs**.

This specialized treatment poses some difficulties for the audience, specifically because audio and visuals are perceived differently. In a review made for *Motion Control MODELL 5 (aka MODEL 5)* (1994-1996)[2], the author [Flos, nd] notes that "the density of events in sound processing is much higher than in image processing (the definition on the sound level is higher than the video definition)" [para.2]. In other words, the perception between audio and visuals is broken; the audience perceives them as separate entities. Furthermore, the ***level of dependency*** that the audience experiences is **somehow low**, independently from their highly technological connections,

[1]For reference, go to https://granularsynthesis.info
[2]For reference, go to https://granularsynthesis.info/MODELL-5

since humans perceive sound and visuals at different times. Additionally, perception is easily affected by variations in the physical space —such as the position of particular audience members concerning the screens and the speakers, among other things.

1.3.2 Virtual Bodies

While *audio-visual bodies* contemplate information purely connected to visual and sonic phenomena, *virtual bodies* explore the inclusion of "other kinds of data": user inputs, algorithms, time structures, etc. In other words, *virtual bodies* refer to the technological/human assemblages that are part of the artwork, either embedded within it —in the *system*— or external to it —connected to the *surface* (Fig.1.9). Drawing from Virtual and Cyborg Theatre, this ecology understands the space(s) of the artwork as laboratories: spaces of confrontation and reconfiguration between ***artificial bodies*** and ***physical bodies*** [Parker-Starbuck, 2014, Parker-Starbuck, 2015].

Artificial bodies contemplate technological, non-organic, digital, and electrical bodies that inhabit the *artwork's ecology*. They exist not physically but virtually (abstractly), guiding *audio-visual bodies*. *Artificial bodies* include *raw information* (external data sets), *time/information structures* (scores, performance timelines, schemes), *algorithmically designed systems* (artificial intelligence, avatars, libraries), and *electronic machine systems*.

Physical bodies are human, organic, non-organic, and technological bodies that interact with or enable the artwork's surface. In this context, *surface* refers to a liminal space that connects virtual and physical bodies. It is a space of interactions and exchanges through a shifting architecture [Giannachi, 2004], between sensorial events and hidden abstractions [Ribas, 2011]. The physical bodies interacting with the surface encompass *enabler technology* (screens, machines, speakers, etc.), *performers*, and *audience* (viewers without direct interactions and users with direct interactions).

Connections between Artificial Bodies and Physical Bodies

The ***system*** responds to the *virtual*: the elements involved in the production and experience of the artwork that are not visible but present in an abstract/non-physical form (Fig.1.9); we only experience their traces in the form of audio-visual interactions. Luisa Ribas explains that the system is an aesthetic artifact that generates specific behaviours [Ribas, 2014]. Furthermore, the system is an enabler of technology and a *virtual body* that imprints distinctive aesthetics.

On the other hand, the *surface* works as the in-between space linking the *system* (the non-physical) with the *physical* and tangible. This idea of *surface* draws from Ribas [Ribas, 2011], which explains it as the sensorial interface that enables sound-image correspondences. For her, the surface is the connection between hidden structural layers —or algorithms— with upper interactive layers —directed to users and creating audio-visual interactions. From a parallel perspective, Giannachi analyses similar ideas through the *hypersurface* [Giannachi, 2004]. For her, the *hypersurface* is a meta-dimension, a simulation for interactions in constant change. Giannachi further explains that performance spaces have liquid architectures, so the *hypersurface* mediates the interactions between physical performers and virtual arrangements in motion.

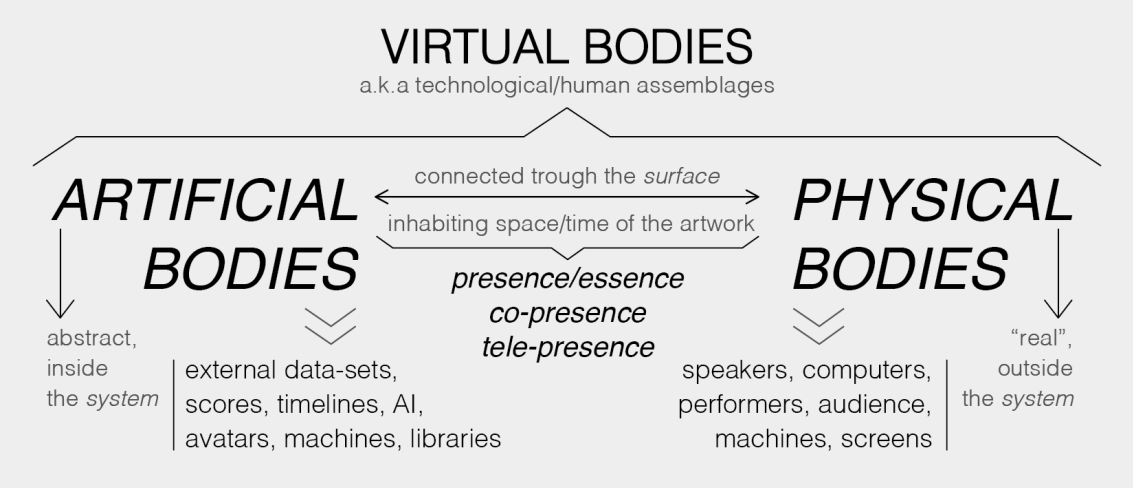


Figure 1.9: Virtual Bodies

For my *ecology*, the ***surface*** (Fig.1.9) is the in-between, connecting abstract information (organic/inorganic logics and behaviours) with touchable technological gadgets that can play sound

(e.g., speakers), visualize images (e.g., projectors, screens), enable user interactions (e.g., computers) through human users (e.g., performers, and audience).

Presence of Virtual Bodies

Presence is traditionally understood as the "feeling of the audience [..] that the bodies or objects they perceived are within the same space and timeframe" [Féral, 2012, p. 31]. Féral extends this idea of presence by designing a classification that reflects on the arrangements of presence questioned by virtual existences: from *physically present* to *absence* (not physically but mentally).

For their part, Giannachi, Kaye and Shanks [Giannachi et al., 2012] also examine the concept of presence in digital media, identifying *present* (self-consciousness) and *co-present* ("being before or being in the presence of another") [p.2]. The authors draw from Auslander's ideas about the multiple times and spaces brought by new media and broadcasting media [Auslander, 2008] and Heidegger's concepts [Heidegger, 2001] of *being* (presence) and *being there* (co-presence). They explain that *being there* is being with the performer, audience, place, and time negotiations, and *being before* is the already-known cultural baggage of the performers and audience. They emphasize that the bodies in the performance space/time are part of an ecology of relations with different temporalities, environments, presentness, tensions, and persistence.

This *ecology of performing bodies* also questions conceptions of ***presence***, dividing it into three states of being.

1. ***Presence/Essence*** is the consciousness of the human self (performer and audience) and the virtual-body-self (avatars, algorithmic systems, and other virtual bodies).

2. ***Co-presence*** is the inhabitance of the same physical space with other human/non-human bodies and technological and non-technological objects —such as speakers, computers, and other material elements. *Co-presence* also includes virtual bodies that come to be in front of the audience through screen projections.

3. ***Tele-presence*** draws from streaming/virtual performances acknowledging cohabitation in

digital/virtual spaces such as Zoom, Social Media, YouTube and other streaming services. The differences between *virtual* and *physical bodies* blur; human bodies and spaces project themselves virtually from different places and time zones with synchronous and asynchronous communications.

Example: For this Land

For this Land (2015-18)[3] is a series of projects by Kanien'kehaka (Mohawk) artists Jackson 2bears and January Marie Rogers from 2Ro Media Collective. They did auto-ethnographic research at *Six Nations of the Grand River*, which unifies six Haudenosaunee nations (Mohawk, Cayuga, Onondaga, Oneida, Seneca and Tuscarora) located around the Grand River in southern-east Ontario, Canada[4]. They documented *interactions* (interventions, conversations, actions) in heritage and *spirit* locations in Six Nations, presenting these materials using different formats, such as performance, installation, and video [2bears and Rogers, 2018].

The project explores Vine Deloria, Jr.'s ideas on temporality. He was a *Standing Rock Sioux* historiographer, activist and writer. He contrasted Western theology (based on linear events) with *native spirituality* (based on *spatial philosophies* and a deep connection with the land). Rogers and 2bears explored storytelling in dimensional and durational ways, combining the present-past-future histories linked to the spirit locations they chose and unfolding them within the time-space of the installations or performances. The artistic results explore how "*narratives are intricately interconnected with 'place,' the landscape, and the environment*" [2Bears and Rogers, 2011, para. 1]. They also activated the land's multi-layered histories with their actions, such as singing, dancing, storytelling, sharing, etc. All the variations of this project are site-specific, with multiple videos and sounds, physical elements (sculptures, photos, dolls, objects), and poetry/spoken interventions, among other experiences.

For this Land: Chiefswood (2015)[5] is a three-channel video installation in Audain Gallery,

[3]For reference, go to https://jackson2bears.net/for-this-land-1
[4]For reference, go to https://www.sixnations.ca/about
[5]For reference, go to https://vimeo.com/143432915

Victoria, BC. The artwork was exhibited in a dark room with three screens on three walls and one speaker beside each screen. One video shows Rogers reading in the house of Mohawk poet Pauline Johnson —in *Chiefswood* on the *Six Nations of the Grand River*. The sound has Roger's voice, the land's soundscape, and singing, among other sonic textures. There is a sonic **co-presence** between Rogers and Johnson's house. For example, the echo reflects the physical features of the room that bounce back to Roger's voice. There is also a visual dialogue between the house's different timelines, portrayed through a ghostly and X-ray look, combining high contrast, saturation, and overlaying effects. Johnson's house is a **physical body** that becomes a **mediated/virtual body** through film. Johnson's house is also a **surface**. This liminal space connects the invisible (the outside, the links beyond this house, the spiritual) with the visible (the physical and the visibilized spiritual realm). The spaces portrayed in the video go beyond Johnson's house location, reaching the trees, rivers, peoples, histories, and other spirit sites through roots that extend and move through the screen. Similarly, the technical devices, the video, the sound, and the cables are visible to the visitors. The projectors and computer are in the centre of the room, projecting to the walls and extending through the speakers, filling the space like the roots connecting all these devices and images.

For this Land: Mush Hole (2016)[6] is a four-channel video installation and performance at Mohawk Residential School; this residential school operated from 1831 to 1970. Michelle Good [Good, 2023] highlights that residential schools tried to erase Indigenous identities, connections, and practices, eradicating Indigenous independence. In 1920, Canada's government kidnapped indigenous children with violence; some came back home, but many were lost or killed. The last schools closed in the mid-90s, showing a recent and ongoing history of violence and structures of violence against Indigenous peoples in Canada. *For this Land: Mush Hole* was an exhibition space to grieve these children and families collectively.

Both artists performed at the exhibition, and several projectors, speakers, and other objects were installed in the school's basement. The authors wanted to explore the various ways of being through

[6]For reference, go to https://vimeo.com/247701868

actions like writing, moving objects, breathing, trimming hair, reading, and interacting with physical and virtual bodies connected to the space —like photos of the children and families affected by the school. The **presence/essence** of Rogers, 2bears, and the children are in the space/time of the performance where the past and present are joined. They coexist; they are alive, talking and exchanging with each other and their cultural, personal, and historical selves. Rogers and 2bears re-activate in this space; their *presence/essence* is filled with the place's story and the spirits that passed through it. Roger and 2bears have this **co-presence**, becoming collective selves by joining their words and actions with the lives of the children who were forced to attend this school and the experiences of their loved ones. The visual and sonic expressions are made through this dialogue, inviting spiritual lives to join. The audience sees a multi-narrative and multi-linear storytelling exhibition that cares about what is told, from where it is told, by whom it is told, and to whom it is told.

1.3.3 Audio-Visual Bodies - Virtual Bodies

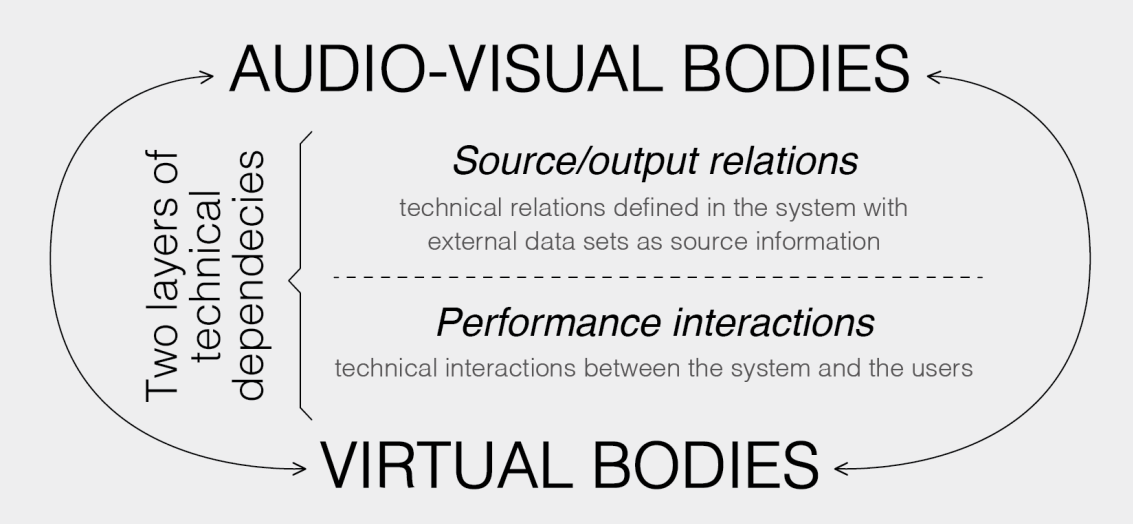


Figure 1.10: Audio-Visual Bodies - Virtual Bodies

I identify two layers of ***technical dependencies***: the ***source/output relations*** —how the technological gadget/instrument or software manages external data sets—and ***performance interactions*** —the level of agency and interactions in virtual bodies (Fig.1.10).

Technical dependencies: source/output relations (connecting external data sets)

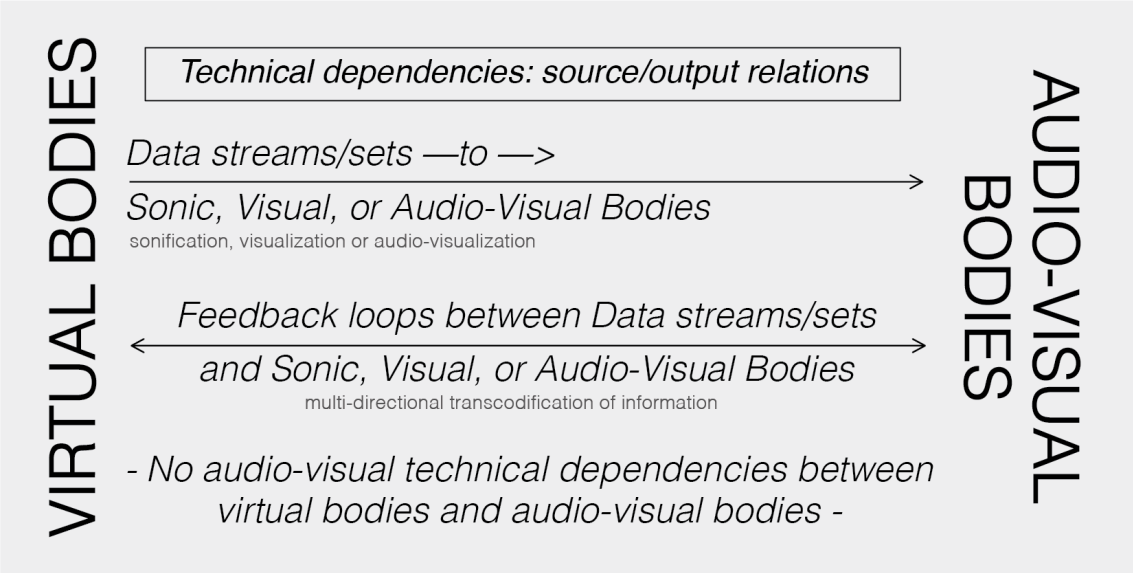


Figure 1.11: Technical Dependencies: source/output relations

Technical Dependencies trace the levels of connection between source information from *virtual bodies* to *audio-visual outputs* and vice versa. The *source information* refers to data sets, data banks, or any raw data (not belonging to sonic or visual data) that is used to create sonic, visual, or audio-visual bodies, considering the following scenarios (Fig.1.11):

1. ***Data streams/sets to Sonic, Visual, or Audio-Visual Bodies***. Sonification, Visualization or Audio-Visualization of data streams —e.g. user interactions/inputs— and data sets —e.g. discrete data gathered from external sources. Information from these sources —e.g. pollution levels— produces audio-visual bodies —e.g. transforms both the frequencies of sound samples and the hue of visual shapes.

2. ***Feedback loops between Data streams/sets and Sonic, Visual, or Audio-Visual Bodies***. Multi-directional trans-codification of all data —sonic, visual and external— that comes and goes between *sonic*, *visual*, and *virtual bodies*. Rarely present, this type of assemblage creates multi-layered connections where data is constantly moving between sources —mutating through different abstractions— and presenting itself with various outputs.

3. ***No technical dependencies between virtual bodies and audio-visual bodies***. This option contemplates systems without specific data streams to create sonic, visual, or audio-visual transformations.

Technical dependencies: performance interactions (connecting external data sets)

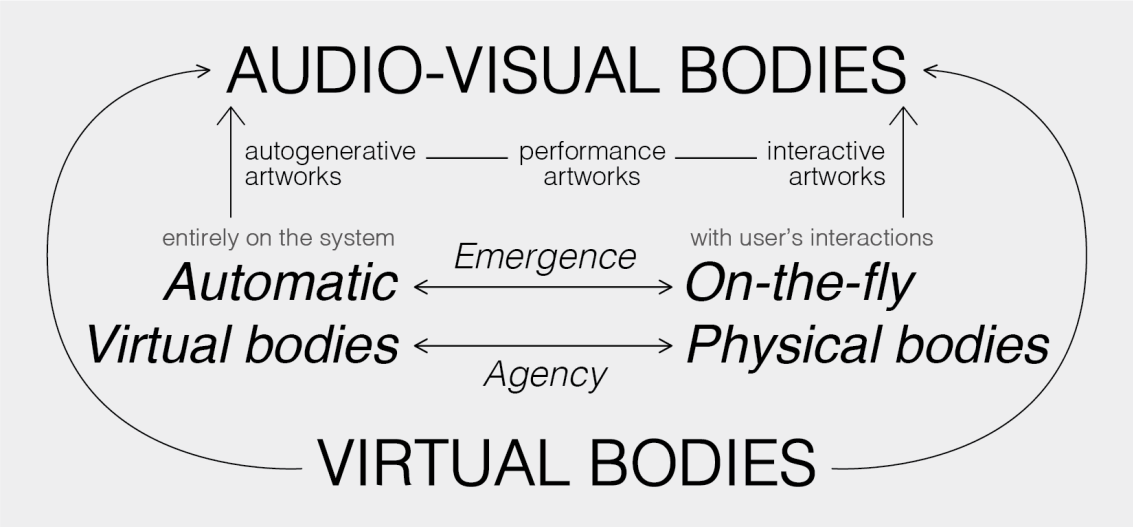


Figure 1.12: Technical Dependencies: performance interactions

Performance interactions identify how the artwork is created in connection to the artificial bodies that enable it, identifying two layers: ***emergence*** focuses on the level of user interactions, and ***agency*** explores from where actions are articulated (Fig.1.12).

1. ***Emergence [on-the-fly - automatic]***: how the artwork system performs itself (*automatically*) or how much the users perform the artwork (*on-the-fly*). Both positions reflect the way the artwork's interactions present themselves to the audience. ***Fully Automatic Emergence*** allows the *system* to produce auto-generated *audio-visual bodies*. ***Fully On-The-Fly Emergence*** considers performers' and users' interactions to transform *audio-visual bodies*: an action/effect dynamic.

2. ***Agency [artificial Bodies - Physical bodies]***: how all artificial bodies may or may not intervene or produce effects. The agency directly relates to emergence: *on-the-fly emergence*

connects to *physical body interactions*, and *automatic emergence* links to *artificial body interactions*. In the former, performers' and other users' actions are the ones that produce audio-visual transformations. In the latter, the *system* works as an autonomous or semi-autonomous entity, a set of rules that lead to audio-visual relations. Almost all performative works have semi-autonomous systems, setting audio-visual interactions while, in parallel, on-the-fly inputs by the performers produce audio-visual transformations.

Example: Aire V.3

Aire V.3 (2021)[7] is an audio-visual album by Mexican art collective *Interspecifics*. It visualizes environmental data from Mexico City, Bogota, and Sao Paulo into sound, text, and images. These data visualizations are presented in three 10-minute audio-visual tracks on a website with geographical and environmental information about the project and the cities. The project collects archived and real-time data on the *world's health*, such as energy, climate, forests, and urbanization. The data feeds sonic and visual systems (machine-learning algorithms written in Python) that transform information. The result is an **audio-visualization** with moving images (kinetic text, charts, 3D maps, city views, waves, and satellite images) and abstract electronic sounds (atmospheric and spatial compositions).

The **source materials** are **physical**-organic **bodies** (climate information) that become **audio-visual bodies**. The computer represents the discrete data in a series of numbers (0s and 1s), but this information is also organic (coming from environmental-chemical elements usually invisible to humans). This data (now **virtual body**) is trans-coded into audio-visual textures by the system (the machine learning algorithm), becoming an **audio-visual body**. The changes in these **abstract/discrete materialities** (pollution data) are shown to the audience by a **single multi-layered/technological output** (the computer) that is the primary interface for the user to see and hear the piece —in this website format. The **agency** relies primarily on **virtual bodies** because the algorithm turns physical bodies into audio-visual bodies. However, the system also learns from

[7] For reference, go to https://int-lab.cc/airev3/?fbclid=IwAR03H7mtr_2rT0rArjQDpoPUZmo5dsKVZJAOVU_RMoACKGope-x7vemlQv0

the data and its changes, placing the **agency** back into **physical bodies**. As for the video version, the **emergence** of performing interaction is **automatic**, making generative changes only on the system's backend.

This piece shows **virtual bodies as mediation spaces** between the virtual and the physical —macro and micro— spaces. The machine learning system is a **surface** where environmental, sonic, and visual forms mix to make audio-visual experiences with fluid, growing and changing bodies. The audience sees not the result but a mediation, a space of coexistence between digital pollutants and their changes. These tracks, audio-visually, emerge from the performativity of physical phenomena. For some audiences, the piece also opens a discussion on environmental issues in our cities and the political forces that affect the micro-and sub-atomic areas of our ecology.

1.3.4 Virtual Bodies [Parker-Starbuck's Taxonomy]

Parker-Starbuck's *Cyborg Theatre Taxonomy* [Parker-Starbuck, 2014, Parker-Starbuck, 2015] helps further analyze *virtual bodies*. Cyborg Theatre draws from Harraway's *cyborg*, explained as a "cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" [Harraway, 1991, p.149]). With this in mind, Parker-Starbuck's taxonomy examines how machines can inform, reshape, transform, and enhance bodies in Theatre spaces. The result is hybrid bodies that lie between performance and technology.

In my *ecology of performing bodies*, artworks, although not understood as cyborgs *per se*, are spaces where technology, humans, concepts, and other non-organic/non-physical elements weave together to form *the artwork*. Parker-Starbuck's taxonomy helps to correlate the connections between *artificial* and *physical bodies*.

Parker-Starbuck identifies two main agents, *bodies* and *technology*, subdivided into *subject*, *object*, *and abject*[8] (Fig.1.13). The following is an overview of each subdivision.

[8]Parker-Starbuck uses the term *abject* within the context of Cyborg Theatre, detaching "it from its specifically Kristevan or psychoanalytic roots, and transfer[ing] it to moments of instability, of crises of identity, of border crossing, of cultural anxiety, but always through corporeal affect" [Parker-Starbuck, 2014, p.58]. With this, Parker-Starbuck wants to re-signify the concept, keeping it as a cue for human-technological dislocation in-between the *subject* and the *object*. She also states that in the future, it is necessary to come up with non-human-centric terms [Parker-Starbuck,

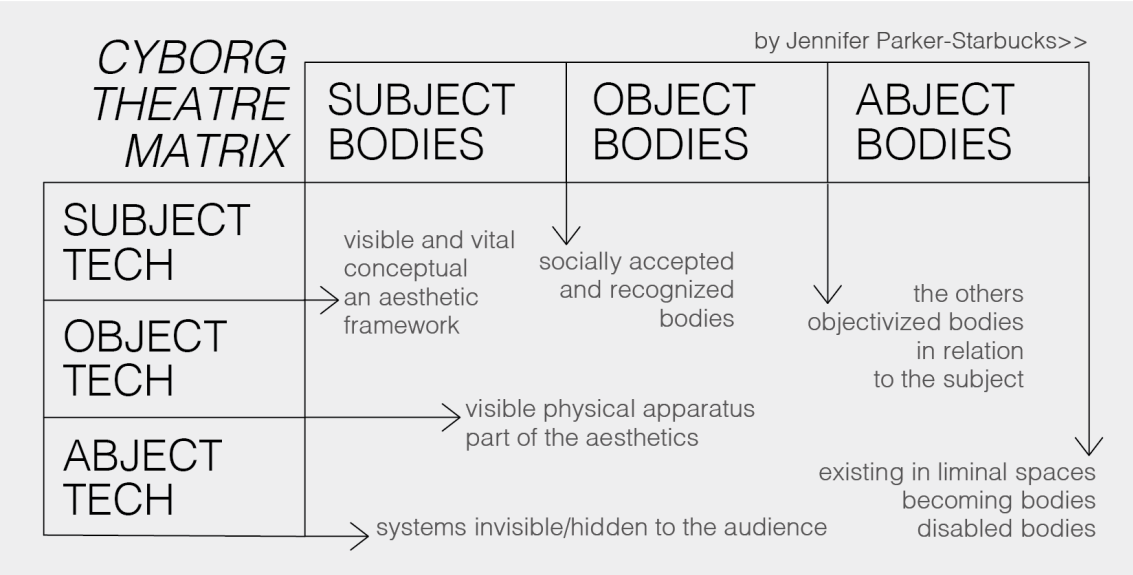


Figure 1.13: Visual Representation (created by Jessica A. Rodriguez) of Parker-Starbuck's Cyborg Theatre Taxonomy

- ***Subject bodies*** are bodies at the centre of the performance space that are easily recognized by the audience. They function as a bridge connecting the audience with *object* and *abject bodies*.

- ***Object Bodies*** are mediated bodies with "ideas [that] have been inscribed and transposed" [Parker-Starbuck, 2015, p.45] on them.

- ***Abject Bodies*** are *becoming bodies*. These bodies exist in liminal spaces without recognition inside or outside societal norms and language. Examples of abject bodies are puppet bodies, non-human bodies, intersectional bodies, disabled bodies, cyborgs, and other hybrid bodies crossed by technology.

- ***Abject Technology*** refers to technological systems that are purposely invisible, muted, or hidden: what is left of them are their traces and actions, not the mechanics that make them work.

- ***Object Technology*** comprises physical apparatuses enabling interactions and mediating bodies within the performance's space and time.

2015]

- ***Subject Technology*** is the technology that becomes a central element with conceptual and artistic repercussions on the artwork's experience: the technology is the artwork itself.

Fig.1.14 shows the complete scheme of the *ecology of performing bodies* embedding Parker-Starbuck's Cyborg Theatre taxonomy [Parker-Starbuck, 2014, Parker-Starbuck, 2015] further identifying the relationships between bodies and technologies within what I identified as *Virtual Bodies*.

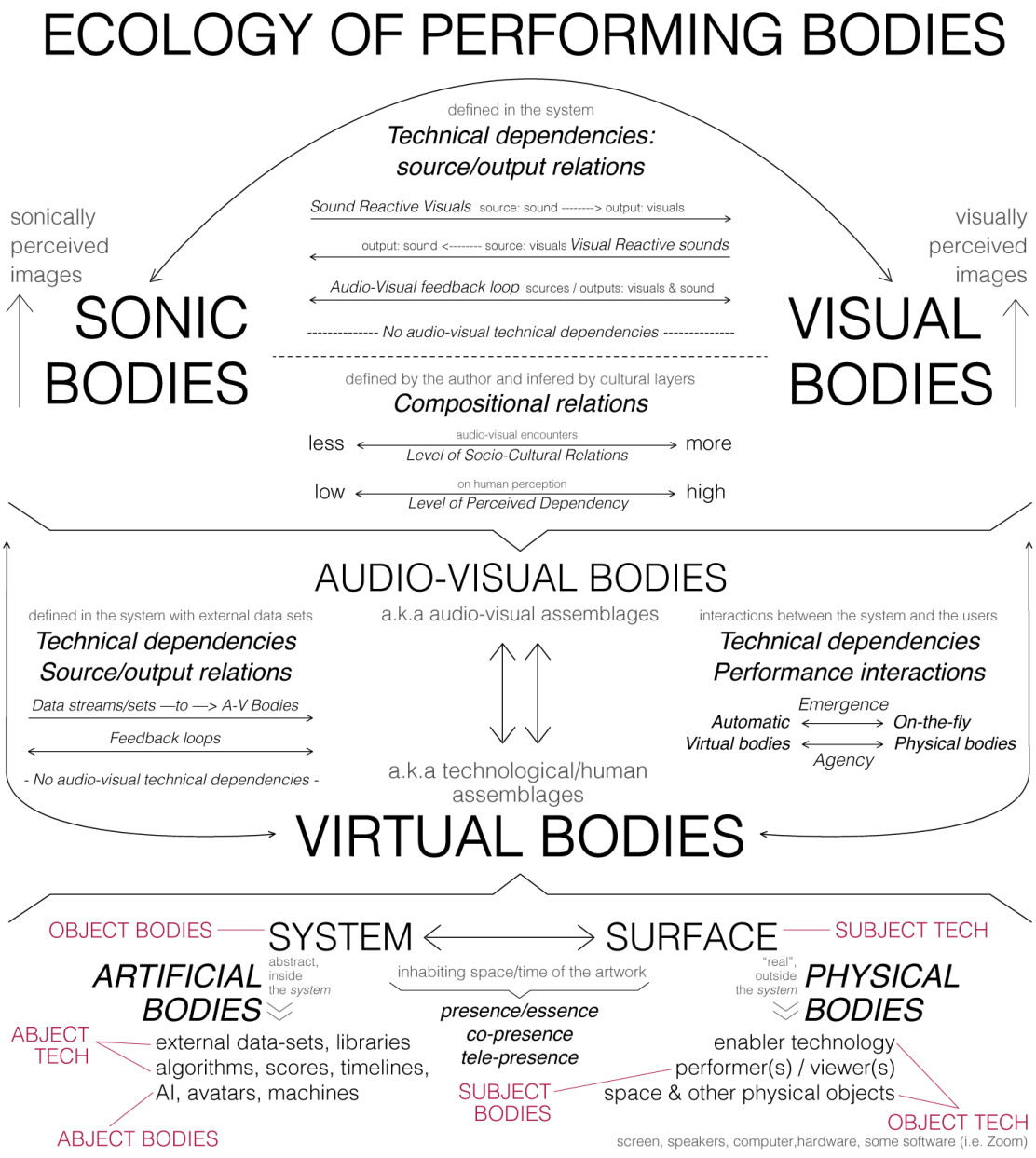


Figure 1.14: Ecology of Performing Bodies

Example: Anatomies of Intelligence and the Concept of Aesthesis

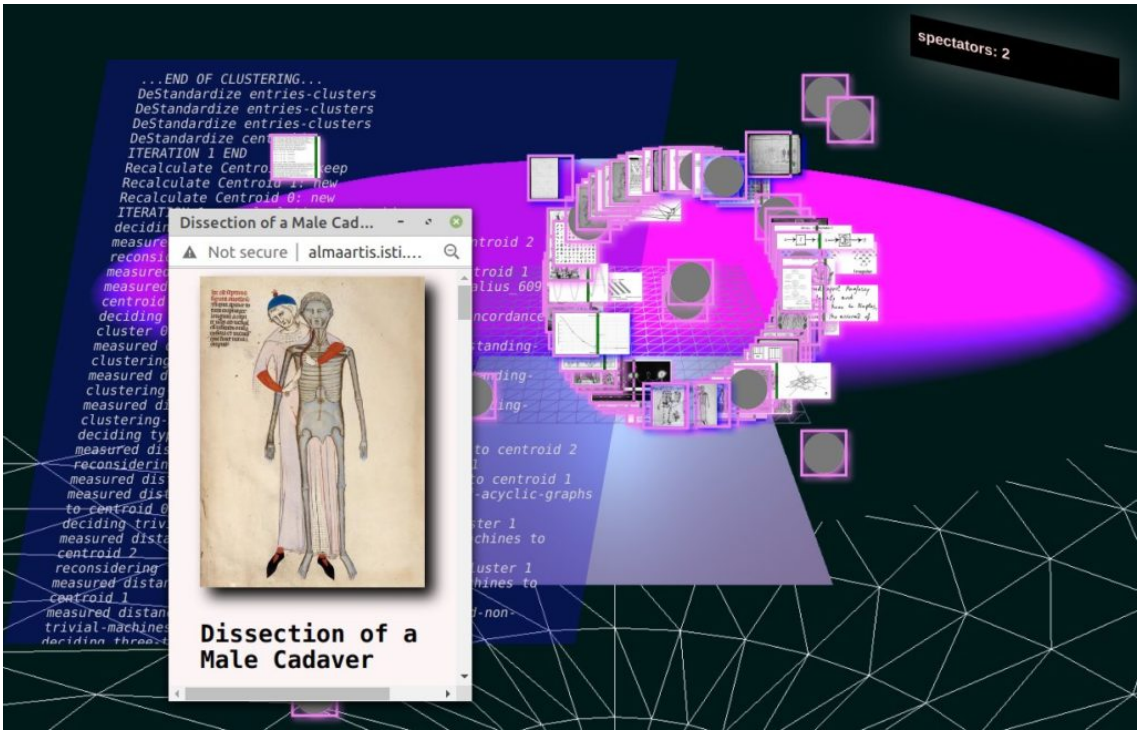


Figure 1.15: Screenshot, *Anatomies of Intelligence and the Concept of Aesthesis* (2017-ongoing); image provided courtesy of the artists

Anatomies of Intelligence and the Concept of Aesthesis (2017-ongoing)[9] by Joana Chicau and Jonathan Reus is a browser environment for improvisatory performance (Fig.1.15). The project is an artistic research on aesthetics and the history of human bodies —like body portraits, definitions, knowledge, classifications, and structures. It explores how human bodies perform with the trends and ideas on aesthetics that change over time and affect each other. The project consists of an artificial intelligence algorithm and a database of drawings, paintings, photos, links, and text linked to the history of anatomy, artificial intelligence, machine learning, and post-human anatomy. The performer types on the browser's console, which connects to a JavaScript API and a machine learning algorithm. The audience sees the live interaction on a giant projection (live performance) or their computers (telematic performance).

[9]For reference, go to https://anatomiesofintelligence.github.io/index.html

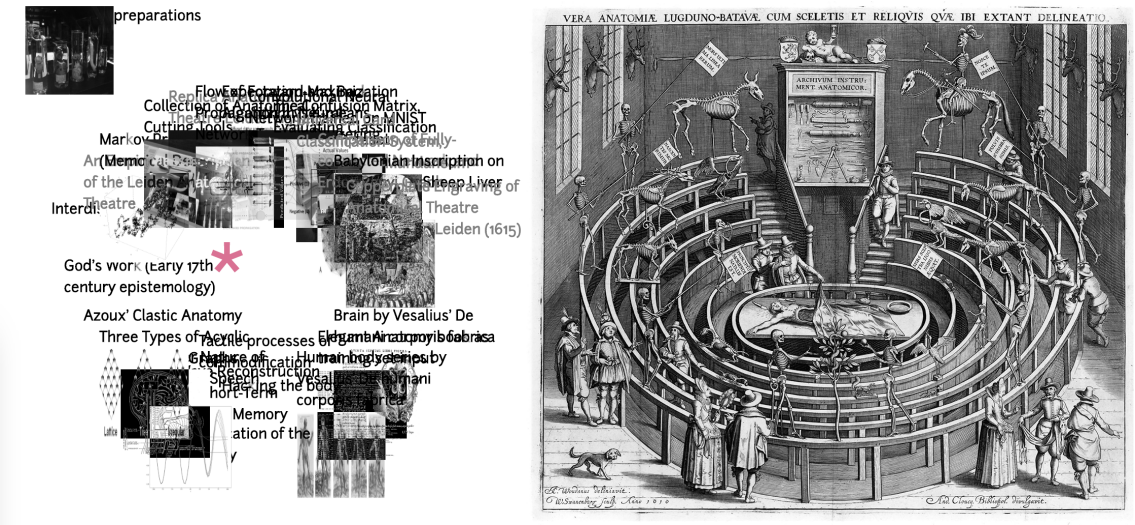


Figure 1.16: Left: Screenshot, *Anatomies of Intelligence and the Concept of Aesthesis* (2017-ongoing); image provided courtesy of the artists
Right: The anatomical theatre of Leiden University, early 17th century; Wikimedia, Willem Isaacsz Swanenburg / Jan Cornelisz

During the performance, Chicau searches the database through a content map that can be navigated, highlighted, zoomed, or opened in different tabs (Fig.1.16). The screen showcases a collage with kinetic text, drawings and photos. The project also includes sonic bodies. Reus uses sine waves, glitches, noise, and live and recorded speech by Chicau with words related to the project's vocabulary (*anatomy*, *anatomist*, *naturalia*, *fabric-tissue*, etc). The sound composition has effects like reverberation, filters, echo, spatialization, fragmentation, distortion, spectral freezing, live sampling, and granulation generated in SuperCollider. The voice and the visual interactions are like mechanical gestures mimicking the structure of an *Anatomical Theatre*, where body parts are shown, exposed, analyzed, explained, and dissected (Fig.1.16: right).

The visual and sonic events depend on the data from the machine learning algorithm. For example, the distance between searches by the performer can change the visual and sonic textures. There is a strong link between the **audio-visual body** and the **virtual bodies**, where the performer's data is a **source** for **audio-visual outputs**. Additionally, the machine learning algorithm sends information —using the OSC protocol— to the SuperCollider interface. This input data and the performer's interactions generate a manipulated sonification.

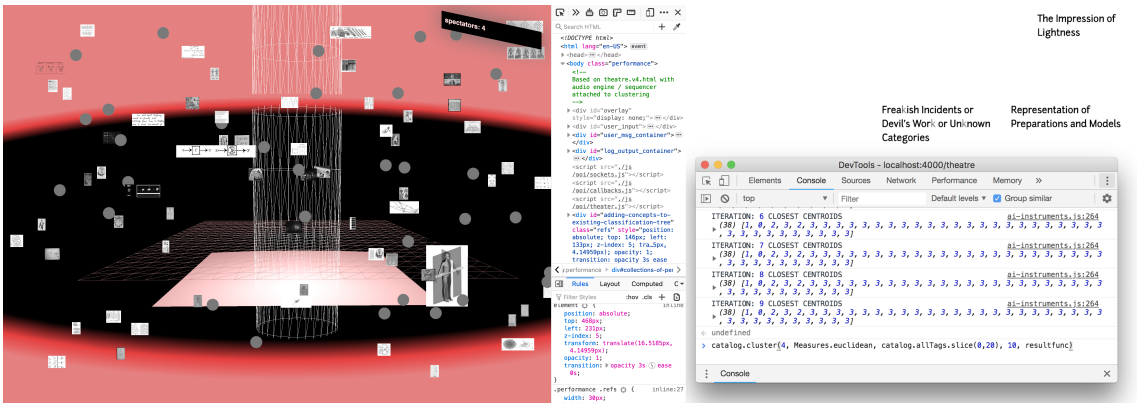


Figure 1.17: Screenshot, *Anatomies of Intelligence and the Concept of Aesthesis* (2017-ongoing); image provided courtesy of the artists

The telematic (and interactive) performance version uses a web browser to run the audio engine, the visualization, and the machine learning algorithm. The project runs on the audience's browsers temporarily. Their computers host and manipulate the sound samples locally. The datasets link to JavaScript functions that make audio-visual effects. Some sonic parameters are pitch, cutoff frequency, panning, etc. These links show **the machine learning algorithm and the database as the main source** for **audio-visual outputs**. The audience experiences **high social-cultural relations**. For example, when photos, text, and speech run together, the voice says words related to the images.

The piece fluctuates between automatic and on-the-fly exchanges, and the agency has a fluid nature, moving through the different agents of the artwork. The machine learning tool automatizes the process built by a system that enables the search and projection of the database: the **agency comes from the virtual bodies**. The on-the-fly exchanges result from the performers' real-time interactions that look/search into the database and improvise over it: **agency at these moments comes from the physical bodies**.

This project contains multi-layered interrelations between **virtual bodies**. During the performance piece, constant human inputs feed the improvisatory audio-visual actions through an interface with a programming language built over JavaScript. Additionally, there is a re-iteration of the corporal and virtual gestures made by the algorithmic system and the performers. With this information, we can identify the following. **Subject Bodies** are present as human drawings, text descriptions, and speech samples on the database and the performers. The algorithm that runs the

database and enables audio-visual and performer interactions can be considered an **Object Body**. The **Abject body** is present in the concept of *human corporea*. This concept re-imagines other possibilities of human body representations inside and outside liminal spaces.

Regarding technology, the machine learning algorithm that controls the database interactions is an **Abject Technology** since it is hidden in the backend. Still, its traces are visible in the sound, text, and image files. The **Subject Technologies** are the browser window and the programming language that lets the performer access and navigate the database. They are visible and shape the project's aesthetics. The screen projection and the speakers showing the results are **Object Technologies**.

This project examines the complex relations of different virtual bodies that form assemblages of disembodied bodies similar to "cyborgs" [Parker-Starbuck, 2015, p.74] in the sense that it creates a digital collage combining the various ways bodies can be represented through technology. **The database is a subject body** and a curated entity. Anatomical information from the human sciences shapes the audio-visual aesthetics and the core technology of the artwork —the concept of **human corporea is an abject body**. The human sciences portray the human body as a puppet that can be dissected. In this piece, the performer re-imagines *human corporea* by examining the database through the *abject technology* (the machine learning algorithm). The audience only sees the traces of this algorithm through audio-visual bodies and the performer's communications. The *abject body* is a hyper-mediatized and mechanical body that helps the performer and audience better understand its dynamics and connections. The audience can imagine new ways of representing and describing human bodies and their digital counterparts.

Figure 1.18: Screenshot, *Anatomies of Intelligence and the Concept of Aesthesis* (2017-ongoing); ; photo taken by Lavinia Xausa, 2018

Both the **system** and the **performers** interact with the database. The performers are *the other physical representations of human bodies* besides the database's audio-visual human representations. The performers' gestures in situ symbolize an anatomic dissection (Fig.1.18). They sit at a table with a white projection of their screens, surrounded by the audience. In the telematic version, the performers are invisible. The audience sees their traces in the browser's console. The **browser becomes a subject technology** in both formats. It allows for performance interactions with the system and shows results. It is also the artwork itself. The project's aesthetics lies in the browser's look and the programming language that enables the navigation with the database.

1.3.5 Applied ecology

This *ecology of performing bodies* aims to discuss and analyze the relations of the agents in art projects from production to exhibition. I analyzed multimedia works that use high technical arrangements, such as *Granular Synthesis* [Hentschläger and Langheinrich] making an audio-visual mechanical generator, *Aire V.3* [Interspecifics, 2021] using data visualization for an audio-visual al-

bum, and *Anatomies of Intelligence and the Concept of Aesthesis* [Chicau and Reus, 2017-ongoing] using machine learning for an interactive browser-based catalogue and live coding tool. I also used this ecology to analyze *For this Land* [2Bears and Jackson, 2015-18]. This project works with virtual bodies, exploring states of presence beyond the physical world to bodies inhabiting liminal spaces through memory, spirituality, and history. In later chapters, I will use this *ecology* to analyze the artworks from this doctoral research.

Chapter 2

TransMit, A Programming Language for Live Video Performance

2.1 Introduction

In this chapter, I present *TransMit*, a live video tool I developed as a significant outcome of my doctoral project. *TransMit* responds to my artistic needs, technical capabilities, and learning journey. The chapter begins by providing the **Personal and Artistic Context**, delving into the experiences and theoretical foundations that motivated me to create a programming language for live video. Subsequently, I explore ***TransMit***'s lexicon, syntax, and semantics through coding examples and considering its artistic and cultural implications.

2.2 Personal and Artistic Context

In this section, I draw inspiration from an ice-breaker class activity crafted by McMaster Professor Eugenia Zuroski following her participation in the *Summit for Mentoring Indigenous Graduate Students* [Zuroski, 2020]. This engaging introductory exercise invites students to share their diverse experiences, acknowledging the multifaceted ways of knowing and learning [para.1]. By incorporating Zuroski's approach, I aim to recognize the significant personal and professional influences

that have shaped my academic trajectory throughout this doctoral project. In the subsequent pages, I will delve into specific responses to the following questions:

> "[Question] *4.* ***How did your interests come to you?*** [...] *How would you narrate what brought you to your ideas, or your ideas to you? Was it something you read, witnessed, confronted? Was it something someone taught you? Was it somewhere you lived or went, someone you met or knew, something you laboured at, something you enjoyed? To whom, or what, are your ideas indebted?*
>
> [Question] *6.* ***What else would you like us to remember and recognise about you when we engage in conversation with you?*** [What] *you would like people to recognise in or about you when they engage* [...] *your ideas in conversation?"*

2.2.1 Where do I know from?

Figure 2.1: *Los Días Terrestres*, performance at Café del Recuerdo, Uruapan, Mexico (2014); credit: andamio

During my undergraduate studies in Fine Arts, I embarked on artistic explorations that merged moving images, sound, and poetry/literature within live performance settings. One notable example is *Los Días Terrestres*[1] (Fig.2.1), a 45-minute performance piece in collaboration with Rolando Rodriguez (reading), Tonalli R. Nakamura (sound), Luis G. Zirate (visuals), and myself (visuals). This performance was a *Lectura Visual/Sonora* (Visual/Sonic Reading). Our goal was to react to Rolando's live reading by complementing or contrasting the narrative of his voice. My specific role in this piece was to co-create live visual textures using *Processing*, a creative coding tool based on Java, to write and run computer applications that produced interactive visual outcomes. During the performance, I modified existing code sketches downloaded from the example page at

[1]For reference, check: https://andamio.in/prod/los-dias-terrestres

Processing.org, which dynamically constructed and deconstructed text and photos from the poets. This marked my initial foray into using coding tools for live performance.

I had other creative encounters with *Processing*, learning to create interactive and generative visual installations. However, it wasn't until October 2013, at the *Visiones Sonoras* Festival[2] in Morelia, Mexico, that I was formally introduced to live coding —a performance practice where you create audio and/or visuals live with a programming language. In *Visiones Sonoras*, I participated in a generative music workshop[3] there, expanding my understanding of this practice. Weeks later, I journeyed to Mexico City for the inaugural */*vivo*/ Simposio Internacional de Música y Código* (International Symposium of Music and Code)[4], organized by Centro Multimedia and the National Centre for the Arts. This experience exposed me further to the world of live coding.

