MAST

The Journal of Media Art Study and Theory

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MAST
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Aims and Scope

MAST is an online, open-access, and double-blind peer-reviewed journal featuring interdisciplinary scholarship in the domain of media studies. *MAST* stands for "Media Art Study and Theory" and aims to publish innovative research, writing, and work by artists and scholars who present new methods, approaches, questions, and researches in the field of media studies in theory and practice. The journal is relevant to academics, artists, researchers, theorists, and art curators with an interest in artistic research, theory, and praxis of media, introducing works that demonstrate creative engagements with current debates in media studies. *MAST* is housed in and sponsored by NeMLA (The Northeast Modern Language Association) at the State University of New York at Buffalo. *MAST* issues are published digitally twice a year (Spring and Fall).

Contents

MAST

The Art of Media Research: An Introduction

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Today, the traditional boundaries between theory and practice have undergone a transformative shift, resulting in the emergence of an innovative approach known as practice-based research. At its core, practice-based study positions artistic practice as a form of inquiry, emphasizing experiential engagement with tools, artifacts, experiences, and processes for conducting research. Unlike traditional research paradigms that often prioritize textual analysis and theoretical critique, this approach combines practice and theory in a complementary way, advocating for a more immersive, experimental, and participatory understanding of objects and phenomena. One of the defining features of practice-based research is its commitment to generating knowledge through creation, echoing the idea that research is a means of "seeking knowledge where it did not exist before" (Busch 64). Art, in this context, presents something new to experience.

To elaborate on the nature of art-based research and its contribution to the formation of new knowledge, Linda Candy and Ernest Edmonds emphasize an important aspect: a loop that begins with practice and eventually feeds back into the practice, yielding "new knowledge about practice that informs practice" (63). In this framework, "the role of the artifact as an art object is not illustrating anything but is a subject of interest in itself" (65). Whether through film, digital storytelling, interactive design, or other mediums, artists actively contribute to knowledge

formation, deepening the understanding of underlying theoretical concepts. As Kathrin Busch writes, "art and theory are nothing more than two different forms of practice interrelated through a system of interaction and transferences" (66). This symbiotic relationship enriches academic discourse and brings academia into a dynamic conversation with the evolving realm of arts.

The growing recognition and integration of practice-based research have also emerged as a significant influence in the rapidly changing landscape of media studies. Technological advancements continue to redefine our engagement with media and technology, prompting scholars and practitioners to recognize the need for a more hands-on exploration and understanding of the field. Furthermore, practice-based research serves as a catalyst for innovation and adaptation within the field of media studies. As media and technology evolve, methodologies for understanding and interpreting them must also evolve. By actively participating in the creation of media artifacts, researchers are better equipped to grasp the nuances of contemporary media landscapes and respond to emerging trends in real-time. This adaptability enhances the relevance of media studies for today's world and positions it at the forefront of socio-cultural transformations influenced by the pervasiveness of media and technology.

In this framework, it is important to acknowledge the variety of ways in which practice-based research can be performed. Practice-based research challenges the notion of a one-size-fits-all methodology, recognizing the diverse array of media forms and platforms. From traditional realms like television and cinema to the ever-expanding digital domains of social media and virtual reality, this approach adapts its methods to suit the unique affordances and challenges presented by each medium. In doing so, practice-based research reflects its fluid and adaptive nature to contribute to the field of media studies.

Undoubtedly, one of the key advantages of practice-based research is its ability to encourage collaboration between researchers, artists, and industry professionals, creating a fertile ground for the cross-pollination of ideas. A filmmaker collaborating with a sociologist may yield insights into the societal impact of visual narratives, while a journalist working alongside a computer scientist might explore innovative ways to leverage emerging technologies in news reporting. As scholars engage in production and creative practice to perform their research, they grapple with questions of aesthetics, ethics, and cultural impact, fostering a deeper awareness of the intricate interplay between theory and practice. This dynamic and interdisciplinary environment not only contributes to a nuanced understanding of technology in its diverse adaptations but also holds the potential to influence the industry and cultural production itself.

Practice-based research in media studies stands at the forefront of an exciting convergence between academic inquiry and creative expression. By embracing the transformative potential of hands-on engagement, scholars pave the way for a more holistic and responsive approach to understanding the complexities of the ever-evolving media landscape. This interdisciplinary methodology challenges traditional research paradigms and opens up new avenues for collaboration, innovation, and critical reflection within the vibrant field of media studies. This special issue of MAST seeks to further explore the potentials in the art of media research and how practice-based study can direct us to new possibilities, experiences, and knowledge.