Intrigued by its text-driven nature, I delved into researching the concepts and examples of this artistic practice. My undergraduate thesis in Post-Media practices [Rodriguez, 2014] explored live coding among other generative and interactive digital practices. Back then, I characterized live coding as a "hybrid [process] of coding, joined with live improvisation of electronic music and visual generation [or creating visual compositions]" [p.42]. The slogan *'Show us your screen'* underscored the significance of sharing the coding process as an integral aspect of this practice. I analyzed performances by Mexican artists Hernani Villaseñor and Eduardo Obieta, emphasizing how code served as a communication system with the computer and facilitated community-building with the audience through shared coding, resources, and processes. The Mexican live coding community embraced a pedagogical approach influenced by UK practices but adapted to regional technologies and resources available [Mendoza et al., 2023, Villasenor and Paz, 2020, Rodriguez, 2017, Villasenor, 2014].

In 2013-14, limited programming languages were available for live-coded visuals. *Fluxus*, a vector-based generative visual and coding tool, was the most robust option. However, as a visual artist, I focused on video art, specifically working with pre-recorded and archival footage for live

[2]Visiones Sonoras is an experimental sound festival organized by the Mexican Centre for Music and Sonic Arts in Morelia, Mexico.

[3]music workshop by SEMIMÚTICAS using *SuperCollider*, a coding tool for music algorithmic composition.

[4]Organized by *Centro Multimedia* and the National Centre for the Arts in Mexico City.

performances. Consequently, *Fluxus* did not align with my artistic direction. In generative live visuals, additional software options allowed for workflow with pre-recorded video are *Max* and *vvvv*. *Max* is a powerful visual programming language with extensive capabilities. Unfortunately, it is expensive commercial software, making it less accessible for students and emerging artists. *vvvv* is also a powerful visual programming language. While it has a free version for non-professional use, it was exclusively available for Windows, restricting its usage to specific computers. Beyond these options, more professional tools required a steep learning curve, which, at the time, didn't align with my artistic goals either.

My interests lie in visualizing code as an educational and community-driven practice rather than pursuing personal artistic goals. Therefore, I continued my research, continually expanding my perspective on coding practices. As part of my Master's dissertation [Rodriguez, 2017], I delved into the nuances and local practices of algorithmic processes within the Digital Arts in Mexico. Through a series of interviews, I mapped out the creative coding landscape in central Mexico, including the work of the following practitioners: Roberto Morales (Guanajuato), Sergio Luque, Centro Multimedia (Mexico City), the Mexican Centre for Music and Sonic Arts (Morelia), Facultad de Música UNAM (Mexico City), Juan Sebastián Lach (Morelia), José Luis García Nava (Morelia and Mexico City), and CENTRO (Mexico City). This project also helped me get more involved in collaborative projects with Mexican live coders. For example, in 2016, I joined RGGTRN[5], a laptop ensemble and live coding collective influenced by Latinx rhythms and cultures. Along with the other members (Marianne Teixido, Luis Navarro, and Emilio Ocelotl), I started playing with live-coded reactive visuals that would accompany the rhythmic music.

As a video artist, I utilized *Resolume Arena*, commercial software for live video mixing, including VJ practices and Live Cinema (Fig.2.2: left). While this approach initially satisfied my artistic needs, I eventually encountered new desires. In 2017, I participated in *Leviathan*[6], a piece combining a Paetzold recorder, algorithmic music, and live visuals, collaborating with Emilio Ocelotl and

[5]For reference, check: https://rggtrn.github.io/

[6]This piece was first presented at ISEA 2017 in Manizales, Colombia. For reference, check: https://andamio.in/prod/leviathan

Argentinian composer Alejandro Brianza (Fig.2.2: right).

Figure 2.2: Left: *Altamisa*, performance at MUAC, Mexico City (2016). Right: *Leviathan*, performance at Teatro los Fundadores, Manizales, Colombia (2018). Photos by Jessica A. Rodriguez

Emilio developed an algorithmic musical system for improvisation, allowing seamless transitions between generative sonic sections using *Open Sound Control* (OSC), a communication protocol for digital devices. Initially, I relied on *Resolume Arena* for the visual component, but it fell short compared to the interactive and generative aspects of the sonic layer. I teamed up with Colombian programmer and musician Celeste Betancur to address this. Celeste is an avid live coder working with several live coding environments and creating coding libraries tailored to her musical needs. She was also involved in *Live Cinema*, a form of performative audio-visual storytelling, through her collective *Semillero Cinevivo*. Our discussions highlighted the lack of multiple live coding languages designed explicitly for visuals[7], especially those enabling real-time mixing of pre-recorded videos. This led to the implementation of *CineVivo*[8], a system designed to meet our artistic and performative requirements.

CineVivo [Rodríguez et al., 2019] is a programming language for live video mixing. *CineVivo*'s uniqueness in the live coding community (back then) was exploring non-English coding (having the option to write the commands in Spanish) and working with on-the-fly re-naming commands. We aimed to help users craft poetic variations of the existing functions. For instance, instead of using the standard *play* command (or its Spanish equivalent, *reproducir*), we transformed it into *dream*: "We would *dream* a video." This deliberate choice was influenced by Celeste's experiences in Live Cinema and the connections to electronic literature practices Rolando and I had.

[7] At that time, the only live coding language working with video was *Live Coding YouTube* [Lee et al., 2017]. For reference, check: https://people.cs.vt.edu/sangwonlee/livecodingyoutube/

[8] To use CineVivo, check: https://www.celestebetancur.com/code.html

The Electronic Literature Organization (ELO) mentions that e-lit "refers to works with important literary aspects that take advantage of the capabilities and context provided by the stand-alone or networked computers" [Di Rosario et al., 2021, p.1]. In this context, *CineVivo*'s ability to forge poetic connections and execute computer processes while sharing the screen with the audience serves both live coding and electronic literature practices.

Figure 2.3: *MOTHER*, performance at the closing event of ELO 2018, Montreal, Canada; photos by ELO organization

In August 2018, my artistic collective, *andamio.in* (comprising Alejandro Brianza, Luis G. Zirate, Rolando Rodriguez, and myself), received an invitation for a residency at Agence TOPO, an artist-run center dedicated to exploring contemporary digital art practices. Our goal was to create an electronic literature performance project and present it at the closing ceremony of the 2018 ELO Conference in Montreal. The result of that residency was *Mother*[9]. This performance piece weaves together three short stories about my paternal grandmother (Fig.2.3). The experience unfolds across three distinct spaces and times: my grandmother's sickness, her funeral, and a memory from her past.

My role involved crafting the visuals for the first and last sections. I aimed to revisit live coding tools through the lens of electronic literature, explicitly exploring the visual textures of written code poetry on the screen. A few months before this residency, I crossed paths with Olivia Jack, the designer and programmer behind *Hydra*[10], a relatively new programming language for live visual synthesis. Olivia had attended a workshop in Bogota that I co-facilitated with RGGTRN [Del Angel et al., 2019]. During our discussions, we delved into electronic literature's poetic and expressive text layers. Later that week, Olivia showcased a live coding performance at a local algorave, work-

[9]For reference, check: https://andamio.in/prod/mother
[10]To use Hydra, check: https://hydra.ojack.xyz/

ing with screen feedback loops to create a visual experience that mirrored the code itself. Inspired by this, I incorporated similar effects into the first section of the *Mother*'s performance (Fig.2.3).

As a new *Hydra* user, I focused on minimal, executable lines of code to create a sober, dark-screen feedback loop. I reserved the remaining coding space for comments, which I translated into English and French. These comments corresponded to different sections of the live reading. For the final segment of the performance, I turned to *CineVivo* and its customizable command names. Specifically, I crafted a *novena* —a Catholic prayer traditionally used during holy days and funerals. This electronic *novena* served a dual purpose: it referenced my grandmother's passing (and thus the live reading of the stories). It enabled communication with the computer to trigger specific videos. These videos included imagery of flowers symbolizing both funerals and my grandmother's life.

Mother's performance marked the first time I openly explored the hybridization of live coding and electronic literature practices. This pivotal moment would define my doctoral project and continue to shape my current artistic explorations.

2.2.2 Live Coding + Electronic Literature

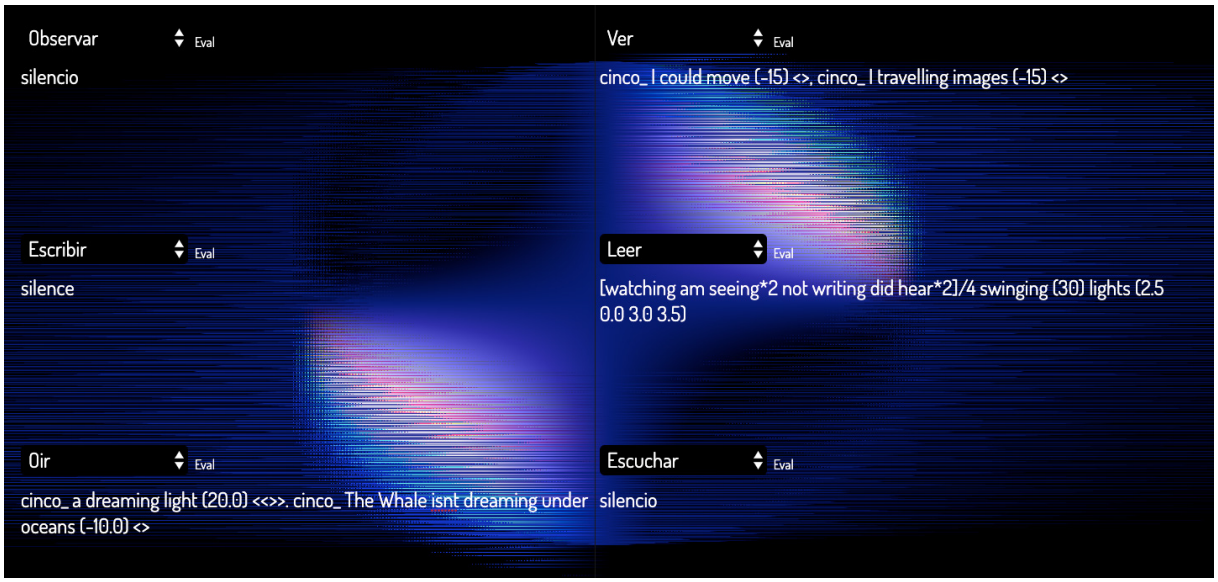


Figure 2.4: *Memorias [Live Coding + Electronic Literature]* (2018-22); credit: Jessica A. Rodriguez

Live coding is a performative practice where sound and visuals emerge through real-time interactions with programming languages, visible to the audience (Fig.2.4). The screen becomes a

pedagogical surface, allowing attendees to learn from others' interactions and showcase live coding technologies. Rather than focusing solely on pedagogy, my artistic drive in live coding lies in its revelatory potential. By executing written code, the audience witnesses creative and technological processes unfolding, translated live into audio, visual, or audio-visual languages [Cocker, 2016]. Moreover, the audiences experience the connections between written speech —in the form of live code interactions— and the audio-visual gestures they generate [Lawson and Smith, 2019, Norman, 2016, Rodríguez and Rodríguez, 2015].

Geoff Cox and Alex McLean [Cox and McLean, 2013] explore the relationship between written code and speech, viewing code as a functional tool and expressive language. In other words, writing code live is more connected to speech because it happens in a single temporality, rather than writing practices, which usually occur in different temporalities and with varying edition levels. Inspired by this, my live coding practice involves **activating written speech**, allowing the audience to witness changes, errors, and the resulting audio-visual compositions.

Like any other written or spoken language, live coding languages also contain socio-cultural layers visible through the audio-visual logic behind them. The previously mentioned examples are Cox and McLean [Cox and McLean, 2013], exploring the concept of *double coding* as a combination of functional and poetic coding expressions. Emma Cocker [Cocker, 2016] understands written code as *thinking-in-action* portraying artistic thought. Luis Navarro uses decolonial approaches for designing culturally situated computer languages [Navarro Del Angel, 2023]. Lawson and Scott use Barthes' analysis to identify executable code's connotative and denotative layers [Lawson and Smith, 2019]. Amble Skuse and Shelly Knotts explore political dimensions and lack of diversity in live coding tools [Skuse and Knotts, 2017]. Drymonitis uses the concept of *code works* to explore his connections between poetry in live coding performance [Drymonitis, 2023].

Sally Jane Norman [Norman, 2016, Norman, 2015] emphasizes that certain key features in live coding, including "feedback, runtime, interventions, phasing, concurrency, and free programmability" [p.118] are already inherent characteristics highlighted in general Performance and Theatre Studies. She advocates for broadening the historical context of live coding by connecting it to

other fields with longer historical references. My research aligns with this perspective, aiming to delve into the critical socio-cultural aspects of live coding beyond its technological facets and by exploring connections to other artistic practices that engage with generative and interactive written speech and digital storytelling.

Electronic literature encompasses digital (generative and interactive) storytelling products and involves "literary performances with new ways of writing" [Rettberg, 2018, p.4]. Interestingly, programming languages' syntax and coding statements can be e-lit products.

Thinking about e-Lit practices, John Cayley introduces the concept of "codeworks," where computer languages —often functional— also become interpretative, resonating with specific communities [Cayley, 2006, p.4]. He identifies five types of codeworks, including those centred around higher-level yet standard and readily available programming languages like *JavaScript*. However, this type of codework remains accessible primarily to specialized readers with technical knowledge. In the context of live coding, I argue that most tools and performances align with this type, as only experienced live coders fully appreciate the intricacies of the projected coding process. At the same time, the general audience may focus on specific words and actions, overlooking the deeper layers of code.

John Cayley identifies two particularly intriguing types of codeworks that harness functional-computational capacities that are profoundly influenced by multiple signifiers and the socio-cultural layers of human languages. With different linguistic complexities, these codeworks engage with the mutable features of verbal communication. In human languages, words are dynamic —they re-signify each other, adopt different meanings, and can even occupy contrasting positions. Within this context, a single word or function can interconnect with other functional words, resulting in diverse audio-visual outputs and intricate literary-syntax structures.

Figure 2.5: *Memorias [Live Coding + Electronic Literature]* at Centro Cultural Clavijero, Morelia, Mexico (2019); photos by Jessica A. Rodriguez

Informed by these concepts, I created *MEMORIAS*[11] (Fig.2.5), a project investigating the interplay between written-functional and poetic computer languages. This project significantly influenced my artistic approach, ultimately shaping my doctoral research-creation work. Initially, I crafted six autobiographical stories in prose, each available in English and Spanish. For a third version, I delved into poetic and functional structures that could be experienced by both the audience —through live, improvisational text-based storytelling— and the computer —generating audio-visual imagery. The resulting computational structures blend English and Spanish, broken by numbers and symbols that activate audio or visual textures. In essence, *MEMORIAS* uses live coding conventions like the expressive act of sharing my screen during performances while also exploring e-lit possibilities such as working with performative digital poetic structures "written expressly for the [or to inhabit the] screen" [Perloff, 2006, p.146].

2.2.3 The path for *TransMit*

Before I initiated my doctoral studies, I experimented with programming languages like *Processing*, *SuperCollider*, and *HTML-CSS*. However, I wouldn't classify myself as a professional programmer. My experiences were broad: tinkering with school projects, handling small design gigs, and participating in workshops in Mexico. It wasn't until 2018, when I embarked on my doctoral journey, that I delved into properly learning a programming language. In late August of that year, I began a research assistantship under the guidance of Dr. David Ogborn. This role spanned five

[11] For reference, check: https://github.com/jac307/MEMORIAS

years and centred around learning a programming language called Haskell. My tasks involved contributing to the design and implementation of new features for *Estuary*, a multi-language online platform for live coding [Ogborn et al., 2022, Ogborn et al., 2017]. Over nearly a year, I meticulously studied step-by-step instructions, engaged in exercises, and participated in weekly meetings with the research team and Dr. Ogborn. My goal was to grasp the intricacies of Haskell. Beyond mere technical proficiency, this learning journey was about weaving together technology, artistic expression, academic aspirations, professional growth, and my embodied experiences and mindset. It was a holistic process that shaped my understanding of programming and its impact on my creative practice.

My artistic project, *MEMORIAS*, was crucial in establishing the technologically embodied connections that later proved invaluable during my research assistantship. For example, in early summer 2019, during a live coding intensive activity organized by Prof. David Ogborn, I collaborated with my supervisor and fellow Estuary research assistants, Spencer Park and Luis Navarro. They helped me craft the initial version of one of my *MEMORIAS* languages using *Haskell* and the *Haskellish* library[12]. This library, developed by David Ogborn, specializes in parsing small Haskell-like languages. It's the backbone of some live coding languages within the Estuary ecosystem.

Through this endeavour, I gained practical experience implementing more complex structures. Subsequently, as an RA, I leveraged this knowledge to contribute to implementing the live coding language *CineCer0*. Collaborating closely with Dr. Ogborn and fellow RA Alejandro Franco Briones, I helped shape the visual aspects of this computer language. *CineCer0* was initially influenced by the existing live coding language *CineVivo*, programmed by Celeste Betancur[13]. *CineCer0* is built over Haskell, using HTML, CSS, and Java functions so the performer can play and transform videos and images (Fig.2.6). This live coding language contains functions that ensure some levels of synchronization between video playrate and the inner cycle time of *Estuary*.

[12]"A library for parsing small Haskell-like languages" [Ogborn, nd, para.1] developed by David Ogborn. For reference, check: https://github.com/dktr0/Haskellish

[13]For reference, check: https://www.celestebetancur.com/code.html

Additionally, performers can experiment with live video and kinetic-animated text, crafting performance pieces that resonate with Live Cinema and other digital storytelling practices. Similarly to *CineCer0*, I wanted to implement a tool for live video but with other logic in place.

Figure 2.6: *CineViv0* running in Estuary alongside Hydra

, a programming language for live synthesis

developed by Olivia Jack; credits: Jessica A. Rodriguez

In my doctoral research-creation project, I conducted extensive research, designed and implemented a live coding tool, and created and presented two artistic works. These artworks served as real-world tests for my tool, *TransMit*, but more significantly, they acted as catalysts, shaping the design of this programming language. It was a dynamic interplay: the language influenced the artworks, and the artworks, in turn, influenced the language itself.

In **Chapter 3: *encarnadas (f.) embodiments* [Performance + Screen Dance Project]**, I explore how this performance piece influences *TransMit*. This work explores video-based fragmentation and re-composition. My goal was to visually dissect the space within the video footage. To achieve this, I constructed a **3-dimensional environment** utilizing wrapping functions to fold

and wrap the video surfaces (Fig.2.7). This approach builds upon my previous experiments with masking layers in video editing software, seeking ways to replicate the same effect in live settings.

Figure 2.7: First draft for *TransMit* created on Adobe Illustrator

Similarly, my second art project, ***afrontaciones (f.) copings. Narrativas de la Memoria y la Violencia del habitar*** **[Digital Mixed-Media Installation]** (Chapter 4) incorporated diverse physical elements—handprints, typewriter testimonies, photographs, and more. I was keen on preserving the tactile essence of these materials even within the 2-dimensional digital confines of a computer screen. Additionally, given that this artwork reflects how violence-related testimonies are mediated through television and news formats, I grappled with visualizing this concept in my programming language, drawing inspiration from American-Korean video artist Nam June Paik.

Nam June Paik, known as “the father of video art,” pioneered using television and video as an artistic medium. I draw inspiration from Paik’s installations that manipulate monitors and his critical commentaries on television and radio broadcasting [June-Paik, nd]. With this in mind, I sought to create a digital tool that directly and critically references the physical world.

Inspired by Paik’s work, I envisioned assemblages of **3-dimensional televisions coming to life within the space of the screen**. As John G. Hanhardt [Hanhardt, 2019] highlights, Nam June Paik "created work that explores a different materiality in the object and releases the "ghosts" of performances past" [p.8]. The project *afrontaciones (f.) copings* further explored these ideas, connecting multiple testimonies and existences through each monitor. In this sense, performers activate or deactivate transmissions, switch channels, modify the monitors’ positions, sizes, and shapes, and modify the looks of the transmissions.

2.3 TransMit

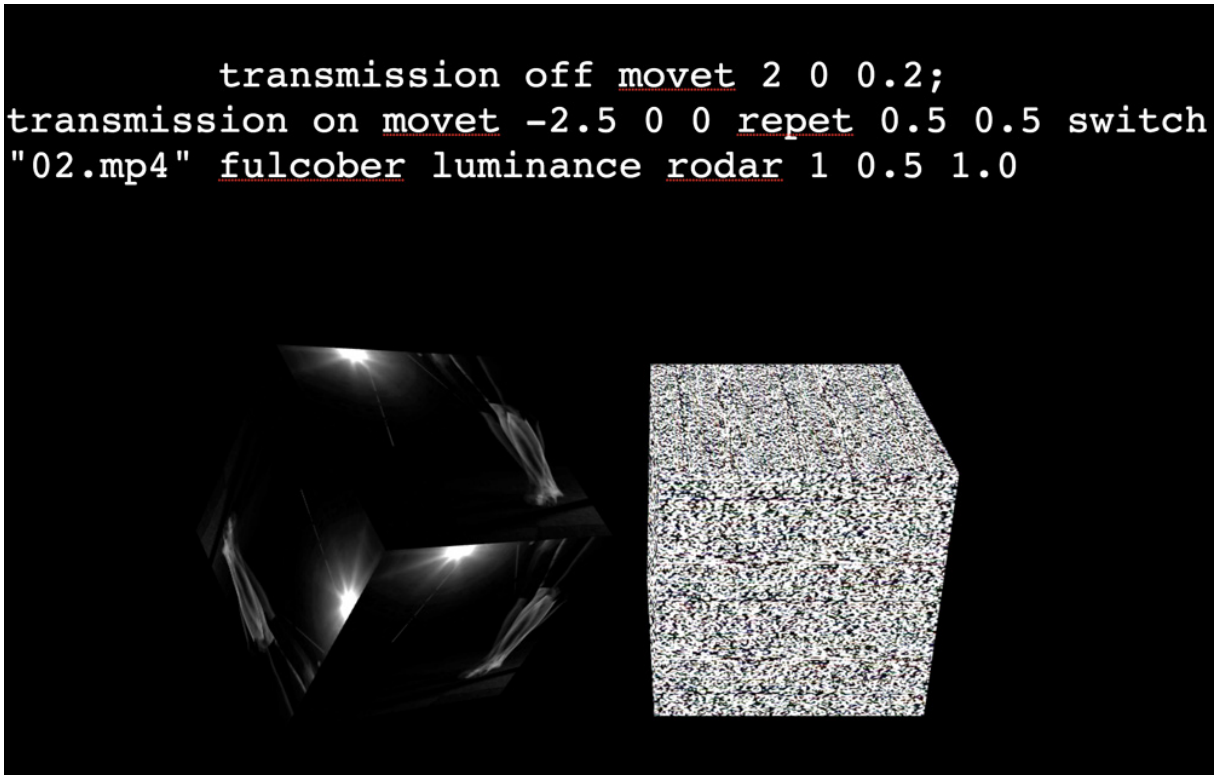


Figure 2.8: TransMit, screenshot

TransMit (Fig.2.8) is a technology with a culturally situated syntax that responds to the specific situations navigating my life as Jessica A. Rodriguez, a live coder, a video artist, and an immigrant student in a Canadian (and English-speaking) academic institution. *TransMit* is a computer language for live video influenced by the work of South Korean artist Nam June Paik and TV broadcasting. The functionality of *TransMit* responds to the specific artistic creation of two creative works (deeply explored in the following two chapters).

TransMit is a zero-installation programming language that runs as a web application implemented in *Purescript*, a typed functional language for web applications[14]. Using *Purescript* facilitated the workflow since it has a wide range of libraries for the web and can compile programs as readable *JavaScript* applications. This feature allowed me to build a stand-alone application that was published as a website using *GitHub pages*. *Purescript* syntax has similarities with *Haskell* in that both are strictly typed, functional programming languages; this helped the building process to

[14]For reference, check: https://www.purescript.org/

be less prone to errors when and after compiling. In addition to *Purescript*, *TransMit* uses *Three.js*, a library for 3D animated graphics in web applications[15]. Full code can be checked in Appendixes A.3.4.

Lastly, it is essential to mention that I built *TransMit* with the help of my supervisor, Dr. David Ogborn, using the collaborative *purescript-threejs* library[16] that translates *Three.js* functions into *Purescript* functions. As part of learning *Three.js*, I got support from the Mexican artist and programmer Dorian Sotomayor[17]. Additionally, the process of building *TransMit* was highly influenced by a parallel research-creation project by Dr. Luis Navarro, building *Seis8s* —a live coding tool for generative Latinx music rhythms— and engaging with decolonial and Latinx practices [Navarro Del Angel, 2023].

In the following sections, I will use a standard computer language breakdown and analysis [Mogensen, 2009], to explore *TransMit*'s **Lexicon** (vocabulary), **Syntax** (structures), and **Semantics** (socio-cultural and technological relations).

2.3.1 Lexicon

A lexicon identifies the set of strings (words) that become the units of meaning in a computer language. These words describe events, tasks, connections, operators and functions. *TransMit*'s lexicon was inspired by vocabulary related to the functionality of TV monitors and broadcasting. The lexicon includes words written in English, broken English, Spanish, broken Spanish, numbers and symbols (Fig.2.9); check Appendixes for a better view of the reference A.3.1.

[15]For reference, check: https://threejs.org/
[16]For reference, check: https://github.com/dktr0/purescript-threejs
[17]For reference on Dorian's work, check: https://www.instagram.com/rexmalebka/?hl=es

ACTION	FUNCTIONS	PARAMETERS
Turn off	turn off turns off turnof apagar	-
Transmission	transmission trasmission trasmision transmision transmisssion TRANSMISION	off of offf OF
		on onn onnn ON
Monitor	monitor MONITOR	“url”
Switch	switch stitch suich SWITCH	“url”
Volume	volume volumen vol subele pumpeal SUBELE	0-1
Repet	repeat repitelo repeatelo REPET	x y

ACTION	FUNCTIONS	PARAMETERS
Scalar	scalar scale escalar bigealo SCALA	x y z
Rodar	rodar rotate rotait rotaetelo RODALO	x y z
Auto	auto automatic automatico automático AUTO	v
Movet	movet muvet move it muevelo muvetelo MOVET	x y z
Translucidez	translucido traslucido traslusido traslusido translucent traslucent traslusent TRANSLUCIDO	0-1

ACTION	FUNCTIONS	PARAMETERS
Fulcober	fulcober fullcober fulcover fullcover FULCOBER	rgb rgba erregebe alcolor
		r red rojo
		rg errege redgreen verdirojo
		b&w blackandwhite negriblanco
Colour	color colour color it colorealo colourealo COLOR	r g b
EmissionColour	emit emitir emitear emitealo EMITEALO	r g b
EmissionIntensity	brillo brightness braignes braigtnes briyo BRIYO	0-1

Figure 2.9: TransMit, list of functions

One main word on *TransMit*'s lexicon is `transmission`; this function starts a default visualization of a video. It includes the following variations, `trasmission`, `trasmision`, `transmision`, and `transmisssion`. In this sense, the programmer-user can make common spelling mistakes related to the word *transmission* (in Spanish, *transmisión* or *trasmisión*) that are part of the valid lexicon. The decision to use this approach is linked to my identity as a Spanish speaker living in an English-speaking city, often making mistakes in both languages because of the complexity of navigating both languages in personal and professional contexts. In live coding events artists also struggle with typographic mistakes, trying to solve them in real time so they can continue, therefore a more forgiving lexicon is helpful to reduce stress and waste of time during the performance.

The lexicon also includes a set of behaviours that transform the `transmission` in terms of position, size, colours, shape, etc. An example of this is the function `switch` that, similar to `transmission`, includes the variations `suitch` and `suich`. These variations are spelling mistakes connected to Spanish-speaking sound logic when speaking English. For example, `Suich` is a direct vocal translation of how the word *switch* is pronounced using the sounds of the alphabet in Spanish. Another example is the transformation `scale` with the following variations: `scalar`, `escalar`,

and `bigealo`. `Escalar` uses the Spanish translation for *scale* (or make something proportionally bigger). `Scalar` is a mix between the Spanish and English versions, applying the speaking pronunciations of the consonant '*s*' to the Spanish word. Finally, `bigealo` roots itself is the synonym behaviour of *making something* `big`. In Spanish, the suffix `-ealo` signifies that a verb is directed to something —e.g. *correr* is *to run*, *corretéalo* is *to run after someone*. As for now, the lexicon is case sensitive, although some of the above variations are also available in uppercase (Fig.2.9). In the future, I plan to make the lexicon case insensitive to consisting of the forgiving lexicon approach.

Finally, an additional lexicon layer is the parameters of the functions. These parameters include numbers, URLs inside quotation marks, and pre-fixed behaviours using words. The logic of the variations also applied to most of the pre-fixed parameters. An example is the parameters for `transmission`: `on`, `onn`, `onnn`, `of`, `off`, `offf`; similar spelling mistakes can be valid and still run visual behaviours. A different kind of pre-fixed behaviour is the parameter for `monitor` with several options but no variations (Fig.2.9). These parameters are connected to the shape the video will take; all videos are enveloped in 3D objects such as planes, cubes, globes, icosahedrons, etc. The lexicon for these 3D objects primarily relates to existing TV monitor formats. For example, `oldtv0` gives you a perfectly square 3D monitor connected to monitors in the 70s/80s. On the other hand, `horScreen0` gives you a horizontal rectangular plane connected to current screen projections.

2.3.2 Syntax

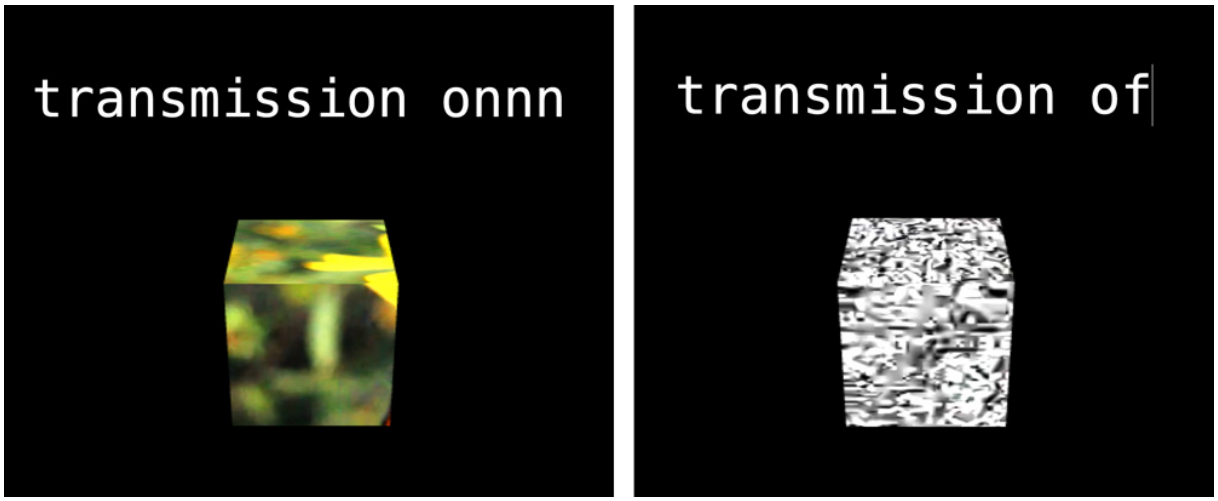


Figure 2.10: TransMit Sintax

Syntax refers to the structures that combine strings/words, producing valid statements in a computer language. For *TransMit*, the syntax was influenced by Spanglish structures. The most basic structure is `transmission off` or `transmission on`. Both statements will produce a similar behaviour: a default video wrapped in a default monitor (cube) will appear on the screen (Fig.2.10). You can use the other possible variations from the lexicon to run valid sentences, such as `transmision of` or `transmision onnn`.

Figure 2.11: TransMit Syntax

You can apply transformations once the `transmission` is `on`. In the example of Fig.2.11, the function `suich` is applied to the transmission, changing the playing video. The parameter for `suich` is a video URL —meaning the video is published online and retrieved from that location. In this case, the video I am playing is part of a list of video resources I have been gathering for general artistic purposes. There is a default list of available resources to play in Transmit. For example, the URL `"channels/01.mp4"` will play one of those resources. There are 10 resources, from `01.mp4` to `10.mp4`; check Appendixes for reference A.3.2

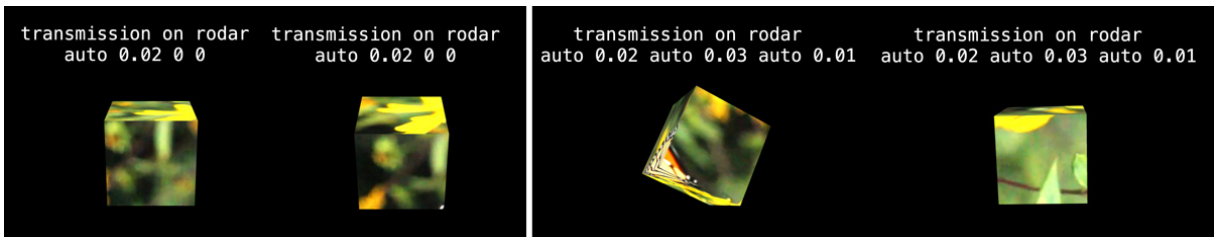


Figure 2.12: TransMit Sintax

The function `rodar` that rotates the monitor is the only function with fixed or animated parameters. As seen in Fig.2.12, `rodar` needs three parameters: position in x, y, and z. You can choose a fixed number for all of them —e.g. `rodar 0 1 -1`— or use the dynamic parameter `auto` that needs one parameter that affects the animation speed. Fig.2.12 (right) portrays the resulting movement of using the `auto` parameter in one or more of the `rodar` parameters (x, y, z).

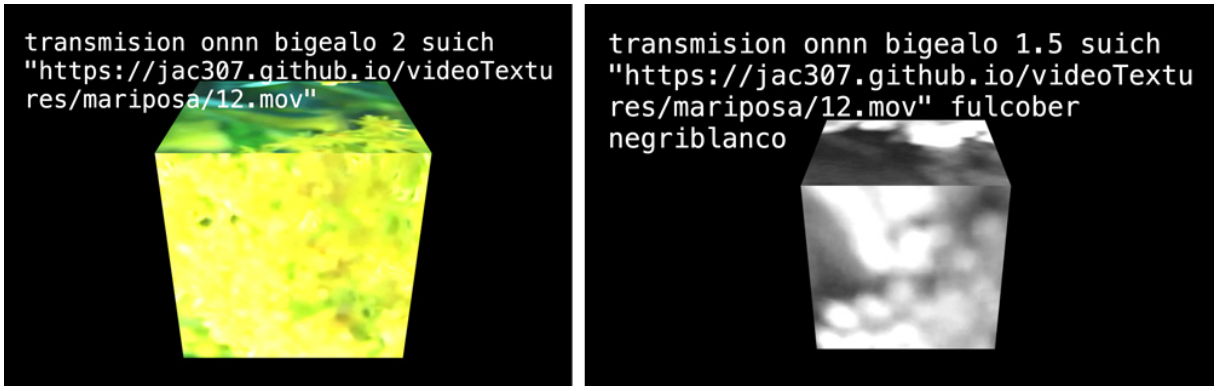


Figure 2.13: TransMit Sintax

You can accumulate more transformations by adding them on the right of the basic structure (`transmission on`), with no specific order required. Fig.2.13 shows two examples of this accumulation. In the example on the left, I added the function `bigealo` with the parameter `2` that proportionally doubles the default size. In the example on the right, the additional function `fulcober` with the parameter `negriblanco` results in the video being played in black and white.

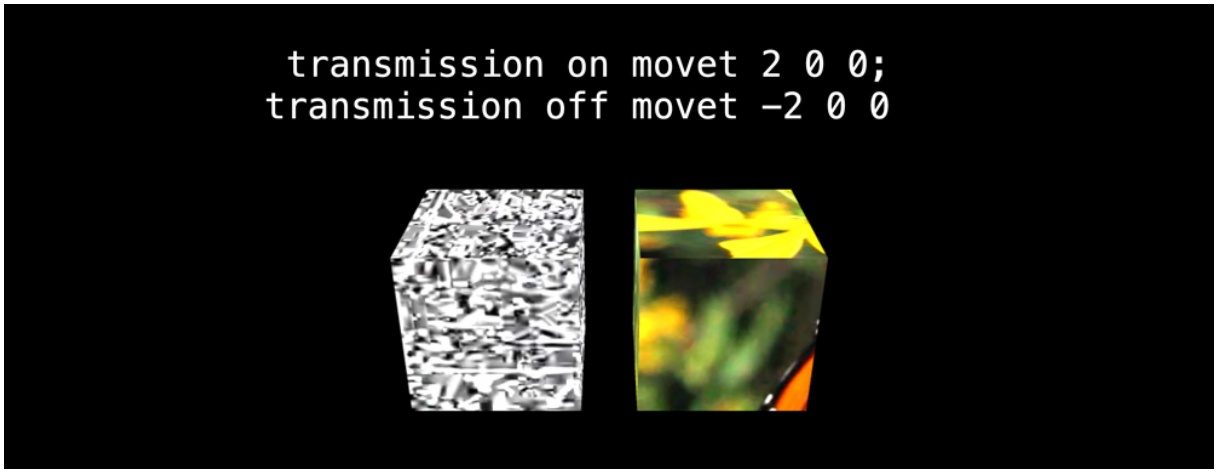


Figure 2.14: TransMit Sintax

Finally, you can accumulate transmission statements by separating each with a semicolon (;). In Fig.2.14, there are two parallel statements. At the end of the first transmission, there is a ; indicating the end of the statement and the beginning of a new statement. The ; is only used for two or more transmission statements.

2.3.3 Semantics

Semantics explores the representations and effects that are produced by the syntax. In this area, *TransMit* produces a set of particular visual behaviours rooted in enabling or disabling `transmissions` through `monitors`. The inspiration for this programming language is Nam June Paik, who worked with television and TV broadcasting. In Nam June Paik's installations, you can experience TV's physical and digital/electronic layers as devices that enable cultural images (Fig.2.15: left).

Figure 2.15: Left: *Fish Flies on Sky* by Nam-June Paik at the Museum Kunstpalast (Duesseldorf), credits, Wikimedia - Michael Bielicky
Right: *afrontaciones (f.) copings* by Jessica Rodriguez, 2022-23

To re-imagine Paik's work (Fig.2.15: left), I designed a programming language to produce a visual output that would re-imagine satellite broadcasting in a 3D digital environment. For my art project, *afrontaciones (f) copings* (Chapter 4) —dealing with testimonies of violence— I created a digital environment with multiple `transmissions`: broadcasting videos of news and testimonies (Fig.2.15: right). In this way, I re-enacted the way I used to experience these themes as a kid and teenager in the late 90s and early 2000s.

In *TransMit*, `transmissions` are digitally broadcasted into `monitors` with different shapes. Like TV broadcasting, when *transmissions* are `off` (Fig.2.14: left), TV static is the only video material available. When `transmissions` are `on` (Fig.2.14: right), you get the content of the default channel —a video of a butterfly flying over a yellow flower. You can also tune in different content by `switch`-ing the channel providing a URL. Just as with physical TVs, you can modify the channels in various ways such as lowering or raising the `volume` and `brightness`, or changing the `fulcober` effect, `colour`, or `emit`-ing light.

As a live coding language inspired by Electronic Literature practices, **syntax is an integral element: it cannot be hidden**. This restriction allows syntax to be part of the visual aesthetics of art projects created with this tool.

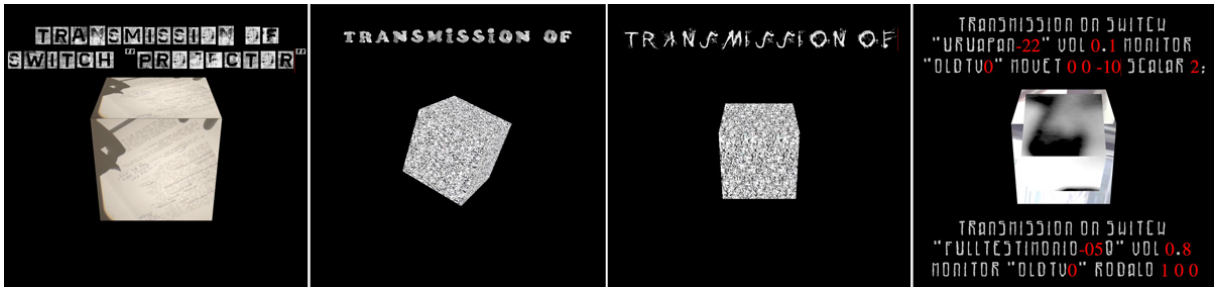


Figure 2.16: *afrontaciones (f.) copings* by Jessica Rodriguez, 2022-23

By default, *TransMit* uses the 'Inconsolata' font family in white to visualize code (Fig.2.15: right). To offer more options, the language has a set of self-designed fonts I created as part of the *afrontaciones (f.) copings* project (explored more deeply in Chapter 4). These additional fonts can only be used when installing/running *TransMit* locally and modifying the CSS file (Fig.2.16). In the future, I intend to add a way to access this feature more easily. Additionally, the lexicon also offers the possibility of writing the names of the functions and some parameters in uppercase (Fig.2.16: right). These additional options are not meant to "visualize the code better" but to bring physical textures into the digital realm.

All the aesthetic possibilities of visualized code are connected to the aesthetics of newspapers and text-based media outlets. *TransMit* aims to reimagine TV broadcasting and news outlets (newspapers and TV news) in digital live-coded 3D environments. This playful approach fully integrates

code as part of artistic narratives rather than merely obstructing the audience's view. The syntax also allows for language construction through errors (or spelling mistakes) and Spanglish structures that mix various name variations. As mentioned earlier, using Spanglish or broken English reflects my experiences navigating both languages, a common experience for non-English speakers migrating to English-speaking countries. Spanglish becomes a way to embody language, bridging multiple idiomatic identities that only make sense through hybrid syntax structures [Rodriguez, 2003].

On the other hand, applying the `monitor` function as a digital 3D object introduces exciting possibilities, particularly regarding how videos wrap around these objects. In the back-end, `monitor` renders a *.obj* file (that contains information about the monitor's shape) and a *.mtl* file (that specifies how video textures are mapped onto the monitor's surface). By default, the video texture duplicates across the faces of the monitor. For instance, using the default monitor`oldtv00` results in a cube with six faces, where the video is repeated on each of these six faces. Fig.2.17 illustrates how video materials can be mapped around monitors; check Appendixes for a better-visualized reference A.3.3. In the future, some of the `monitors`'s parameters will change to connect more to physical TV or video-projection/rendering objects; for example, `verScreen` can be renamed to `cellphone`, `sqScreen` to `polaroid`, and `horScreen` to `projector`.

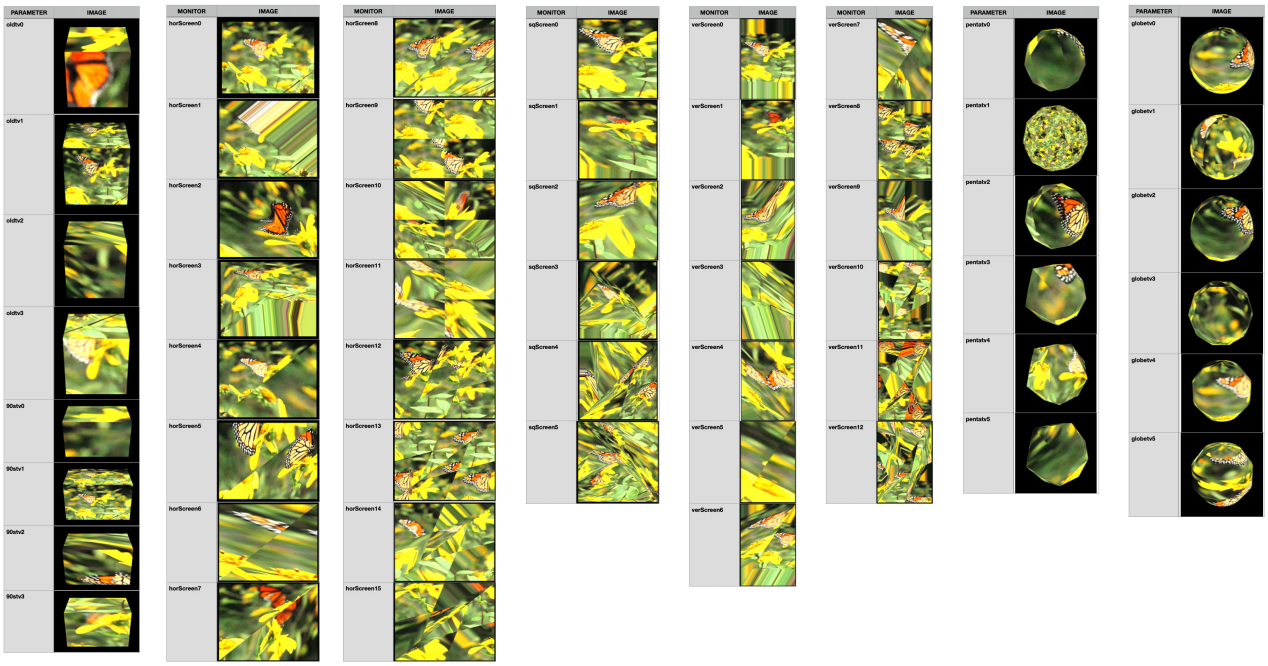


Figure 2.17: *TransMit* URL parameters for `monitor`

This feature connects with the artistic needs of the *encarnadas => (f.) embodiments* project (Chapter 3), a live performance piece that unfolds visual and sonic representations of female bodies. In this sense, *TransMit* addresses the artistic exploration of masking within traditional editing software like After Effects, allowing the performer to break the continuity of space in video —akin to the Cubism movement in early 20th-century painting. As a video artist, I previously experimented with digital time-space fragmentation and re-composition using video editing software (Fig.2.18: left). However, *TransMit* offered an easier and on-the-fly implementation for the *encarnadas => (f.) embodiments* project (Fig.2.18: right).

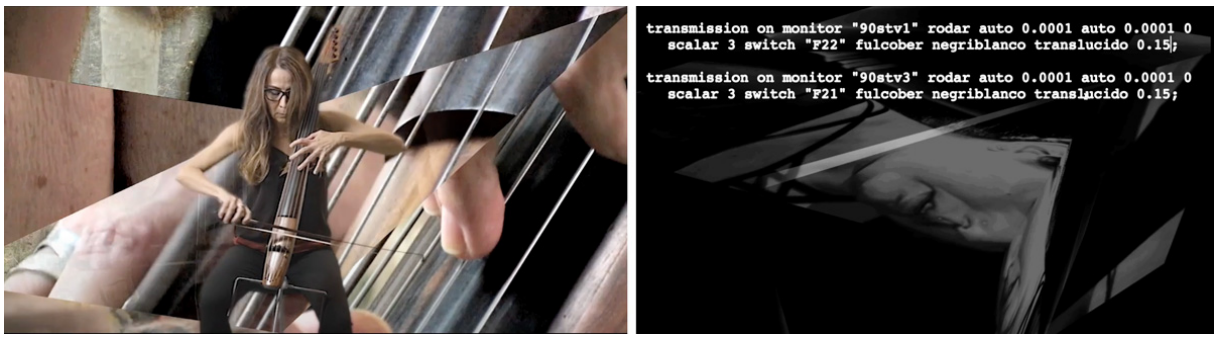


Figure 2.18: Left: *Ronin* by Iracema de Andrade and Jessica Rodriguez, 2021; Right: *encarnadas => (f.) embodiments* Jessica Rodriguez, 2022-23

2.4 Technofeminisms and Cyberfeminisms

In recent years, I collaborated with fellow womxn and queer artists in the live coding and electronic music communities. Together with Emi Bahamonte Noriega, Mariana Carvalho, Alma Laprida, Ana Mora, Vanessa De Michelis, Ana María Romano, and Marianne Teixido, we built the website *Génerx Experimentación Latinoamérica*[18]. This platform hosts a database of womxn and 2SLGBTQIA artists in Latin America. During two years of bi-weekly meetings, we organized the website. We shared our experiences, particularly the challenges of navigating male-dominated learning spaces and the lack of visibility for non-male perspectives in technology and music creation.