In "*Blue Lines at Blackrock*: Digital Wayfaring and Mobile Media Art," Marsha Berry takes her media practice as a point of departure to explore the dynamic and often overlooked aspects of everyday experiences. Her research strategy employs a non-representational ontology to delve into the emerging field of mobile media and the implications of embodied experiences

in media arts. Focusing on digital wayfaring and the use of smartphones in creative processes, the article explores the concept of "lifeworlds" with mobile media art as a form of practice-based research. Berry offers a detailed account of the creation process behind the video poem *Blue Lines at Blackrock* and argues for the potential of digital wayfaring and smartphone technology in artistic expression for media research.

Kazuhiro Jo and Paul DeMarinis employ a media archaeological approach as their method of practice-based study to revisit the historical narratives of sound reproduction. Embracing the aesthetic values of mechanically reproduced sound, the authors position their artistic practice within the broader contexts of media art history. Based on the artworks titled *Mary Had a Little Lamb* (2019) and *We Were Away a Year Ago* (2023), the article discusses how the linear history of media and the perceived novelty of contemporary technologies can be challenged and questioned. Proving the creative potential of media archaeological methods in art-based research, Jo and DeMarinis offer a refreshed view to understanding of the technologies of sound reproduction.

In their contribution, Mark Goodall and Karen Thornton focus on *New Postscripts*, their collaborative project that reworks J.B. Priestley's WWII broadcasts between May 1940 and March 1941 in the style of a radio program for a contemporary audience in Bradford. One of the original features of the *New Postscripts* project is its incorporation of diverse voices to remake Priestley's work. The project stands as a compelling example of art-based research that celebrates the enduring power of radio and sound art. It challenges conventional notions about the influence of different media forms, affirming the significance of sound art in conveying new ideas and values. Made through interdisciplinary collaborations, this art-based research underscores the significance of creative practice in contributing to both the historical

understanding of medium of sound and its evolving impacts on contemporary culture, making it a valuable and relevant exploration for scholars and practitioners in the field.

In "Exhibiting Computational Language Art," Nick Montfort offers valuable insights into the conceptualization, implementation, and material engagement with four of his artworks titled *Round*, *Autofolio Babel, Process Pages*, and *Tech Section*. Montfort's practice-based research provides a nuanced definition of computational language art with an emphasis on the aesthetic aspects of the integration of computation and language, both as the artist's primary mediums in this series. The article links computational language art to the rich traditions of story generation research and generative AI systems, showcasing its evolution and diverse manifestations. The artworks are programmed and designed to particularly encourage viewer interactions, emphasizing the engagement with the material aspects of computing. Montfort's contribution highlights the potential of computational language art as a unique and thought-provoking form of artistic expression that combines computational processes with literary and artistic sensibilities.

In a collaborative work, Brian House, Annie Aries, and Marcel Zaes Sagesser develop their artistic research through delving into the socio-technical contexts of *Metric Displacement*, an installation they have built during the COVID-19 pandemic. Their article combines multidisciplinary insights from media studies, sound art, communication and network theories to contextualize the artwork. The authors investigate the implications of their quarantined teamwork and the impact of digital networks on this artistic collaboration. *Metric Displacement* draws our attention to the unseen materiality of digital network infrastructure, revealing that network connections are not, as usually promised, smooth, perfect and without friction. The article positions sound art as a critical practice that reveals the invisible power structures embedded in networked communications. By using sound to expose the material conditions and

disruptions in networked interactions, the installation offers an alternative perspective to the often idealized view of digital connectivity.

In her article "Rotoscoping Saint Agatha Out of her own Myth in an Aesthetics of Reparation," Bernadette Wegenstein navigates the tropes of her art-based research through a multidisciplinary approach to her animation film. She combines ethnographic exploration, feminist intervention, and cinematic analysis to reinterpret the Saint Agatha myth remade in her work. Wegenstein integrates historical representations with contemporary voices to shed light on the enduring impact of trauma on both an individual and a community's emotional fabric. Her feminist intervention employs a rotoscoping technique to reverse the patriarchal gaze and tell the story of Saint Agatha in her own way. The article's emphasis on feminist interventions aligns with the growing body of research within media studies that seeks to challenge and reshape traditional narratives through diverse perspectives. By employing a practice-based research methodology, the author enhances the understanding of trauma recovery in the context of media studies, demonstrating the transformative potential of creative practice in addressing gendered narratives.

Delving into the theme of protocological thinking, in "Prodigious Protocols" Maja Bak Herrie explores an outstanding art project by French artist Stéphanie Solinas titled *Le Bureau des Miracles*. The project is recognized by its innovation in merging art, SMS technology, and participatory communication. Herrie's article is grounded in the theoretical frameworks of Claire Bishop's aggregative knowledge production to provide new insights into the potential of Solinas' art project. It examines how the use of technology challenges and transforms participant engagement, reflecting on some intriguing questions such as "what it means to see, operate, and know along the lines of the protocol"? Foregrounding a multiplicity of aspects in reading Le

Bureau des Miracles, Herrie's piece contributes to a broader discourse on art-based research and its essential role in knowledge production.