During this period, to celebrate International Women's Day 2022, womxn creators from the live coding community collaborated to create a 24-hour YouTube streaming event called *Livecodera*. Later, we adopted this name to form a collective of womxn, and 2SLBTQ live coders[19]. During the inaugural *Livecodera* event, we hosted a round table where coders shared their experiences within the community, emphasizing the importance of creating more inclusive learning spaces. Some of these artists referenced technofeminist and cyberfeminist practices, which piqued my interest in further exploring these fields.

Technofeminism recognizes technologies as intricate systems that respond to specific social, economic, political, and cultural contexts, usually from colonial, patriarchal, and capitalist perspectives [Torrano and Fischetti, 2020]. These approaches challenge the prevailing notion of technology as neutral and detached from cultural and political influences. Instead, technofeminists emphasize that technologies carry their assembly traces, directly reflecting the perspectives and biases of their creators. In essence, all technologies are culturally situated socio-technical assemblages.

Cyberfeminism, a subset of technofeminism, embraces the intersectionality of technological creation. It acknowledges the corporeal elements woven into technological research, including sex, gender, sexuality, economic class, and ethnicity [Torrano and Fischetti, 2020]. Cyberfeminists

[18] "For reference, check: https://gexlat.github.io/
[19] "For reference, check: https://livecodera.glitch.me/

draw inspiration from Harraway [Harraway, 1991], emphasizing that knowledge is always situated. Rather than detached objectivity, they advocate for embodied objectivity, shaped by researchers' unique viewpoints, experiences, and limitations.

The experiences and knowledge exposed above came very late in the process of this doctoral project. When I initiated my postgraduate studies, I was not interested in feminist studies. Back in Mexico, I didn't experience any gender disparities at the school or in my working environment. In most of these spaces, gender division was pretty equitable, and I was moving through queer social spaces. When I moved to Canada, I experienced culture shock; getting used to living in this country and learning in a foreign academic environment made me question myself. Additionally, I worked for the first time in a male-dominated space and a highly technological job, which affected my confidence in the first few years. But, at the same time, studying in Canada alongside my peers and professors exposed me to feminist and queer theories that got my attention. These theories, alongside my connections with other womxn working with technology (which I mentioned above), helped me navigate my mental health as a womxn creating *TransMit*.

As Britton, Klumbyte, and Draude [Britton et al., 2019] highlight, traditional computing research focuses on defining fixed structures and formalizing technical procedures. However, artistic research takes a different path— it resists formalization and embraces individual processes, remaining open to unexpected insights. Technofeminist research at this intersection engages with computing research but employs creative methodologies. Its goal is to interrogate the technological conditions of contemporary society [p.315] using relational methodologies, connecting personal and academic experiences. Technofeminist researchers recognize the intricate interplay between their bodies, minds, and desires, acknowledging that all technology is culturally situated and inviting to explore it with an embodied perspective.

Relational methodologies, as the authors point out [Britton et al., 2019], highlight that the research process is constantly moving. Based on this logic, this doctoral research responded to my academic journey: my desires and struggles. This freed me from strictly following the work plan I self-identified, constantly re-configuring the goals of my programming language responding to my

technological and mental capacities. It was a challenging journey. I had to learn tools that I had never used before. I had to navigate being honest and openly express my technological limits to myself and my supervisor. And I had to constantly fight my mental struggles and desires to run away from this doctoral program. But, the artistic research and the technological liberation this project also created within me kept me here.

Learning how to tweak and create a new technology and seeing this technology as an extension of your body does give you a sense of will as a researcher and creator. Building such tools as a non-programmer and responding to your technological limits, as Almudena [Manso, 2007] frames it, ends with the need for "the epistemological perfection [rejoicing] in the imperfect and unfinished" [p.23]. My programming language, *TransMit*, is far from perfect; like myself, it is built of inconsistencies, glitches, bugs, and errors.

Even if *TransMit* was built from this specific context, I hope it can speak to other artists navigating similar environments and searching for similar artistic paths. As for this tool as a technological development, I hope my journey offers a perspective that responds to different ways of existing and navigating technological creation. I hope that *TransMit* can be one of the many options to create live visuals. Furthermore, I hope this tool helps performers activate the multiple political discourses of language that respond to their unique bodies beyond the audio-visual results they can create [Norman, 2015].

Chapter 3

encarnadas (f.) embodiments [Performance + Screen Dance Project]

Figure 3.1: encarnadas (f.) embodiments proof of concept graphic

3.1 Introduction

As mentioned in the previous chapters, I created and presented two art projects in parallel to the design and implementation of *TransMit*. These projects directly influenced the conceptual and

technical decisions I took for *TransMit* and functioned as a way to test this visual tool.

In the present chapter, I will introduce and analyze *encarnadas (f.) embodiments* [Fig.3.1], a dance-performance piece in collaboration with Canadian dancer Angela Josephine and Canadian *Earth Wind and Choir* members Babette de Jong, Teresa Caterini, and Bailey Duff. First, I will review the **Project's artistic and academic context**, mixing my professional and creative experiences with relevant concepts and art examples that influenced this piece. In addition, I will give an overview of the processes I took to complete this piece. In the second half of this chapter, **Ecology of Performing Bodies in encarnadas => (f.) embodiments**, I will analyze the different sections of the piece using the *Ecology of Performing Bodies* from Chapter 1, reflecting more on the relations between the digital, technological, and human bodies involved on the project. Finally, I would like to emphasize that this live improvisatory performance project is meant to be conceptually open-ended, growing over time through collaboration. The following chapter will shed light on my artistic and thematical approaches and the processes that helped me build this project.

3.2 The project's artistic framework

3.2.1 Feminine Bodies + Movement

This project responds conceptually to the work of Colombian artist-performer Nadia Granados[1], aka *La Fuliminante*, and Brazilian DJ-performer @KEBRA (Jenny Granado)[2], aka *Maldita Geni Thalia*.

The work of Nadia Granados revolves around auto-representation using post-porn practices to question the representation of womxn's sexuality in society. As Molina [Molina-Monreal, 2016] explains, Colombians are closely related to religion, specifically Catholic and evangelical beliefs imposed from colonial times and stuck in Colombian culture and society. More recently, with the drug crisis in Colombia and the US intervention in the late 90s, Colombia's politicians started to use

[1]For reference, check: https://nadiagranados.com/
[2]For reference, check: https://www.instagram.com/idkebra/

US-source concepts of the 'nation-family' to promote conservative family structures. For Molina, the union between existing Christian beliefs and the traditional structures of the nation-family has produced an even tighter spectrum of gender roles in contemporary society. In the case of womxn, our roles centre on values around the concept of family, resulting in nurturing, devoted roles in our society. As part of these ideals, sexuality in womxn is either kept hidden —being its only function to procreate— or hyper-sexualized. An example of the latter is the production of porn and the hyper-characterization of womxn's sexuality subjected to men's pleasure. For instance, in *el Cabaret de La Fulminante*[3], a now 10-year-old performance project, through Granado's alter-ego, *La Fulminante* responds to the stereotype of the Latinx seductive womxn; through this sexualized facade, *La Fulminante* transgresses her objectification to hyper-visualize critically the dominant structures (connected to the political class, mass media, and religion) that create her. In doing so, *La Fulminante* also visualizes other existences, stretching the limits of what is possible and building a collective consciousness around womxn's desires through the lenses of feminist-queer, anticapitalist, and anticlerical points of view [Milano, 2016].

The work of @KEBRA (Jenny Granado) also rejoices on post-porn practices to build artistic, activist, and critical discourses that help demystify and celebrate womxn's sexuality. KEBRA created the platform *Desculonización* to disturb "thoughts, bodies and emotions through dance, music and sweat" [Kebra, nd] through video work, music, workshops, performances, and parties. KEBRA uses experiential and relational methodologies to combine her personal, artistic, and academic knowledge with collective knowledge. As she puts it, she was born in a small town in Brazil with Catholic beliefs; it was the *funk brasileiro* that freed her mind and body with its "music with strong beats and explicit lyrics like those of Bonde do Tigrao and Tati Quebra Barraco" [Lamoyi, 2021, parra.8]. It is this style of music that KEBRA explains as the origins of what she will later call *desculonización*. As KEBRA puts it, *desculonización* is "a practice, a process, not an end in itself. You use the hips, the ligaments, the muscles, the fat, the guts and the viscera to begin a new journey, to activate memory" [Lamoyi, 2021, parra.9]. KEBRA works to demystify

[3]For reference, check: https://nadiagranados.com/inicio/fulminante/

the notion that womxn's sexuality is connected to men's pleasure and that it is always in service to sexual intercourse. Through dance, anyone —womxn, queer people, cisgender men, and other intersectionalities— can free their bodies and minds through movement.

Desculonización can also be applied to current social movements around women's bodily empowerment through dance, which is connected primarily to Latinx rhythms and music. Latinx music, such as Reggaeton, Perreo, and Trap, are music genres that originated in zones with political-economical struggles [Garcia, 2018, Romero, 2018, Rojas and González, 2012]. Even with the current recognition of these types of Latinx music all over the world, Judeo-Christian-Catholic and Western morals have marginalized these genres because of the sexual references in lyrics and rhythms that come with the sexualized movements [Bard Wigdor and Artazo, 2017]. In this sense, the practice of *Desculonización*, a word coming from mixing *decolonization* and *culo* ("ass" in English), becomes a conscious way to name the act of Latinx feminists' re-appropriations of the narratives around womxn's sexualities through dance; by 'moving the culo' they re-appropriate their sexuality as something that they have power over, giving voice to different identities, sexual pleasures and practices [Milano, 2016].

As a way to artistically respond to the work of these two artists, as well as the conversations around the representation of womxn's movements, I wanted to create a collaborative piece that will build over on what is traditionally expected to be a 'feminine movements and textures.' I made this piece collaboratively, bringing in other artists' expertise and bodily experiences. I invited local dancer Angela Josephine after seeing one of her video works on YouTube. Angela's work[4] is exceptional because she is a contemporary dancer, belly dance teacher, and performer. Moreover, Angela was already mixing traditional Western dance practices with non-Western ones, enriching her dance practice and range of movements. For sound, I connected with the *Earth Wind and Choir*[5], a Hamilton choir already working with professional and non-professional musicians and singers and exploring traditional and non-traditional vocal techniques —such as playfully exploring vocal ranges, textures, and atonal compositions.

[4]For reference, check: https://www.angelajosephinedance.com/
[5]For reference, check: https://www.instagram.com/earthwindandchoir/

It is important to emphasize that this piece was never intended to be a copy of the work of Nadia Granados or KEBRA in the sense of using post-porn practices and Latinx rhythms. Still, it was a way to build over womxn's representations regarding how feminine bodies should sound and look. For this, I use my musical and visual approaches, such as previous experiments on voice and visual space-time fragmentation —more identifiable with electroacoustic music and video experimentation— and new theoretical approaches to Virtual-Cyborg Theatre represented in the design and implementation of the *Ecology of Performing Bodies* from Chapter 1. For example, Cyborg Theatre highlights the human body as the site of the performance. Moreover, the human body is expanded through the audio-visual materialities of the performance, breaking the boundaries between the virtual and the physical, building a space of possibilities and resignifications [Giannachi, 2004]. In this sense, it is through technology that we can imagine new possibilities for how the current views of feminine bodies can be fragmented and re-constructed as others through a self-agency process.

3.2.2 Voice and Sonic fragmentation and reconstruction

My learning environment for producing music connects with my professional experiences working at the Mexican Centre for Music and Sonic Arts (CMMAS) in Mexico and, later, my work designing and creating the piece MEMORIAS (previously mentioned in Chapter 2) and the series of audiovisual performances *INVOCACIONES*.

My experiences working at CMMAS started just before I completed my Bachelor's in Fine Arts in Morelia, Michoacan, Mexico. The centre is dedicated to acousmatic music, electroacoustic music, mixed music (instruments with electronic music), and sound art, organizing concerts, workshops, and talks. I started there as an intern and was offered a job upon completion. During my years there, I had the opportunity to learn from national and international composers and create strong connections with musicians with whom I later collaborated. I had many impactful experiences, but one of the most relevant to mention for this project is the work of Brazilian composer Jorge Atunes, a pioneer in Latin America for sound art and electroacoustic music. In September

of 2013, he presented a concert at CMMAS[6], showcasing his first works back in the 60s and new musical compositions re-constructing the works of female poets. One of those works is a musical composition using the works of Mexican writer Sor Juana Inés de la Cruz. Antunes reworked and re-positioned sections from the poems to create an acousmatic sonic experience using repetition and cacophony. As Antunes explains [Antunes, 2013, min.21:35'], he works with the rhetorical figures of the poems, repeating small sections up to a point where the exact repetition deconstructs the message; what is left is the pure abstract sound produced by repeating the message over and over again[7] In 2013, I was already working with *andamio.in* (my artistic collective with Rolando Rodriguez, Luis G. Zirate, Alejandro Brianza, and Tonalli R. Nakamura) with literature and poetry, and Antunes' work was relevant as a general reference. Still, I hadn't yet ventured into exploring sound composition directly.

In 2018, I started to work on *MEMORIAS*[8], a project that mixes electronic literature with live coding practices, building programming languages that performers can use to write executable poetry. The computer can read this poetry to produce visual or sonic behaviours. I created three languages based on *TidalCycles*, a live coding tool for musical patterns. *TidalCycles* is a widely known tool in the live coding community, often used for creating highly rhythmic dance music. I wanted to break the tool's rhythmic approach, extending the musical pattern's time to work with voice/poetry structures —or what I later identified as 'speech patterns.' *TidalCycles* is built over the idea of repeating patterns in cycles; for example, `s "bd cp cp"` is a sonic pattern that contains three sounds (`bd cp cp`): this pattern will repeat over and over again. By default, the pattern/cycle is repeated around (approximately) every 1s, creating beats ideal for dance music. Since I was using voice samples from poetry fragmented into sentences (one sentence will equal one sample/sound), I needed to extend the time of each cycle so the poetic sentences wouldn't repeat so close to each other, only producing chaos and noise. In other words, I worked with the time of the pattern so I

[6]For reference, check: https://youtu.be/_1GIBqVBIrA?si=W0NNHFKZGTnvhLqV

[7]This sonic behaviour is also explored in Alvin Lucier's *I am sitting in a room*. This musical composition explores the phenomenon of sound affected by the space where it is projected, working with the materialities of the space or how the characteristics of physical spaces influence the sounds through echo and feedback. For reference, check: https://youtu.be/fAxHlLK3Oyk?si=rNmEPdlKDCUNDNB2

[8]For reference, check: https://github.com/jac307/MEMORIAS

could better control moments where the computer could reproduce/read a randomized version of the poem (one sentence after the other) or start overlapping and repeating sections to create chaotic moments.

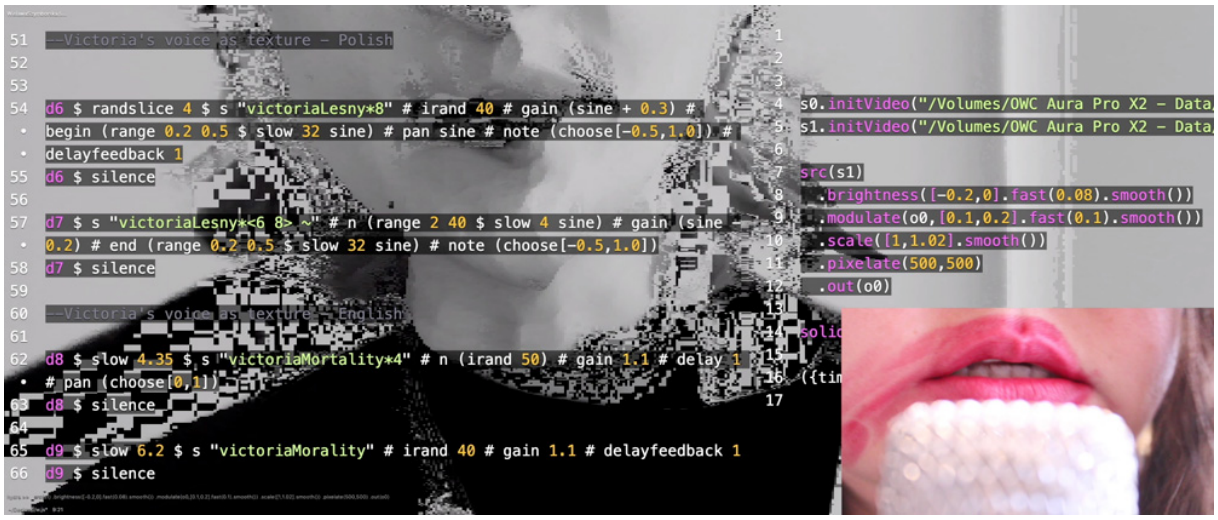


Figure 3.2: Screenshot, *INVOCACIONES. SUMMONINGS [Wislawa Szymborska]*, online performance at ELO 2020; credit: Jessica A. Rodriguez

As a more direct approach using *TidalCycles* and the concept of speech pattern, and influenced by the work of Jorge Antunes, I created a series of performance pieces called *INVOCACIONES* [*SUMMONINGS*][9], working with the poems and voices of female writers: Sylvia Plath (from the USA), Gabriela Mistral (from Chile), and Wislawa Szymborska (from Poland). For each performance, I selected a read poem by every author, manually fragmented it into smaller sections, and rendered it into multiple audio samples. The last iteration using Wislawa Szymborska's voice (Fig.3.2) directly influenced my work for *encarnadas (f.) embodiments* project. Previously, with Sylvia Plath and Gabriela Mistral's voice recordings, I divided the poems only, considering words and grammar structures. When hearing Wislawa Szymborska's voice in Polish, I noticed the breathing between sections and words, a particular sonic materiality of Polish as a spoken language, so I considered these sounds part of the language of the poem and included them in the exported samples. During the performance, I intertwined words and breathing through repetition, giving less or more space between cycles and re-constructing the fragmented poem through my sonic experience interacting with this poet. The reasoning behind this creative process responds to my experiences

[9]For reference, check: https://vimeo.com/710576288

navigating different languages and noticing the voice inflection and identities I have when speaking Spanish versus when speaking English. In doing so, I wanted to review some of the poets I read as an undergrad and work on their voices, inflections and identities. In parallel, I was looking to re-read the work of these poets and find new connections. During the performance, I focus on connecting to specific words or sentences that repeat, working with the inflections and responding sonically to the textures of the poets' voices and the possible meanings behind each word. I start each performance with a full, unedited version of the poems, then unfold their structure, exploring their potential meanings and particular sonic textures and identities.

As a follow-up to this work, I created *encarnadas (f.) embodiments*, expanding sonic representations of female bodies beyond what mass media describes as 'feminine voices' often linked to soft, quiet, and high/medium pitch. Instead, I focused on speech sounds that, in traditional recorded communications (such as podcast, recorded poetry, etc.), are 'unwanted sounds' such as breathing, sounds produced by saliva, slurps, guttural sounds, etc., typically reduced during the recording session or erased in post-production. Other influences for the project were ASMR experiences[10] —hyperfocused sonic and visual experiences popularized in later years by social media— and the project *Granular Synthesis* [Hentschälager and Langheinrich, 2017] analyzed in Chapter 1 —specifically using granulation techniques over sonic materials. These sonic textures and technical treatments aimed to create sonic representations of the flesh and muscles that produce those sounds (vocal cords, saliva, mouth, tong, etc.) as a technological hyper-focused product of that part of our human bodies. For example, in ASMR experiences, sounds that are typically quieter, such as slurps, are hyper-visibilized by raising the volume of the incoming microphone; in doing so, the spectators experience not a single sound but the fluctuations within that sound or the micro-tones/textures that the sound carries.

[10] As German Lopez [Lopez, 2018] highlights, "ASMR is the term for the sensation people get when they watch stimulating videos" [parra.4]. ASMR is not a scientific term, but a term that is believed to be born from social media "as a way to reference the pleasurable feeling they had been experiencing"

Figure 3.3: Recording session with Babette de Jong, Teresa Caterini, and Bailey Duff

For *encarnadas (f.) embodiments*, I collaborated with Babette de Jong, Teresa Caterini, and Bailey Duff (from the *Earth Wind and Choir*). For the recording session, I gathered a series of close-up videos hyperfocused on eye irises (Fig.3.3). I instructed Babette, Teresa, and Bailey to react to those videos using their mouths. Each of them recorded four improvisations. In between recordings, I responded to the sounds produced by each and gave further instructions. During this session, I recorded twelve files, around five minutes each. The second process involved working with granular synthesis using SuperCollider, a digital tool for algorithmic music; I used a microsound SuperCollider sketch that Dr. David Ogborn had initially developed for a digital audio course. I focused on granular synthesis, a set of audio techniques that break sound files into smaller sections and randomly re-position those fragments to create a new composition. The first audio files I digitally recorded from SuperCollider were experiments where I learned how to modify the existing code. After experimenting, I recorded nine audio files, each one a minute long. In a second (and more conscious) iteration, I recorded another twelve files, from three to seven minutes each.

Using granular synthesis and digital processes to alter the sounds was crucial for the piece since I wanted to extend and re-shape the existing 'natural-human' audio digitally. Furthermore, I wanted to go beyond the human capacities of those who helped me record these sounds. For example, breathing sounds start strong, but then they have a natural decay until a breaking point; the time that each breathing can last responds to the capacities of the lungs and the training we may or may not have. I created human sounds extended by technology using these digital processes in this project. In this case, a breathing movement could last as long as I wanted to, having different levels of control over the peak, decay, and breaking point.

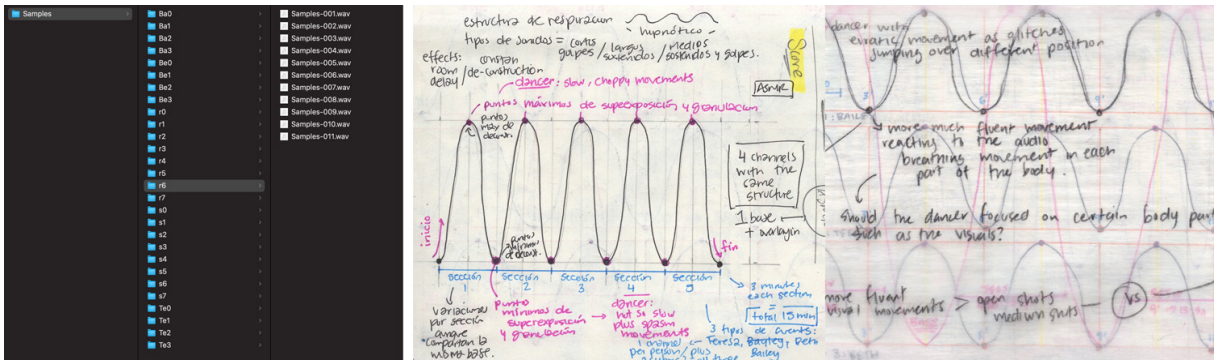


Figure 3.4: Left: Sound files used for final sound composition, screenshot; Right: visual scores for the project, scans

After gathering all the materials from the different physical and digital recording sessions, I prepared my materials to be reworked in *TidalCycles*, ending up with twenty-eight sound banks containing several sound samples/files (Fig.3.4: left). Additionally, I drew a couple of scores that helped me structure the composition. For this project, I was working with the idea of 'breathing,' something that comes and goes like a wave with no beginning or end. Moreover, breathing is a repetitive behaviour where repetition is not always the same since each breathing wave has particularities, such as variations in exhalation and inhalation times. In this sense, the structure for *encarnadas (f.) embodiments* (for the body, visuals, and sonic movements) focused on having breathing waves containing different textures. As seen in the sketched visual scores (Fig.3.4: right), the structure for the piece had regular waves and, later on, multi-layered regular waves; each would last the same time, summing up to create a fifteen-minute composition. When working with the piece's materials and after some rehearsals, the piece was reduced to eight minutes due to the intensive work by the dancer in terms of physical movement.

```
--
-- ENCARNADAS
-- PERFORMANCE PIECE (2013)
-- DANCER: ANGELA JOSEPHINE (HAMILTON, CANADA)
-- RECORDINGS: EARTH AND WIND CHOIR

hush

-- beginning --- activating breathings
-- first wave

--breathings

d1 $ slow 1 $ "Ba0*2" # gain 0.8 # room 0.1 # n (irand 40)

d1 $ silence


d2 $ slow 2.4 $  "<Te0 Be0>"  # n (irand 5) # gain 0.8 # room 0.3 # size 0.1


d2 $ slow 3.1 $  "<Ba2*2 Te2> Be2"  # n (irand 20) # gain 0.8 # room 0.3 # size 0.5

d2 $ silence

-- second wave

d3 $ slow 2.5 $ s "<Ba1*2 Te1> Be1" # n (irand 30) # room 0.3 # size 0.9 # gain 0.7 # delayfeedback 0.1

d3 $ silence

d4 $ jux (slow 8.4) $ s "<s5 s6 s7>" # n (irand 10) # gain 0.7 # room 0.1

d4 $ silence


-- third wave --- whispers

d5 $ slow 1.4 $ s "<r7>" # n (irand 8) # gain 0.7 # room 0.1 # delayfeedback 1

d5 $ silence

d6 $ slow 10.5 $ s "<Ba3 Te3> Be3" # n (irand 30) # room 0.3 # size 0.9 # gain 0.8 # delayfeedback 0.1

d6 $ silence

d1 $ slow 1 $ "Ba0" # gain 0.6 # room 0.1 # n (irand 4)

d1 $ silence
```

Figure 3.5: extract of TidalCycle's code for final sound composition, screenshot

After testing and experimenting live (with the dancer during rehearsals), I defined three sections, or waves, with irregular times. Fig.3.5 shows some of the *TidalCycles* structure and sounds I used to create the final composition, identifying different approaches to each wave. Finally, it is essential to clarify that the final composition is a digital recording of eight minutes of improvisation (following my score) with the produced materials. In the following section (*Ecology of Performing Bodies in encarnadas (f.) embodiments*), I will further analyze what these processes artistically and conceptually meant to the piece.

3.2.3 Video-based fragmentation and re-composition

This project explores visual fragmentation and live re-constructions of pre-recorded video footage, continuing previous video work and inspired by artists working with fragmented or multi-temporal views of bodies.

As a video artist working collaboratively with musicians on performative pieces using live instruments, I would sometimes work with video footage from the musicians who played the instruments that were part of the piece. I took this artistic point of view as a reiterative visual cue connecting the live instrumentalist movements with the background video being played or improvised live. For example, in *Altamisa*[11], a performance piece for cello, video, and algorithmic music, the visuals would mix live video (with a close-circuit camera) and pre-recorded footage (originally from rehearsals) of the cellist playing the same piece. Each time the piece was performed live, the live footage would be recorded and become part of the footage library that, later on, in future performances, will be screened alongside the live video. In this sense, the video layer was composed of a sequence of images —sometimes one after the other, other times juxtaposed by multiple blending modes (Fig.3.6)— converging numerous times, each a fragment extracted from every time the cellist played the piece.

[11] For reference, check: https://andamio.in/prod/altamisa

Figure 3.6: Screenshot, *Céu Da Boca + Ronín*, video project in collaboration with Iracema de Andrade (2022); credit: Jessica A. Rodriguez

In 2021, Brazilian-Mexican cellist Iracema de Andrade invited me to work on an audio-visual collaborative project that resulted in a video work called *Céu Da Boca + Ronín* (2022). For this video work, I wanted to keep working with portraying a performative cello piece in multiple time fragments into a single sequenced video, experimenting with video footage beyond time into a more experimental space arrangement (Fig.3.6). For this, I took some general inspiration from Cubism's paintings, generating a video that would explore de-construction through video editing tools, explicitly using the masking tool on After Effects software.

The Tate.org.uk [Tate, nd, parra.1] describes cubist paintings as "fragmented and abstracted" paintings due to the visual portrayal of multiple points of view suggesting three-dimensional realities in two-dimensional formats. I got inspired by this general idea to converge numerous points of view of the same performance (recorded during a special session with multiple cameras pointing out different angles of the cellist) into a single video file. As seen in Fig.3.7, the whole body of the cellist appears on the front, and, as part of the background, the image is divided into asymmetrical shapes, each portraying a different detail of the cellist at the moment of playing. In this way, the background functions as a hyper-technological view, using various degrees of zoom-ins and playing with the time of the movements (slowing down, pausing it, etc.). The resulting video is a much more detailed view of what is happening with the instrument interactions and physical movements translated into sonic gestures.

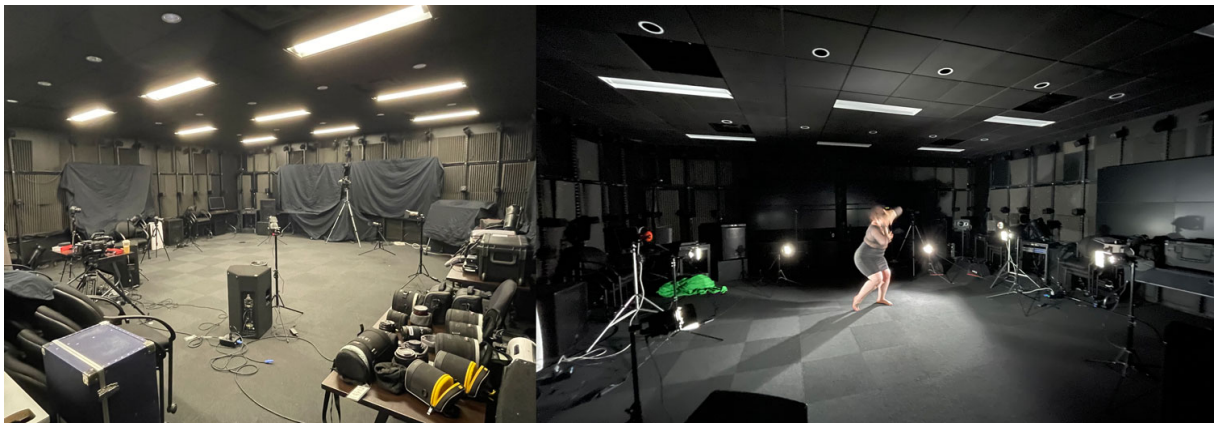


Figure 3.7: Recording session with Angela Josephine

Similarly to *Céu Da Boca + Ronín*, I wanted to keep working with visual fragmentation for *encarnadas (f.) embodiments*' video layer. As an audio-visual performance project with a live dancer (Angela Josephine), the initial idea was to connect her physical image with a digital view of her through the screen and, in parallel, respond to my initial inquiries about feminine bodies' portrayals through video and performance practices. Inspired by Virtual Theatre and Cyborg Theatre's inquiries about body portrayals regarding the co-existence of physical and virtual selves, I decided to build the visual layer around generating a digital self that would respond to an altered view of the dancer's body through technology. In this sense, similar to what I did with *Céu Da Boca + Ronín*, I arranged a recording session with Angela Josephine (Fig.3.7) in a set where I mounted four cameras in multiple angles, plus a hand camera for a more dynamic point of view. This way, I would create digital video footage of the dancer from different perspectives. The recorded videos were always meant to be raw footage that would later be fragmented, broken, and juxtaposed using a technological system that would become my computer language for live video *TransMit*.

Similar to the audio recording session and inspired by ASMR in social media, I played multiple videos from YouTube portraying womxn whispering or making subtle sounds such as breathing, nails or fingers crashing into the microphone, slurping, drinking or eating. I did not show the videos to Angela but asked her to react to the sounds of those videos with movements. Additionally, I told her to explore the idea of her 'muscles and flesh breathing.' In the first round, I asked her to use her whole body; then, in the following rounds, I asked her to focus on specific parts of her body: arms,

chest, neck, feet, legs, and back.

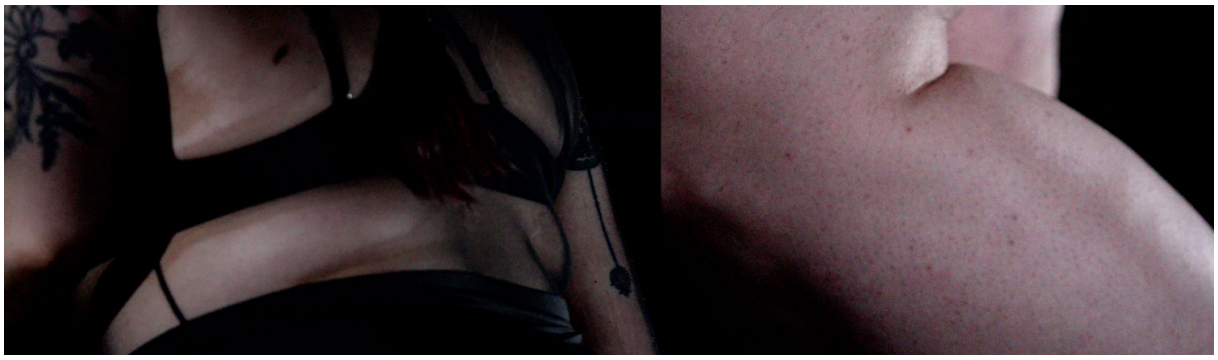


Figure 3.8: Video Footage, screenshots

In terms of the point of view of the cameras (Fig.3.8), I had one static camera recording a frontal full shot of the dancer, one static camera (opposite to the full shot) with a medium or medium close-up shot, one static camera (that I would move around) with a medium close-up or close-up shot, and lastly, a hands-on moving camera with an extreme close-up shot also focused on the part of the body; the last three cameras were focused on the part of the body we were working on every round.

Similar to the audio layer, the close-up camera shots were focused on recording the 'unwanted' or socially 'undesirable' textures of womxn's skin, such as wrinkles, skin rolls (e.g. backrolls), skin pores, dryness, fat, etc.[12]. Two Instagram accounts inspired this artistic point of view, @desculonizacion by KEBRA and @chakalanius666 by Chakala (dopamine) —an Ecuadorian artist, performer, DJ, and close collaborator of the *desculonizacion* project. KEBRA and Chakala, through post-porn and bondage practices, hyper-visibilize the feminine bodies that are usually not represented in commercial media. Re-citing KEBRA, she is interested in visually emphasizing "the fat, the guts, and the visceral " [Lamoyi, 2021, parra.9]. Similarly, in some of La Chakala's posts, they present their body, their skin, their fats and guts, embracing their sexuality through their own flesh. For the *encarnadas (f.) embodiments*, I wanted to take a similar approach, visibilizing the feminine bodies ignored by mass media outlets and classical dance practices. It was then necessary for me

[12]I explored a similar approach on *Agua*, an audio-visual album in collaboration with Colombian composer Celeste Betancur. I used previously recorded materials for the video of two dancers exploring extreme close-up shots of their bodies, portraying the elasticity and texture of the skin that is always changing and moving like water. For reference, check: https://youtu.be/pVFir_Wxabk?si=yxEukiPvju1hu7sw

to visibilize my type of body, extending myself to the work of Angela Josephine, to her flesh, her movements, her sexuality, and her breathing.

As seen in Fig.3.8, the recordings showcase Angela's movements over a clean black background, using this negative space to emphasize the dancer's body. In post-production, I worked with the existing shadows, increasing light-contrast levels of the image to highlight the wrinkles that appear with movements and contortions [check Appendix A.1.1]. These changes serve the same goal: hypervisibilizing the textures from Angela's body. In this sense, the video offers the audience a hyper-technological point of view in the live performance. This view is impossible to experience unless they all physically approach the dancer considerably.

Figure 3.9: Screen projection during rehearsals

The *encarnadas (f.) embodiments* project required a live video tool, specifically using the computer language *TransMit*, which is part of this doctoral project. In this sense, the artistic requirements of the piece influenced the functions and visual behaviours I needed to implement for that tool. As mentioned before, for the *Céu Da Boca + Ronín* video-fragmentation approach, I used After Effects software, specifically the masking tool, to isolate fragments of the videos used and then re-composed them for the final version. To mimic these masking effects in *TransMit*, I implemented a series of behaviours that translate the 2-dimensional video footage (what is understood as `channels` on *TransMit*) into 3-dimensional spaces by wrapping video textures into 3D geometries (or `monitors`; e.g. planes, cubes, etc.). Each `monitor` has different wrapping behaviours, as ex-

plored in Chapter 2. Some `monitors` play a single video on each face, and others break the video image in multiple ways.

For *encarnadas (f.) embodiments*' live visuals, I only used horizontal planes `monitors`, translating the 3D environments back into 2-dimensional fragmented representations (Fig.3.10). During the performance, I reacted to the dancer's movements, the sonic experience, and the structure of the piece's score to improvise live visual fragmenting and re-constructing the video footage of the dancer's movements [check Appendix A.1.1]. For this, I have a library with seventy-three 2-minute video samples extracted from the original recording that I can play and improvise with to create visual variations every time I perform this piece. This allows me different textures to respond live to Angela's movements. For example, I can access similar video recordings if I see her focusing on a specific part of her body.

Figure 3.10: Screenshots of altered video footage

Mastering the use of *TransMit* to create the live visual layer took some time; each rehearsal taught me something different from my interactions with the dancer, such as the audio composition and the visual results I wanted to achieve. Additionally, I changed *TransMit* functions and resources depending on the same interactions and Angela's needs during rehearsals. The piece draws from multi-temporal representations of human body movements through time editing techniques on video. For this, I encountered technological limits in how videos are played on the web, for example, going backwards or jumping around the video time frame. In this sense, video granulation or re-sampling video on the web live is impossible without losing stability. Therefore, I used After Effects time effects to play with time and re-sample time fragments, generating a series of videos in the video library I used to improvise. As you can see in Fig.3.10, the resulting videos play with the time of the footage, creating delays, juxtapositions and re-samplings.

On an artistic level, I was inspired by some of Tim Hawkinson's works. For example, Blindspot (Fat Head) from 1993[13], a synthetic skin that unfolds the flesh of a human body into a 2-dimensional fabric-like sculpture, deconstructs the human flesh; once there, anything is possible; we can reconstruct it in any way. I see Hawkinson's works as a way to present different and expanded points of view through technology. In his case, physical materials that simulate his human flesh are represented through a point of view that he cannot access physically with his own eyes [Lupien, 2000].

Similarly, for the *encarnadas (f.) embodiments* performance, I wanted to use *TransMit* to build up this point of view 'crossed by technology,' which would unfold the dancer's body, breaking any figurative female representations and expectations from the audience. Once figurative representations are broken, we can start building alternative representations that respond to the feminine self, embracing our skin textures, wrinkles, fat, cellulitis, etc. In other words, I wanted to offer a point of view that all audiences could experience, which would artistically emphasize those textures.

For the above approach, I drew from dance film practices that focused on translating choreography through video format using film techniques. As pointed out by Erin Brannigan [Brannigan, 2010], the close-up on Dance Film is used as "a study in corporeal micro-movements [...] drastically changing the scale of things in a process of magnification" [p.40]. For Brannigan, the close-ups portrayed dance movements within the body's flesh. Brannigan calls this 'deterritorialization,' which I understand as a decolonizing view of the body. In other words, choreographic movements are planned for the whole body, thinking of it as a single entity —formed by a trunk, extremities, head, shoulders, etc.— but what Film can contribute to Dance practices and body representations is a technologized view where the audience can experience the micro-movements of entities within a human body. Our bodies are alive and move in unison, but each part also moves separately, breathing at its own pace. This is similar to KEBRA's decolonization workshops, where people feel each muscle, giving back their identities and movements and freeing them from social expectations. It is through this decolonizing view of our bodies that we can embrace our *culos* (ass), single them out

[13]For reference, check: https://www.artsy.net/artwork/tim-hawkinson-blindspot-fat-head

and move them all around with no fears and restrictions; and in the same way that Angela moves freely around the performance space and behind the recording camera.

3.3 Ecology of Performing Bodies in *encarnadas (f.) embodiments*

As mentioned in Chapter 1, the *ecology of performing bodies* (Fig.3.11) is a mindmap that identifies and tracks the relations within the elements of an artwork. The *ecology* identifies two main sets of elements or assemblages: **Audio-Visual Bodies** (containing *Sonic* and *Visual Bodies* within itself) and **Virtual Bodies**. In the following section, I will further analyze these assemblages, dissecting the behaviours of the elements of the *encarnadas (f.) embodiments* project and how they connect in technological, artistic and conceptual terms.

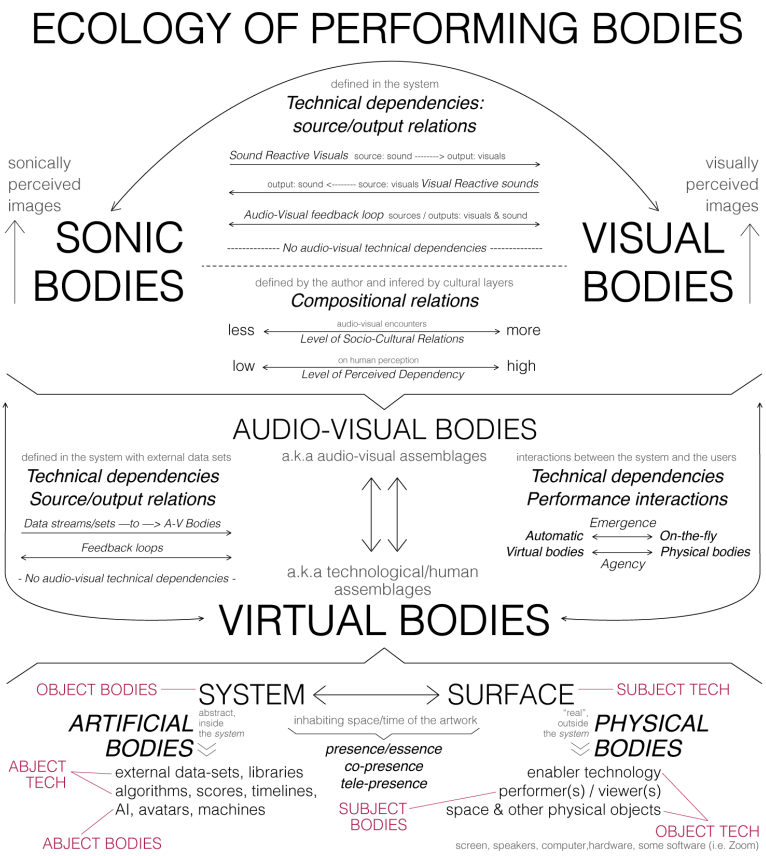


Figure 3.11: Ecology of Performing Bodies

3.3.1 Audio-Visual Bodies

As for the *sonic body*, this project contains an 8-minute pre-composed sonic assemblage played live during the performance piece. The *visual body* comprises the dancer's movements and my video improvisation (portrayed on a background screen) using the *TransMit* tool (Fig.3.12).

Figure 3.12: *encarnadas (f.) embodiments* performance at Factory Media Centre, October 5, 2023. Credit: Eli Nolet

In terms of the **technical dependencies**, or the technological, direct connections between *sonic* and *visual Bodies*, there are **no audio-visual technical dependencies**. In other words, neither is the sound sending information being transformed into visual gestures nor is the video doing that for the audio. Still, there are some structural and conceptual connections since the sound composition functions as a score for the live improvisation (Fig.3.5). As mentioned, the choir (Babette de Jong, Teresa Caterini, and Bailey Duff) was sonically responding to extreme close-up videos from ASMR experiences focusing on the eye's iris. Contrarily, Angela was responding with movement to sonic-vocal ASMR experiences.

Considering the abovementioned conceptual connections, this project's *audio-visual body* has **high socio-cultural relations**. The audio-visual artistically explored the idea of sonic breathing through voice movements, while the video layer explored the same through the physical and virtual movements of the dancer. At a more abstract level, the piece tries to fragment traditional, even physiological, representations of feminine bodies through audio-visual technologies. However, I am conscious that, because of the abstraction of the piece, the understanding of its multiple socio-cultural layers (by some members of the audience) may rely on written descriptions of the project and the spoken explanations that could happen before or after the performance.

The second layer of the **compositional relations** refers to the **levels of perceived dependency**. In practical terms, the project does not include highly planned action-reaction audio-visual gestures. The sonic score and the rehearsals built a common understanding between the dancer and myself about the general structure of this audio-visual storytelling. For example, during rehearsals, we decided to start slow and down, meaning the dancer would begin in an inactive state —curled down on the floor positioned on the side of the screen. The audio then activates the body: Angela starts moving to the centre of the space and in front of the screen, raising her body. I focused on Angela's movements to activate the visuals, but I reacted more to what was happening on the audio for the overall performance. During rehearsals, focusing on the dancer while performing with the then-unfinished *TransMit* tool and setting up the recording camera was difficult, so I could only visually concentrate on my screen instead of looking at Angela's movements.

The piece was finally presented[14] to an audience as a work in progress on October 5th., 2023 [check Appendix A.1.2]. This performance happened at Factory Media Centre, a not-for-profit and artist-run centre in Hamilton, Ontario, Canada. There is more to discuss regarding the *levels of perceived dependency*; I will do this in the following section. For now, I can say there are **low levels of perceived dependency** between the visuals (screen) and the dancer. Although the piece was created in a way that allowed each layer to move independently, Angela and I discussed finding a few places where everything could connect, working with convergence and divergence.

[14]For reference, go to https://vimeo.com/900380905

During the live performance, looking at my screen (working live with *TransMit*) and Angela's movements were still challenging, so I focused more on my computer. On the other way, from Angela's perspective, it wasn't easy to look at the visuals (projected only on her back)[15].

3.3.2 Virtual Bodies

Figure 3.13: *encarnadas (f.) embodiments* performance at Factory Media Centre, October 5, 2023. Credit: Eli Nolet

The **physical bodies** of this project include the sound composition, the body of the dancer (Angela Josephine) and my body (Jessica A. Rodriguez) as the *subject bodies* that actively modify the piece, all visible (on different levels) to the audience. It also includes *object tech* (enabler technology), such as lighting, projection systems, and sound systems, as well as the physical space that transforms and moves sound and light. Finally, regarding the video as a *visual body*, its *surface*, visible to the audience by showing the interactive live programming language (Fig.3.13), functions as a *subject technology*, actively portrayed as part of the aesthetics of the visuals. Furthermore, the live video functions as a hyper-technological representation of the dancer, a dancer that unfolds through the 2-dimensional space of the projection, reconfiguring herself over and over again. Both Angela's *subject body* and her virtual self (through this *subject technology*) dance together, at times mimicking each other and, at different times, moving away from each other.

[15]One way to solve this is to have a monitor directed to Angela that would show the visuals so she doesn't have to turn back to see the main projection. In the same way, and understanding my limitations, I need to set up a camera that takes the live feed from the performance space and that I can see on my computer.

Artificial bodies, such as speakers, projectors, and lighting, include the *object tech* that enables the audio-visual experience. *TransMit* is both *subject tech* and *abject tech*. Its syntax is showcased within the projection space as a *subject tech*. As for the latter, Parker-Starbuck [Parker-Starbuck, 2014, Parker-Starbuck, 2015] understands *abject tech* as the technology that is invisible to the audience, "what is left [...] is its traces and actions" [Chapter 1, p.]. In this sense, *TransMit* is an *abject tech* because its insides (rules and translation) are hidden. The audience only experiences the resulting visual gestures through the surface, a web browser environment showcasing the language I communicate with the system and its returned visual gestures. In this same way, the video library (with the recordings from Angela) is an *abject tech*, a visual memory with pre-recorded body movements that inhabit a liminal space between existing and yet-to-exist. The audience can only experience the altered existences of these videos (through *TransMit*), not the original recordings.

In both cases, abject technologies are crucial for performance. Still, the subject technology controls their existence, the high-level *TransMit* syntax and my interactions with it. For example, it comprises the potential behaviours around `monitors` (in *TransMit*), ready to be played, shaping realities. Although this could be seen as controlling the agency, I understand this relationship as a dance between the *subject*, the *abject*, and the *object*. Even though the insides of the *abject tech* are not shown (or their literal self is not visible), their essence is still solid and present through the visual behaviours they produce.

Relations between Audio-Visual Bodies and Virtual Bodies

Two performers or *subject bodies* create *visual bodies*. In this **on-the-fly emergence** assemblage, the performer's movements and improvised decisions decide the visual direction of the performance. For Angela's part, the dancer creates a spatial narrative, moving around and using her body to respond sonically to what is happening. For my part, I perform with my programming language, *TransMit*, creating live visuals that are projected on a screen that frames the dancer (see Fig.3.13). Like Angela, my performance mainly responds to the sound composition, a pre-made file that I play and activate at the beginning of the performance. This composition lasts eight minutes, setting

the performance's time; Angela and I begin and end our improvisation with the sound.

The project relies on thematical and conceptual connections explored by the video and audio recordings inspired by ASMR experiences and showcases feminine bodies' visual and sonic possibilities. The piece was intended to be a feedback loop between the dancer, the sonic, and the visual gestures, meaning that we would all improvise our parts responding to the behaviours of the other's *bodies*. The sonic body was improvised live during the first two rehearsals, working with *on-the-fly interactions* with the programming language I used to create the sonic composition (*TidalCycles*). I was the one who coded the audio, and the visuals live, but this proved detrimental to the performance since it was difficult to focus on both things live. Specifically, I couldn't look at the dancer since I was trying to generate different interactions using two programming languages with their particular syntax. After the first two rehearsals, I created a fixed sound composition that would play during the performance piece. Still, the decision to test the live sonic performance was fruitful since it gave me more information to plan the final sound composition, which directly resulted from the rehearsals I had with the dancers and the structure we both decided to have, as well as the sonic structures that were working more for Angela's performance.

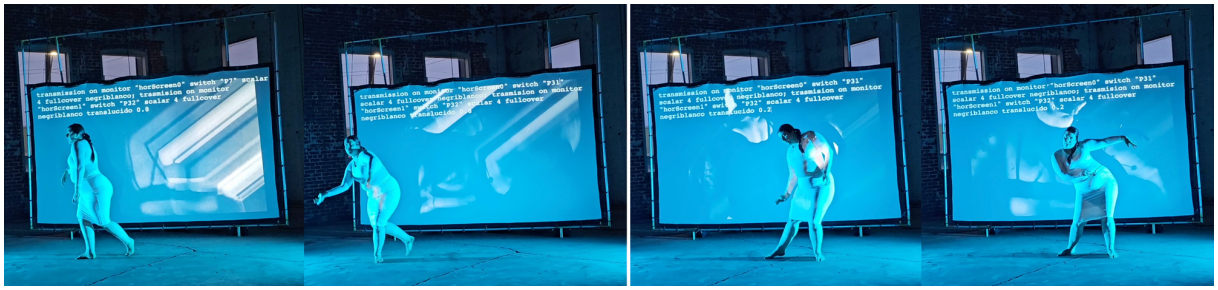


Figure 3.14: *encarnadas (f.) embodiments* performance at Factory Media Centre, October 5, 2023. Credit: Eli Nolet

During the third rehearsal, I focused on the sonic layer and Angela's movements to respond to both bodies visually, but it was more challenging than expected. During the performance presentation at Factory Media Centre, I mainly focused on the sound gestures to improvise the live visuals. However, I could see Angela's movements and respond visually at some points. For example, in minute 02'50, Angela started to move away to the left of the screen, so I began to fragment the videos, creating an effect of the deformed body being swept away in the same direction (see first

two left screenshots in Fig-14). Another example of a successful connection is around minute 03'16 (see two right screenshots of Fig-14), where I started to play a video focusing on Angela's chest and arms, making the same movement she was doing live. Still, there is room for improvement so the performance feels more cohesive and intentional.

The video library I created with Josephine's recordings, *TransMit*'s functions, and the available `monitors` (with their wrapping behaviours) offers various visual possibilities that were not fully explored during the performance. For example, the video can (more consciously) respond to the dancer, mimicking her movements while fragmenting reality and expanding it. In this sense, my performer role would be finding convergence and divergence points before (during rehearsals) and during the live performance. Since this is a semi-improvisatory dance project, Angela and I can decide the general time score with specific audio-visual movements we want to explore and times of free improvisation. In the future, I want to develop particular strategies to constrain this randomness during free improvisation.

Improvised connections can be improved by arranging a technological assemblage that allows more direct feedback between Angela's movements and my improvisation, as shown in Fig.3.15. For the next iterations, I will add a screen with a live video feed directed to Angela's view and positioned on the floor so she can see what I am visually doing and react to that. I will add a small monitor on the side of my computer with a live feed of the scenario. As a live coder, I focus on my computer screen and cheat sheets with *TransMit*'s functions and assets, so raising my view of the performance space isn't easy. Adding the live feed monitor on the side will give me a more natural and reachable head movement. This way, I will have Angela in sight and respond more directly to her movements.

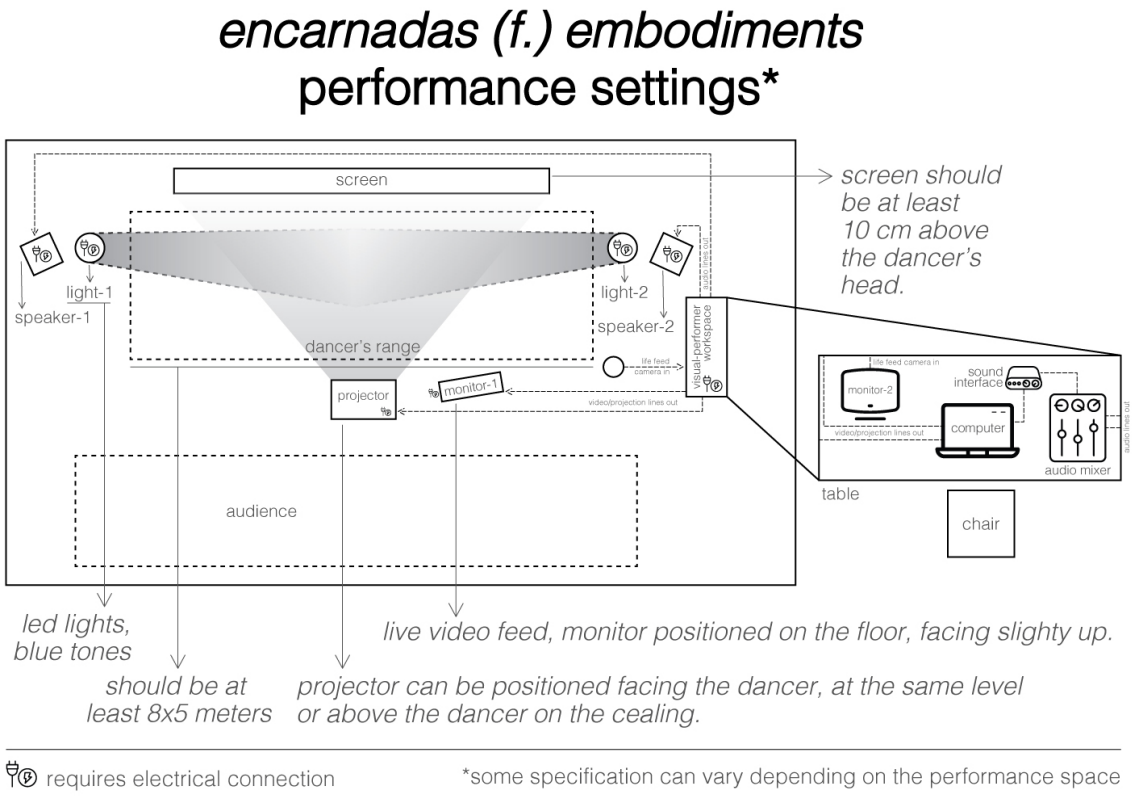


Figure 3.15: *encarnadas (f.) embodiments* performance settings scheme

Relations in-between Virtual Bodies

For the final part of this analysis, I will explore my relationships with the artificial bodies that help me perform live visuals. I identify my programming language, *TransMit*, as an *artificial body* (a digital *system*) and a *physical body* (a *surface*). I interact (play) with *TransMit* through a web-based application. Through this *surface*, a tab I open in my browser (Fig.3.16: left), I can use *TransMit* functions to activate and visualize visual behaviours. This *surface* is projected during the performance, framing the dancer's space. As seen in Fig.3.16 (right), the audience experiences the written programming languages (or functions) and the visual results they generate. Through the *surface*, we can visualize the *system*'s set of rules, behaviours, and logic, which are part of the audio-visual experience of the project. In this sense, the audience can potentially become part of the interplay, guessing the links between the syntax and its visual results.

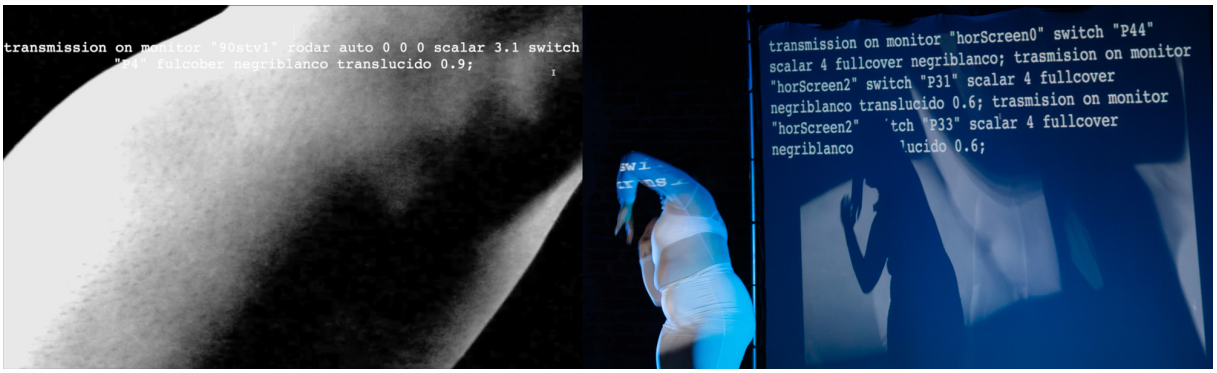


Figure 3.16: *encarnadas (f.) embodiments* screenshot (left) performance at Factory Media Centre, October 5, 2023. Credit: Eli Nolet (right)

Audiences can also pay attention to the live written process. In Chapter 2, I went over the syntax for *TransMit*, mentioning that it is built with a mix of words in Spanish and English, words that could be misspelled but still work. During the performance at Factory, I purposely used spelling errors. For example, I used the multiple options to call the function `trasmission`, such as: `trasmision`, `transmision`, and `transmisssion` (Fig.3.16). After the performance, I received comments about noticing the misspellings and expecting they wouldn't work, but they did. By doing this, I wanted to showcase the possibilities of *TransMit* and prove the forgiving aspect of the technology, as well as communicate to the audience that the use of 'errors' was a conscious artistic decision.

TransMit was designed and built by myself, an immigrant artist who has to navigate in a foreign language. Especially in in-person conversations, I make grammar mistakes, but what is still important is the overall message beyond the structure of the message. Inspired by my experiences, I included possible spelling errors in *TransMit*'s syntax. Furthermore, making spelling mistakes was also a way to play with language and connect this written text layer to the themes I am exploring for this project. Inspired by feminist practices, glitches and errors are part of our identities and technological developments, and this is also true within the performance space, where errors are part of improvisation and live settings.

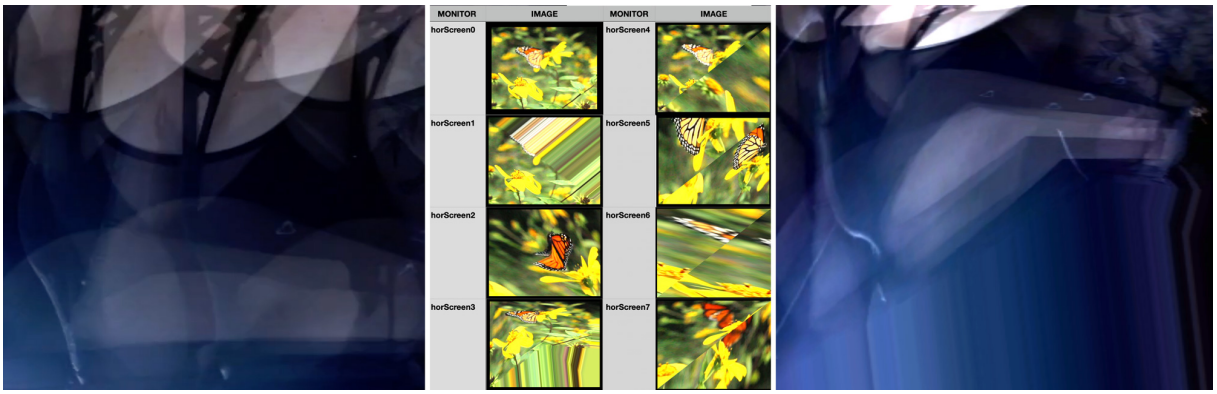


Figure 3.17: *encarnadas (f.) embodiments* screenshots (left-right); *TransMit*'s `monitors` (centre)

I identify *TransMit* as the *system* that holds its own rules (functions) and has access to two key types of materials used during the performance. The first set of materials is a video library with all the recording materials that portray the dancer from different points of view. These are virtual extracts of Josephine, some of them (close-ups) with an enhanced technological view of her movements. The second set of materials is a library of `monitors`, 3D objects with video wrapping behaviours specially designed for this performance (Fig.3.17: centre). During the performance, the pre-recorded virtual identities of the videos go through the technological translation of each `monitor` and become visible through the *surface* (Fig.3.17). The video materials, although existing in a digital repository, don't exist for the audience; they are kept hidden, awaiting to exist.

These videos portray possibilities with no shape; they are pure raw materials shaped only when the performer calls them. In this sense, I hold half of the agency of the becoming, or how video representation of the feminine body of the dancer becomes to be in an extended virtual self. The other half of the agency lies on Angela, embracing her body and representing herself through movement. The piece tries to visually respond to questions such as what it is possible to shape after we lay ourselves into the plane fabric of the screen. What is possible after we lose all 'traditional' representations of our bodies? These two co-existences, the performer's physical body and her virtual extensions, perform together and connect live, and the agency lies in both of them, dancing and breathing like us. Our bodies inhabit the space and time of the performance. In Angela's case, it is more direct since the audience is experiencing the unfolding of her physical and virtual existence. My physical body, although present, is hidden on the side, in the dark. Still, my essence

is highly present, visible through the tool I designed and the interactions and visual behaviours I create.

Finally, regarding the role of the audience within this ecology, it is essential to mention that Parker-Starbuck's *Cyborg Theatre taxonomy* [Parker-Starbuck, 2014, Parker-Starbuck, 2015] that identifies *subject-object-abject bodies* and *technologies* —concepts that I use for this *ecology of performing bodies*— does not contemplate the audience's role, especially when they are not interacting with the performance bodies directly. The audience observing a performance is then a different kind of body. Due to the dark conditions of this performance, I felt almost in a different realm from the audience, unable to see their faces or even their silhouettes, so I was unaware of them. From this perception, I would identify this audience as *voyeur bodies*, inhabiting the after-limits of the performance space. Besides the highly sexual connotations of the concept, the Britannica dictionary [The-Britannica-Dictionary, ndb] also describes *voyeur* as "a person who likes seeing [...] something that is considered to be private". Therefore, this audience, as *voyeur bodies*, witnessed the unfolding of the dancer's body from afar and in the dark —although this reading over the audience's bodies would drastically change depending on the performance and space conditions.

3.4 What's next?

I plan to keep working on this project, looking for performance spaces to present it, learning from future performances, and refining the project every time.

For example, the original idea for the piece was to perform live with the *Earth Wind and Choir*, not only Babette de Jong, Teresa Caterini, and Bailey Duff, but the whole choir assemblage (around ten people). This couldn't be done because of people's different schedules, making it impossible to set rehearsals during August and September 2023, so the idea was dropped for the first performance. Still, the choir is excited to try a full live version. This will mean changing the way the audio body layer is performed. One option is to remove my audio composition and leave the audio layer only to the choir with live improvisations. Another option is to modify my audio composition to be

less busy and co-exist with the live choir. A third and more complex option is to fragment and re-compose the sounds live (of the choir) during the performance using *TidalCycles*. As I mentioned at the beginning of this chapter, I initially intended to perform the sound with this live coding language. Still, due to the various mental activities I had to do, I couldn't focus. To solve this problem, the ideal situation is to collaborate with a musician and live coder.

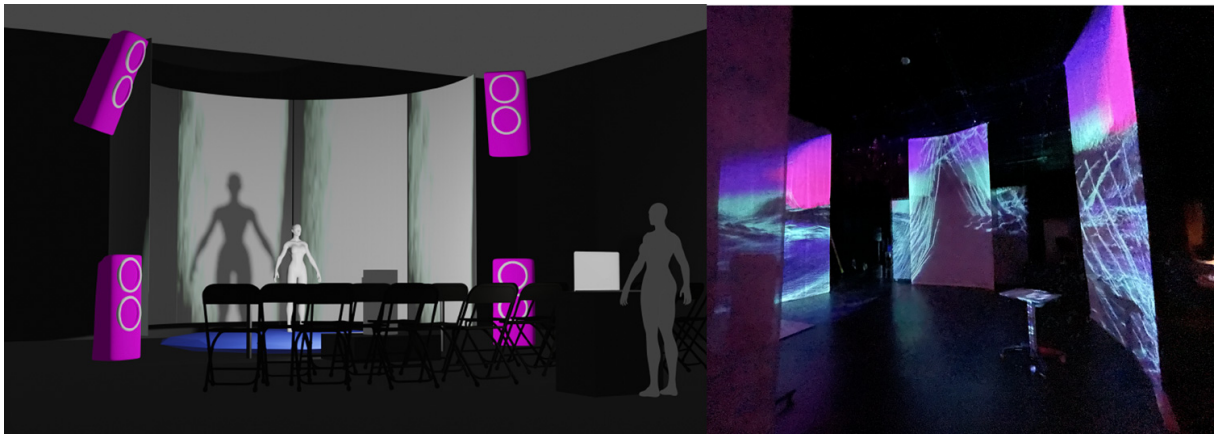


Figure 3.18: *encarnadas (f.) embodiments*; original sketch (left); BlackBox Theatre at McMaster testing the 360° projector (right)

Another example is creating a more immersive space that frames the dancer. As seen in Fig.3.18 sketches, I would initially use a 180°-screen projection and a 4-speaker audio system. This is considering presenting this performance at the Lyons Family Studio (Fig.3.18: right) at McMaster University; the idea of using this space is still open. As for the 180 projection, I tested a 360° projector owned by Factory Media Centre. However, after researching and testing the projector, I discovered it is not designed to be suitable for live improvisation. There is some workaround, but the projection loses stability and quality. For a future presentation at the Lyons Family Studio, I will use a set of three connected projectors to create this 180° immersive projection instead. The Lyons Family Studio also contains more options regarding the lighting setting, which I will surely use for a performance there.

As for the future of *TransMit*, I plan to implement additional features concerning this project. For example, I want a video channel feedback `channel` to alter Angela's live movements during the performance. Another modification is extending the library of `monitors`, with more options to fragment reality. As was mentioned several times in this chapter, the artistic needs of this project

highly influenced the current shape of my programming language. This is also true for my second project for this doctoral project, which I will present in the next and final chapter.

Chapter 4

afrontaciones (f.) copings. Narrativas de la Memoria y la Violencia del habitar [Digital Mixed-Media Installation]

Figure 4.1: *afrontaciones (f.) copings*, exhibition at Factory Media Centre, October 2023. Credit: Elit Nolet

4.1 Introduction

In the present chapter, I will introduce and analyze *afrontaciones (f.) copings - Narrativas de la Violencia y la Memoria del Habitar* [Fig.4.1], an auto-ethnographic and artistic project revolving around creating "testimonies" and collective storytelling showcasing the complex layers of inhabiting a city crossed by violence. First, in **Building up *afrontaciones (f.) copings***, I will share the personal and socio-political context from which this project was created. I will also share my steps to document, build, and assemble the materials for a gallery exhibition. Finally, I will further analyze the nuances and ideas behind identifying the relations between physical and digital materials in the **Ecology of Performing Bodies in *afrontaciones (f.) copings*** section.

I want to thank Rolando Rodriguez Guizar, who helped record the testimonies, edited the written self-testimony, and co-curated the project exhibition. Additionally, I would like to recognize the work of Factory Media Centre's assistants and board members who helped with the exhibition's assemblage. Finally, I would like to acknowledge the work of Eli Nolet, who photo-documented the exhibition's opening event on October 5th, 2023, at Factory Media Centre / Evil Empire in Hamilton, Ontario, Canada.

4.2 Building up *afrontaciones (f.) copings*

[As other places in Latin America], *my hometown shares* [a] *history. The story of instability that became stable has become a structure. The enforced disappearance becomes a catastrophe that destroys bodies, images, and environments. Identities are devastated; they lose their name, don't belong to any place, and are invisibilized, falling into an empty space, an absent time. Family, friends, classmates, and neighbours were pulled back from their possibility to be, to speak, to create their own narratives. They have fallen into a system of speculation, born from the same machine that has produced their break.* [...] *"they were narcos" —they claim—, "he was doing wrong things" —they publish—, "her family has just to realize that she is dead" —they say. All other narratives are cancelled within this view, and the "detention-desaparecido" becomes singular,*

portraying just the suffering layer. But these bodies, as well as images, are plural, with a wide range of representations, of specific contexts, of particularities that cannot be erased [...]*Broken bodies that can manifest through their own capacity to be an image: memories that become testimonies, personal remains, paths that have been travelled, lost messages, old photographs, forgotten shoes, the spaces they encountered, and all those other images they have inhabited.*

I wrote the above section as part of creative writing interventions in the Field Survey paper for my Comprehensive Examination in 2019-2020. Those interventions had the intention of embodying the knowledge I was acquiring during the research process by connecting academic approaches with my personal experiences. These interventions were also a reflection of my life. Moving from Mexico to Canada for this doctoral program was a life achievement I was working towards. However, as with other immigrants' experiences, it was a breaking point in my life. On one side, I wanted to continue my education, and this program was perfect for me because of its transdisciplinary approach. On a second layer, and the most important, it was an opportunity to escape, leave Mexico, and search for a better and safer space for me as a womxn. I have to say that I did find that safer space, at least for me[1]. Still, I understood that I would never totally detach or break my ties with Mexico and my hometown. My family and friends live there, and my identity, behaviours, ideas, way of being, thinking, and living are still there. All of me was shaped by the specific social, political, and cultural dynamics of my hometown, the country where I was born, and its inhabitants.

[1] later on I understood the complexities of Canada, and how, independently of calling this country part of the 'global north,' there are many people, specifically indigenous womxn suffering the same fear that women in Mexico feel. I will talk more about this in the last section of this chapter

4.2.1 Geographical and Political Context

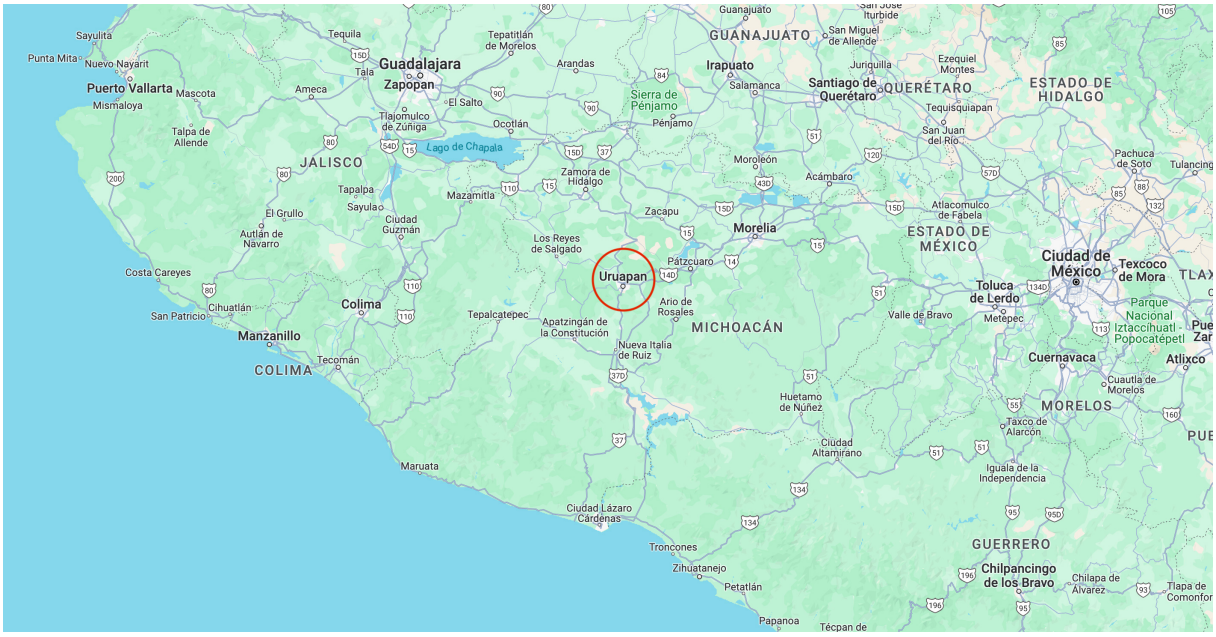


Figure 4.2: Screenshot taken from Google Maps from Michoacan State and surrounding areas

My hometown —and the state where I was born—, like other cities in Mexico, has a complex history connected to violence and corruption. I was born in **Uruapan del Progreso** (Fig.4.2), a town in **Michoacán** (western-centre Mexico). Uruapan is one of the most important cities in the state. It is located in the middle of the state capital, **Morelia**, which is the entry point for Estado de Mexico (then west to Mexico City) and Guanajuato (moving up to the north states), **Tierra Caliente** (south), the entry point to Guerrero, and the **Sierra Purépecha** (west), the entry point to Jalisco and the Pacific. Due to its geographical position, Uruapan is a connecting city between these regions, each with specific socio-political complexities.

El Heraldo de Mexico [El-Heraldo, 2021] mentions that Tierra Caliente is predominantly a rural zone called 'caliente' because of its high temperatures. The demographic history of the zone changed over the years because people abandoned this land due to the lack of work opportunities, which created a fertile ground for organized crime. Tierra Caliente extends to the Pacific and has one of the most important ports of the state, Lazaro Cardenas, an exit and entry point of products that became ideal for the movement of drugs. The zone has been the home for many crime organizations such as La Familia Michoacana, Los Caballeros Templarios, and Cártel Jalisco Nueva

Generación (CJNG), among others, disputing the control of the territory and the control of local industry connected to the production and export of several fruits [Parish-Flannery, 2023].

On the other side, the Meseta Purépecha, as noted by La Jornada [Martínez-Elorriaga, 2017], is also a rural zone initially located in a vast pine forested zone of the state of Michoacan, and it is the home of the Indigenous Purépecha people (Indigenous to the land). Traditionally, the towns from this zone traded and worked with wood. However, external people's appropriation of land, disputes between communities over forest territory, and rapid deforestation created a heated territory. Some of these communities are officially denominated independent indigenous governments[2] and, in other cases, self-denominated independent towns run by cartels.

Uruapan is recognized as the "world capital of avocado" [Descalsota, 2022], a zone that extends over the Sierra Purépecha —deforesting and changing the soil of the territory. As highlighted by Forbes [Parish-Flannery, 2023], "Michoacan produced around three-quarters of the avocado in Mexico [with a] 3.1 billion in export revenue [...] in 2022" [parra.4][3]. The economy of the avocado in the zone is deeply linked to drug dealers and other criminal organizations. These illicit organizations extort avocado producers and exporters to pay for *derecho de piso*, meaning to pay a percentage to the right to trade in the zone without repercussions. Due to the amount of total revenues by the avocado industry in the zone, organized crime is highly invested in building territorial control [Parish-Flannery, 2023, Linthicum, 2019]. Conversely, the avocado producers use these crime organizations to extort local farmers and use illicit deforestation techniques; the zone was once rich in pine trees, replaced slowly by avocado trees, benefiting and expanding the avocado industry [Soraya-Castro, 2022].

As a result of the early rise in crime and violence by the cartels in the territory, in December 2006, the former president of Mexico, Felipe Calderón, sent 6500 troops to Michoacán, officially

[2]The most notorious case is Nahuatzen. Due to high levels of crime and deforestation problems and being forgotten by the Mexican government, in 2015, the community started a process to become an independent government. In 2017, the Mexican State officially recognized the town's autonomy. Since then, the community has been run by an Indigenous Citizens' Councill. Nahuatzen is still autonomous, although still facing pushback from the Mexican government [Lopez, 2020]

[3]Mexico alone is responsible for almost half of the avocado production in the world with a value of 3.49 billion in the same year [Diaz, 2023]

declaring Mexico's 'war on drugs' [Lakhani and Tirado, 2016]. I was in my last year of high school when this happened. I saw hundreds of military troops and federal police establish themselves across the city, but this war didn't help; on the contrary, it created more deaths. Since 2006 (to 2021), there have been 350,000 people murdered and more than 72,000 disappeared people in the state [Pardo-Veiras and Arredondo, 2021]. Mexico's war on drugs failed to eliminate the cartels and accentuated violence as a product of internal corruption across the local and federal government entities.

In 2019, Uruapan was identified as the third most dangerous city in the world based on homicides per capita, with officially reported 301 homicides in a city of 351,823 inhabitants [CCSPJP, 2019]. Just two other Mexican cities over-passed these figures, Tijuana with 2,367 homicides and Ciudad Juárez with 1,522 homicides; two cities with four times the number of inhabitants than Uruapan. In 2020 [CCSPJP, 2020], Uruapan was in eighth place, and in 2022 [CCSPJP, 2022], it was in seventh place with a rate of 78.26 percent. It is also important to mention that in 2008 [CCSPJP, 2008], only two cities from Mexico were in the top position. In 2022, nine of the ten most dangerous cities in the world are from Mexico. The Human Rights Watch [Human Rights Watch, 2023] notes that "around 90 percent of crimes are never reported" [parra.7], meaning the above numbers are much higher.

4.2.2 Navigating personal and collective spaces

To be born, grow up, and live in a city connected to these many conflicts leaves deep psychological —and, in many cases, also physical— scars. As Gabriel Gatti [Gatti, 2011] highlights, living through different forms of violence creates spaces of 'perpetual instabilities' [p.63], or social cracks that become the norm, the 'habitual'. People learn to live with them, inhabiting deeply broken existences. As Helena Chavez [Mac Gregor, 2009] emphasizes, 'we keep to ourselves, we silence, and we forget' [parra.7]. We keep walking, looking straight, 'If I don't talk about it, then it is not real,' *si no me meto no pasa nada* (if I don't put myself there, nothing will happen).

Living in these states of normalized violence breaks any sense of individual and collective

identities. We only exist through the 'official' narratives; we don't know how to name what we live, and we don't want to name what we experience. Gatti [Gatti, 2011] reminds us that the 'testimony' is a powerful tool. Through testimony, we create *espacios del sentido*, spaces where we assume our positionality, where we not only tell our stories but also share the difficulty of speaking.

As part of the goals of this project, I wanted to make sense of my identity. I knew I wasn't unique. I knew that others had lived the same as me or worse. Therefore, making sense of my individual self was and is also making sense of many collective selves. Inspired by Gatti, I wanted to use the testimony as a material that can unfold artistically over the time-space of the project. I originally wanted to create a 'safe' space to speak, but soon I realized it was more complicated than that.

I met with Dr. Nuria Carton de Grammont two years ago, an art historian, curator, and Concordia University professor working with Latin American and Latin Canadian contemporary art. Professor Carton gave me some guidance, pointing out relevant authors that build knowledge from southern epistemologies, and advised me to move away from language and concepts that were not making sense for the project's context. We specifically discussed the relevance, or lack of significance, of creating 'safe spaces': 'positive' spaces 'free of conflict.' As Professor Carton pointed out, the themes I was working with are born from conflict, so the project must accept conflict and contradiction as pivotal lines. In this sense, instead of creating spaces 'free of conflict,' I needed to enable and visibilize spaces full of pain and fear. We tell, but we also tell alongside others, re-connecting ourselves through language and generating non-scripted discourses [Segato, 2003].

Historically, the Mexican government and national (and international) mass media outlets have reproduced 'official discourses' that erase individual stories in favour of a single narrative. Helena Chavez [Mac Gregor, 2009] explains that, through the history of Mexico (and its wars), there is a clear line that instrumentalizes and sterilizes the narrative of the victims. The stories of the victims become a scripted political discourse, a myth, and a parable with a nationalistic agenda that controls the past and the future. Gabriel Gatti [Gatti, 2011] mentions something similar, saying that individual identities and narratives are erased and replaced by a shared facade, a characterization

of the eternal suffering of the victims. I must note that this characterization has two sides: the perfect victim affected by being in the '*lugar incorrecto en el moment incorrecto*' (wrong place and the wrong moment) or the imperfect victims who deserve what came to them because '*andaba en malos pasos*' (they were, probably, doing something wrong).

Helena Chavez [Chávez, 2013] further analyzes the role of necropolitics in creating these 'official' narratives. She draws from Achille Mbembe's ideas [Mbembe, 2019], contextualizing politics around terror and militia as a civilizational movement. Helena explains that during colonial times, an administration driven by terror and war was used to legitimize the ex-propriation of the territory and exploitation of its inhabitants [p.28]. This dynamic was emphasized in the last few decades with growing corruption, neo-liberal, capitalist systems, nepotism intertwined with bad administrations, and the proliferation of criminal groups and cartels (among other things). All of the above gave local and federal governments an excuse to keep using war and death to solve all problems. Through this logic, the 'war on drugs' that was initiated in 2006 and the more than 350,000 deaths produced are mere casualties needed for the 'well-being of the Mexican society.' Helena Chavez emphasizes that we must break this cycle of war and death. Instead, she invites us to challenge these official narratives, bring back our ghosts, speak about them and to them, visibilize our fears and work from that fissure and conflict to re-imagine other ways to heal our society [Chávez, 2013, Mac Gregor, 2009].

To visualize these spaces moving away from single narratives, contrasting good and bad memories, I decided to create an art installation that would showcase some of the conflicting multi-layered histories brought by inhabiting the city of Uruapan. Therefore, *afrontaciones => (f.) copings* is an auto-ethnographic project in which I gathered and contrasted several forms of documentation to generate artistic materials, moving between individual, collective, and public information. The individual documentation included a series of videos and audio-recorded/typed testimonies of several people living in Uruapan. Collective documentation included information from Uruapenses[4] (disappearances and comments about violent events) shared on several Facebook groups and pages.

[4]Demonym use to refer to people from Uruapan

Public information included 90s TV announcements of disappeared people, headlines of violent events (murders, shootings, cartels, etc.) from local, state-national newspapers, and critiques by journalists. Additional self-documentation includes an audio diary, a self-testimony, and video recordings of Uruapan.

I video-audio recorded the testimonies in October 2022. The testimonies were structured as conversations, reflecting the parallel research on public and collective information I was reviewing and bringing as baggage to the dialogue. In the present chapter, I won't analyze the data from the testimonies. Instead, I will overview the artistic processes involved in creating and assembling the various materials for the gallery exhibition.

4.2.3 Documenting the self

In April 2023, I was invited to participate in Supercrawl's public exhibition [Fig.4.3]. Supercrawl is an annual street event held by the city of Hamilton that showcases several art forms, music, and food trucks. Kristine Germann is the curator overseeing the event's visual and public art. For the 2023 edition, one of the activities was a public screening of video works by artists with the theme of 'movement.' For my participation, I created an 11:22 minute video [check Appendix A.2.5] relating my thoughts of transiting and inhabiting Uruapan and the city of Hamilton, always contrasting both experiences, playing with a mix of nostalgia and relief. For the video, I wanted to create a more curated experience of the themes explored in *afrontaciones => (f.) copings* since the other testimonies and materials have more direct references to violence, and this video was going to be screened in an event where people of all ages attend. As mentioned, this self-testimony functioned as a work of remediation, connecting my experiences in Mexico to the life of an immigrant here in Canada.

Figure 4.3: *afrontaciones (f.) copings - self-testimony*, screening at the Supercrawl, September 2023

As an auto-ethnographic method, I kept an audio diary reflecting on all the information I was reviewing and the materials I created. An essential part of the project was to work with physical objects to balance virtual and digital representations of the self. For this audio diary, I used a cassette recorder that I would bring around some days in the early morning to record my thoughts and the state of the project (ideas and work done or missing). After a few months of having this audio diary, I poured my thoughts into writing that slowly had the shape of six short creative writings.

The **Preludio** (prelude) introduces the theme of the work: what does it mean to inhabit a city, my human flesh, and my inner self? This section introduces my present as a Mexican immigrant living in Canada and my past/present through my connections to Uruapan. **Parte 1. Afincarse** (growing roots) focused on my childhood memories, exploring images of being born and growing up, which are always associated with the land we inhabit. **Parte 2. Asentarse** (settle down) reflects on my youth and how I started building my identity. This section also introduces the growing fears in me. **Parte 3. Aposentarse** (simmer down) focuses on migrating and feeling safe while simultaneously realizing that my worries and fears are still deep inside. **Parte 4. Arriargarse**

(splint) finally acknowledges my fears, facing them. In the last section, **Epilogo** (epilogue), I fully welcome all my memories, accepting their contradictions and embodying my good and bad experiences.

Figure 4.4: *afrontaciones (f.) copings - self-testimony*, 1/8 typed testimony (left), collage no.1 (right)

I voice-recorded these written compositions on the audio-diary cassette player; therefore, the video's audio layer has a background noise product of this recording technology. In this sense, I wanted to visualize the objects I was using through the concept of technological interference. Along the same lines, I use an electronic typewriter to produce a physical written version of this self-testimony [check Appendix A.2.5]. As seen in Fig.4.4 (left), the testimony was typed in both Spanish (black tint) and English (red tint). The sections were initially written in Spanish and loosely translated into English, keeping some translation mistakes to visualize human error. This project never intended to create 'perfect' materials but to work with hand-made materials, accepting the error as part of them. In this sense, the typed self-testimony kept writing mistakes involved in translating content at the moment and typing it in a language that is not my native tongue. I also generated a series of mixed-media collage compositions (photo-lithography, stamps, and typed text) for each section [check Appendix A.2.5] shown in Fig.4.4 (right).

Figure 4.5: *afrontaciones (f.) copings - self-testimony*, video stills

The video version[5] shares the same structures divided into six sections (Fig.4.5). As I mentioned, I used the cassette recordings from my audio diary. The errors introduced by the low quality of the cassette player and tape and the handling of noises are integral to the sonic aesthetics of the video. They are connected to the themes of the project. The voice recording functions as a base for the visual narrative, sometimes giving breaks from the voice, leaving other sonic textures —such as street recordings in Uruapan, the natural sound of the videos, and the sound of a light projector. For the visual layer, I used videos from Uruapan recorded explicitly for this project, other video materials from a personal archival recorded in Uruapan and surrounding areas, video materials from Hamilton, found footage of Uruapan in the 50s, digitized collage compositions and typed testimonies, video recordings of a light projector, maps from the area, and a self-created font for the titles. Some of the effects I used for the video part are the juxtaposition and oversaturation of images-textures, visualizing the technology behind (such as the light projector to structure the beginning and the end sections), raw videos with no colour correction, visual silences, and use of various blending modes to create a street-art kind of visual composition.

I highly considered the screening presentation at Supercrawl to produce this video version. As shown in Fig.4.3, the organization used a truck (usually for street advertisement) with three LED screens: one on each side and one on the back. The elongated aspect ratio for my video is connected

[5]For reference, check: https://vimeo.com/911183763

to the aspect ratio of the side screen. I also created a second video version in a squared aspect ratio for the back and as a visual continuation for the side —the overlaying and juxtaposition of the images fit with the street environment where the truck was positioned. Additionally, by using video footage from Hamilton, I intended to create some connections with local visitors. In parallel, I was also hired as a technician for this screening and had the opportunity to check the other artists' work while producing this video. Their work indirectly inspired me, creating some visual connections[6]. Incidentally, these connections moved away from these videos to other public art of the event. Kristine Germann, the curator, noticed I was portraying the same palms as a public installation happening half a block away[7].

4.2.4 Creating more materials

As part of the project, I produced a series of visual and audiovisual materials connected to the testimonies and the broader themes of the piece. The following is a list of those materials and the processes I took to create them.

Fonts

For this project, I created a series of fonts that helped me visualize *TransMit*'s syntax [check Appendix A.2.4]. I use various materials such as charcoal, aquarelle, acrylic, ink, markers, stamps, oil paint, pencils, and sponges (among others). I included the letters from a-z, symbols (. , ; : ""), and other special letters used in Spanish (ñ, á, é, í, ó, ú, ä, ë, ï, ö, ü).

[6]The screening had the following list of works: *Walking Together, Apart* (2022) by Alicia Hunt and Katie Huckson, *Katrin* (2023) by Kimber Sider with Dustin Seabrook, *SUPERWALK* (2023) by Hamilton Perambulatory Unit (Taien Ng-Chan + Donna Akrey), and *WalkingLab: Scores for Counter-Mapping* (2023) by Stephanie Springgay, and *afrontaciones => (f.) copings Narrativas de la Memoria y laViolencia del habitar* (2022-23) by Jessica A. Rodriguez

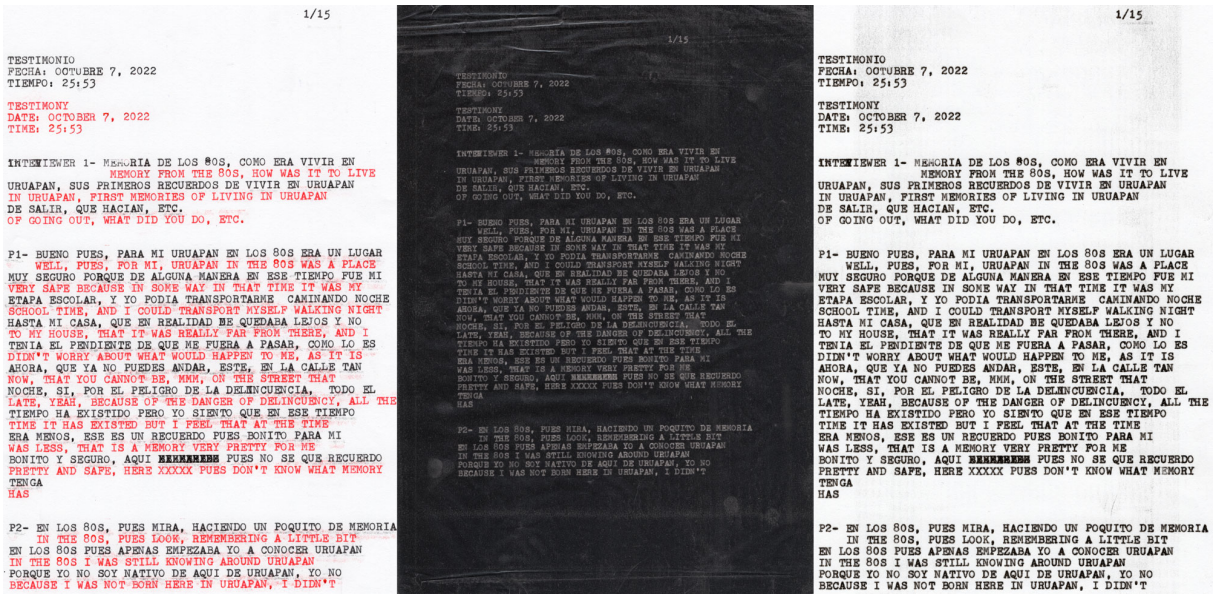
[7]David Brooks's Gap Ecology (Still Lives with Cherry Pickers and Palms), 2009-2023, Boom lifts and majestic palms, weather. For reference, check: http://davidbrooksstudio.com/

Figure 4.6: *afrontaciones (f.) copings*, *Acuarela* and *AcuarelX* fonts

I created 14 digitalized versions (Fig.4.6: left). I then isolated each letter and built installable font files (.otf); I ended up with 24 fonts. As you can see in Fig.4.6 (right), each typeface has a positive version (*Acuarela*) and a negative version (*AcuarelX*). Some of the names I used for the rest of the fonts are related to the style (form) of the typeface (e.g. *Cinematica*, *Molde*, *Alargada*) or the materials I used (e.g. *Plumon*, *Estampa*, *Acuarela*). For the negative versions, I replaced the last vocal of the name with an 'X,' connected to an 'X-ray view' of the typeface (e.g. *Cinematica-CinematicX*, *Plumon-PlumonX*).

Transcripts

I recorded a total of five testimonials (with 10 people in total) ranging from 19 minutes (the shortest) to 1 hour and 20 minutes (the longest). I transcribed each of the testimonies using an electrical typewriter, producing three versions: the original (in colour: black and red), the copy (in black), and the copy-paper trace (Fig.4.7).



1/15

TESTIMONIO
FECHA: OCTUBRE 7, 2022
TIEMPO: 25:53

TESTIMONY
DATE: OCTOBER 7, 2022
TIME: 25:53

INTERVIEWER 1- MEMORIA DE LOS 80S, COMO ERA VIVIR EN
MEMORY FROM THE 80S, HOW WAS IT TO LIVE
URUAPAN, SUS PRIMEROS RECUERDOS DE VIVIR EN URUAPAN
IN URUAPAN, FIRST MEMORIES OF LIVING IN URUAPAN
DE SALIR, QUE HACIAN, ETC.
OF GOING OUT, WHAT DID YOU DO, ETC.