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Blue Lines at Blackrock:
Digital Wayfaring and Mobile Media Art

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In my video poem, *Blue Lines at Blackrock*[1] I explore what it means to be present in a place with a smartphone camera, specifically the coastal paths running through bayside Beaumaris and Blackrock on unceded Boon Wurrung/Bunarong lands in Melbourne, Australia. Material bodies, physical surroundings, and circumstances are at the center of experiences, perceptions, and understandings of lifeworlds. The idea of an a priori lifeworld (Lebenswelt) is a concept that may be traced back to phenomenology and the philosopher Edmund Husserl (1954-1970). The lifeworld is the world as directly experienced by people through the subjective sensorium of everyday life and includes individual, social, affective, perceptual, and practical experiences. The trouble here is that things and actions that are fundamental to how we intervene in, and make sense of the world, are often not discussed or acknowledged in academic literature. Places and lifeworlds are subject to conditions that are constantly changing. Material bodies, physical surroundings, and circumstances are dynamic and unsettled. These qualities in turn make them troublesome for academic enquiry.

My main proposition in this essay is that creative practice research using practice-based research methods (Candy and Edmonds) and informed by a non-representational ontology

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[1] vimeo.com/370457674

(Ingold, Vannini) provides a strategy that embraces the troublesome qualities of lifeworlds and provides methods and methodologies for new ways of perceiving and understanding interactions and relationships between material bodies and physical surroundings. I present the genesis and development of a video poem called *Blue Lines at Blackrock* to illustrate how a non-representational research strategy may be employed to both generate creative works as well as to situate these as non-traditional research outputs. *Blue Lines at Blackrock* explores what it means to be materially and digitally present in the lifeworld with a smartphone camera. The work was shot on a smartphone and participates in the emerging field of mobile media art.

Through my mobile media art research, I explore an ongoing research question: What new ways and methods for making creative works (including mobile films) are emerging through the practice of digital wayfaring and how can I capture and share life on the move? I take my definition of digital wayfaring from Hjorth and Pink whereby, a "digital wayfarer as we conceptualise her or him does not simply weave her or his way around the material physical world. Rather, their trajectory entangles online and offline as they move through the weather and the air, with the ground underfoot and surrounded by people and things, while traversing digital maps, social networking sites, and other online elements" (45-46).

The entanglements of smartphones and the everyday have helped to shape our lifeworlds and have expanded opportunities for vernacular creative practices and art-making involving photography and video that draw on intersubjective experiences within collective everyday activities and interactions. Bourriaud theorized such intersubjective experiences as relational aesthetics and argues that these come into play where the artist tries to capture "the world on the move" (14) and where "each offering becomes a proposal to live in a shared world" (15).

There are numerous examples of mobile films that reflexively draw on relational aesthetics to capture and share dynamic lifeworlds such as Gerda Cammaer's autobiographical work *Mobilarte* where she documents her travels in Mozambique using an iPad; Leo Berkley's *57 Tram* where he filmed his tram commutes on a mobile phone, and Adam Kossof's *Moscow Diary* where he revisits streets and buildings in Moscow mentioned by Walter Benjamin in his diary from his visit to Moscow in 1926-1927. Furthermore, the affordances of mobile media, according to Schelser, have provided filmmakers and artists in the 21st century with new opportunities to make cultural contributions to movie-making and storytelling. Mobile filmmaking is part of a wider and expanding field of creative arts practices that may be regarded as mobile media art.

In a recent volume, Hjorth, de Souza, and Lanson bring together essays about mobile media art written by a diverse ensemble of creative practitioners and academics. They seek to delineate the field of mobile media art whereby "artists are generating lively, playful, and imaginative ways of being in a digitally enhanced world by performing and experimenting with the everyday" (3). They point to the intersectionality of the entanglements mobile media art has with everyday sociability and how artists and writers are "seeking to create affective modes and alternative ways to consider how lifeworlds flow through a lively balance of social aesthetics and ideals" (3). They emphasize the materiality and liveliness of mobile media art. They identify the importance of the relationship between everyday social rituals and activities, smartphones, and art making.

Blue Lines at Blackrock is situated within a wider frame of art practice and interventions that fit within the ever-expanding boundaries of mobile media art. My mobile media art practice has developed into ritualized methods of digital intervention in the form of photos, haiku-like

text, and short videos posted to Facebook and Instagram through wayfaring around my neighborhood with my smartphone. My small social media posts seek to touch and connect other humans about ongoing everyday sights and ordinary feelings so as "to nurture well-being on a damaged planet" (Haraway 76). *Blue Lines at Blackrock* is a practice-based culmination (Candy and Edmonds) of one of my digital wayfaring interventions.