P1- BUENO PUES, PARA MI URUAPAN EN LOS 80S ERA UN LUGAR
WELL, PUES, FOR MI, URUAPAN IN THE 80S WAS A PLACE
MUY SEGURO PORQUE DE ALGUNA MANERA EN ESE TIEMPO FUE MI
VERY SAFE BECAUSE IN SOME WAY IN THAT TIME IT WAS MY
ETAPA ESCOLAR, Y YO PODIA TRANSPORTARME CAMINANDO NOCHE
SCHOOL TIME, AND I COULD TRANSPORT MYSELF WALKING NIGHT
HASTA MI CASA, QUE EN REALIDAD BE QUEDABA LEJOS Y NO
TO MY HOUSE, THAT IT WAS REALLY FAR FROM THERE, AND I
TENIA EL PENDIENTE DE QUE ME FUERA A PASAR, COMO LO ES
DIDN'T WORRY ABOUT WHAT WOULD HAPPEN TO ME, AS IT IS
AHORA, QUE YA NO PUEDES ANDAR, ESTE, EN LA CALLE TAN
NOW, THAT YOU CANNOT BE, MMM, ON THE STREET THAT
NOCHE, SI, POR EL PELIGRO DE LA DELINCUENCIA, TODO EL
LATE, YEAH, BECAUSE OF THE DANGER OF DELINCUENCY, ALL THE
TIEMPO HA EXISTIDO PERO YO SIENTO QUE EN ESE TIEMPO
TIME IT HAS EXISTED BUT I FEEL THAT AT THE TIME
ERA MENOS, ESE ES UN RECUERDO PUES BONITO PARA MI
WAS LESS, THAT IS A MEMORY VERY PRETTY FOR ME
BONITO Y SEGURO, AQUI [redacted] PUES NO SE QUE RECUERDO
PRETTY AND SAFE, HERE XXXXX PUES DON'T KNOW WHAT MEMORY
TENGA
HAS

P2- EN LOS 80S, PUES MIRA, HACIENDO UN POQUITO DE MEMORIA
IN THE 80S, PUES LOOK, REMEMBERING A LITTLE BIT
EN LOS 80S PUES APENAS EMPEZABA YO A CONOCER URUAPAN
IN THE 80S I WAS STILL KNOWING AROUND URUAPAN
PORQUE YO NO SOY NATIVO DE AQUI DE URUAPAN, YO NO
BECAUSE I WAS NOT BORN HERE IN URUAPAN, I DIDN'T

Figure 4.7: *Testimonio 3*, page 1/15, versions: original, copy-paper, copy

I use red as a contrasting colour for the English version of these transcriptions —this colour, for the project, also functions as a visual cue of disruption and violence. The English version was done on the spot, keeping translation errors such as misspellings, literal translations, structural mistakes, and words in Spanish for unknown translations. The Spanish versions also contain spelling errors that I kept as a trace of physical-human interventions.

I blacked out names and other identification information. I decided to mute this information both to protect people's identities and as an inspiration from war documents, reflecting on the practices of erasure. As for the former, even though I was working with the visibilization of everyday victims, I still didn't want to put them at risk in any way. The ideas and stories shared in the testimonies are still considered themes that can put you at risk in Mexico, especially in cities such as Uruapan.

Collage Compositions

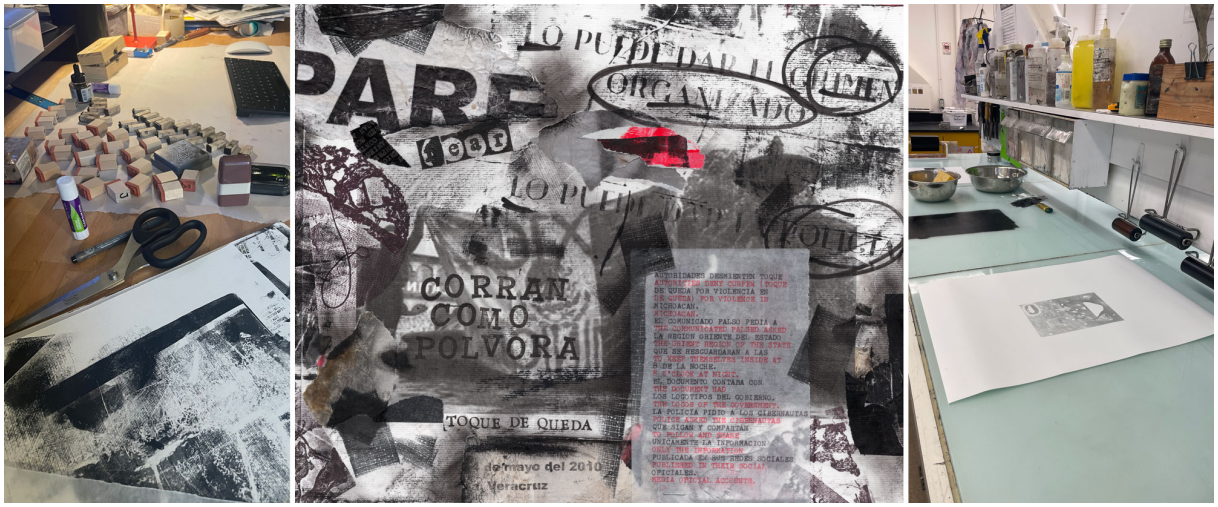


Figure 4.8: Collage composition and documentation of the artistic process

I created a series of mixed-media collage compositions for the first four testimonies [check Appendix A.2.6] that portray textual citations and try to artistically grasp and give context to the citation from the testimonies I make in each composition (Fig.4.8: centre). I created a total of 38 collage compositions —T1 (11), T2 (7), T3 (10), and T4 (10)— using techniques such as photo-collage, photo-transfer, photo-lithography, and other hand-printing processes (Fig.4.8: right).

As for the materials, I used acrylic, oil paint, aquarelle, stamps, mixed-media type of paper, charcoal, markers, newspapers, printed news, fabrics, and ink, among other things (Fig.4.8: left). Additionally, I added typed interventions of news, translations, and/or socio-political contexts connected to the themes of each composition. The colours for all collage compositions range between black, dark gray, and red, keeping the same colour palette as the transcripts.

Scannings

I scanned transcriptions and collage compositions to create digitalized versions of the originals. As part of this process, I also experimented with more experimental approaches. I ended up with 40 scanned files [check Appendix A.2.3], experimenting by moving around the paper while scanning or scanning pieces of torn documents, among other processes (Fig.4.9).

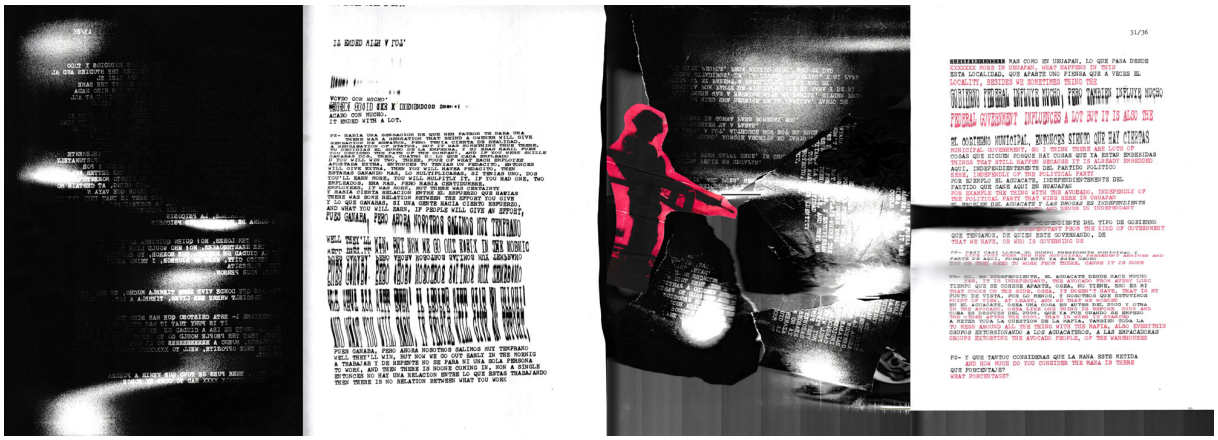


Figure 4.9: *afrontaciones (f.) copings*, experimental scannings

I found that by choosing the 'scan-document' instead of 'scan-photo' settings, the copy-paper version of the transcripts was invisible to the scanner, resulting in a black document. I then moved an external light around (while scanning) to visualize what was hidden by technology (Fig.4.9: first composition). This was the most exciting discovery since it connected to the broader themes of unveiling information that is either hidden, erased, or muted. It also reflects on ideas about how speech is mediated by technology.

Video

I created 183 video files [check Appendix A.2.1] using different visual materials (transcripts, collage compositions, found footage, and video documentation) and arranged them into five series (Fig.4.10).

Figure 4.10: *afrontaciones (f.) copings*, video-stills

The *Desaparecidos* series contains 19 videos related to enforced disappearance in Mexico: video documentation of the community-denominated *Glorieta de los Desaparecidos* (located in Mexico City) and found footage from the 80s and 90s TV commercials of disappeared people[8].

The *Uruapan* series contains 66 videos I documented in October 2022 as part of this project. All videos portray Uruapan and focus on several forms of physically navigating the city, such as travelling by taxi, bus, public transportation, and walking. I recorded most of these videos on my way to meet the people from the testimonials or walking around my house with my dog.

The *Testimonios* series contains 56 videos of testimonials. I broke down each of the five testimonials into smaller time sections. I use de-identification techniques typical in the documentary industry, such as unfocusing subjects, low-light or extremely bright camera settings, and altered voice (usually in a lower key).

Finally, I used the digital version of transcripts and collage compositions for the *Transcripts* (21 videos) and *Negatives* (21 videos) series. I animated the still images for the former and portrayed multiple textures by overlaying documents. For the latter, I printed the documents on transparent paper, using a light projector to visualize them on the wall. I set up a camera to record the projection while interacting with the documents (moving them around and writing on them).

4.2.5 Assembling and navigation

afrontaciones (f.) copings. Narrativas de la Violencia y la Memoria del Habitar was exhibited at Factory Media Centre's main gallery from October 5th. to October 13th., 2023 [check Appendix A.2.7]. Factory Media Centre[9] is a not-for-profit artist-run centre in Hamilton, Ontario, Canada. I had an opening exhibition event on October 5th, where I activated two more spaces. Factory Media

[8]Taken from a series of videos from one of the major TV broadcasters, Televisa. The commercials asked for information about disappeared people. As a kid, I watched these commercials daily while watching cartoons early in the morning to prepare for school. Televisa would also play this commercial in the evening, always starting with the same voice: *Canal 5. Al servicio a la comunidad* ("Channel 5. To the service of the community"). For reference, check: https://www.televisa.com/canal5/series/las-cosas-que-te-aterraban-en-canal-5

[9]For reference, check: https://www.factorymediacentre.ca/

Centre is housed at Evil Empire[10], a film and photo studio run by filmmakers in a former hydro building. For the opening event, I rented out the space to use two of the tunnels this building has and allow visitors to navigate the space freely.

A pivotal action of the project was the nuances of inhabiting the city by moving-walking through it. This was directly inspired by an example close to me. Fabiola Rayas is an artist from my home state who works with performance and enforced disappearance. I met Fabiola in my undergrad program, and later on, we both completed the Master's program at the same university. Fabiola works with the relatives of disappeared people to create physical actions as a protest, joining art and activism [Rayas-Chavez, 2017]. Alongside the relative, she walks through the same paths the disappeared family members used to walk, using their shoes to connect with their lost lives —through this action, the lost member can keep walking. For Fabiola, by walking, we activate the space, a space that is crossed by many lives. Similarly, the visitors at the opening event for *afrontaciones (f.) copings* must walk to activate, find, unveil, and cross the many narratives offered in visual, audio-visual or sonic forms.

Fig.4.11 shows a simplified floor plan of the first and underground floors of the building. The main entrance holds an ample open space where the *encarnadas (f.) embodiments* performance piece (Chapter 3) was presented. On the side is the entrance of one of the tunnels (Fig.4.11: bottom-right). This tunnel was focused on the self. Like theatre staging, I set up my desk, visibilizing my working space and tools: typewriter, personal photos, computer, unfinished testimonies, etc. Additionally, my self-testimony was playing on a loop at the end of the tunnel.

[10]For reference, check: https://www.evilempirestudios.com/

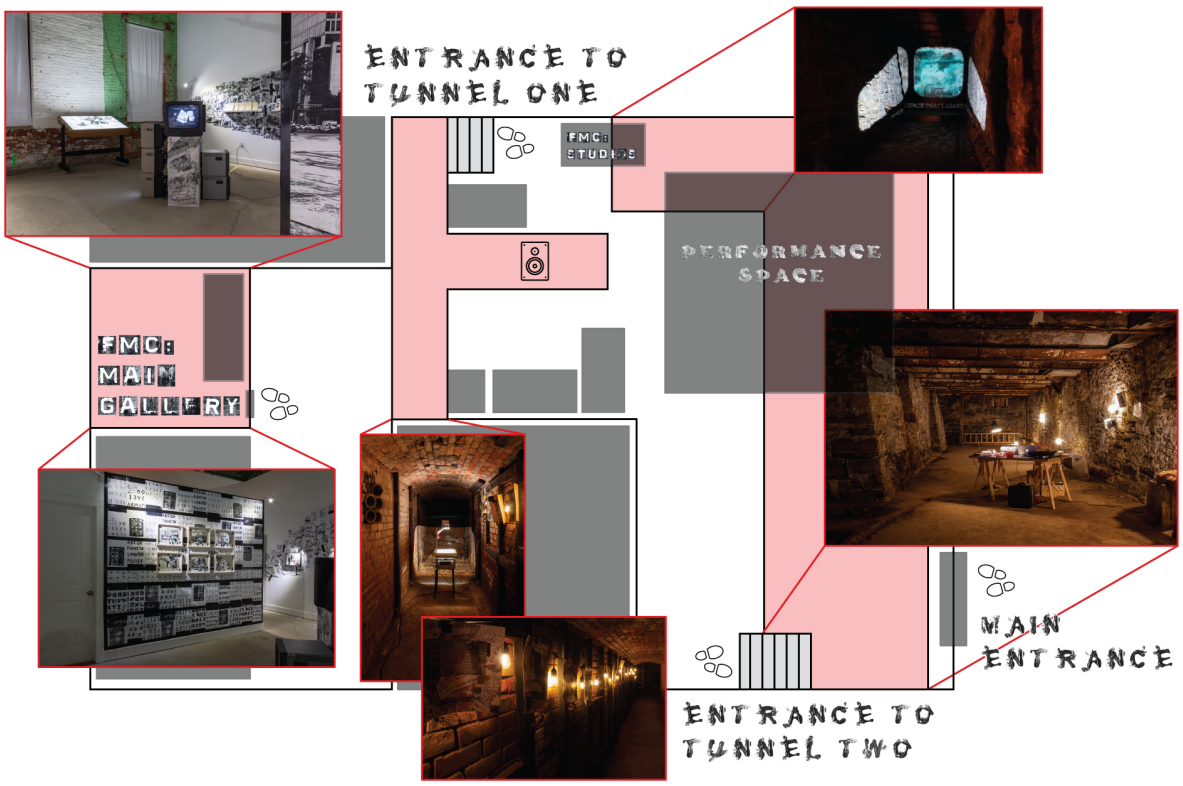


Figure 4.11: Floor Plan for the *afrontaciones (f.) copings* exhibition opening at Factory Media Centre - Evil Empire

The second tunnel is in the middle of the building (Fig.4.11: top-centre). On this tunnel, I placed a series of hanging collage compositions, leading to the end, where I staged the light projector I used for the projects with some of the transparent printings. This tunnel also had a sound installation in the middle, following a different path. I kept this path in the dark with the sound coming from inside. The sound was composed by the full audio recordings of the testimonies in Spanish.

FMC's main gallery is located at the back, opposite the main entrance of the building. The visitors had to cross over to visit the main exhibition space. My father and collaborator, Rolando Rodriguez Guizar, helped me design this exhibition space. The main white walls of the gallery were almost covered by photocopies of the transcripts, fonts, and collage compositions, simulating the walls of the streets in Mexico where family members put flyers with the information of their disappeared relatives. The main gallery exhibited framed collage compositions, typed testimonies, a light table with transparent printings, and a series of old TVs with videos specially created for this exhibition using *TransMit*.

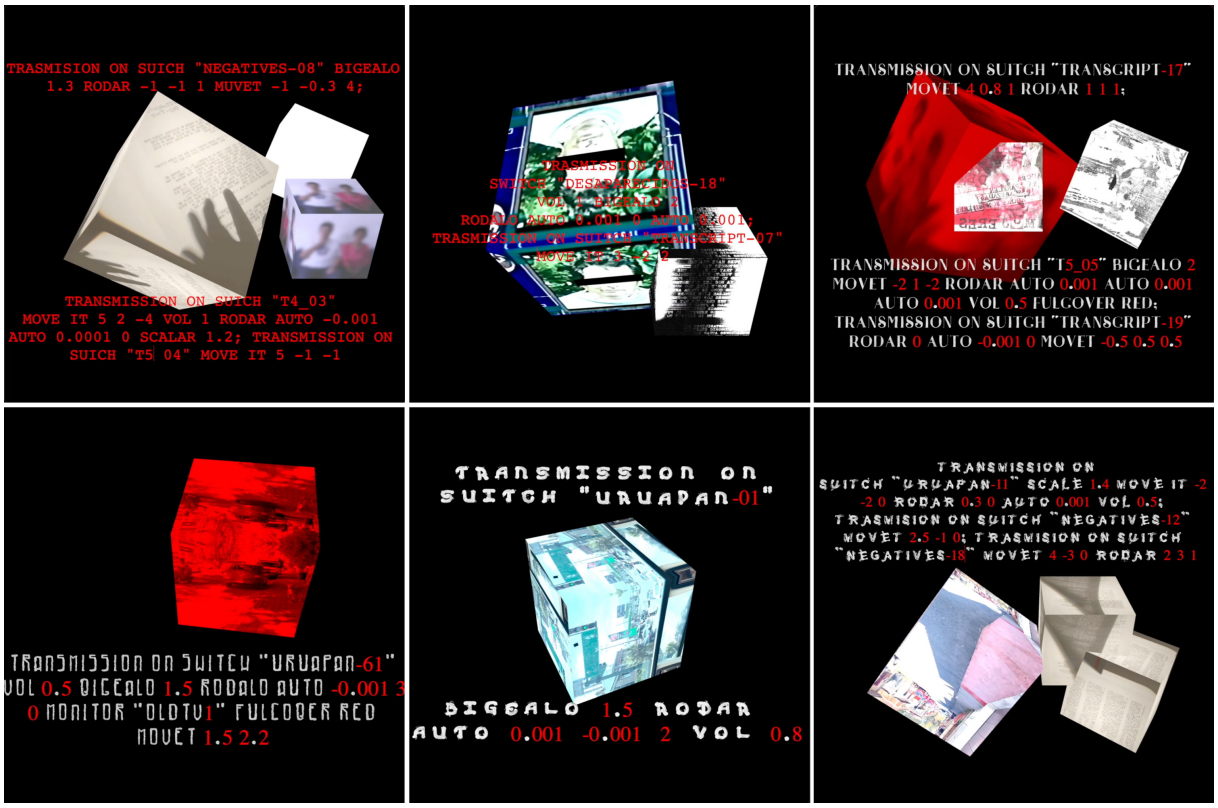


Figure 4.12: *afrontaciones (f.) copings*'s digital collages using *TransMit*

All the video materials I created for the project are part of a video archive that I use to perform or develop new materials using *TransMit* [check Appendix A.2.2]. Fig.4.12 showcases the materials' appearance on *TransMit*. The reasoning behind using multiple fonts for the syntax is to get a more cohesive visual experience and to connect to the style of the broadcasting news channels and newspapers where videos, images, and text appear together. For the exhibition, I made seven videos (screen-recording my live interactions with *TransMit*[11]). The main gallery exhibited five videos played on old TVs from the 90s and the 70s. The seventh video was played on a broken computer screen on my desk in tunnel two.

The inspiration to create these videos lies directly in the aesthetics of *narco-mantas* and *La Nota Roja*. *Narco-mantas* are messages organized crime deliveries to society, usually printed textiles displayed in public community spaces[12]. The cultural translation of the latter lies in the tabloids,

[11] I also have a 7-minute screen recording as a proof of concept on how the project would look as a performance piece. For reference, check: https://vimeo.com/912528209

[12] For reference, check: http://surl.li/qrigo

sensationalistic news about public events. *La Nota Roja* (The Red Tabloid) showcases events always connected to violence and sometimes highly explicit photographs of killings. As Monsivais notes [Monsiváis, 1922], *La Nota Roja* comes from a history of publishers that, from early on, would transform tragedy into spectacle. Its popularity lies in collective storytelling embedded in our people. The news outlets rely on the morbid to appeal to the visitors. In this way, the macabre and the explicit violence become fiction, a fable that detaches from reality, relying only on the iconographic aspects of these images. In other words, these photographs no longer portray a crime in the real world; they are just mediated, disembodied pictures showing the possible results of an immoral life.

In parallel to these direct morbid scenes, there was also a line in photojournalism that grew over the idea of creating artistic and iconographic scenes that would not represent fables but direct cues of the growing violence of our fractured nation. As Iván Ruiz [Ruiz, 2017, Ruiz, 2018] points out, experiencing violence in the shape of both horror and beauty opens spaces to question what we are watching and experiencing. For Iván, these photographs of violence are crossed by artistic views; more than glorifying violence, they portray the politics behind it, the power dynamics and how the mass media outlets manipulate information, driven by both capitalism and the political inclinations of the ruling candidate.

This project was directly responsible for the 3-dimensional approach I followed for *TransMit*'s design and application. In this sense, I wanted to create a digital tool inspired by Nam June Paik's work concerning visibilizing technologies, specifically TVs and broadcasting information that affects and alters the stories of the community, as mentioned above. On the other hand, I use the created fonts to portray TransMit's syntax, reflecting on the media outlets I was inspired by where hand-written fonts are usually part of *narco-mantas*. In the next section, I will further analyze how these decisions related to the other materials of the exhibition and the montage of these videos.

4.3 Ecology of Performing Bodies in *afrontaciones (f.) copings*

Like Chapter 3, I will use the *ecology of performing bodies* I designed for Chapter 1 to identify the relations between concepts, artistic materials, agents, and narratives of the project, focusing on the exhibition opening at Factory Media Centre on October 5, 2023.

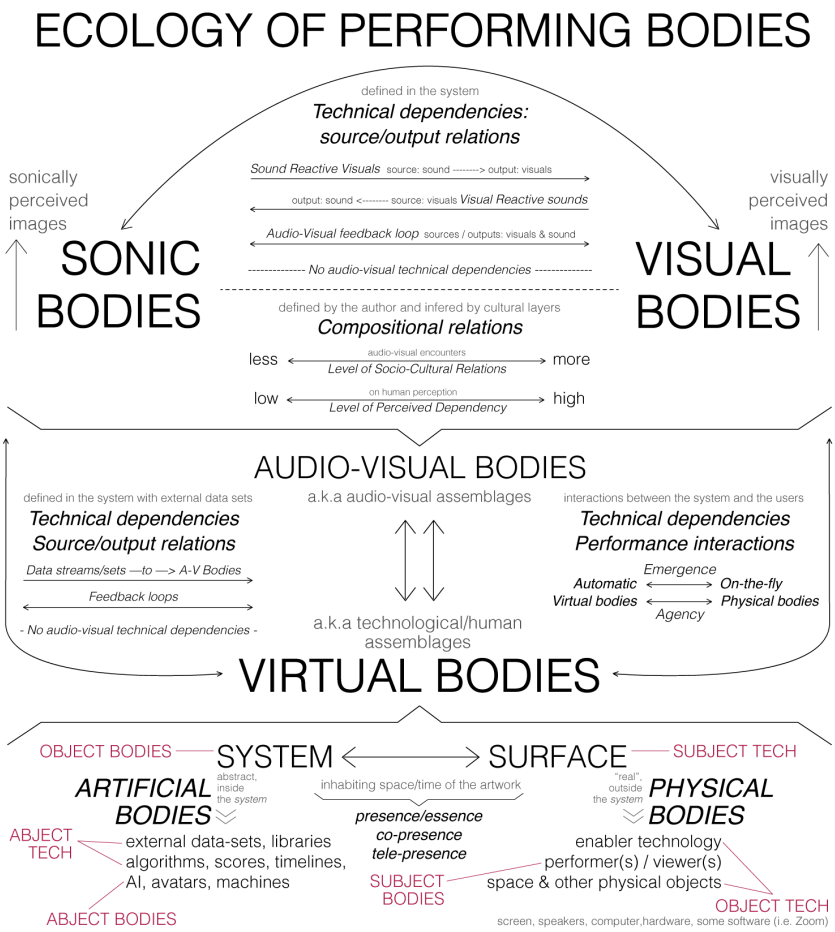


Figure 4.13: Ecology of Performing Bodies

As outlined in the last section, several audio-visual bodies were created for this project. I want to mention that there were **no technical dependencies** between the exhibition's audio/visual/virtual bodies. In other words, no information was being translated to create reactive materials. For this project, I will divide my analysis into the spaces available for the visitors during the exhibition: Tunnels, the Main Gallery, and the space-building connecting all spaces.

4.3.1 Tunnels

Tunnel One

Figure 4.14: *afrontaciones (f.) copings*, exhibition (Tunnel one) at Factory Media Centre, October 2023. Credit: Elit Nolet

The **sonic body** in this space was a playlist of testimonies running in a loop. The sound was being played and raised from the dark so the visitors could hear where the audio came from, but the position and shape of the source were unknown; the pure darkness of the montage was the only visual cue when experiencing this body. Even though the testimonies were in Spanish, the audios were quickly recognized as voices coming from the distance, voices that encountered, on the opposite wall, a series of collage compositions hanging from an electrical cable with light bulbs. Therefore, the audio and visual montage had **strong socio-cultural relations**. The visitors experienced the disembodied voices of the testimonies from an unknown place that crashed with the embodied testimonies of the collage compositions (Fig.4.14).

The **visual bodies** (collage compositions hanging from the walls and a light projector with transparent printings) interacted with the other **virtual bodies** inhabiting this space, such as lighting, the exposed bricks, hanging objects, the width and height of the tunnel, as well as the weather conditions —the building was extremely humid that day, especially on the tunnels. In this case, I would argue that the building was the **object body** in the sense that the insides and structure of the building are hidden from its users but setting the outside interactions that affected both the visitors and the **visual bodies** (specifically the collage compositions). In other words, I believe it was the history of the space, as a hydro building, that made the tunnels especially humid.

As I mentioned, these characteristics affected the collage composition hanging from the side

wall, starting as flat papers but ending the night as curled compositions by the extreme humidity. The visitors physically responded to these conditions by sweating or having allergic reactions to dust and moisture. Although this was an unexpected experience, it strongly connects to the exhibition's goals by materializing the conditions (joys and struggles) of inhabiting a space.

Tunnel Two

Figure 4.15: *afrontaciones (f.) copings*, exhibition (Tunnel two) at Factory Media Centre, October 2023. Credit: Elit Nolet

Similar conditions were experienced on the second tunnel, where I exhibited other collage compositions. These compositions were located around the desk area (Fig.4.15). Some were hanging and suffered more humidity damage than others lying around. This exemplifies how physical materials interact, affecting each other in various ways. This tunnel shared the same **object body - system** but varied in the physicality of the **subject tech - the surface**, being this tunnel much wider and bigger than the first tunnel. The visitors experienced physiological responses (due to humidity), but the space was less claustrophobic due to its size.

An additional **subject tech - the surface** of this tunnel is the exhibition of my working desk. The surface portrays some of the cues behind creating this auto-ethnographic project. Therefore, I consider the process a **system**, the series of memories and experiences that shaped this exhibition and the materials. Within this system, the **abject technologies** are the news, testimonies, found footage, and video recordings that I reviewed and systematized to create new content. The **object bodies** are the people behind these stories and recounts that come through the various materials of the installation. The working desk is a vestige or trace of the self, the community, and the public,

containing **object technologies** such as the typewriter, computer, screen, cassette tape, cassette recorder, tools, etc. It also showcases other **subject technologies** in the shape of typed testimonies, a photo album with some of my old memories, and an audio diary that could be played using the cassette player.

These different subject technologies show a re-iterative process of creating systems over systems, similar to a rhizome that contains representations over representations crossed by various technologies and materialities.

4.3.2 Main Gallery

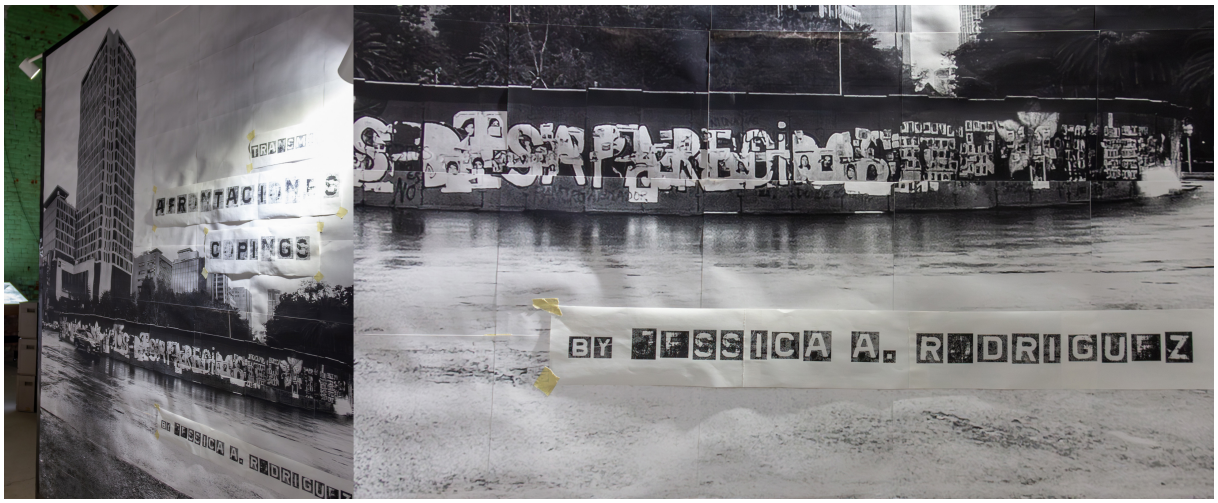


Figure 4.16: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

The visitors were welcomed to the space by a squared wall on the right (Fig.4.16). This wall showcased the title of the exhibition and my name as the author. Most importantly, it portrayed a photo of the *Glorieta de los Desaparecidos* in Mexico City, or the "Roundabout of the Enforced Disappeared," a self-made community monument where people set posters, photos and information from their disappeared family members into a concrete wall. Iván Ruiz [Ruiz, 2018] highlights that some of the violence in Mexico includes territorial displacements, massacres, public exhibitions of mutilated bodies, buried corpses, and enforced disappearance. These actions, especially enforced disappearance, were an integral subject for this project.

The "Declaration on the Protection of all Persons from Enforced Disappearance" states that

enforced disappearance happens when "persons are arrested, detained or abducted against their will [. . .] by officials of different branches or levels of Government, or by organized groups or private individuals acting [. . .] with the support, direct or indirect, [. . .] of the Government" [Nations, 1992, parra.3]. Furthermore, enforced disappearance produces physical and psychological scars on the victims, their families and friends, as well as the communities that face this problem in their everyday lives (United Nations, n.d.). Many mothers, fathers, siblings, friends, etc., fight against all odds to find their family members and to make the government accountable for searching for justice for them. There is an estimate that since 1962, more than 111,916 people have "forcibly disappeared" and have not been found dead or alive [Shailer, 2023]. However, the numbers are higher due to the lack of official complaints by family members, systematic issues with archival police report practices, and police corruption, among other things [Nations, 1992].

Being directly or indirectly hit by these systemic disappearances creates a perpetual fear of what could happen to you. Seeing these photos in public spaces (such as this roundabout and other walls) and social media (e.g. Facebook or Twitter) sticks into your persona, limiting the spaces and times you move around the city so you are not exposed. In the exhibition, this wall is a visual cue of what will come ahead, although the message was lost in translation due to the photo's geographical and sociopolitical specifications. This should have been resolved by sharing the above context with the visitors in written form before entering the gallery.

Figure 4.17: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

The first wall on the left contained five framed collage compositions (Fig.4.17). This back-

ground assemblage with photocopies of the testimonies is connected to monuments such as *Glorieta de los Desaparecidos* (mentioned above) and other public spaces where people taped information into walls using masking tape. We use paint, stamps, and other materials to portray a sense of collective human intervention and the passing of time.

The main idea for this wall was to give a visual context to the main collage compositions selected from several testimonies. In other words, the written testimonies framed their opposites: their visual abstractions. Across the room (Fig.4.19), in front of this wall, we had a wall with photocopies of the collage compositions that framed the written testimonies (assemblage in yellow folders).

The photocopies functioned as a visual echo of the contents on each opposite wall, reproducing and amplifying the narratives: the stories and memories shared in these testimonies. The visitors could approach the walls and examine in more detail the new materialities produced by the intervention of technology: scanning and reproducing these materials. The visitors could also read the testimonies by leafing through them. However, I noticed nobody was doing this until I told a couple of people they were allowed to touch the files with other people following them.

Figure 4.18: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

As **subject bodies**, the visitors' interactions were essential to activate some **physical bodies** that would otherwise be hidden or locked. Such is the case of the testimonies that, although highly visible on the wall, the information within is unknown until you open each of them. This is the only way English speakers can fully experience the testimonies' narratives and tie the whole experience together, moving from private to public spaces. In this sense, the assemblage in the gallery failed to translate this possibility to the visitors. I believe this was due to a combination of the visitor's behaviours in art galleries and the assemblage of the testimonies in these yellow folders that looked untouchable. Additionally, breaking through private spaces without consent is deeply embedded within the specific visitors who came to the exhibition. Therefore, clearer instructions on the interactive possibilities were essential to enable them.

Similarly, the other two walls also required interactions to activate materials. Fig.4.19 shows one of these walls, portraying six collage compositions of the self-testimony. These are visual representations of each of the six sections of the self-testimony (Prelude, 1. Growing Roots, 2. Settle Down, 3. Simmer Down, 4. Splint, and Epilogue) containing the typed sections in Spanish.

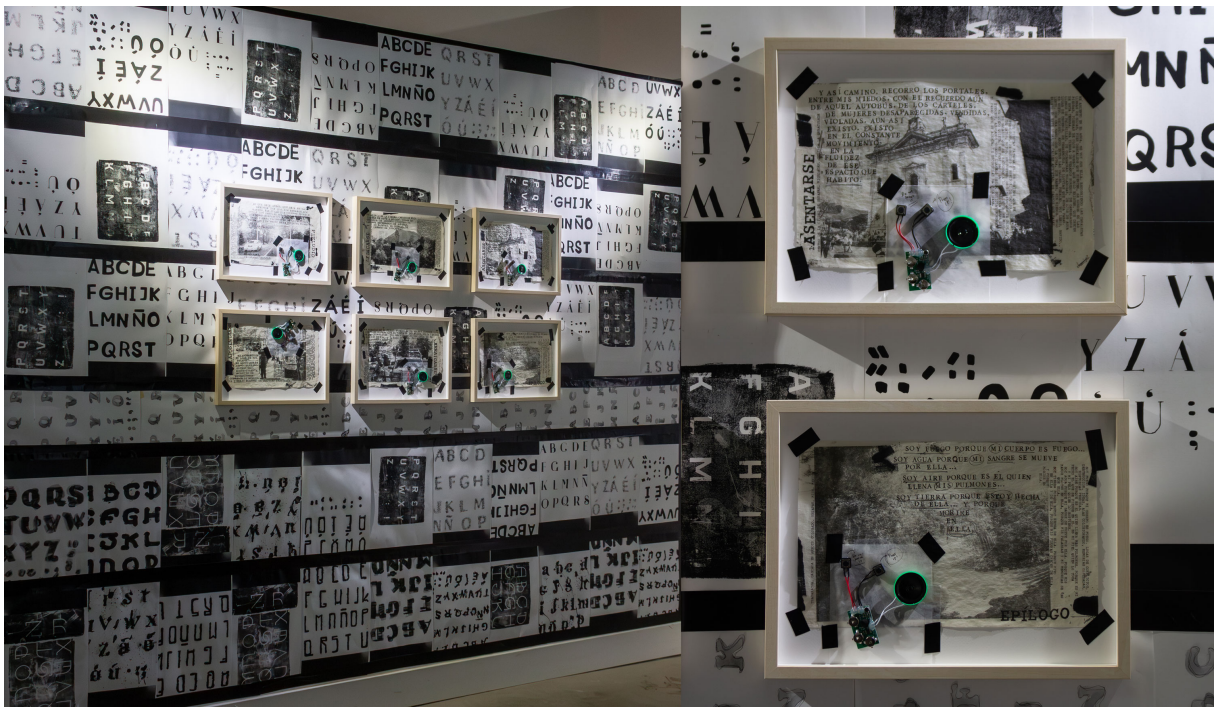


Figure 4.19: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

Each composition had a device to hear the English versions by pressing a button; the visitors could only fully understand the content in their language by interacting with it. The device has instructions on the side: '*Press it* is pointing to the black button (which plays the recording), and '*Don't touch it* is pointing to the red button (which records new audio). I noticed that, even with the instructions, people didn't want to touch the frames until I mentioned that was a possibility. After that, people kept interacting with the frames because they would see other people doing it. However, I found out some pressed the red button and deleted my recordings, which I knew was a possible outcome.

Additionally, I would like to mention that the background of this wall had a series of arranged photocopies of the fonts I created, directly connecting to the internal processes of the project. Photocopies were a key element for the gallery since we needed to fill the gallery's white walls to match the space with the content of the exhibited materials that are full of overlaying textures. These materials portray the multiple narratives of the project. Moreover, photocopies are cheap to get, which was one of the initial reasons we used them, but this is also the reason that ties the family members using photocopies to cheaply and rapidly reproduce the information of their loved ones, placing them all over the city so they could visibilize these lost, forgotten, and disappeared lives.

Figure 4.20: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

The opposite wall stayed somewhat clean in the sense that the brick of the building was highly visible, bringing its textures to the gallery exhibition. On this wall, we placed a light table with some transparent printings of maps of the zone, information about disappeared people, intervened

testimonies, and collage compositions. The visitors could explore the different information by interacting with the table, which they did with no instructions needed.

Finally, at the centre of the gallery, similar to a roundabout that leads the movement of cars, we assemblage a roundabout of TVs that define the movement of the visitors in the gallery. These TVs played the videos I created using *TransMit* (Fig.4.21).

Figure 4.21: *afrontaciones (f.) copings*, exhibition (Main Gallery) at Factory Media Centre, October 2023. Credit: Elit Nolet

As previously mentioned, the aesthetics in news outlets inspired me to create a digital performative version of the physical materials involved in the project. In this sense, TV content directly reflects what is happening around us, and materials are crossed by new technology to create an audio-visual experience. Five TVs were playing different compositions, each in a loop. The audio was playing in all of them, so these multiple devices created an audio collage on the spot. Additionally, we placed two unplugged TVs on one of the sides.

As for the analysis of the virtual bodies embedded in this part of the exhibition, I identify *TransMit* as the **system** or set of rules that create a collage of materials (text, video, sound) visualized by the **surface** of TVs. Visitors can experience the once-live interactions (**on-the-fly emergence**) I made to create these videos and the multi-narrative outcomes through the TVs. As an **object body**, *TransMit*'s outcomes and interactions are identified as digital bodies that digitally mirror the **abject bodies** in the shape of collage compositions, photocopies, typed/audio testimonies, and transparent

printings. The **abject bodies** are the people from the recorded testimonies, myself, and other bodies behind our narratives that have shaped our experiences: disappeared, murdered, violented, and common people that inhabit the same geographical and socio-political space.

4.3.3 Inhabiting the exhibition

I want to highlight the contrasting and mediated narratives that the exhibition spaces offered. All the elements were placed concerning and responding to each other. The visitors were the **subject body** that could, with their movements, form bridges between all these elements and experiences. As I mentioned, more instructions on the possible behaviours could be added to shape those relations, specifically the ones asking the visitors to access the English versions of all materials. On the other hand, not knowing how to access information reflects how we typically navigate and inhabit cities with written and spoken rules.

As pointed out by Claire Bishop [Bishop, 2005], installations are theatrical, immersive and experiential arrangements where objects can be positioned through space so other bodies respond to them. In this sense, the staging of the tunnels and the main gallery were consciously chosen because they were far from each other. The visitors had to find the hidden experiences by crossing the building, wandering around, and actively asking other people where to go or what to do. In other words, similar to life, physical movement and people-to-people interactions were actions to unveil information, both within the whole space and on specific materials such as the typed testimonies in the main gallery.

Finally, I would like to highlight that all of these interactions and movements were meant to activate a sense of **co-presence**, connecting the lives and stories of people in Uruapan with the possible stories and baggage from each visitor. As mentioned in Chapter 1, *co-presence* is the consciousness of the self within selves. Even though Uruapan and the stories of this project inhabit different geographical spaces, through this installation montage, they were physically brought to the building and experienced live by the visitors. The space then was a mediator between different types of existences, which may appear different, but we can find connecting points through sharing

our memories. Some of the visitors verbalized some of these connecting experiences during and after the exhibition.

4.4 What's next?

I have recently been reading about Chilean writer Diamela Eltit. Initially, I stumbled upon her ideas through an interview by Javier Guerrero with Diamela and Argentinian writer, anthropologist and activist Rita Segato [Guerrero, 2021, p.451]. Through their practices and experiences, both writers reflect on bodies, feminism, the political 'official' discourses and social-feminist movements, especially in the last few years with the COVID-19 pandemic in Chile. Diamela, as a creative writer, mentions that she is interested in showing the threads behind the social fabric of the collective imaginaries around bodies [p.451]. For this interview, she is interested in highlighting how feminine bodies are produced, studied, and analyzed through the lens of masculinity. She also shares that, through her practice, she tries to generate dialogues by exposing "*el aquí y ahora de los cuerpos locales y sus transcursos*" [p.450], or how bodies are socially and individually constructed through time. Since reading the interview transcript, her ideas have stuck in my head, so I decided to read more about her creative process.

Diamela's work combines auto-ethnographic research and creative writing. In the book article titled 'En la zona intensa del otro yo misma' [Eltit, 2017], she recognizes herself as an inhabitant of the dictatorial times of Pinochet in Chile. She explains that these experiences pushed her research about how these political states and dominations operate in "*pliegues y repliegues* [the many folding over foldings that] administrate violence and execute power"[p.275]. In her third book, 'El padre mío' from 1989, she returns to the street to experience the many voices of the Chilean people that exist and persist beyond and despite the powers in place. These recounts persist as opposites to the curated and pure discourses of the political elite. But these recounts also portray the multi-layered realities becoming testimonials and products of their time.

In a follow-up interview [Cappellini, 2017], Diamela explains she is interested in reading about

the possibility of the testimonials to shape themselves. For her, testimonials can have conventional or free forms, understanding the testimonial as a process rather than a product [p.286]. All of these ideas speak to my work since I also understand testimonials not as the locus of truth but as open windows of the existences that inhabit any city. In this space, all testimonials are important, sharing glimpses of the intricate threads of power behind all of them and responding to their times. Through literature (novel genre), Diamela explores these political, historical, and social relations intertwined with the stories of her imaginary characters. Similarly, through collage, I combined 'official' discourses and public recounts with the individual memories, visibilizating the connections behind some of the histories shared in the testimonials. I want to expand this approach to the exhibition space, connecting the many threads that form the structures of violence in my hometown that extend and connect other places and existences.

Chapter 5

General Conclusions

In this dissertation, I described, analyzed, and exemplified the personal, artistic, and academic processes and contexts behind this research-creation project. Summarizing, I produced two main outputs: the ***Ecology of Performing Bodies***, which maps the relations between performing bodies that inhabit digital artworks, and ***TransMit***, a programming language for live video directly responding to the artistic practices I worked with and with a culturally situated syntax. These outputs were then used to create and analyze two artistic projects developed during the timeline of this doctoral project: ***encarnadas (f.) embodiments*** (dance performance) and ***afrontaciones (f.) copings*** (digital mixed-media installation). In this concluding chapter, I will overview each chapter's general approaches and findings and reflect on this project's contributions, limitations, and future.

5.1 General Approaches and Findings

5.1.1 *Chapter 1, Ecology of Performing Bodies*

This theoretically charged chapter explores open taxonomies and classifications that foster broader, multi-disciplinary connections. After analyzing a series of existing taxonomies from different fields, the chapter introduces a self-designed taxonomy called *Ecology of Performing Bodies*. This ecology traces interactions and behaviours within sonic, visual, and virtual bodies. For instance,

it examines technological and conceptual connections between sonic and visual bodies, leading to audio-visual assemblages. Additionally, it highlights the interplay between physical performers, audiences, and virtual bodies (such as AI and algorithmic systems).

In this chapter, I systematically explore and illustrate sections of this ecology, using them to analyze published artworks across diverse artistic practices. Additionally, these artistic examples inspired me to create the art projects that were part of this dissertation. For example, I closely examined the performance project *Anatomies of Intelligence and the Concept of Aesthesis* by Chicau and Reus (2017-ongoing). The artists use a live coding language within a web environment to dissect and combine different representations of human corporea, drawing from archival materials. Similarly, for the *encarnadas (f.) embodiments* dance-performance piece (Chapter 3), I unfold feminine bodies to re-imagine other ways to represent ourselves and create virtual selves. During the performance, I played with pre-recorded video materials (showcasing the dancer) and unfolded them live, virtually dancing in correspondence to the live dancer's movements.

Another example is the work *For this Land* [2Bears and Jackson, 2015-18]. This performative piece included physical (performers, photographs, ritual objects, personal objects) and virtual (visual and sonic projections) bodies. This project contained live poetry and live cinema mixed with ritual practices and storytelling practices and was ideal for exploring ideas around physical and virtual presence. This project inspired me to create the digital mixed-media installation project *afrontaciones (f.) copings* (Chapter 4). Similarly to 2Bears and Jackson's installation, I mixed the presence of physical (such as collages TVs, light projectors, photographies, manuscripts, and other objects) and virtual elements (digital storytelling through voice recordings from testimonies, digitalization of physical objects, and video collages) to create a storytelling project showcasing collective consciousness and as a way to navigate violence and trauma.

5.1.2 *Chapter 2. TransMit, A Programming Language for Live Video Performance*

In this chapter, I delve into the personal experiences, artistic inspirations, technical approaches, and design processes behind *TransMit*. Over the past decade, my work as a video artist has involved using various commercial, freeware, and open software for video production. Recognizing the need for a tool aligned with my current artistic direction, I created *TransMit*, a programming language for live video.

This chapter highlights my connection to two artistic practices: Live Coding and Electronic Literature. For instance, in the *encarnadas (f.) embodiments* project, I used *TransMit* to develop a live coding experience infused with elements from Virtual/Cyborg Theatre, Performance, free improvisation, Experimental Music, Dance, and Screen-Dance practices. Similarly, in the *afrontaciones (f.) copings* project, I combined *TransMit* with electronic literature and live coding. This fusion allowed me to explore Auto-Ethnographic Research, Hand-Printing, Mixed-Media, Collage Techniques, and Installation.

I also explored how my artistic projects influenced the visual design and implementation of *TransMit*. For example, *afrontaciones (f.) copings* brought into question the analogy of TV transmissions and channels since this project aimed to navigate testimonies inspired by personal experiences with TV commercials in the 90s. Consequently, I incorporated functions with terminology akin to TV channels, such as `transmission`, `switching`, `monitor`, and `oldTV`, among others. On the other hand, *encarnadas (f.) embodiments* sought to unfold and deconstruct video recordings akin to the process of 'masking videos.' *TransMit* utilizes a library that manipulates 3-dimensional objects (`monitors`). Video textures are wrapped into these `monitors`, breaking the image and creating a visual effect similar to masking.

Additionally, my experiences as a Mexican immigrant student navigating the challenges of studying at an English-speaking university significantly influenced *TransMit*. First, the syntax incorporates Spanish, English, and Spanglish words for functions, embracing cultural diversity. Second, syntax errors are accepted as integral to the dynamics of this computer language as I

navigate natural languages. This culturally situated syntax mirrors my fusion of live coding (which exposes the code as part of the creative process) and electronic literature (emphasizing literary-poetic aspects of code). *TransMit* bridges these approaches, projecting the code to the audience and revealing the intricate layers and poetic-cultural existences behind this tool.

5.1.3 *Chapter 3. encarnadas (f.) embodiments [Performance + Screen Dance Project]*

This chapter examines this dance-performance project I created in collaboration with dancer Angela Josephine and the Earth Wind and Choir. This piece is rooted in live improvisation and defies conventional expectations of female bodily representation. Angela Josephine, a fusion dancer blending contemporary-experimental techniques with belly dance, brings a fresh perspective. The video and sonic layers intensely portray Angela's body and the choir's embodied voices. For example, the choir recorded whinings, breathings, and whispers. These recordings shaped an 8-minute sonic composition, serving as a live score for Angela's dance and me (working with live visuals). Similarly, I video-recorded Angela's movements, including close-ups and extreme close-ups that hyper-visualize skin textures—wrinkles, skin movement, and pores.

In an open audience presentation at Factory Media Centre on October 5th, 2023, Angela Josephine coexists and dances with her digital and extended self. I use the *Ecology of Performing Bodies* to analyze their coexistence within the performance's temporal and spatial context. In one section of the analysis, I portray *TransMit* as a self-contained system with its own rules, enabling me to access and visualize the dancer's pre-recorded materials. These materials represent Angela's multiple virtual existences, offering an enhanced technological perspective on her movements. Through *TransMit*'s virtual `monitors`, I further intersect technology with these videos, breaking figurative representations. This approach invites the audience to experience alternative feminine representations that embrace skin textures, wrinkles, fat, and cellulitis.

5.1.4 *Chapter 4. afrontaciones (f.) copings. Narrativas de la Memoria y la Violencia del habitar [Digital Mixed-Media Installation]*

This chapter reviews the socio-political context connected to the project and the multiple physical and digital materials I created. I also describe and analyze the installation exhibition I presented at Factory Media Centre on October 5th, 2023.

This auto-ethnographic art installation grapples with the multi-layered histories of Uruapan (my hometown in Mexico), moving beyond simplistic narratives of good and bad memories. As part of creating this piece, I gathered and contrasted diverse forms of documentation—individual, collective, and public— such as video and audio-recorded testimonies from Uruapan residents, information shared on Facebook groups, 90s TV announcements of disappeared individuals, newspaper headlines about violent events, and self-documentation that includes an audio diary and video recordings. With all this information, I created a series of materials, including a self-testimony in the shape of a video project, fonts, collages, video recordings, and sound recordings, among others. I use the *Ecology of Performing Bodies* to analyze how these diverse materials coexisted within the installation's temporal and spatial context. During the opening of this exhibition, visitors physically navigated through three spaces at Factory Media Centre - Evil Empire building, experiencing and sometimes interacting with the exhibited materials. The physical space acted as a mediator, connecting various existences and memories.

Regarding using *TransMit*, I created video collages blending code (visualized through different fonts) with videos (recordings from Uruapan, testimonies, and digitized physical materials). These digital collages were displayed on old TVs in the main gallery. This physical-electronic format mirrors *TransMit*'s conceptual approach, emphasizing the interplay of transmissions and monitors. The fonts I designed for this project and the presentation of video collages demonstrate how physical materialities and electronic devices can impact, modify, and introduce errors to digital materials. For instance, the old TVs introduced static not present in the original video files, creating a cohesive aesthetic alongside other physical materials like photocopies, mixed-media collages, and typed testimonies that also included technological errors.

5.2 Reflections and Further Work

The *Ecology of Performing Bodies* extends beyond this doctoral project's artistic and conceptual context. It applies not only to Live Coding and Electronic Literature but also to sub-genres like Visual Music and Live Cinema, as well as broader fields such as Performance, Music, Film, and Installation. However, it is essential to mention that this ecology is not exhaustive and has blind spots. For example, I identified the audience as subject bodies within this ecology. However, when I analyzed *encarnadas (f.) embodiments* and *afrontaciones (f.) copings*, I realized I needed a further description of the audience's roles.

Additionally, I realized that using Parker-Starbuck's taxonomy, although useful, was also limiting. In the future, I will use it more as inspiration rather than a direct application, using my own language to better describe the relationships I want to highlight. These limitations open avenues for further exploration, including theories, conceptual works, and taxonomies that precisely map audiences' relational behaviours and positions.

TransMit is a live video tool that extends beyond live coding and electronic literature practices. While culturally situated, I encourage artists to view it as one of many options for working with video. My ongoing work involves completing the *TransMit* interface and providing instructions and documentation. As for technical improvements, I accept *TransMit* limitations and errors; I will make some additions, but I won't further work on adding more or making 'improvements.' Moving forward, I aim to frame *TransMit* more consciously within Techo- and Cyber- feminist practices, opening this research and integrating *TransMit* with other tools to continue my existing projects and create new ones from these feminist lenses.

I am seeking postdoctoral opportunities to continue working on the *encarnadas (f.) embodiments* project, explicitly focusing on dance studies and screen-dance practices. I aim to research and analyze cultural and bodily representation in contemporary dance and explore themes related to fat-phobia, post-porn, and queerness in dance. I also plan to collaborate with other dancers to create a series of performances that explore different representations of femininity. I will also seek funding to continue this work for *afrontaciones (f.) copings*. I intend to collaborate with other

artists and incorporate Border, Indigenous, and Latinx Feminist Studies. My goal is to create connections between my experiences and other people's struggles, such as the case of the *feminicidios* in Latin America, the murders of Indigenous women in Canada, and the lives of other Canadian immigrants who have experienced similar violence structures in their hometowns.

In this dissertation, I intertwined my personal struggles, academic journey, and artistic explorations over the past six years. By sharing these experiences, I aim to assist fellow doctoral students, normalize the fusion of personal narratives with academic and theoretical discourses, foster a richer understanding of relational processes, and shift the focus from rigid final objectives to collaborative and dynamic explorations.

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Appendix A

Appendixes

A.1 Appendix A

A.1.1 *encarnadas (f.) embodiments*: video samples

File: F0

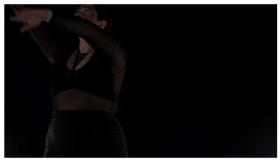
File: F1

File: F2

File: F3

File: F4

File: F5



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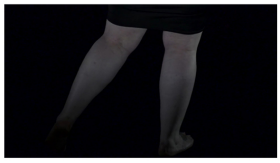

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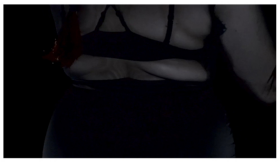

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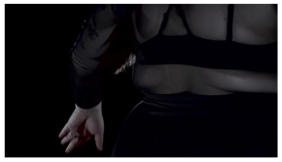

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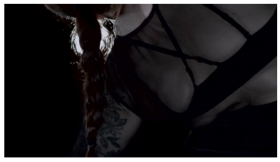

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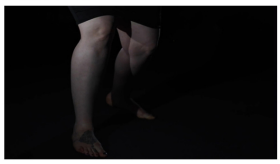
File: F15

File: F16

File: F17



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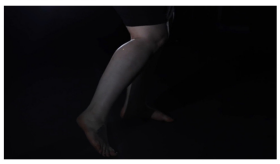

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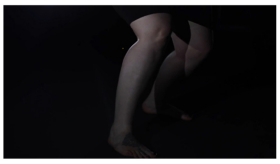

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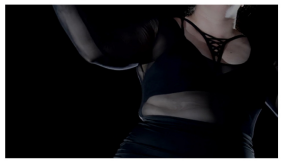

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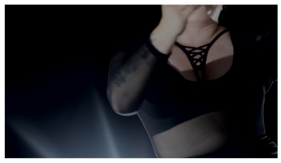

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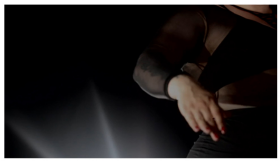

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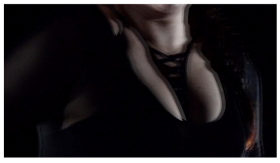

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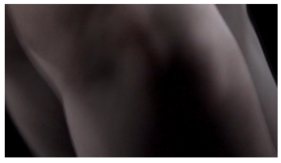

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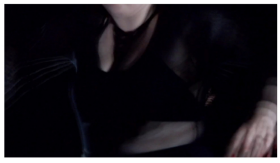

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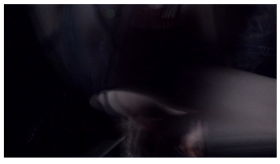

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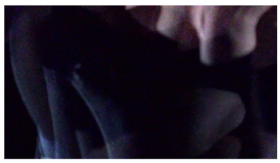

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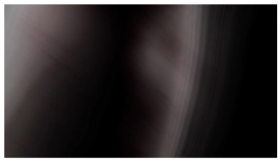
File: P8

File: P9

File: P10



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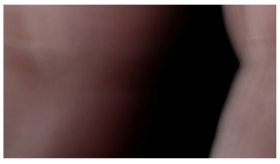

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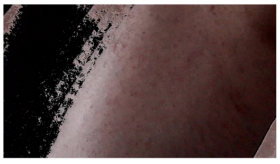

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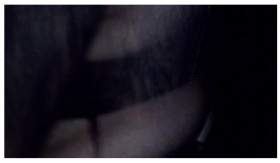

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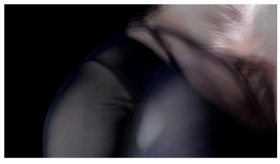

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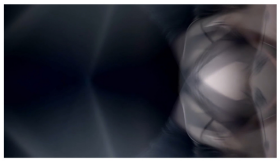

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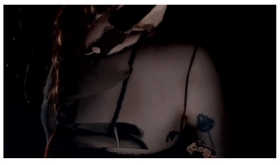

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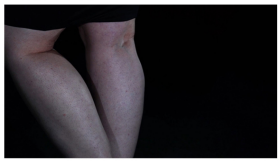

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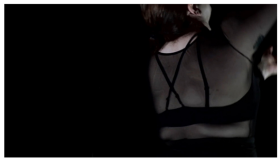

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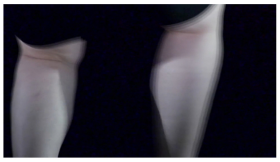

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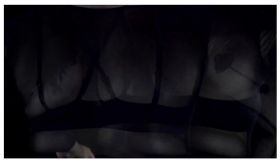

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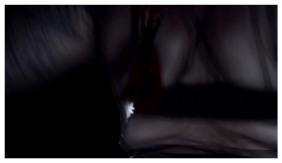
File: P37

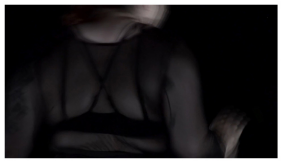


File: P38

File: P39

File: P40

File: P41



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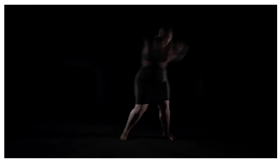

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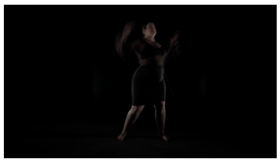

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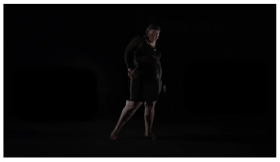

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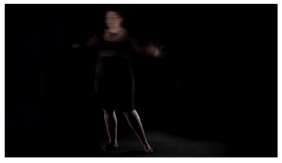
File: P46

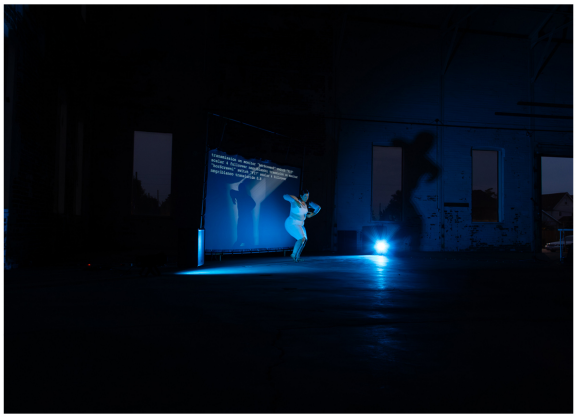
File: P47

File: P48

File: P49

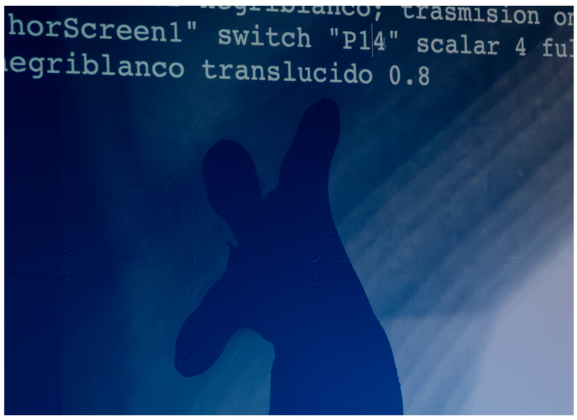


A.1.2 *encarnadas (f.) embodiments* performance (photo-documentation) at Factory Media Centre, October 5, 2023. Credit: Eli Nolet




transmission on monitor
4 fullcover negriblanco; trasmision on monitor
"horScreen1" switch "F14" scalar 4 fullcover
negriblanco translucido 0.8


transmission on monitor "horScreen0" switch "P31"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen2" switch "P32" scalar 4 fullcover
negriblanco translucido 0

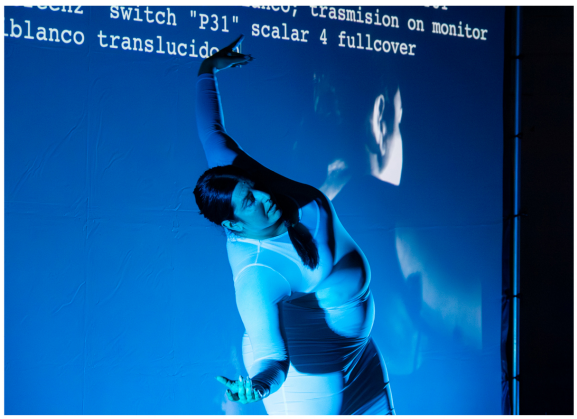

horScreen1" switch "P14" scalar 4 ful
egriblanco translucido 0.8


ransmission on monitor "horScreen0" switch "P7" sca
fullcover negriblanco; trasmision on monitor
horScreen1" switch "P32" scalar 4 fullcover
egriblanco translucido 0.8


transmission on monitor "horScreen0" switch "P" scalar
4 fullcover negriblanco; trasmision on monitor
"horScreen1" switch "P32" scalar 4 fullcover
negr``lanco translucido 0.8

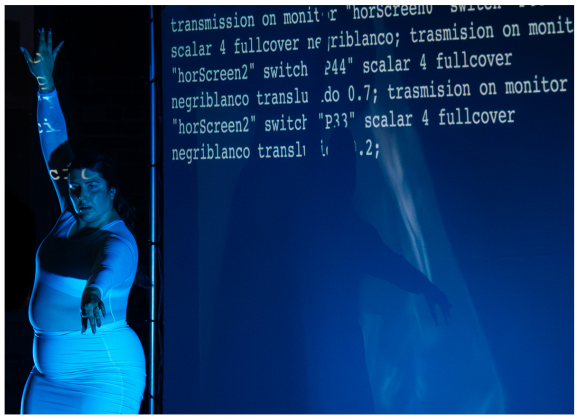

transmission on monitor "horScreen0" switch "P7" scalar
4 fullcover negriblanco; trasmision on monitor
"horScreen1" switch "P32" scalar 4 fullcover
negriblanco translucido 0.8


transmission on monitor "horScreen0" switch "P31"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen1" switch "P32" scalar 4 fullcover
negriblanco translucido 0.8


switch "P31" scalar 4 fullcover
trasmision on monitor


transmission on monitor "horScreen0" switch "P44"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen2" switch "P31" scalar 4 fullcover
negriblanco translucido 0.6; trasmision on monitor


horScreen0" switch "P31"
Screen2" switch "P31" scalar 4 fullcover negriblanco; trasmision on monitor
blanco trans cido 0.1


transmission on monit r "horScreen0" switch
scalar 4 fullcover ne riblanco; trasmision on monit
"horScreen2" switch 244" scalar 4 fullcover
negriblanco translu .do 0.7; trasmision on monitor
"horScreen2" switch "P33" scalar 4 fullcover
negriblanco transl .2;


transmision on monitor "horScreen0" switch "P31"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen1" switch "P1" scalar 4 fullcover

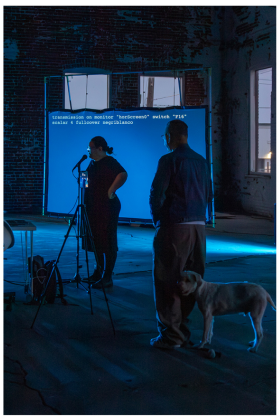

transmission on moni
"horScreen0" switch
scalar 4 fullcover n
griblanco; trasmision on monitor
"horScreen2" switch P44" scalar 4 fullcover
negriblanco transl
ido 0.7; trasmision on monitor
"horScreen2" switc
"P33" scalar 4 fullcover
negriblanco transl
id 2;


transmision on monitor "horScreen0" switch "P44"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen2" switch "P33" scalar 4 fullcover
negriblanco translucido 0.6; trasmision on monitor
"horScreen2" switch
scalar 4 fullcover negriblanco
translucido 0.6;


scalar 4 fullcover negriblanco; transmission on monitor
"horScreen0" switch "P44" scalar 4 fullcover
negriblanco translucido 0.7; trasmision on monitor
"horScreen2" switch "P44" scalar 4 fullcover
negriblanco trans .7; trasmision on monitor
"horScreen2" swi scalar 4 fullcover
negriblanco trans 0.6;


transmission on monitor "horScreen0" switch "P44"
scalar 4 fullcover negriblanco; trasmision on monitor
"horScreen2" switch "P44" scalar 4 fullcover
negriblanco translucido 0.7; tra sision on monitor
"horScreen2" switch "P33" sca 4 fullcover
negriblanco translucido 0.2;





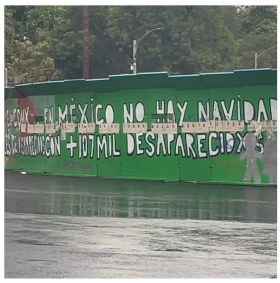


A.2 Appendix B

A.2.1 *afrontaciones (f.) copings*: video samples

File: DESAPARECIDOS-00

File: DESAPARECIDOS-01



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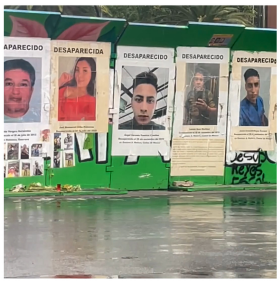

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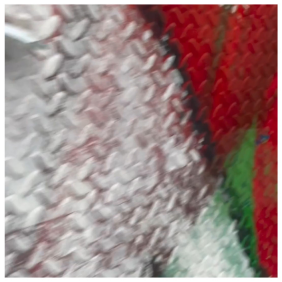
File: DESAPARECIDOS-04



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File: DESAPARECIDOS-06

File: DESAPARECIDOS-07

File: DESAPARECIDOS-08

File: DESAPARECIDOS-09

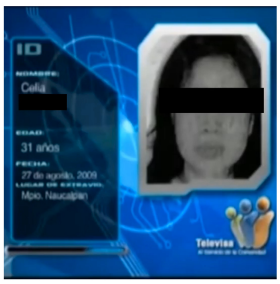
File: DESAPARECIDOS-10

File: DESAPARECIDOS-11

File: DESAPARECIDOS-12

File: DESAPARECIDOS-13

File: DESAPARECIDOS-14



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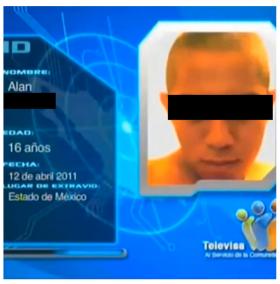

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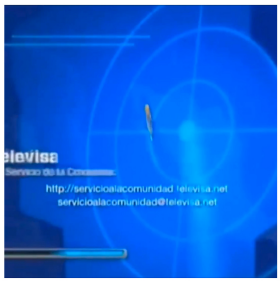
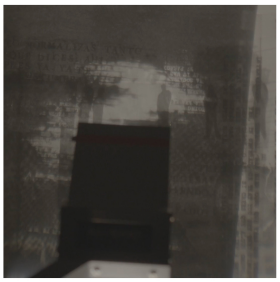


File: DESAPARECIDOS-18

File: NEGATIVES-00



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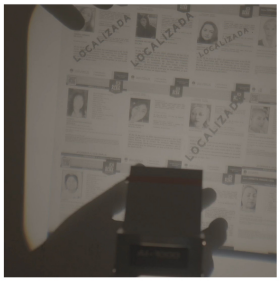
File: NEGATIVES-02

File: NEGATIVES-03



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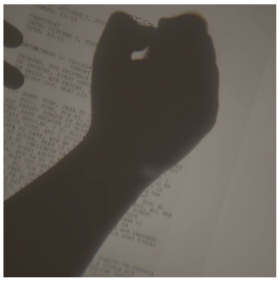

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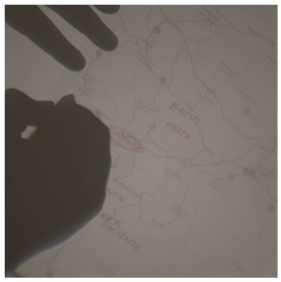

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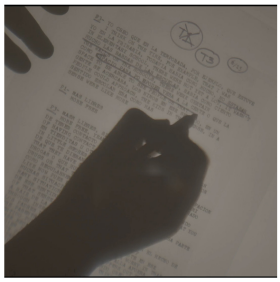

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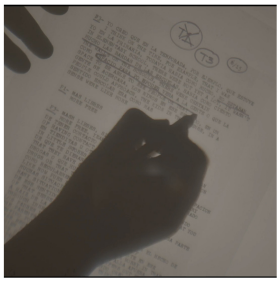

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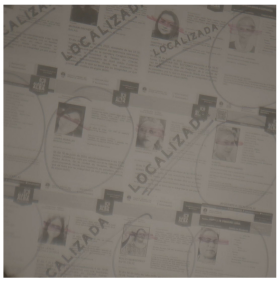

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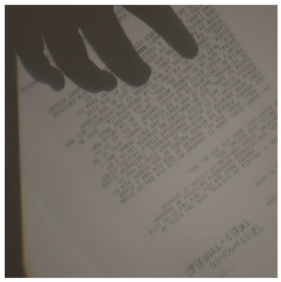

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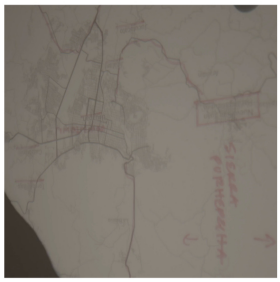

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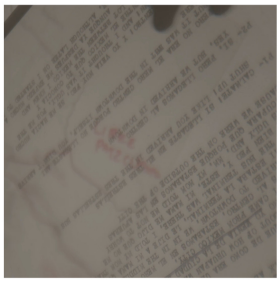

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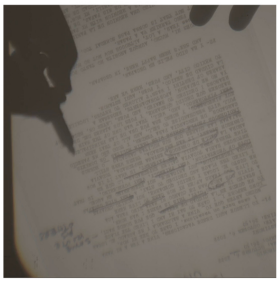

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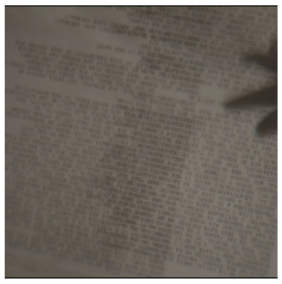

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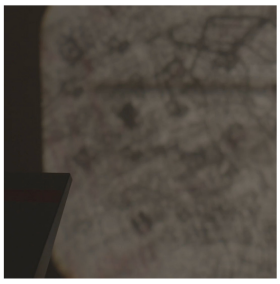

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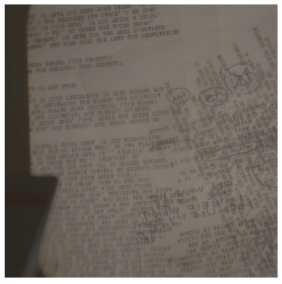

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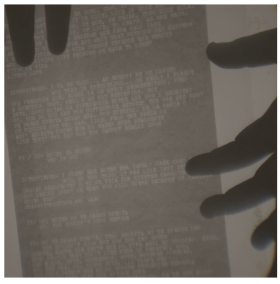

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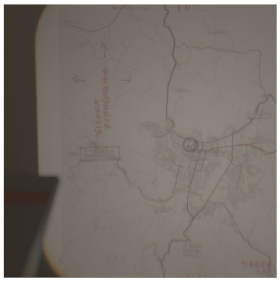
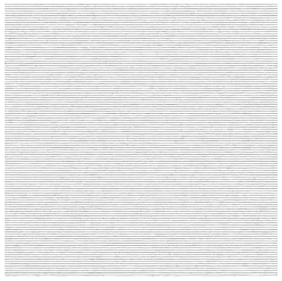


File: NEGATIVES-20

File: T1_00



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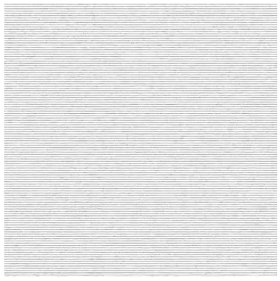

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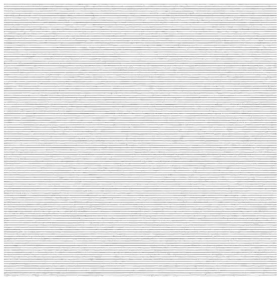

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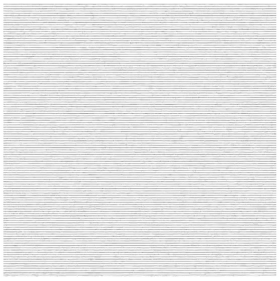

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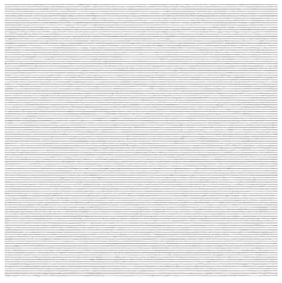

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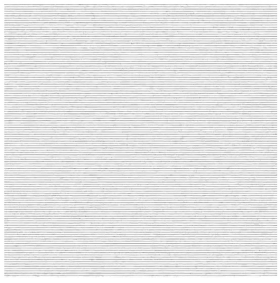

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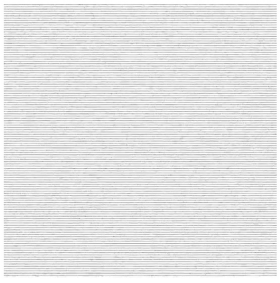

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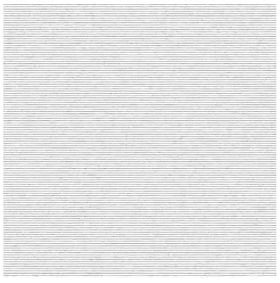

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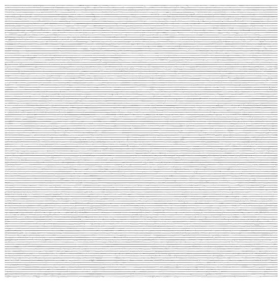

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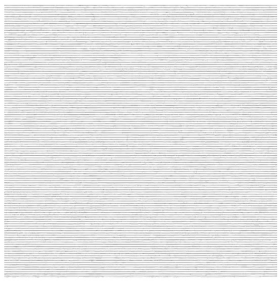

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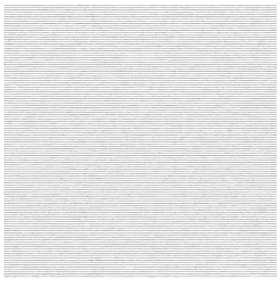

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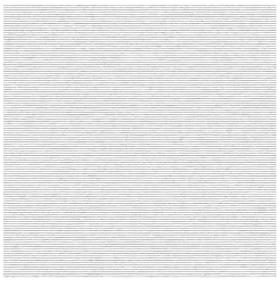
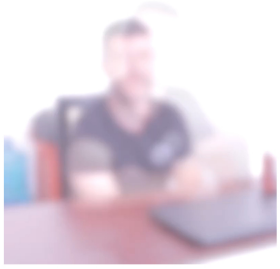


File: T2_00

File: T2_01

File: T2_02



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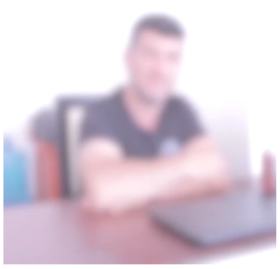

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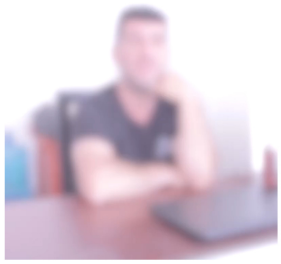

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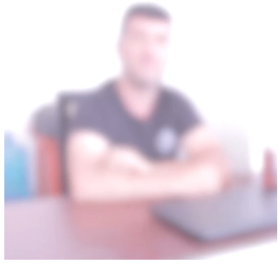

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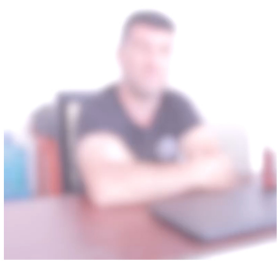

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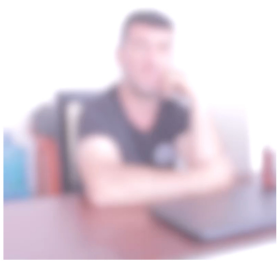

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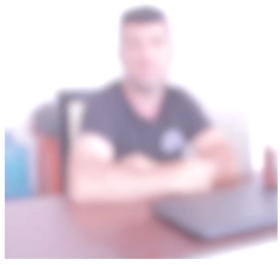

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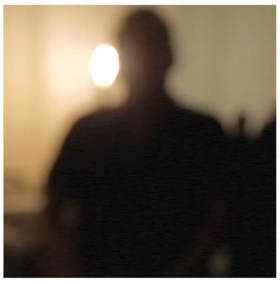

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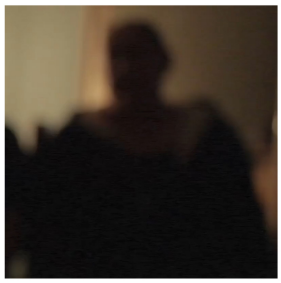

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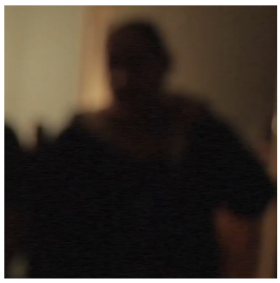

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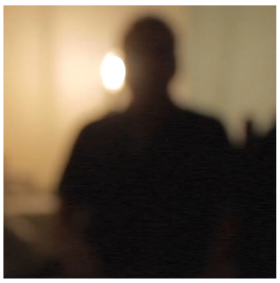

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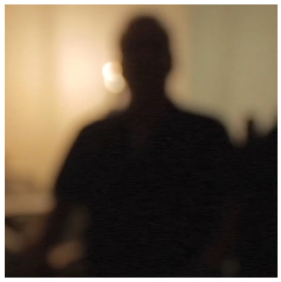

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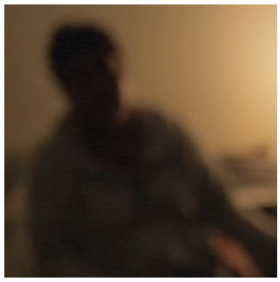

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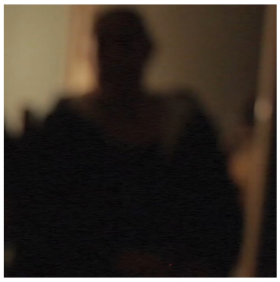

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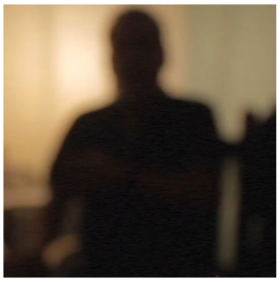

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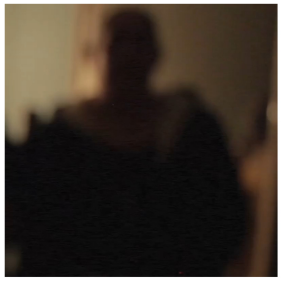

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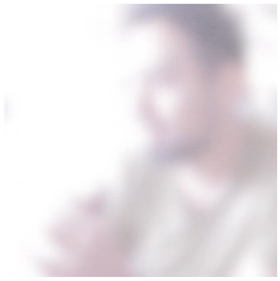

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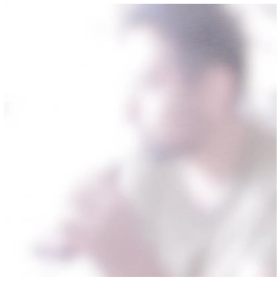

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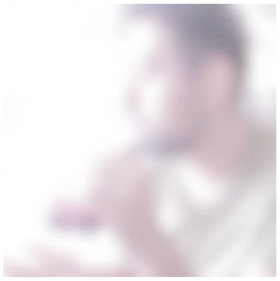

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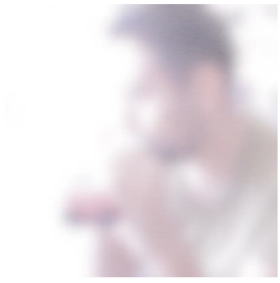

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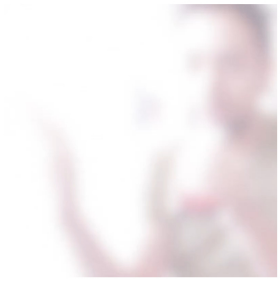

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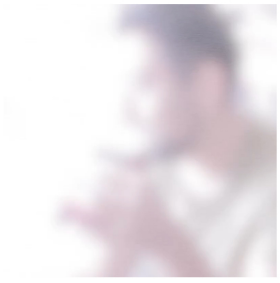

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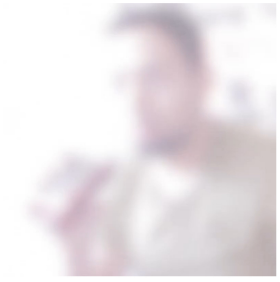

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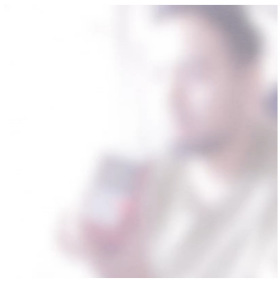

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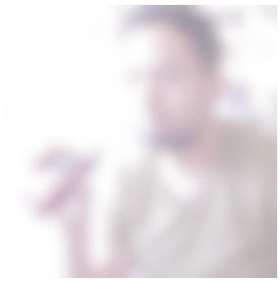

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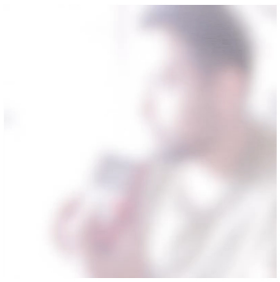

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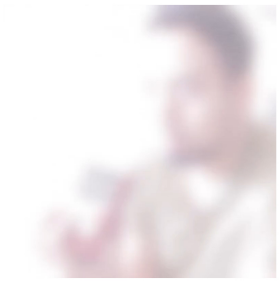

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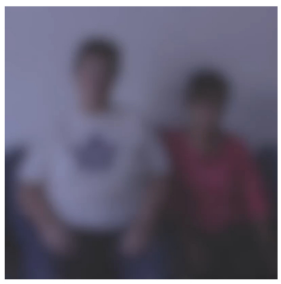

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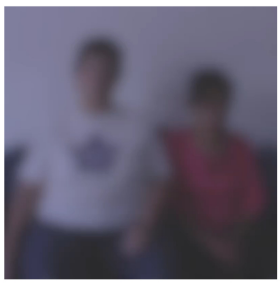

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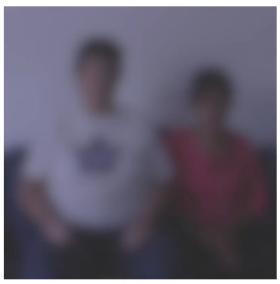

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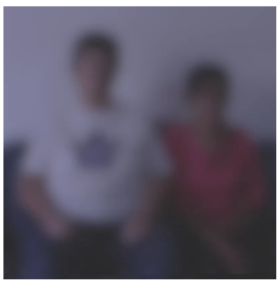

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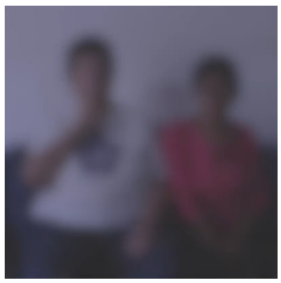

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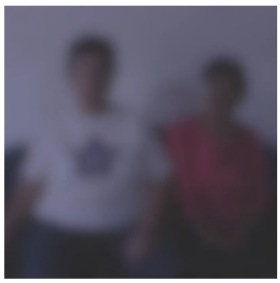

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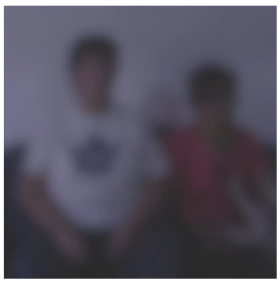

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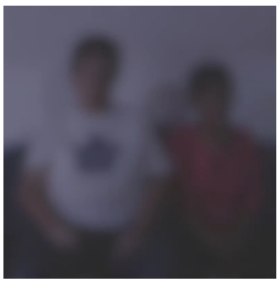

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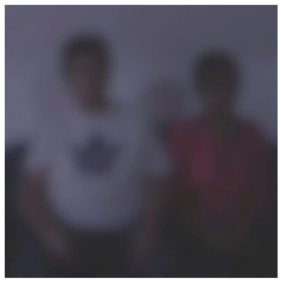

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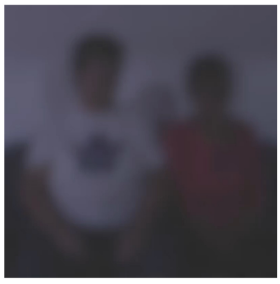

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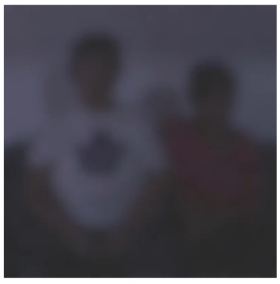

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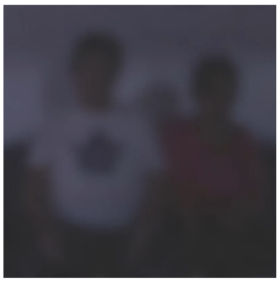

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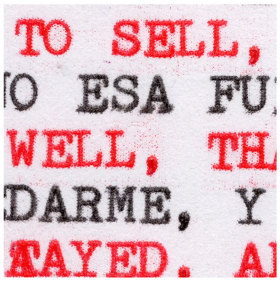

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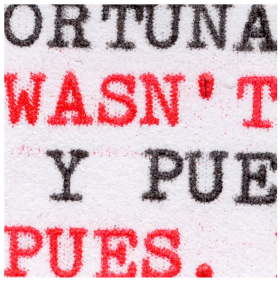

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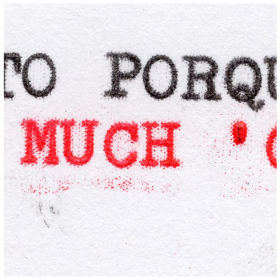

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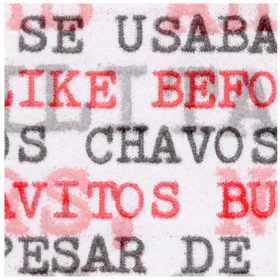

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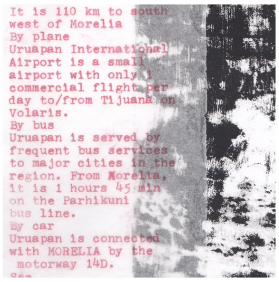

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File: TRANSCRIPT-09

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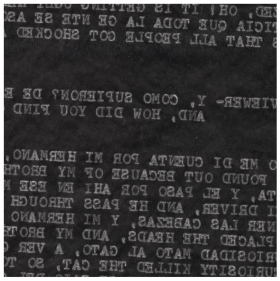

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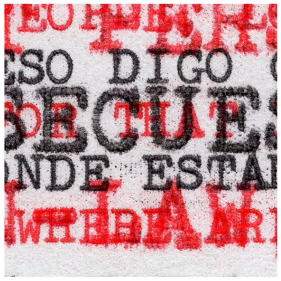

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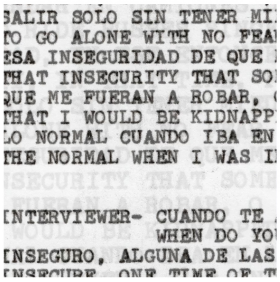

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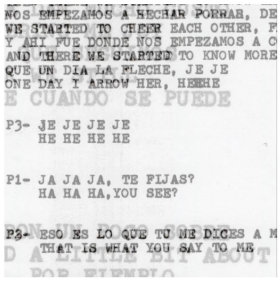

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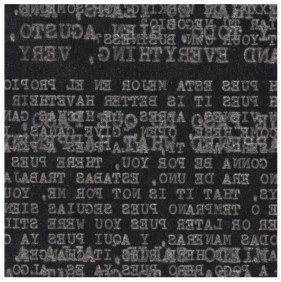


File: TRANSCRIPT-16

File: TRANSCRIPT-17

File: TRANSCRIPT-18

File: TRANSCRIPT-19

File: URUAPAN-00

File: URUAPAN-01

File: URUAPAN-02

File: URUAPAN-03

File: URUAPAN-04

File: URUAPAN-05

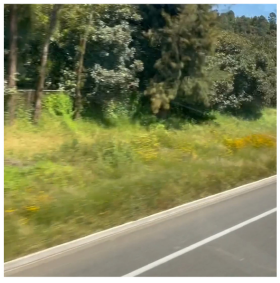
File: URUAPAN-06

File: URUAPAN-07

File: URUAPAN-08

File: URUAPAN-09

File: URUAPAN-10



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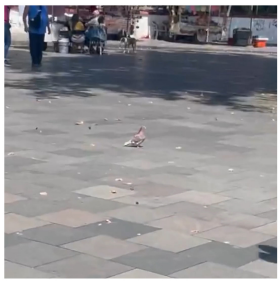

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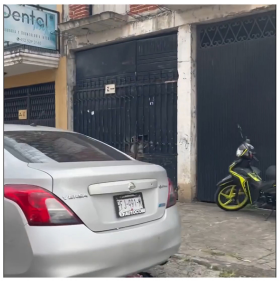

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File: URUAPAN-24

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File: URUAPAN-27

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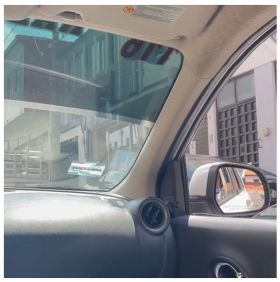
File: URUAPAN-29



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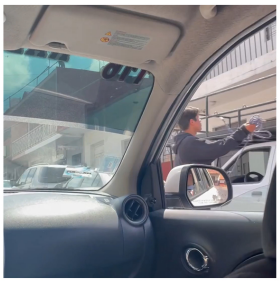

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File: URUAPAN-40

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File: URUAPAN-59

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File: URUAPAN-61

File: URUAPAN-62

File: URUAPAN-63

File: URUAPAN-64

File: URUAPAN-65

A.2.2 *afrontaciones (f.) copings*: digital mixed-media collages created using *TransMit*

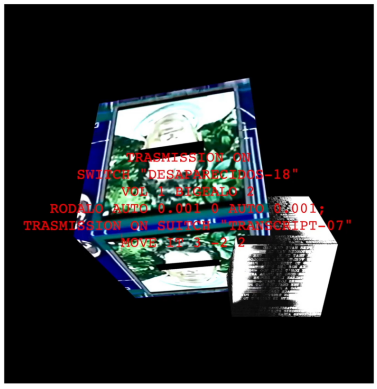
Digital Mixed Media Video No.1

Digital Mixed Media Video No.2

Digital Mixed Media Video No.3

Digital Mixed Media Video No.4

Digital Mixed Media Video No.5



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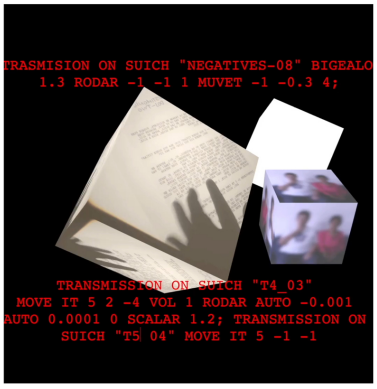
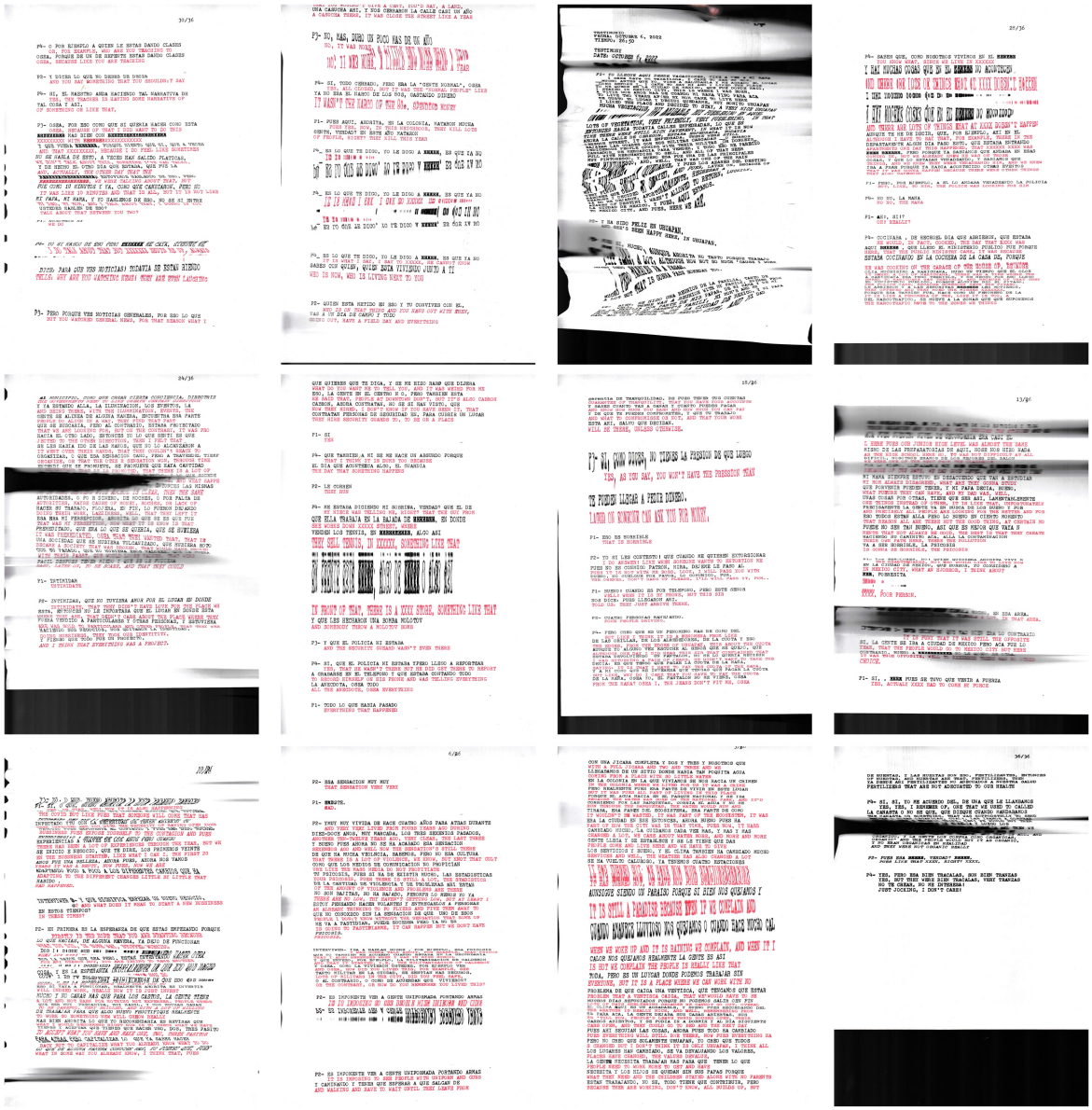
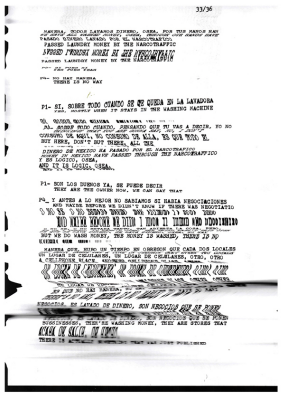
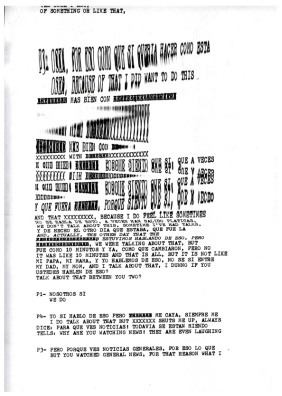


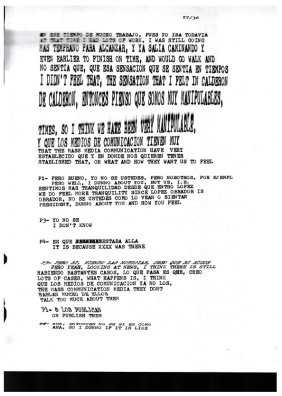
Digital Mixed Media Video No.7

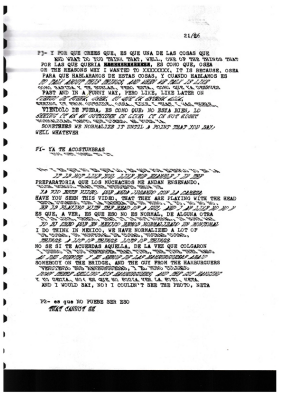
A.2.3 *afrontaciones (f.) copings*: experimental scannings

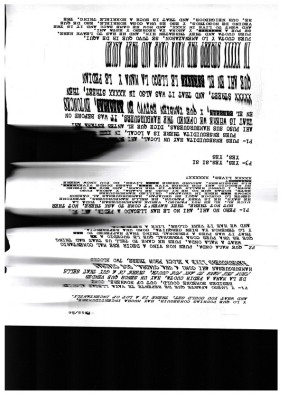


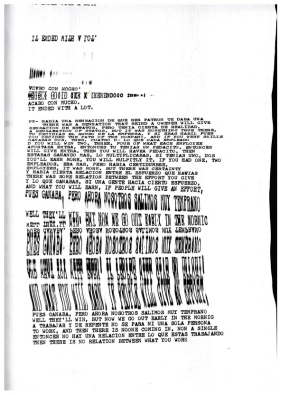


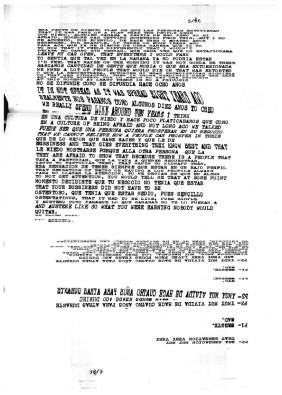


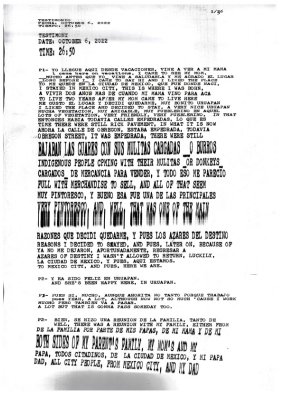


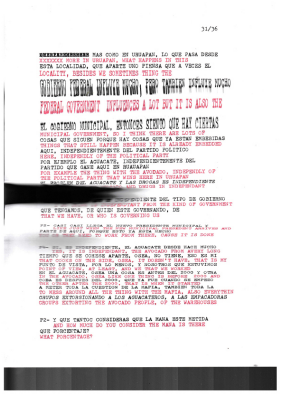


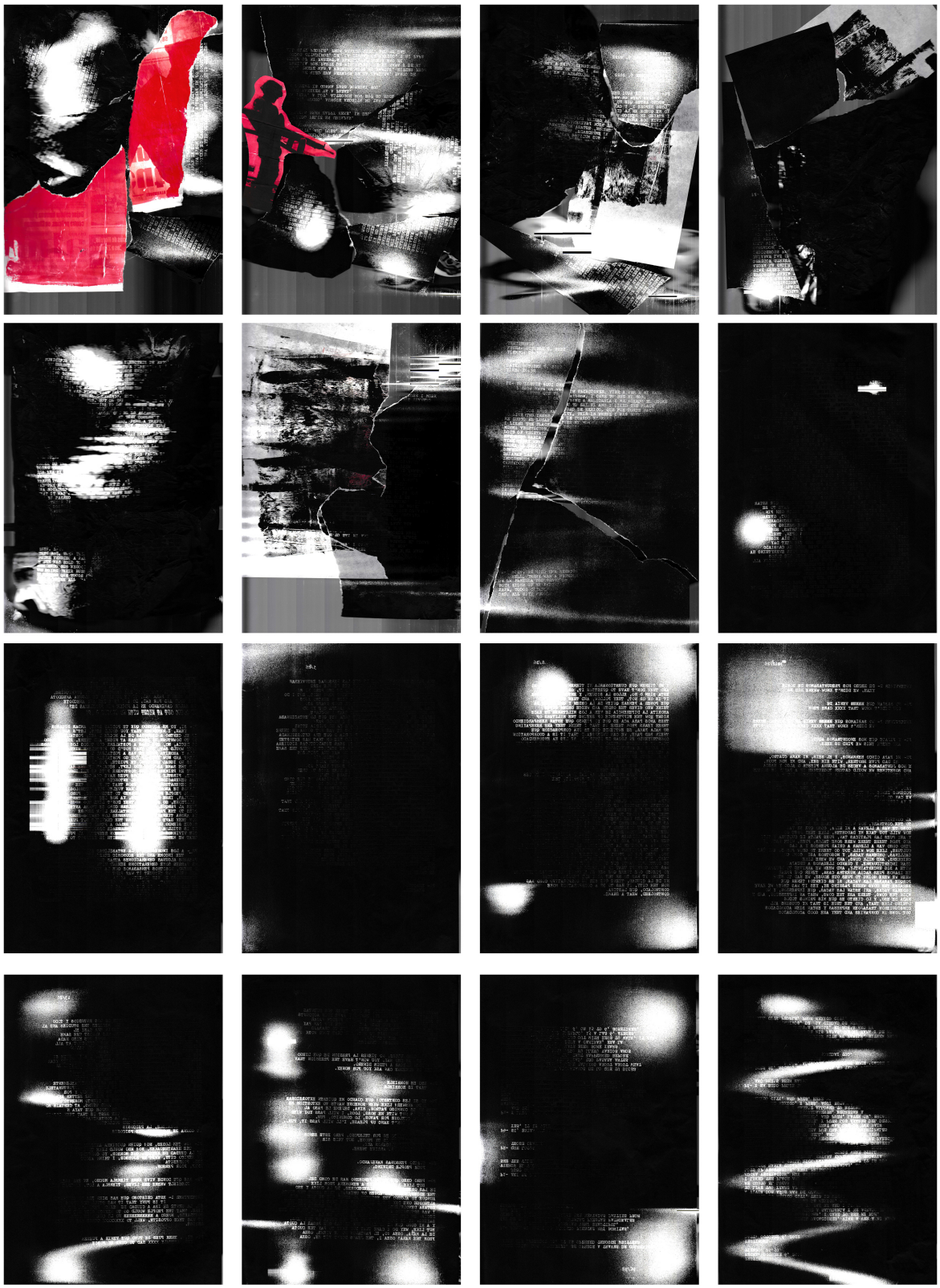






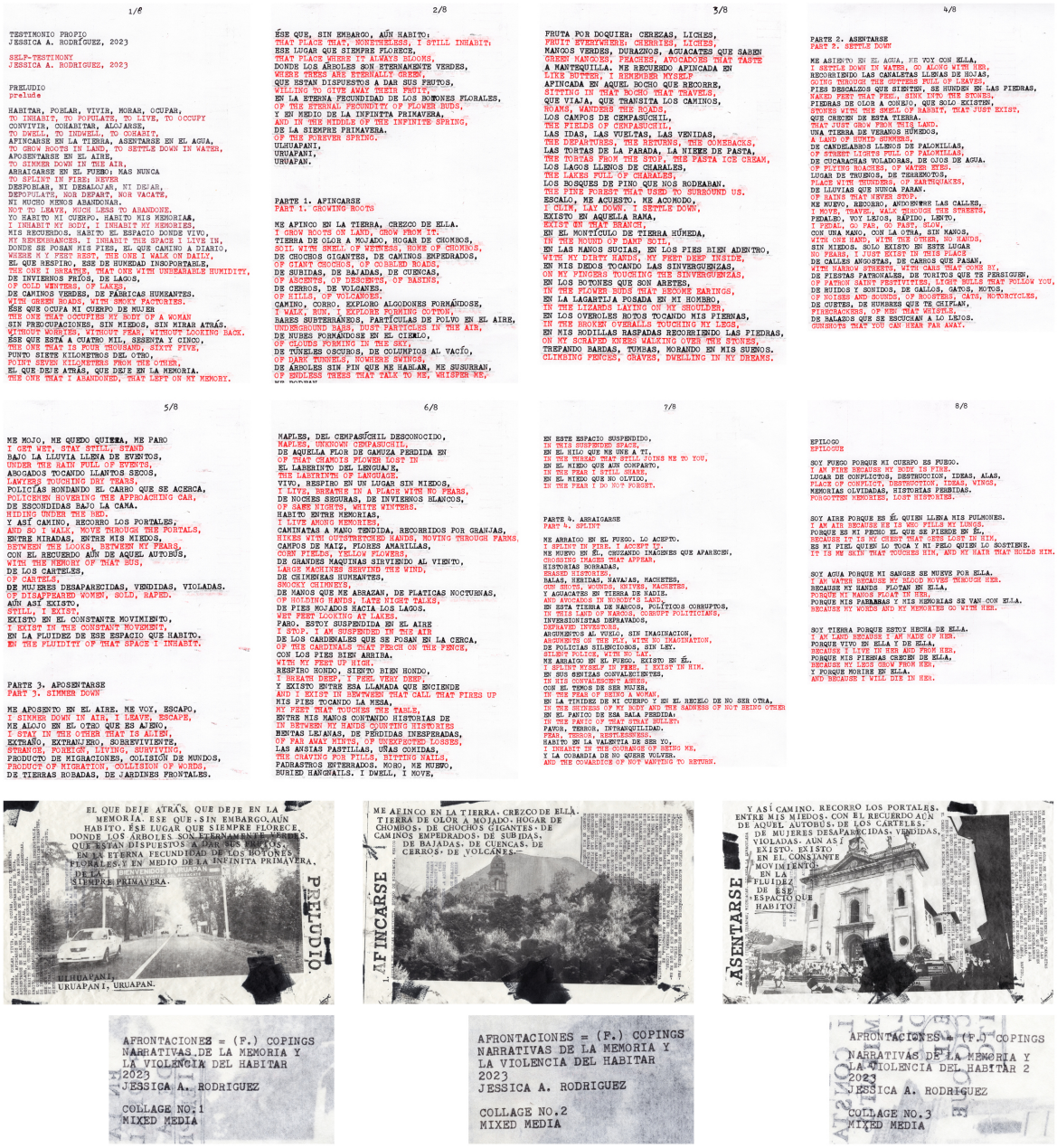






A.2.4 *afrontaciones (f.) copings*: fonts

A.2.5 *afrontaciones (f.) copings*: self-testimony



1/8

TESTIMONIO PROPIO
JESSICA A. RODRÍGUEZ, 2023

SELF-TESTIMONY
JESSICA A. RODRIGUEZ, 2023

PRELUDIO
prelude

HABITAR, POSLAR, VIVIR, MORAR, OCUPAR,
TO INHABIT, TO POPULATE, TO LIVE, TO OCCUPY
CONVIVIR, COHABITAR, ALOJARSE,
TO DWELL, TO INDWELL, TO COHABIT,
AFINCARSE EN LA TIERRA, ASENTARSE EN EL AGUA,
TO GROW ROOTS IN LAND, TO SETTLE DOWN IN WATER,
APOSENTARSE EN EL AIRE,
TO SUMMER DOWN IN THE AIR,
ABRAIGARSE EN EL FUEGO: NAS NUNCA
TO SPLINT IN FIRE: NEVER
DESPOBLAR, NI DESALOJAR, NI DEJAR,
DEPOPULATE, NOR DEPART, NOR VACATE,
NI MUCHO MENOS ABANDONAR.
NOT TO LEAVE, MUCH LESS TO ABANDONE.
YO HABITO MI CUERPO, HABITO MIS MEMORIAS,
I INHABIT MY BODY, I INHABIT MY MEMORIES,
MIS RECUERDOS, HABITO EL ESPACIO DONDE VIVO,
MY REMEMBRANCES, I INHABIT THE SPACE I LIVE IN,
DONDE SE POSAN MIS PIES, EL QUE CAMINO A DIARIO,
WHERE M Y FEET REST, THE ONE I WALK ON DAILY,
EL QUE RESPIRO, ESE DE HUMEDAD INSOPORTABLE,
THE ONE I BREATHE, THAT ONE WITH UNBEARABLE HUMIDITY,
DE INVIERNOS FRÍOS, DE LAGOS,
OF COLD WINTERS, OF LAKES,
DE CAMINOS VERDES, DE FÁBRICAS HUMEANTES.
WITH GREEN ROADS, WITH SMOKY FACTORIES.
ESE QUE CUPA MI CUERPO DE MUJER
THE ONE THAT OCCUPIES MY BODY OF A WOMAN
SIN PREOCUPACIONES, SIN MIEDOS, SIN MIRAR ATRÁS.
WITHOUT WORRIES, WITHOUT FEAR, WITHOUT LOOKING BACK.
ESE QUE ESTÁ A CUATRO MIL, SESENTA Y CINCO,
THE ONE THAT IS FOUR THOUSAND, SIXTY FIVE,
PUNTO SIETE KILOMETROS DEL OTRO
POINT SEVEN KILOMETERS FROM THE OTHER,
EL QUE DEJE ATRÁS, QUE DEJE EN LA MEMORIA.
THE ONE THAT I ABANDONED, THAT LEFT ON MY MEMORY.

2/8

ÉSE QUE, SIN EMBARGO, AÚN HABITO;
THAT PLACE THAT, NONETHELESS, I STILL INHABIT.
ESE LUGAR QUE SIEMPRE FLORECE,
THAT PLACE WHERE IT ALWAYS BLOOMS,
DONDE LOS ÁRBOLES SON ETERNAMENTE VERDES,
WHERE TREES ARE ETERNALLY GREEN,
QUE ESTÁN DISPUESTOS A DAR SUS FRUTOS,
WILLING TO GIVE AWAY THEIR FRUIT,
EN LA ETERNA FECUNDIDAD DE LOS BOTONES FLORALES,
OF THE ETERNAL FECUNDITY OF FLOWER BUDS,
Y EN MEDIO DE LA INFINITA PRIMAVERA,
AND IN THE MIDDLE OF THE INFINITE SPRING,
DE LA SIEMPRE PRIMAVERA.
OF THE FOREVER SPRING.
ULUAPANI,
URUAPANI,

PARTE 1. AFINCARSE
PART 1. GROWING ROOTS

ME AFINCO EN LA TIERRA, CREZCO DE ELLA.
I GROW ROOTS ON LAND, GROW FROM IT.
TIERRA DE OLOR A MOJADO, HOGAR DE CHOMBOS,
SOIL WITH SMELL OF WETNESS, HOME OF CHOMBOS,
DE CHOCHOS GIGANTES, DE CAMINOS EMPEDRADOS,
OF GIANT CHOCHOS, OF COBBLED ROADS,
DE SUBIDAS, DE BAJADAS, DE CUENCAS,
OF ASCENTS, OF DESCENTS, OF BASINS,
DE CERROS, DE VOLCANES.
OF HILLS, OF VOLCANOES.
CAMINO, CORRO, EXPLORO ALGODONES FORMÁNDOSE,
I WALK, RUN, I EXPLORE FORMING COTTON,
BARES SUBTERRÁNEOS, PARTÍCULAS DE POLVO EN EL AIRE,
UNDERGROUND BARS, DUST PARTICLES IN THE AIR,
DE NUBES FORMÁNDOSE EN EL CIELO,
OF CLOUDS FORMING IN THE SKY,
DE TÚNELES OSCUROS, DE COLUMPIOS AL VACÍO,
OF DARK TUNNELS, SWINGS IN THE,
DE ÁRBOLES SIN FIN QUE ME HABLAN, ME SUSURRAN,
OF ENDLESS TREES THAT TALK TO ME, WHISPER ME,

3/8

FRUTA POR DOQUIER: CEREZAS, LICHES,
FRUIT EVERYWHERE: CHERRIES, LYCHES,
MANGOS VERDES, DURAZNOS, AGUACATES QUE SABEN
GREEN MANGOES, PEACHES, AVOCADOES THAT TASTE
A MANTEQUILLA. ME RECUERDO AFINCADA EN
LIKE BUTTER, I REMEMBER MYSELF
AFINCADA EN AQUEL BOCHO QUE RECORRE,
SITTING IN THAT BOCHO THAT TRAVELS,
QUE VIAJA, QUE TRANSITA LOS CAMINOS,
ROAMS, WANDERS THE ROADS,
LOS CAMPOS DE CEMPASÚCHIL,
THE FIELDS OF CEMPASUCHIL,
LAS IDAS, LAS VUELTAS, LAS VENIDAS,
THE DEPARTURES, THE RETURNS, THE COMEBACKS,
LAS TORTAS DE LA PARADA, LA NIEVE DE PASTA,
THE TORTAS FROM THE STOP, THE PASTA ICE CREAM,
LOS LAGOS LLENOS DE CHARALES,
THE LAKES FULL OF CHARALES,
LOS BOSQUES DE PINO QUE NOS RODEABAN.
THE PINE FOREST THAT USED TO SURROUND US.
ESCALO, ME ACUESTO. ME ACOMODO,
I CLIMB, LAY DOWN, I SETTLE DOWN,
EXISTO EN AQUELLA RAMA,
EXIST ON THAT BRANCH,
EN EL MONTÍCULO DE TIERRA HÚMEDA,
IN THE MOUND OF DAMP SOIL,
EN LAS MANOS SUCIAS, EN LOS PIES BIEN ADENTRO,
WITH MY DIRTY HANDS, MY FEET DEEP INSIDE,
EN MIS DEDOS TOCANDO LAS SINVERGUENZAS,
ON MY FINGERS TOUCHING THE SINVERGUENZAS,
EN LOS BOTONES QUE SON ARETES,
IN THE FLOWER BUDS THAT BECOME EARINGS,
EN LA LAGARTIJA POSADA EN MI HOMBRO,
IN THE LIZARDS LAYING ON MY SHOULDER,
EN LOS OVEROLES ROTOS TOCANDO MIS PIERNAS,
IN THE BROKEN OVERALLS TOUCHING MY LEGS,
EN MIS RODILLAS RASPADAS RECORRIENDO LAS PIEDRAS,
ON MY SCRAPED KNEES WALKING OVER THE STONES,
TREPANDO BARDAS, TUBAS, MORANDO EN MIS SUEÑOS.
CLIMBING FENCES, CRAVES, DWELLING IN MY DREAMS.

4/8

PARTE 2. ASENTARSE
PART 2. SETTLE DOWN

ME ASIENTO EN EL AGUA, ME VOY CON ELLA,
I SETTLE DOWN IN WATER, GO ALONG WITH HER,
RECORRIENDO LAS CANALETAS LLENAS DE HOJAS,
GOING THROUGH THE GUTTERS FULL OF LEAVES,
PIES DESCALZOS QUE SIENTEN, SE HUNDEN EN LAS PIEDRAS,
NAKED FEET THAT FEEL, SINK INTO THE STONES,
PIEDRAS DE CLOR A CORELO, QUE SOLO EXISTEN,
STONES WITH THE SMELL OF RABBIT, THAT JUST EXIST,
QUE CRECEN DE ESTA TIERRA.
THAT JUST GROW FROM THIS LAND.
UNA TIERRA DE VERANOS EFÍMEROS,
A LAND OF SHORT SUMMERS,
DE CANDELABROS LLENOS DE PALOMILLAS,
OF STREET LIGHTS FULL OF PALOMILLAS,
DE CUCARACHAS VOLADORAS, DE OJOS DE AGUA.
OF FLYING ROACHES, OF WATER EYES.
LUGAR DE TRUENOS, DE TERREMOTOS,
PLACE WITH THUNDERS, OF EARTHQUAKES,
DE LLUVIAS QUE NUNCA PARAN.
OF RAINS THAT NEVER STOP.
ME MUEVO, RECORRO, ANDO ENTRE LAS CALLES,
I MOVE, TRAVEL, WALK THROUGH THE STREETS,
PEDALEO, VOY LENTO, RÁPIDO, LENTO,
I PEDAL, GO FAR, GO FAST, SLOW,
CON UNA MANO, CON LA OTRA, SIN MANOS,
WITH ONE HAND, WITH THE OTHER, NO HANDS,
SIN MIEDOS. SOLO EXISTO EN ESTE LUGAR
NO FEARS, I JUST EXIST IN THIS PLACE
DE CALLES ANGOSTAS, DE CARROS QUE PASAN,
WITH NARROW STREETS, WITH CARS THAT COME BY,
DE FIESTAS PATRONALES, DE TOROTOS QUE TE PERSIGUEN,
OF PATRON SAINT FESTIVITIES, LIGHT BULLS THAT FOLLOW YOU,
DE RUIDOS Y SONIDOS, DE GALLOS, GATOS, MOTOS,
OF NOISES AND SOUNDS, OF ROOSTERS, CATS, MOTORCYCLES,
DE CUETES, DE HUMBRES QUE TE CHIFLAN,
FIRECRACKERS, OF MEN THAT WHISTLE,
DE BALAZOS QUE SE ESCUCHAN A LO LEJOS.
GUNSHOTS THAT YOU CAN HEAR FAR AWAY.

5/8

ME MOJO, ME QUEDO QUIETA, ME PARO
I GET WET, STAY STILL, STAND
BAJO LA LLUVIA LLENA DE EVENTOS,
UNDER THE RAIN FULL OF EVENTS,
ABRAZADOS TOCANDO LLANTOS SECOS,
LAWYERS TOUCHING DRY TEARS,
POLICÍAS RONDANDO EL CARRO QUE SE ACERCA,
POLICEMEN HOVERING THE APPROACHING CAR,
DE ESCONDIDAS BAJO LA CAMA.
HIDING UNDER THE BED.
Y ASÍ CAMINO, RECORRO LOS PORTALES,
AND SO I WALK, MOVE THROUGH THE PORTALS,
ENTRE MIRADAS, ENTRE MIS MIEDOS,
BETWEEN THE LOOKS, BETWEEN MY FEARS,
CON EL RECUERDO AÚN DE AQUEL AUTOBÚS,
WITH THE MEMORY OF THAT BUS,
DE LOS CARTELES,
OF CARTELS,
DE MUJERES DESAPARECIDAS, VENDIDAS, VIOLADAS.
OF DISAPPEARED WOMEN, SOLD, RAPED.
AÚN ASÍ EXISTO,
STILL, I EXIST,
EXISTO EN EL CONSTANTE MOVIMIENTO,
I EXIST IN THE CONSTANT MOVEMENT,
EN LA FLUIDEZ DE ESE ESPACIO QUE HABITO.
IN THE FLUIDITY OF THAT SPACE I INHABIT.

PARTE 3. APOSENTARSE
PART 3. SUMMER DOWN

ME APOSENTO EN EL AIRE. ME VOY, ESCAPO,
I SUMMER DOWN IN AIR, I LEAVE, ESCAPE,
ME ALEJO EN EL OTRO QUE ES AJENO,
I STAY IN THE OTHER THAT IS ALIEN,
EXTRAÑO, EXTRANJERO, SOBREVIVIENTE,
STRANGE, FOREIGN, LIVING, SURVIVING,
PRODUCTO DE MIGRACIONES, COLISIÓN DE MUNDOS,
PRODUCT OF MIGRATION, COLLISION OF WORDS,
DE TIERRAS ROBADAS, DE JARDINES FRONTALES.

6/8

NAPLES, DEL CEMPASÚCHIL DESCONOCIDO,
NAPLES, UNKNOWN CEMPASUCHIL,
DE AQUELLA FLOR DE GAMUZA PERDIDA EN
OF THAT CHAMOIS FLOWER LOST IN
EL LABERINTO DEL LENGUAJE,
THE LABYRINTH OF LANGUAGE,
VIVO, RESPIRO EN UN LUGAR SIN MIEDOS,
I LIVE, BREATHE IN A PLACE WITH NO FEARS,
DE NOCHES SEGURAS, DE INVIERNOS BLANCOS,
OF SAFE NIGHTS, WHITE WINTERS,
HABITO ENTRE MEMORIAS,
I LIVE AMONG MEMORIES,
CAMINATAS A MANO TENDIDA, RECORRIDOS POR GRANJAS,
HIKES WITH OUTSTRETCHED HANDS, MOVING THROUGH FARMS,
CAMPOS DE MAÍZ, FLORES AMARILLAS,
CORN FIELDS, YELLOW FLOWERS,
DE GRANDES MAQUINAS SIRVIENDO AL VIENTO,
LARGE MACHINES SERVING THE WIND,
DE CHIMENEAS HUMEANTES,
SMOCKY CHIMNEYS,
DE MANOS QUE ME ABRAZAN, DE PLATICAS NOCTURNAS,
OF HOLDING HANDS, LATE NIGHT TALKS,
DE PIES MOJADOS HACIA LOS LAGOS.
WET FEET LOOKING AT LAKES.
PARO, ESTOY SUSPENDIDA EN EL AIRE
I STOP. I AM SUSPENDED IN THE AIR
DE LOS CARDENALES QUE SE POSAN EN LA CERCA,
OF THE CARDINALS THAT PERCH ON THE FENCE,
CON LOS PIES BIEN ARRIBA.
WITH MY FEET UP HIGH.
RESPIRO HONDO, SIENTO BIEN HONDO,
I BREATHE DEEP, I FEEL VERY DEEP,
Y EXISTO ENTRE ESA LLAMADA QUE ENCIENDE
AND I EXIST IN BETWEEN THAT CALL THAT FIRES UP
MIS PIES TOCANDO LA MESA,
MY FEET THAT TOUCHES THE TABLE,
ENTRE MIS MANOS CONTANDO HISTORIAS DE
IN BETWEEN MY HANDS TELLING STORIES
BENTAS LEJANAS, DE PÉRDIDAS INESPERADAS,
OF FAR AWAY HITS, OF UNEXPECTED LOSSES,
LAS ANSIAS PASTILLAS, URÁS CONVIDAS,
THE CRAVING FOR PILLS, BITTING NAILS,
FADRASTROS ENTERRADOS, MORO, ME MUERO,
BURIED HANGNAILS. I DWELL, I MOVE,

7/8

EN ESTE ESPACIO SUSPENDIDO,
IN THIS SUSPENDED SPACE,
EN EL HILO QUE ME UNE A TI,
IN THE THREAD THAT STILL JOINS ME TO YOU,
EN EL MIEDO QUE AÚN COMPARTO,
IN THE FEAR I STILL SHARE,
EN EL MIEDO QUE NO OLVIDO,
IN THE FEAR I DO NOT FORGET.

PARTE 4. ABRAIGARSE
PART 4. SPLINT

ME ABRAIGO EN EL FUEGO. LO ACEPTO.
I SPLINT IN FIRE. I ACCEPT IT.
ME NUEVO EN ÉL, CRUZANDO IMÁGENES QUE APARECEN,
CROSSING IMAGES THAT APPEAR,
HISTORIAS BORRADAS,
ERASED HISTORIES,
BALAS, HERIDAS, NAVAJAS, MACHETES,
GUN SHOTS, WOUNDS, KNIVES, MACHETES,
Y AGUACATES EN TIERRA DE NADIE.
AND AVOCADOS IN NOBODY'S LAND.
EN ESTA TIERRA DE NARCOS, POLÍTICOS CORRUPTOS,
IN THIS LAND OF NARCOS, CORRUPT POLITICIANS,
INVERSIONISTAS DEPRAVADOS,
DEPRAVED INVESTORS,
ARGUMENTOS AL VUELO, SIN IMAGINACION,
ARGUMENTS ON THE FLY, WITH NO IMAGINATION,
DE POLICÍAS SILENCIOSOS, SIN LEY.
SILENT POLICE, WITH NO LAW.
ME ABRAZO EN EL FUEGO. EXISTO EN ÉL.
I SPLINT MYSELF IN FIRE. I EXIST IN HIM.
EN SUS HERIDAS CONVALECIENTES.
IN HIS CONVALESCENT WOUNDS,
CON EL TEMOR DE SER MUJER,
IN THE FEAR OF BEING A WOMAN
EN LA TINIDEZ DE MI CUERPO Y EN EL RECELO DE NO SER OTRA,
IN THE SHYness OF MY BODY AND THE SADNESS OF NOT BEING OTHER
EN EL PÁNICO DE ESA BALA PERDIDA.
IN THE PANIC OF THAT STRAY BULLET.
PAVOR, TERROR, INTRANQUILIDAD.
FEAR, TERROR, RESTLESSNESS.
HABITO EN LA VALENTÍA DE SER YO,
I INHABIT IN THE COURAGE OF BEING ME,
Y LA COBARDÍA DE NO QUERER VOLVER.
AND THE COWARDICE OF NOT WANTING TO RETURN.

8/8

EPÍLOGO
EPILOGUE

SOY FUEGO PORQUE MI CUERPO ES FUEGO.
I AM FIRE BECAUSE MY BODY IS FIRE.
LUGAR DE CONFLICTOS, DESTRUCCIÓN, IDEAS, ALAS,
PLACE OF CONFLICT, DESTRUCTION, IDEAS, WINGS,
MEMORIAS OLVIDADAS, HISTORIAS PERDIDAS.
FORGOTTEN MEMORIES, LOST HISTORIES.

SOY AIRE PORQUE ES ÉL QUIEN LLENA MIS PULMONES.
I AM AIR BECAUSE HE IS WHO FILLS MY LUNGS.
PORQUE ES MI PECHO EL QUE SE PIERDE EN ÉL,
BECAUSE IT IS MY CHEST THAT GETS LOST IN HIM,
ES MI PIEL QUIEN LO TOCA Y MI PELO QUIEN LO SOSTIENE.
IT IS ME SKIN THAT TOUCHES HIM, AND MY HAIR THAT HOLDS HIM.

SOY AGUA PORQUE MI SANGRE SE MUEVE POR ELLA.
I AM WATER BECAUSE MY BLOOD MOVES THROUGH HER.
BECAUSE MY HANDS FLOTAN EN ELLA,
PORQUE MI MANOS FLOTAN EN HER,
PORQUE MIS PARABRAS Y MIS MEMORIAS SE VAN CON ELLA.
BECAUSE MY WORDS AND MY MEMORIES GO WITH HER.

SOY TIERRA PORQUE ESTOY HECHA DE ELLA.
I AM LAND BECAUSE I AM MADE OF HER.
PORQUE VIVO EN ELLA Y DE ELLA,
BECAUSE I LIVE IN HER AND FROM HER,
PORQUE MIS PIERNAS CRECEN DE ELLA,
BECAUSE MY LEGS GROW FROM HER,
Y PORQUE MORIRÉ EN ELLA.
AND BECAUSE I WILL DIE IN HER.

AFRONTACIONES = (F.) COPINGS
NARRATIVAS DE LA MEMORIA Y
LA VIOLENCIA DEL HABITAR
2023
JESSICA A. RODRIGUEZ

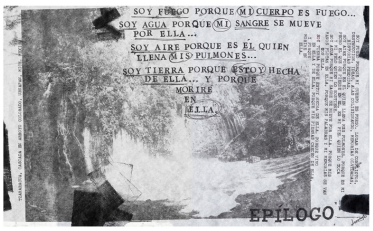
COLLAGE NO.1
MIXED MEDIA

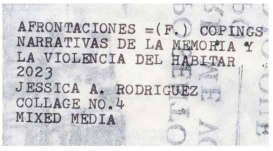
AFRONTACIONES = (F.) COPINGS
NARRATIVAS DE LA MEMORIA Y
LA VIOLENCIA DEL HABITAR
2023
JESSICA A. RODRIGUEZ

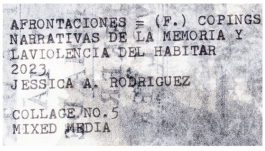
COLLAGE NO.2
MIXED MEDIA

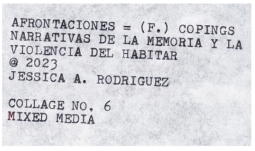
AFRONTACIONES = (F.) COPINGS
NARRATIVAS DE LA MEMORIA Y
LA VIOLENCIA DEL HABITAR 2
2023
JESSICA A. RODRIGUEZ

COLLAGE NO.3
MIXED MEDIA

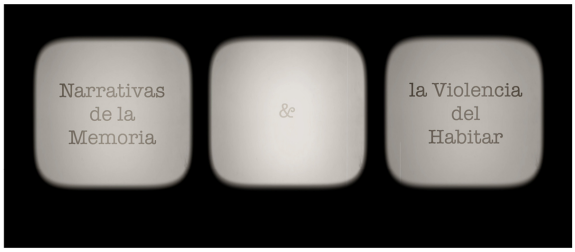


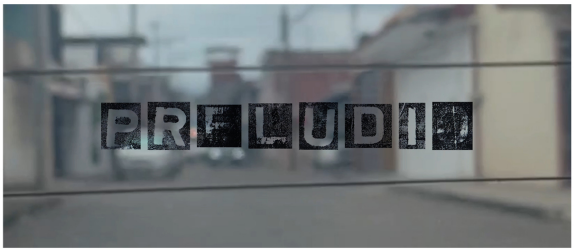


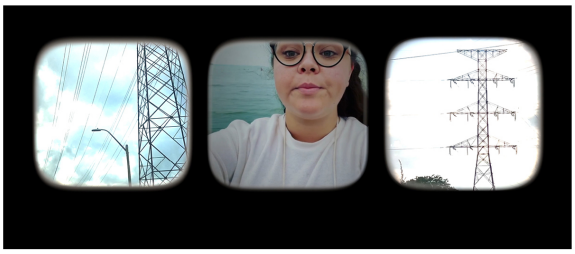




Self-Testimony - Video [Stills]








TRES
APISONTARSE


CUATRO
ARRAIGARSE


EPÍLOGO

A.2.6 *afrontaciones (f.) copings*: mixed-media collages

Testimony-1-Collage-01

Testimony-1-Collage-02

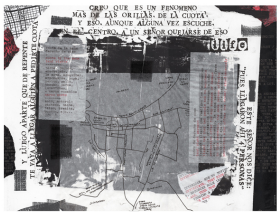
Testimony-1-Collage-03

Testimony-1-Collage-04

Testimony-1-Collage-05

Testimony-1-Collage-06

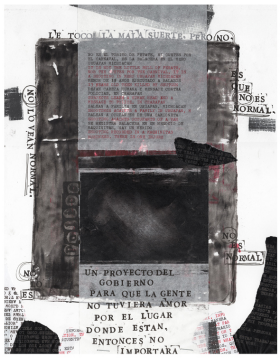
Testimony-1-Collage-07



Testimony-1-Collage-08

Testimony-1-Collage-09

Testimony-1-Collage-10



Testimony-1-Collage-11

Testimony-2-Collage-01

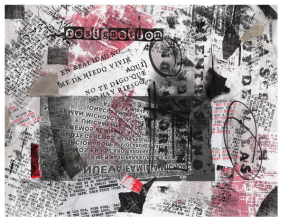
Testimony-2-Collage-02

Testimony-2-Collage-03

Testimony-2-Collage-04

Testimony-2-Collage-05

Testimony-2-Collage-06



Testimony-2-Collage-07

Testimony-3-Collage-01

Testimony-3-Collage-02

Testimony-3-Collage-03

Testimony-3-Collage-04

Testimony-3-Collage-05

Testimony-3-Collage-06

Testimony-3-Collage-07

Testimony-3-Collage-08

Testimony-3-Collage-09

Testimony-3-Collage-10

Testimony-4-Collage-01

Testimony-4-Collage-02

Testimony-4-Collage-03

Testimony-4-Collage-04

Testimony-4-Collage-05

Testimony-4-Collage-06

Testimony-4-Collage-07

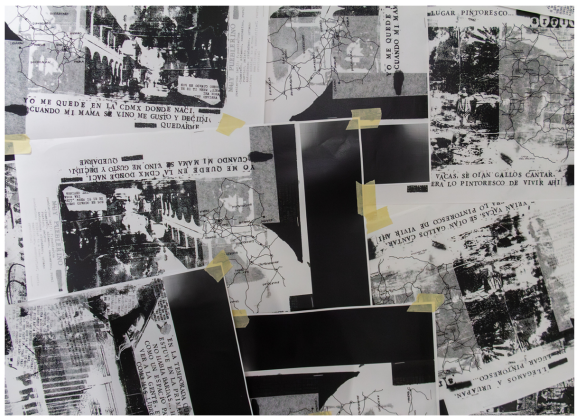
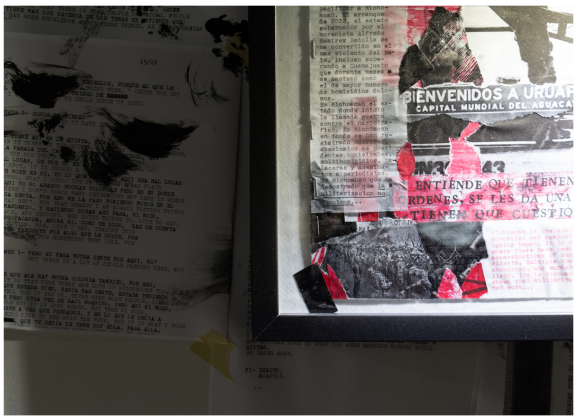
Testimony-4-Collage-08

Testimony-4-Collage-09

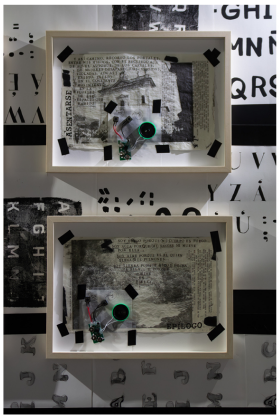
Testimony-4-Collage-10

A.2.7 *afrontaciones (f.) copings*, performance (photo-documentation) at Factory Media Centre, October 5, 2023. Credit: Eli Nolet

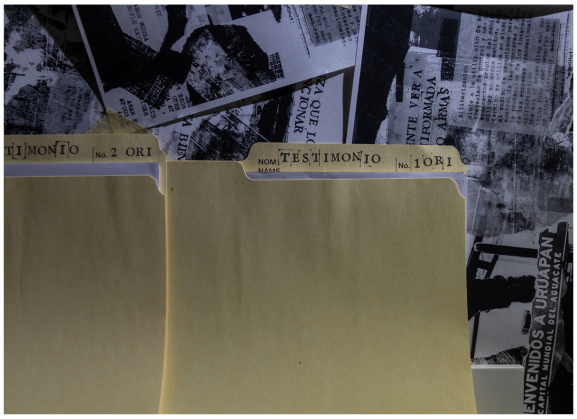


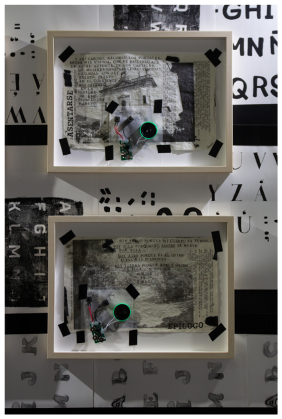



BIENVENIDOS A URUA
CAPITAL MUNDIAL DEL AGUACA

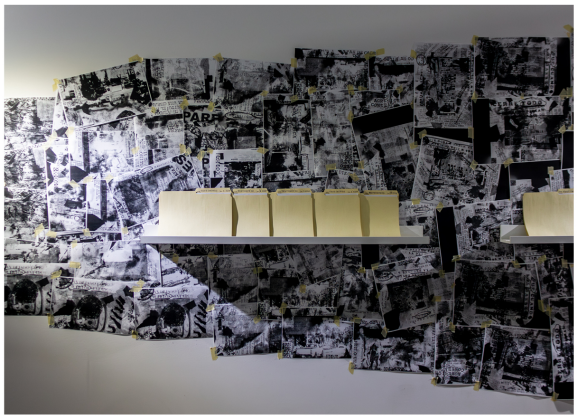


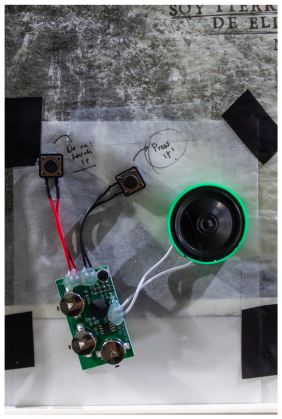




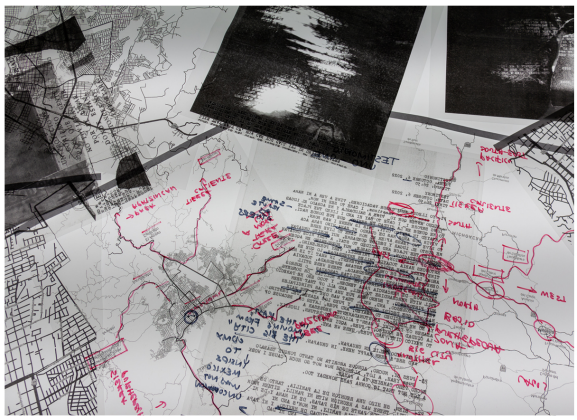

TESTIMONIO
No. 2 ORI
TESTIMONIO
No. 1 ORI

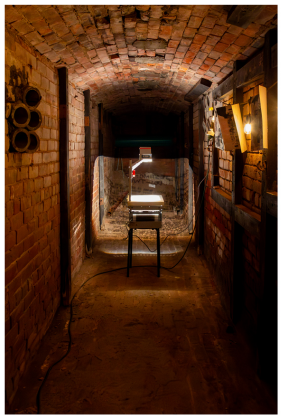
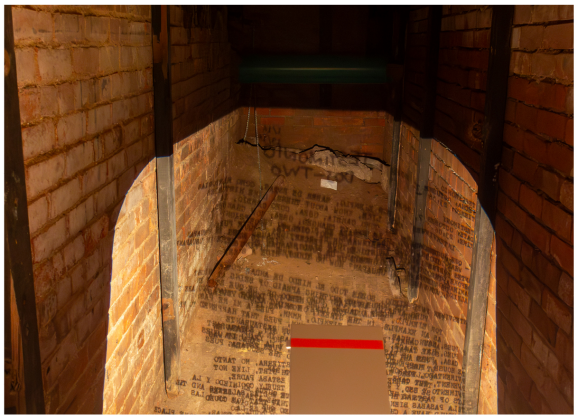







FGHIJK
ZÁÉÍ

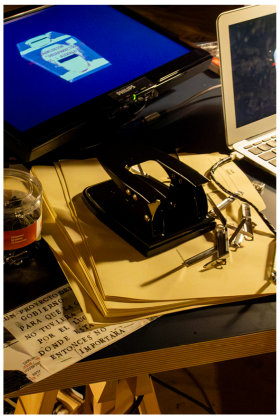


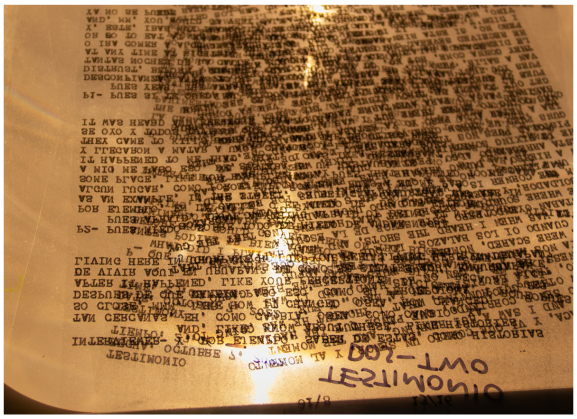


URUAPA



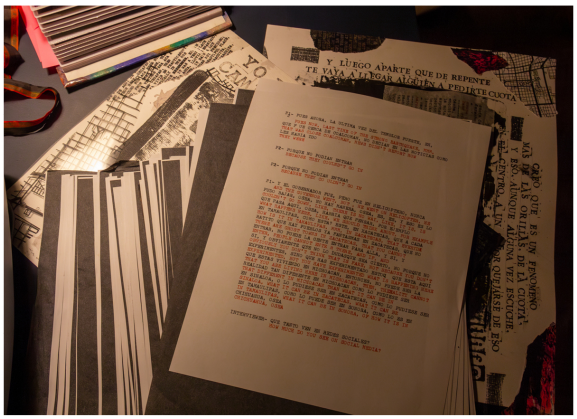







PAN DE CADA DÍA
ANTERIORMENTE HABÍA MUCHOS TEMAS
QUE SE CONSIDERABAN TABÚS:
PROSTITUCIÓN, DROGAS,
ALCOHOL.


EN KILOMETRES FROM


Y LUEGO APARTE QUE DE REPENTE
TE VAYA A LLEGAR ALGUIEN A PEDIRTE CUOTA

A.3 Appendix C

A.3.1 *TransMit*'s list of functions

ACTION	FUNCTIONS	PARAMETERS
Turn off	turn off turns off turnof apagar	-
Transmission	transmission trasmission trasmision transmision transmisssion TRANSMISION	off of offf OF
		on onn onnn ON
Monitor	monitor MONITOR	"url"
Switch	switch stitch suich SWITCH	"url"
Volume	volume volumen vol subele pumpeal SUBELE	0-1
Repet	repeat repitelo repeatelo REPET	x y
Scalar	scalar scale escalar bigealo SCALA	x y z
Rodar	rodar rotate rotait rotaetelo RODALO	x y z
Auto	auto automatic automatico automático AUTO	v

ACTION	FUNCTIONS	PARAMETERS
Movet	movet muvet move it muevelo muvetelo MOVET	x y z
Translucidez	translucido traslucido traslusido traslusido translucent traslucent traslusent TRANSLUCIDO	0-1
Fulcober	fulcober fullcober fulcover fullcover FULCOBER	rgb rgba erregebe alcolor
		r red rojo
		rg errege redgreen verdirojo
		b&w blackandwhite negriblanco
Colour	color colour color it colorealo colourealo COLOR	r g b
EmissionColour	emit emitir emitear emitealo EMITEALO	r g b
EmissionIntensity	brillo brightness braignes braigtnes briyo BRIYO	0-1

URL PARAMETER FOR MONITOR						
oldtv0	**pentatv0**	**horScreen0**	**sqScreen0**	**verScreen0**	**90stv0**	**globetv0**
oldtv1	**pentatv1**	**horScreen1**	**sqScreen1**	**verScreen1**	**90stv1**	**globetv1**
oldtv2	**pentatv2**	**horScreen2**	**sqScreen2**	**verScreen2**	**90stv2**	**globetv2**
oldtv3	**pentatv3**	**horScreen3**	**sqScreen3**	**verScreen3**	**90stv3**	**globetv3**
	pentatv4					**globetv4**
	pentatv5					**globetv5**

A.3.2 *TransMit*'s available video resources

File (no audio): 01

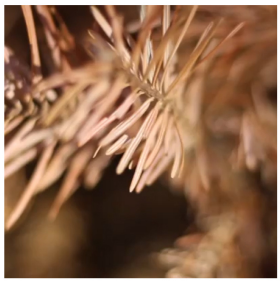
File (no audio): 02

File (no audio): 03

File (no audio): 04

File (no audio): 05

File (no audio): 06



File (no audio): 07

File (with audio): 08

File (with audio): 09

File (with audio): 10

A.3.3 *TransMit*'s monitors

Monitor: oldtv0

Monitor: oldtv1

Monitor: oldtv2

Monitor: oldtv3

Monitor: 90stv0

Monitor: 90stv1

Monitor: 90stv2

Monitor: 90stv3

Monitor: horScreen0

Monitor: horScreen1

Monitor: horScreen2

Monitor: horScreen3

Monitor: horScreen4

Monitor: horScreen5

Monitor: horScreen6

Monitor: horScreen7

Monitor: horScreen8

Monitor: horScreen9

Monitor: horScreen10

Monitor: horScreen11

Monitor: horScreen12

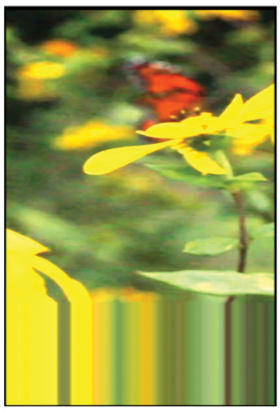
Monitor: horScreen13

Monitor: horScreen14

Monitor: horScreen15

Monitor: verScreen0

Monitor: verScreen1

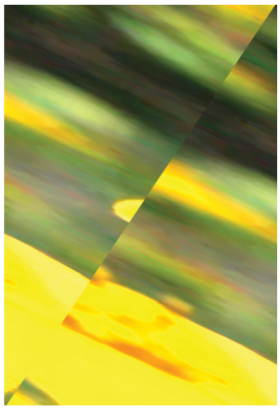


Monitor: verScreen2

Monitor: verScreen3

Monitor: verScreen4

Monitor: verScreen5



Monitor: verScreen6

Monitor: verScreen7

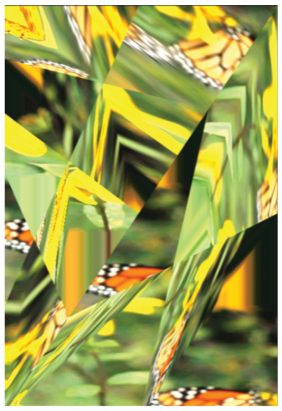
Monitor: verScreen8

Monitor: verScreen9

Monitor: verScreen10

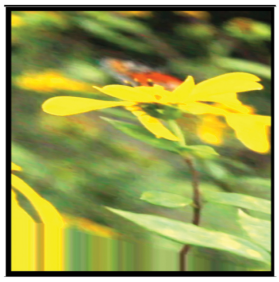
Monitor: verScreen11

Monitor: verScreen12



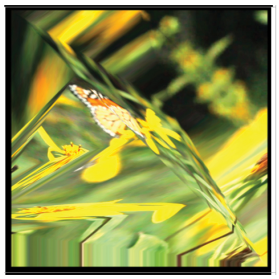
Monitor: sqScreen0

Monitor: sqScreen1



Monitor: sqScreen2

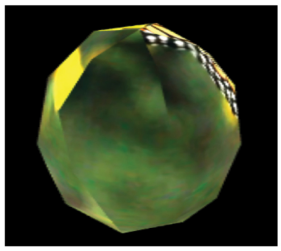
Monitor: sqScreen3



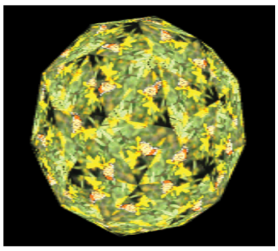
Monitor: sqScreen4

Monitor: sqScreen5

Monitor: pentatv0

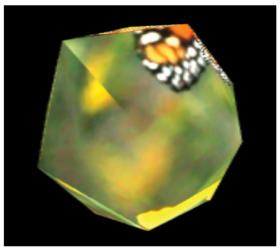


Monitor: pentatv1

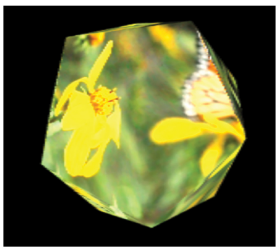


Monitor: pentatv2

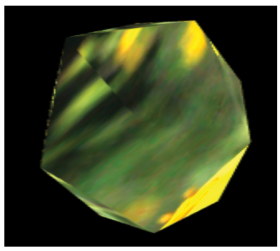
Monitor: pentatv3



Monitor: pentatv4



Monitor: pentatv5

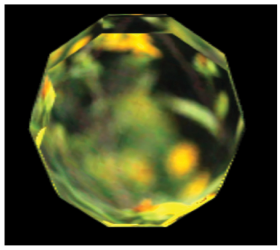


Monitor: globetv0

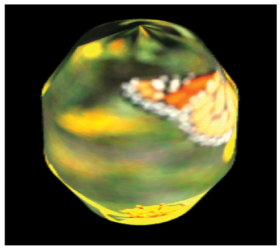
Monitor: globetv1

Monitor: globetv2

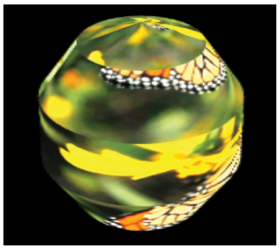
Monitor: globetv3



Monitor: globetv4



Monitor: globetv5



A.3.4 *TransMit*'s code

The following are the modules that compose *TransMit* —from Main-branch/src.

A.3.5 Main.purs

```
module Main where

import Prelude (Unit, bind, pure, ($))
import Effect (Effect)
import Data.Maybe (Maybe(..))
import Web.HTML.HTMLCanvasElement as HTML

import RenderEngine as RE

launch :: HTML.HTMLCanvasElement -> Effect RE.RenderEngine
launch = RE.launch

evaluate :: RE.RenderEngine -> String -> Effect { success :: Boolean, error
   :: String }
evaluate re s = do
  p <- RE.evaluate re s
  case p of
    Just error -> pure $ { success: false, error }
    Nothing -> pure $ { success: true, error: "" }

animate :: RE.RenderEngine -> Effect Unit
animate = RE.animate
```

A.3.6 Parser.purs

```
module Parser where

import Prelude (Unit, bind, discard, negate, pure, show, identity, ($), ($>)
   , (*), (<$>), (<>), unit, map)
import Control.Semigroupoid ((<<<))
import Data.Identity (Identity)
import Data.List (List, catMaybes, foldl)
import Data.List.NonEmpty (NonEmptyList)
import Data.Either (Either(..))
```

```
import Data.Int (toNumber)
import Data.Maybe (Maybe(..))
import Parsing (ParseError(..), ParserT, Position(..), runParser)
import Parsing.Language (emptyDef)
import Parsing.Token (GenLanguageDef(..), GenTokenParser, makeTokenParser,
   unGenLanguageDef)
import Parsing.Combinators (choice, lookAhead, try, (<|>), many, sepBy,
   option)
import Parsing.String (eof)

import AST (AST, Statement(..), TransmissionAST(..), tASTtoT)
import Transmission (Transmission, Vec3, Vec2, DynVec3)

parseProgram :: String -> Either String Program
parseProgram x = do
  ast <- parseAST x
  pure $ astToProgram ast

parseAST :: String -> Either String (List Statement)
parseAST x = case (runParser x ast) of
  Left err -> Left $ showParseError err
  Right prog -> Right prog

showParseError :: ParseError -> String
showParseError (ParseError e (Position p)) = show p.line <> ":" <> show p.
   column <> " " <> e

type P a = ParserT String Identity a

ast :: P AST
ast = do
  whiteSpace
  x <- statements
  eof
  pure x

statements :: P (List Statement)
statements = sepBy statement (reservedOp ";")

statement :: P Statement
statement = choice [
  TransmissionAST <$> transmissionParser,
  onlySemiColon,
  onlyEOF,
  noTranmission
```

```
]

onlySemiColon :: P Statement
onlySemiColon = do
    lookAhead $ reservedOp ";"
    pure $ EmptyStatement

onlyEOF :: P Statement
onlyEOF = do
    lookAhead $ eof
    pure $ EmptyStatement

noTranmission :: P Statement
noTranmission = do
  (reserved "turn off" <|> reserved "turns off" <|> reserved "turnof" <|>
     reserved "apagar")
  pure $ EmptyStatement

--- Transmission ---
--------------------

-- transmission on;
-- transmission off;
transmissionParser :: P TransmissionAST
transmissionParser = do
  _ <- pure unit
  (reserved "transmission" <|> reserved "trasmission" <|> reserved "
     trasmision" <|> reserved "transmision" <|> reserved "transmisssion" <|>
      reserved "TRANSMISION" )
  b <- onOrOff
  let t = LiteralTransmissionAST b
  xs <- many transformations
  let xs' = foldl (<<<) identity xs
  pure $ xs' t

onOrOff :: P Boolean
onOrOff = try $ choice [
  (reserved "on" <|> reserved "onn" <|> reserved "onnn" <|> reserved "ON") $
     > true,
  (reserved "off" <|> reserved "of" <|> reserved "offf" <|> reserved "OF") $
     > false
]

-- Transformations --
----------------------
```

```
transformations :: P (TransmissionAST -> TransmissionAST)
transformations = do
  _ <- pure unit
  choice [
  --volume
  functionWithNumber "volume" Volume,
  functionWithNumber "volumen" Volume,
  functionWithNumber "vol" Volume,
  functionWithNumber "subele" Volume,
  functionWithNumber "pumpealo" Volume,
  functionWithNumber "SUBELE" Volume,
  --repeat
  functionWithV2 "repet" ChannelRepeater,
  functionWithV2 "repeat" ChannelRepeater,
  functionWithV2 "repitelo" ChannelRepeater,
  functionWithV2 "repeatelo" ChannelRepeater,
  functionWithV2 "REPET" ChannelRepeater,
  --move
  functionWithV3 "movet" Movet,
  functionWithV3 "muvet" Movet,
  functionWithV3 "muvit" Movet,
  functionWithV3 "move it" Movet,
  functionWithV3 "muevelo" Movet,
  functionWithV3 "muvetelo" Movet,
  functionWithV3 "MOVET" Movet,
  --rotate
  functionWithDynV3 "rodar" Rodar,
  functionWithDynV3 "rotate" Rodar,
  functionWithDynV3 "rotait" Rodar,
  functionWithDynV3 "rotaetelo" Rodar,
  functionWithDynV3 "RODALO" Rodar,
  --
  functionWithString "fulcober" Fulcober,
  functionWithString "fullcober" Fulcober,
  functionWithString "fulcover" Fulcober,
  functionWithString "fullcover" Fulcober,
  functionWithString "FULCOBER" Fulcober,
  --
  functionWithNumber "translucido" Translucidez,
  functionWithNumber "traslucido" Translucidez,
  functionWithNumber "traslusido" Translucidez,
  functionWithNumber "translucent" Translucidez,
  functionWithNumber "traslucent" Translucidez,
  functionWithNumber "traslusent" Translucidez,
```

```
  functionWithNumber "TRANSLUCIDO" Translucidez,
  --
  functionWithV3 "color" Colour,
  functionWithV3 "colour" Colour,
  functionWithV3 "color it" Colour,
  functionWithV3 "colorealo" Colour,
  functionWithV3 "colourealo" Colour,
  functionWithV3 "COLOR" Colour,
  --
  functionWithV3 "emit" EmissionColour,
  functionWithV3 "emitir" EmissionColour,
  functionWithV3 "emitear" EmissionColour,
  functionWithV3 "emitealo" EmissionColour,
  functionWithV3 "EMITEALO" EmissionColour,
  --
  functionWithNumber "brillo" EmissionIntensity,
  functionWithNumber "brightness" EmissionIntensity,
  functionWithNumber "braignes" EmissionIntensity,
  functionWithNumber "braigtnes" EmissionIntensity,
  functionWithNumber "briyo" EmissionIntensity,
  functionWithNumber "BRIYO" EmissionIntensity,
  --
  switchFunction,
  monitorFunction,
  scalarFunction
  ]

switchFunction :: P (TransmissionAST -> TransmissionAST)
switchFunction = do
  _ <- pure unit
  (reserved "switch" <|> reserved "suitch" <|> reserved "suich" <|> reserved
      "SWITCH")
  s <- stringLiteral
  pure $ Switch s
  -- should remove the empty spaces at the beginning of s
  -- this function can only be use with transmission on

-- get rid of the quotation marks
monitorFunction :: P (TransmissionAST -> TransmissionAST)
monitorFunction = do
  _ <- pure unit
  (reserved "monitor" <|> reserved "MONITOR")
  s <- stringLiteral
  pure $ Monitor ("monitors/" <> s)
-- check empty spaces
```

```
scalarFunction :: P (TransmissionAST -> TransmissionAST)
scalarFunction = do
  _ <- pure unit
  (reserved "scalar" <|> reserved "scale" <|> reserved "escalar" <|>
     reserved "bigealo" <|> reserved "SCALA")
  n <- number
  pure $ Scalar n

functionWithString :: String -> (String -> (TransmissionAST ->
   TransmissionAST)) -> P (TransmissionAST -> TransmissionAST)
functionWithString functionName constructor = try $ do
  reserved functionName
  s <- identifier
  pure $ constructor s

functionWithDynV3 :: String -> (DynVec3 -> (TransmissionAST ->
   TransmissionAST)) -> P (TransmissionAST -> TransmissionAST)
functionWithDynV3 functionName constructor = try $ do
  reserved functionName
  dv3 <- dynVec3xyz
  pure $ constructor dv3

functionWithV3 :: String -> (Vec3 -> (TransmissionAST -> TransmissionAST))
   -> P (TransmissionAST -> TransmissionAST)
functionWithV3 functionName constructor = try $ do
  reserved functionName
  v3 <- vec3Param
  pure $ constructor v3

functionWithV2 :: String -> (Vec2 -> (TransmissionAST -> TransmissionAST))
   -> P (TransmissionAST -> TransmissionAST)
functionWithV2 functionName constructor = try $ do
  reserved functionName
  v2 <- vec2xy
  pure $ constructor v2

functionWithNumber :: String -> (Number -> (TransmissionAST ->
   TransmissionAST)) -> P (TransmissionAST -> TransmissionAST)
functionWithNumber functionName constructor = try $ do
  reserved functionName
  n <- number
  pure $ constructor n
```

```
------- PARAMETERS

----------
--- Either Number Number
--
-- rotation auto 0.01 auto 0.01 auto 0.002
-- rotatation 0 auto 0.01 0
-- rotation 0 0 1

dynVec3xyz :: P DynVec3
dynVec3xyz = do
  _ <- pure unit
  x <- dynNumber
  y <- dynNumber
  z <- dynNumber
  pure $ {x,y,z}

dynNumber :: P (Either Number Number)
dynNumber = choice [ try dynNumberLeft, try dynNumberRight ]

dynNumberLeft :: P (Either Number Number)
dynNumberLeft = do
  _ <- pure unit
  (reserved "auto" <|> reserved "automatic" <|> reserved "automatico" <|>
     reserved "automtico" <|> reserved "AUTO")
  v <- number
  pure $ Left v

dynNumberRight :: P (Either Number Number)
dynNumberRight = do
  _ <- pure unit
  v <- number
  pure $ Right v

--- Fixed Number Options
--
-- transmission on movet 1 1 1;
-- transmission on movet 1; -- vec3x not working
-- transmission on movet 1 1;
-- transmission on movet _ 1;
-- transmission on movet _ _ 1;

----
vec2xy :: P Vec2
vec2xy = do
```

```
  _ <- pure unit
  x <- number
  y <- number
  pure $ {x,y}

vec3Param :: P Vec3
vec3Param = choice [ try vec3xyz, try vec3xy, try vec3z, try vec3y, try
    vec3x ]

--Function 1 1 1 --> modifies x,y,z
vec3xyz :: P Vec3
vec3xyz = do
  _ <- pure unit
  x <- number
  y <- number
  z <- number
  pure $ {x,y,z}

--Function _ _ 1 --> modifies z defX / defY=0
vec3z :: P Vec3
vec3z = do
  _ <- pure unit
  reservedOp "_"
  reservedOp "_"
  let x = 0.0
  let y = 0.0
  z <- number
  pure $ {x,y,z}

--Function _ 1 --> modifies y defX / defZ=0
vec3y :: P Vec3
vec3y = do
  _ <- pure unit
  reservedOp "_"
  let x = 0.0
  y <- number
  let z = 0.0
  pure $ {x,y,z}

--Function 1 1 --> modifies x,y defZ=0
vec3xy :: P Vec3
vec3xy = do
  _ <- pure unit
  x <- number
  y <- number
```

```
  let z = 0.0
  pure $ {x,y,z}

--Function 1 --> modifies x defY / defZ=0
vec3x :: P Vec3
vec3x = do
  _ <- pure unit
  x <- number
  let y = 0.0
  let z = 0.0
  pure $ {x,y,z}

----------

number :: P Number
number = choice [
  try negativeNumber,
  try float,
  toNumber <$> integer
  ]

negativeNumber :: P Number
negativeNumber = do
  _ <- pure unit
  reservedOp "-"
  ((*) (-1.0)) <$> float

------------

tokenParser :: GenTokenParser String Identity
tokenParser = makeTokenParser $ LanguageDef (unGenLanguageDef emptyDef) {
  reservedNames = ["turn off", "turns off", "turnof", "apagar", "
     transmission", "trasmission", "trasmision", "transmision", "
     transmisssion", "on", "onn", "onnn", "off", "of", "offf", "volume", "
     volumen", "vol", "subele", "pumpealo", "repet", "repeat", "repitelo", "
     repeatelo", "scalar", "scale", "escalar", "bigealo", "movet", "muvet",
     "move it", "muevelo", "muvetelo", "rodar", "rotate", "rotait", "
     rotaetelo", "fulcober", "fullcober", "fulcover", "fullcover", "
     translucido", "traslucido", "traslusido", "traslusido", "translucent",
     "traslucent", "traslusent", "color", "colour", "color it", "colorealo",
      "colourealo", "emit", "emitir", "emitear", "emitealo", "brillo", "
     brightness", "braignes", "braigtnes", "briyo", "switch", "suitch", "
     suich", "monitor", "auto", "automatic", "automatico", "automtico"],
  reservedOpNames = ["=", "\"", "\"", "_", ";"]
  }
```

```
---------------------

angles :: forall a. P a -> P a
angles = tokenParser.angles

braces :: forall a. P a -> P a
braces = tokenParser.braces

brackets :: forall a. P a -> P a
brackets = tokenParser.brackets

charLiteral :: P Char
charLiteral = tokenParser.charLiteral

colon :: P String
colon = tokenParser.colon

comma :: P String
comma = tokenParser.comma

commaSep :: forall a. P a -> P (List a)
commaSep = tokenParser.commaSep

commaSep1 :: forall a. P a -> P (NonEmptyList a)
commaSep1 = tokenParser.commaSep1

decimal :: P Int
decimal = tokenParser.decimal

dot :: P String
dot = tokenParser.dot

float :: P Number
float = tokenParser.float

hexadecimal :: P Int
hexadecimal = tokenParser.hexadecimal

identifier :: P String
identifier = tokenParser.identifier

integer :: P Int
integer = tokenParser.integer
```

```
lexeme :: forall a. P a -> P a
lexeme = tokenParser.lexeme

natural :: P Int
natural = tokenParser.natural

naturalOrFloat :: P (Either Int Number)
naturalOrFloat = tokenParser.naturalOrFloat

octal :: P Int
octal = tokenParser.octal

operator :: P String
operator = tokenParser.operator

parens :: forall a. P a -> P a
parens = tokenParser.parens

reserved :: String -> P Unit
reserved = tokenParser.reserved

reservedOp :: String -> P Unit
reservedOp = tokenParser.reservedOp

semi :: P String
semi = tokenParser.semi

semiSep :: forall a. P a -> P (List a)
semiSep = tokenParser.semiSep

semiSep1 :: forall a. P a -> P (NonEmptyList a)
semiSep1 = tokenParser.semiSep1

stringLiteral :: P String
stringLiteral = tokenParser.stringLiteral

symbol :: String -> P String
symbol = tokenParser.symbol

whiteSpace :: P Unit
whiteSpace = tokenParser.whiteSpace

-- channel 1 "url";
-- transmission on switch 1
```

```
type Program = List Transmission --- This has to change if I add the camera
   ---- must be Transmission plus operation of the camera (record), plus
   ,.... channel

-- we want a list that gives all the Just
-- catMaybes :: forall a. List (Maybe a) -> List a

astToProgram :: AST -> Program
astToProgram xs = catMaybes $ map statementToTransmission xs

-- statementsToTransmissionList :: (List Statement) -> (List Transmission)
-- statementsToTransmissionList xs = statementToTransmission <$> xs

statementToTransmission :: Statement -> Maybe Transmission
statementToTransmission EmptyStatement = Nothing
statementToTransmission (TransmissionAST tAST) = Just (tASTtoT tAST)
```

A.3.7 AST.purs

```
module AST where

import Prelude
import Data.List (List(..))
import Effect (Effect)
import Data.Number
import Prim.Boolean
import Data.Map
import Data.Maybe

import ThreeJS (FormatID, rgbaFormat)

import Transmission (Transmission, defTransmission, defTransmissionOn, Vec3,
    Vec2, DynVec3)

type AST = List Statement

data Statement =
  EmptyStatement |
  TransmissionAST TransmissionAST

instance showStatement :: Show Statement where
```

```
  show (TransmissionAST s) = "TransmissionAST " <> show s
  show (EmptyStatement) = "EmptyStatement"

data TransmissionAST =
  LiteralTransmissionAST Boolean |
  Volume Number TransmissionAST |
  ChannelRepeater Vec2 TransmissionAST |
  Scalar Number TransmissionAST |
  Movet Vec3 TransmissionAST |
  Rodar DynVec3 TransmissionAST |
  Fulcober String TransmissionAST |
  Switch String TransmissionAST |
  Monitor String TransmissionAST |
  Translucidez Number TransmissionAST |
  Colour Vec3 TransmissionAST |
  EmissionColour Vec3 TransmissionAST |
  EmissionIntensity Number TransmissionAST

instance showTransmissionAST :: Show TransmissionAST where
  show (LiteralTransmissionAST b) = "LitTransmission " <> show b
  show (Volume n t) = "Volume" <> show n <> show t
  show (ChannelRepeater v2 t) = "Repit" <> show v2 <> show t
  show (Scalar n t) = "Scalar" <> show n <> show t
  show (Movet v3 t) = "Movet " <> show v3 <> show t
  show (Rodar dv3 t) = "Rodar" <> show dv3 <> show t
  show (Fulcober f t) = "Fulcober" <> show f <> show t
  show (Switch s t) = "Switch" <> show s <> show t
  show (Monitor s t) = "Monitor" <> show s <> show t
  show (Translucidez n t) = "Translucidez" <> show n <> show t
  show (Colour v3 t) = "Color" <> show v3 <> show t
  show (EmissionColour v3 t) = "Emission-color" <> show v3 <> show t
  show (EmissionIntensity n t) = "Emission-intensity" <> show n <> show t

tASTtoT :: TransmissionAST -> Transmission
tASTtoT (LiteralTransmissionAST false) = defTransmission
tASTtoT (LiteralTransmissionAST true) = defTransmissionOn
tASTtoT (Volume n t) = (tASTtoT t) {volume = n}
tASTtoT (ChannelRepeater v2 t) = (tASTtoT t) {channelReapeater = v2}
tASTtoT (Scalar n t) = (tASTtoT t) {size = n}
tASTtoT (Movet v3 t) = (tASTtoT t) {position = v3}
tASTtoT (Rodar dv3 t) = (tASTtoT t) {rotation = dv3}
tASTtoT (Fulcober f t) = (tASTtoT t) {fulcober = f}
tASTtoT (Switch s t) = (tASTtoT t) {channel = (s)}
tASTtoT (Monitor s t) = (tASTtoT t) {tv = ("https://jac307.github.io/
   TransMit/" <> s <> ".obj"), mapping = ("https://jac307.github.io/TransMit
```

```
   /" <> s <> ".mtl")}
tASTtoT (Translucidez n t) = (tASTtoT t) {translucidez = n}
tASTtoT (Colour v3 t) = (tASTtoT t) {colour = v3}
tASTtoT (EmissionColour v3 t) = (tASTtoT t) {emissionColour = v3}
tASTtoT (EmissionIntensity n t) = (tASTtoT t) {emissionIntensity = n}
```

A.3.8 Transmission.purs

```
module Transmission where

import Data.Either

type Transmission = {
  estado :: Boolean, -- transmission on (channel) or off (static)
  tv :: String, -- geometry of the monitor obj file
  mapping :: String, -- how video envolves monitor mtl file
  channel :: String, -- video playing
  volume :: Number,
  channelReapeater :: Vec2, -- how many times the video repeats on the
     monitor
  fulcober :: String,
  translucidez :: Number,
  colour :: Vec3, -- missing application in parser
  emissionColour :: Vec3, -- missing application in parser
  emissionIntensity :: Number, -- missing application in parser
  size :: Number,
  position :: Vec3,
  rotation :: DynVec3
  }


defTransmission :: Transmission
defTransmission = {
  estado: false,
  tv: "https://jac307.github.io/TransMit/monitors/oldtv0.obj",
  mapping: "https://jac307.github.io/TransMit/monitors/oldtv0.mtl",
  volume: 0.0,
  channel: "https://jac307.github.io/TransMit/channels/defaultOff.mp4",
  channelReapeater: {x: 1.0, y: 1.0},
  fulcober: "rgbaFormat",
  translucidez: 1.0,
  colour: {x: 0.6, y: 0.6, z: 0.6}, -- rgb
```

```
  emissionColour: {x: 0.0, y: 0.0, z: 0.0}, -- rgb
  emissionIntensity: 0.5,
  size: 1.0,
  position: {x: 0.0, y: 0.0, z: 0.0},
  rotation: {x: (Right 0.5), y: (Right 0.0), z: (Right 0.0)}
}


defTransmissionOn :: Transmission
defTransmissionOn = defTransmission {estado = true, channel = "https://
    jac307.github.io/TransMit/channels/defaultOn.mp4"}

----

type DynVec3 = {
  x :: Either Number Number,
  y :: Either Number Number,
  z :: Either Number Number
}

type Vec2 = { x :: Number, y :: Number }

type Vec3 = { x :: Number, y :: Number, z :: Number }
```

A.3.9 RenderEngine.purs

```
module RenderEngine
(
RenderEngine(..),
launch,
animate,
evaluate
) where

import Prelude (Unit, bind, discard, pure, unit, ($), (+), (/), (>=), (<$>),
    (<*>), (==), (>), (-), otherwise, show, map)
import Data.List (List(..), (:), updateAt, length, snoc, null, foldMap, drop
    , length, zipWithA, range, take)
import Data.Maybe (fromMaybe)
import Effect (Effect)
import Effect.Class.Console (log)
import Effect.Ref (Ref, new, read, write)
```

```
import Data.Maybe (Maybe(..))
import Data.Either (Either(..))
import Data.Traversable (traverse_)
import Prim.Boolean
import Web.HTML.HTMLCanvasElement as HTML

import ThreeJS as TJS

import Parser (Program, parseProgram)
import MonitorState (Monitor, defMonitor, removeMonitor, alignMonitor,
   playVideoElement)
import Transmission (Transmission)

-- python3 -m http.server 8000

type RenderEngine =
  {
  scene :: TJS.Scene,
  camera :: TJS.PerspectiveCamera,
  renderer :: TJS.Renderer,
  program :: Ref Program, -- :: List Statement
  monitors :: Ref (List Monitor)
  }

----------------------------------------

launch :: HTML.HTMLCanvasElement -> Effect RenderEngine
launch cvs = do
  log "launch now with ineffective program"
  scene <- TJS.newScene
  iWidth <- TJS.windowInnerWidth
  iHeight <- TJS.windowInnerHeight
  camera <- TJS.newPerspectiveCamera 45.0 (iWidth/iHeight) 0.1 100.0
  TJS.setPosition camera 0.0 0.0 15.0
  renderer <- TJS.newWebGLRenderer {antialias: true, canvas: cvs}
  TJS.setSize renderer iHeight iWidth false
  lights <- TJS.newHemisphereLight 0xffffff 0xffffff 3.0
  TJS.addAnythingToScene scene lights
  program <- new Nil
  monitors <- new Nil
  let re = {scene, camera, renderer, program, monitors}
  pure re

animate :: RenderEngine -> Effect Unit
animate re = do
```

```
  p <- read re.program
  runProgram re p
  TJS.render re.renderer re.scene re.camera

evaluate :: RenderEngine -> String -> Effect (Maybe String)
evaluate re s = do
  case parseProgram s of
    Right p -> do
      log (show p)
      write p re.program
      pure Nothing
    Left err -> pure $ Just err

---------------------------------------

runProgram :: RenderEngine -> Program -> Effect Unit
runProgram re p = do
  alignMonitors re p
  playVideoElementsInMonitors re

alignMonitors :: RenderEngine -> Program -> Effect Unit
alignMonitors re p = do
  let tLen = length p -- :: Int
  ms <- read re.monitors -- :: List Monitor
  let mLen = length ms -- :: Int
  -- stage 1: align the number of monitors
  case mLen == tLen of
    true -> pure unit -- if same length, do nothing
    false -> do -- if different length, then:
      case mLen > tLen of
        -- if mLen is longer than tLen, then remove excess monitors
        true -> do
          let keptMonitors = take tLen ms -- monitors we keep
          let droppedMonitors = drop tLen ms -- monitors we drop
          traverse_ (removeMonitor re.scene) droppedMonitors
          write keptMonitors re.monitors
        -- if mLen is shorter than tLen, then add new monitors
        false -> do
          let howManyMonitorsAreMissing = tLen - mLen -- :: Int
          let indicesOfNewMonitors = range (mLen + 1) (mLen +
              howManyMonitorsAreMissing)
          traverse_ (newMonitor re) indicesOfNewMonitors
  -- stage 2: align each monitor with each tranmissions
  ms' <- read re.monitors
  _ <- zipWithA (alignMonitor re.scene) ms' p
```

```
  pure unit

--

newMonitor :: RenderEngine -> Int -> Effect Unit
newMonitor re i = do
  m <- read re.monitors -- :: List Monitor
  dm <- defMonitor -- :: Monitor
  let m' = replaceAt i dm m -- :: List Monitor
  write m' re.monitors

replaceAt :: forall a. Int -> a -> List a -> List a
replaceAt i v a
  | i >= length a = snoc a v
  | otherwise = fromMaybe a $ updateAt i v a

playVideoElementsInMonitors :: RenderEngine -> Effect Unit
playVideoElementsInMonitors re = do
  ms <- read re.monitors
  traverse_ playVideoElement ms -- :: Effect Unit


--- errores
--- primera linea> lo que le doy
--- segunda linea> lo que le debo dar
```

A.3.10 MonitorState.purs

```
module MonitorState
(
Monitor(..),
defMonitor,
removeMonitor,
alignMonitor,
playVideoElement
) where

import Prelude (Unit, unit, bind, discard, pure, show, negate, ($), (/),
   (/=), (==), (<>))
import Effect (Effect)
import Data.Eq (class Eq)
import Data.Ord (class Ord)
```

```
import Effect.Class.Console (log, error)
import Effect.Ref (Ref, new, read, write)
import Data.Maybe
import Data.Either
import Web.HTML.HTMLCanvasElement as HTML
import Web.HTML.HTMLMediaElement as HTML2
import Web.HTML.HTMLMediaElement (HTMLMediaElement)

import ThreeJS as TJS

import Transmission (Transmission, Vec3, Vec2)

type Monitor = {
  -- texture
  currVidURL :: Ref String,
  video :: HTMLMediaElement,
  vidTexture :: TJS.TextureLoader,
  vol :: Ref Number,
  -- object
  currObjURL :: Ref String,
  obj :: Ref (Maybe TJS.OBJ),
  -- material
  currMtlURL :: Ref String,
  material :: Ref (Maybe TJS.MTL),
  -- material settings
  opacity :: Ref Number,
  colour :: Ref Vec3,
  emissionColour :: Ref Vec3,
  emissionIntensity :: Ref Number
  }

----------------------------------------

defMonitor :: Effect Monitor
defMonitor = do
  -- texture
  currVidURL <- new defURL
  video <- defVidElem
  vidTexture <- defVidTexture video
  vol <- new 0.0
  -- object
  currObjURL <- new defURL
  obj <- new Nothing
  -- material
  currMtlURL <- new defURL
```

```
  material <- new Nothing
  -- material settings
  opacity <- new 1.0
  colour <- new {x: 0.0, y: 0.0, z: 0.0}
  emissionColour <- new {x: 0.0, y: 0.0, z: 0.0}
  emissionIntensity <- new 1.0
  --
  let mo = {currVidURL, video, vidTexture, vol, currObjURL, obj, currMtlURL,
      material, opacity, colour, emissionColour, emissionIntensity}
  pure mo

defURL :: String
defURL = ""

defVidElem :: Effect HTML2.HTMLMediaElement
defVidElem = do
  v <- TJS.createElement "video"
  crossOrigin v
  HTML2.setSrc defURL v
  pure v

foreign import crossOrigin :: HTMLMediaElement -> Effect Unit

defVidTexture :: HTML2.HTMLMediaElement -> Effect TJS.TextureLoader
defVidTexture v = do
  vidTexture <- TJS.videoTexture v
  pure vidTexture

--------------------------------
---- monitor ---

removeMonitor :: TJS.Scene -> Monitor -> Effect Unit
removeMonitor sc mo = do
  removeObj sc mo
  removeMaterial sc mo

alignMonitor :: TJS.Scene -> Monitor -> Transmission -> Effect Unit
alignMonitor sc mo t = do
  -- 1. change video url if necessary
  updateURLfromVidElem mo t.channel
  updateVol mo t.volume
  -- 2. change/load obj url/object
  changeOrLoadObjIfNecessary sc mo t.tv t.translucidez (v3ToX t.colour) (
     v3ToY t.colour) (v3ToZ t.colour) (v3ToX t.emissionColour) (v3ToY t.
     emissionColour) (v3ToZ t.emissionColour) t.emissionIntensity
```

```
  -- 3. change/load material url/create new mesh
  changeOrLoadMatIfNecessary sc mo t.mapping t.translucidez (v3ToX t.colour)
      (v3ToY t.colour) (v3ToZ t.colour) (v3ToX t.emissionColour) (v3ToY t.
     emissionColour) (v3ToZ t.emissionColour) t.emissionIntensity
  -- 4. transform Transmission
  changeMatParametersIfNecessary sc mo t.translucidez (v3ToX t.colour) (
     v3ToY t.colour) (v3ToZ t.colour) (v3ToX t.emissionColour) (v3ToY t.
     emissionColour) (v3ToZ t.emissionColour) t.emissionIntensity
  transformTransmission sc mo t
  transformVidTexture mo.vidTexture t

---- Obj ---

changeOrLoadObjIfNecessary :: TJS.Scene -> Monitor -> String -> Number ->
    Number -> Number -> Number -> Number -> Number -> Number -> Number ->
    Effect Unit
changeOrLoadObjIfNecessary sc mo url t rC gC bC rE gE bE iE = do
  currURL <- read mo.currObjURL
  if url == currURL
    then (pure unit)
    else do -- if the load is triggered:
      removeObj sc mo -- remove and dispose obj
      loader <- TJS.newOBJLoader
      TJS.loadOBJ loader url $ \o -> do
        write (Just o) mo.obj
        tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
      write url mo.currObjURL

---- Material ---

changeOrLoadMatIfNecessary :: TJS.Scene -> Monitor -> String -> Number ->
    Number -> Number -> Number -> Number -> Number -> Number -> Number ->
    Effect Unit
changeOrLoadMatIfNecessary sc mo url t rC gC bC rE gE bE iE = do
  currURL <- read mo.currMtlURL
  if url == currURL
    then (pure unit)
    else do -- if the load is triggered:
      loader <- TJS.newMTLLoader
      removeMaterial sc mo -- remove and dispose material
      TJS.loadMTL loader url $ \m -> do
        preloadMaterials m
        --TJS.printAnything m
        write (Just m) mo.material
        tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
```

```
      write url mo.currMtlURL

changeMatParametersIfNecessary :: TJS.Scene -> Monitor -> Number -> Number
    -> Number -> Number -> Number -> Number -> Number -> Number -> Effect
    Unit
changeMatParametersIfNecessary sc mo t rC gC bC rE gE bE iE = do
  -- reading current mat settings
  currOpacity <- read mo.opacity
  currColour <- read mo.colour
  currEmissionColour <- read mo.emissionColour
  currEmissionIntensity <- read mo.emissionIntensity
  -- change opacity if necessary
  if t == currOpacity
    then (pure unit)
    else tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
  -- change colour if necessary
  if {x:rC, y:gC, z:bC} == currColour
    then (pure unit)
    else tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
  -- change emissive colour if necessary
  if {x:rE, y:gE, z:bE} == currEmissionColour
    then (pure unit)
    else tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
  -- change emissive intensity if necessary
  if iE == currEmissionIntensity
    then (pure unit)
    else tryToMakeTransmission sc mo t rC gC bC rE gE bE iE
  -- write back curr values
  write t mo.opacity
  write {x:rC, y:gC, z:bC} mo.colour
  write {x:rE, y:gE, z:bE} mo.emissionColour
  write iE mo.emissionIntensity


---- Mesh ---

tryToMakeTransmission :: TJS.Scene -> Monitor -> Number -> Number -> Number
    -> Number -> Number -> Number -> Number -> Number -> Effect Unit
tryToMakeTransmission sc mo t rC gC bC rE gE bE iE = do
  currURL <- read mo.currObjURL
  g <- read mo.obj
  case g of
    Nothing -> pure unit
    Just g' -> do
      m <- read mo.material
```

```
      case m of
        Nothing -> pure unit
        Just m' -> makeTransmission currURL sc g' m' mo.vidTexture t rC gC bC
            rE gE bE iE

removeObj :: TJS.Scene -> Monitor -> Effect Unit
removeObj sc mo = do
  g <- read mo.obj
  case g of
    Nothing -> pure unit
    Just g' -> do
      TJS.disposeAnything g'
      TJS.removeObject3D sc g'
      write Nothing mo.obj

removeMaterial :: TJS.Scene -> Monitor -> Effect Unit
removeMaterial sc mo = do
  m <- read mo.material
  case m of
    Nothing -> pure unit
    Just m' -> do
      TJS.disposeAnything m'
      TJS.removeObject3D sc m'
      write Nothing mo.material

-------- Transmission --------

makeTransmission :: String -> TJS.Scene -> TJS.OBJ -> TJS.MTL -> TJS.
   TextureLoader -> Number -> Number -> Number -> Number -> Number
    -> Number -> Number -> Effect Unit
makeTransmission url sc g m vt t rC gC bC rE gE bE iE = do
  -- 1. combine the three things to make a mesh
  mapVidToMatNone m vt
  mapChildrenToMatNone g m
  -- Transform Material
  matTransparency g
  matOpacity g t
  matColor g rC gC bC
  matEmisColour g rE gE bE
  matEmisInt g iE
  --
  TJS.printAnything m
  -- 2. add mesh to scene
  TJS.addAnythingToScene sc g
```

```
-- Imported Functions --
foreign import preloadMaterials :: TJS.MTL -> Effect Unit
foreign import mapVidToMatNone :: TJS.MTL -> TJS.TextureLoader -> Effect
   Unit
foreign import mapChildrenToMatNone :: TJS.OBJ -> TJS.MTL -> Effect Unit
foreign import matTransparency :: TJS.OBJ -> Effect Unit
foreign import matOpacity :: TJS.OBJ -> Number -> Effect Unit
foreign import matColor :: TJS.OBJ -> Number -> Number -> Number -> Effect
   Unit
foreign import matEmisColour :: TJS.OBJ -> Number -> Number -> Number ->
   Effect Unit
foreign import matEmisInt :: TJS.OBJ -> Number -> Effect Unit
---

transformTransmission :: TJS.Scene -> Monitor -> Transmission -> Effect Unit
transformTransmission sc mo t = do
  g <- read mo.obj -- call it: obj
  case g of
    Nothing -> pure unit
    Just o -> transformTransmission' o t

transformTransmission' :: TJS.OBJ -> Transmission -> Effect Unit
transformTransmission' g t = do
  TJS.setScaleOfAnything g t.size t.size t.size
  TJS.setPositionOfAnything g (v3ToX t.position) (v3ToY t.position) (v3ToZ t
     .position)
  setRotationX g t.rotation.x
  setRotationY g t.rotation.y
  setRotationZ g t.rotation.z

-- Set Rotation: Either dynamiRot or fixedRot
setRotationX :: TJS.OBJ -> Either Number Number -> Effect Unit
setRotationX o (Left v) = dynRotX o v
setRotationX o (Right n) = TJS.setRotationX o n

setRotationY :: TJS.OBJ -> Either Number Number -> Effect Unit
setRotationY o (Left v) = dynRotY o v
setRotationY o (Right n) = TJS.setRotationY o n

setRotationZ :: TJS.OBJ -> Either Number Number -> Effect Unit
setRotationZ o (Left v) = dynRotZ o v
setRotationZ o (Right n) = TJS.setRotationZ o n
                              -- velocity
foreign import dynRotX :: TJS.OBJ -> Number -> Effect Unit
foreign import dynRotY :: TJS.OBJ -> Number -> Effect Unit
```

```
foreign import dynRotZ :: TJS.OBJ -> Number -> Effect Unit

-------- vidTexture --------

transformVidTexture :: TJS.TextureLoader -> Transmission -> Effect Unit
transformVidTexture vt t = do
  TJS.setRepeatOfAnything vt (v2ToX t.channelReapeater) (v2ToY t.
     channelReapeater)
  TJS.format vt (stringToFormatID t.fulcober)

stringToFormatID :: String -> TJS.FormatID
stringToFormatID "rgb" = TJS.rgbaFormat
stringToFormatID "rgba" = TJS.rgbaFormat
stringToFormatID "erregebe" = TJS.rgbaFormat
stringToFormatID "alcolor" = TJS.rgbaFormat
stringToFormatID "a" = TJS.alphaFormat
stringToFormatID "alpha" = TJS.alphaFormat
stringToFormatID "alfa" = TJS.alphaFormat
stringToFormatID "r" = TJS.redFormat
stringToFormatID "red" = TJS.redFormat
stringToFormatID "rojo" = TJS.redFormat
stringToFormatID "rg" = TJS.rgFormat
stringToFormatID "errege" = TJS.rgFormat
stringToFormatID "redgreen" = TJS.rgFormat
stringToFormatID "verdirojo" = TJS.rgFormat
stringToFormatID "b&w" = TJS.luminanceFormat
stringToFormatID "blackandwhite" = TJS.luminanceFormat
stringToFormatID "negriblanco" = TJS.luminanceFormat
stringToFormatID "luminancealpha" = TJS.luminanceAlphaFormat
stringToFormatID _ = TJS.rgbaFormat

-------- vElem & currVidURL --------

playVideoElement :: Monitor -> Effect Unit
playVideoElement mo = do
  let v = mo.video -- :: HTML2.HTMLMediaElement
  HTML2.play v

-- url
updateURLfromVidElem :: Monitor -> String -> Effect Unit
updateURLfromVidElem mo url = do
  let v = mo.video -- :: HTML2.HTMLMediaElement
  currVol <- read mo.vol
  currURL <- read mo.currVidURL -- :: String
  if url /= currURL
```

```
    then do
      HTML2.setSrc url v
      TJS.preloadAnything v
      HTML2.load v
      HTML2.setLoop true v
      HTML2.setMuted false v
      HTML2.setVolume currVol v
      write url mo.currVidURL -- write new info
    else (pure unit)

updateVol :: Monitor -> Number -> Effect Unit
updateVol mo newVol = do
  let v = mo.video -- :: HTML2.HTMLMediaElement
  currVol <- read mo.vol -- :: Number
  if newVol /= currVol
    then do
      HTML2.setVolume newVol v
      write newVol mo.vol -- write new info
    else (pure unit)


------------------------

----- General -----

v2ToX :: Vec2 -> Number
v2ToX v2 = v2.x

v2ToY :: Vec2 -> Number
v2ToY v2 = v2.y

v3ToX :: Vec3 -> Number
v3ToX v3 = v3.x

v3ToY :: Vec3 -> Number
v3ToY v3 = v3.y

v3ToZ :: Vec3 -> Number
v3ToZ v3 = v3.z
```

A.3.11 MonitorState.js

```
//
export const crossOrigin = v => () => v.crossOrigin = "Anonymous";

// General
export const preloadMaterials = m => () => m.preload()

// Mapping Materials
export const mapVidToMatNone = m => vt => () => m.materials.None.map = vt;

export const mapChildrenToMatNone = o => m => () => o.children[0].material =
    m.materials.None;

// Opacity
export const matTransparency = o => () => o.children[0].material.transparent
    = true;

export const matOpacity = o => n => () => o.children[0].material.opacity = n
   ;

// Color
export const matColor = o => n1 => n2 => n3 => () => o.children[0].material.
   color = {r: n1, g: n2, b: n3};

// Emission Color
export const matEmisColour = o => n1 => n2 => n3 => () => o.children[0].
   material.emissive = {r: n1, g: n2, b: n3};

export const matEmisInt = o => n => () => o.children[0].material.
   emissiveIntensity = n

// Rotation
export const dynRotX = o => v => () => o.rotation.x += v;

export const dynRotY = o => v => () => o.rotation.y += v;

export const dynRotZ = o => v => () => o.rotation.z += v;
```