My art-making methods include the use of my smartphone to gather material joining digital and physical co-presence together as a wayfarer artist and poet searching for evocative moments. I draw on the anthropologists Tim Ingold and Phillip Vannini and their non-representational approaches to situate and theorize my mobile media art-making practices. Vannini presents a way to enliven ethnographic writing through a focus on what he terms an "ethos of animation" (320) which has five qualities: vitality, performativity, corporeality, sensuality, and mobility. In other words, close attention should be paid to the materiality of experiences in the lifeworld. I applied these five qualities both as methods to make *Blue Lines at Blackrock* and as a theory frame to theorize my creative practice research.

Vannini begins with the quality of vitality where he observes, "A vitalist ethnography, in short, is an ethnography pulled and pushed by a sense of wonder and awe with a world that is forever escaping, and yet seductively demanding, our comprehension" (320). Intuition and inductive ways of working that embrace both the evocative and the affective. Attention to vitality opens a myriad of possibilities for methodological synergies and complementary relations between ethnography and creative arts research. A vital creative practice is forever unfolding and often filled with wonderings. The making of *Blue Lines at Blackrock* was motivated by watching the sunset unfold and wondering about the connections between my lived experience and

Rebecca Solnit's musings about the blueness of distance and horizon lines. I discuss this association in detail later.

The second quality Vannini describes is performativity whereby there is a focus on action, which "emphasizes the importance of ritualized performances, habitual and non-habitual behaviors, play and the various scripted and unscripted, uncertain and unsuccessful doings of which everyday life is made" (320). Performativity emphasizes the background and mundane aspects of how things get done. My digital wayfaring is a daily routine for me where I post photos and videos of things that catch my eye and I add haiku-like descriptions to them. This is a performative routine. My sojourn to Blackrock at sunset when I shot the video material for my video and shared it on social media was one such routine. Feedback from friends and followers was a key factor in deciding whether my posts had resonance and whether this intervention was worth developing into a fully realized video poem.

The third quality is corporeality, whereby "the researcher's body as the key instrument for knowing, sensing, feeling and relating to others and self" (321) so that "affect is a medium through which ethnographic research unfolds" (321). The researcher's body itself is a way of knowing—an ethos of animation acknowledges enacted and embodied forms of knowledge. Creative practice by its very nature is embodied. Digital wayfaring is embodied where affect is a key medium for my creative practice. My lived experience of standing still and filming on a chilly winter's evening became part of my video poem.

The fourth quality in Vannini's ethos of animation is sensuality and this serves to "underline the not-necessarily reflexive sensory dimensions of experience by paying attention to the perceptual dimensions" (322). This quality is key to my intentions and permeates my creative practice research. Through the words of the voiceover in *Blue Lines at Blackrock*, I invite the

viewer to imagine the sensations of wonder evoked by the sea and horizon at sunset. The words

focus on the perceptual aspects. The poem opens with the following words taken from the script:

"A blue line in the distance—scattered wet motes of blues and rosy golds dance their way into

the horizon—of where I am not, cannot be when I'm here—colors inhaled dissolve with each

breath out."

The fifth and final quality is mobility, which seeks to account for the kinetic dimensions

of fieldwork where "ethnographic journeys are not planned transitions from the office to the field

site but wanderings through which movement speaks" (323). Once again, enacted and visceral

methodologies are acknowledged through non-representational research approaches. Digital

wayfaring, according to Hjorth and Pink is not about getting from A to B but rather a situated

and embodied way of observing and evoking the nuances and dynamism of being in the

lifeworld. Mobility is central to digital wayfaring. On this occasion, mobility became about

standing still so that I could get video clips that were more like photographs where the frame was

still and only the movement was sea and birds within the frame.

Blue Lines at Blackrock began as a series of video clips and haiku-like poems posted to

Facebook and Instagram on a clear winter's night at sunset as I stood very still and filmed the sea

and horizon in static frames. I wanted to create a visual meditation where there was no motion

deliberately created, rather the only motion would be the changing light and waves in the sea. I

didn't have a tripod, so this was quite challenging. My hands were cold too as I couldn't wear

gloves and use the smartphone camera to record. This place on the unceded Boonwurrung

(Bunarong) land of the Kulin nation is very familiar to me, yet each time I come here, it is

changing—sometimes the differences are dramatic and at other times they are subtle shifts in the

light and sheen of the sea. I began to wonder about how I understood this place on this evening

as I looked towards the horizon. The image of the horizon below is from one of the clips I videoed while standing still.
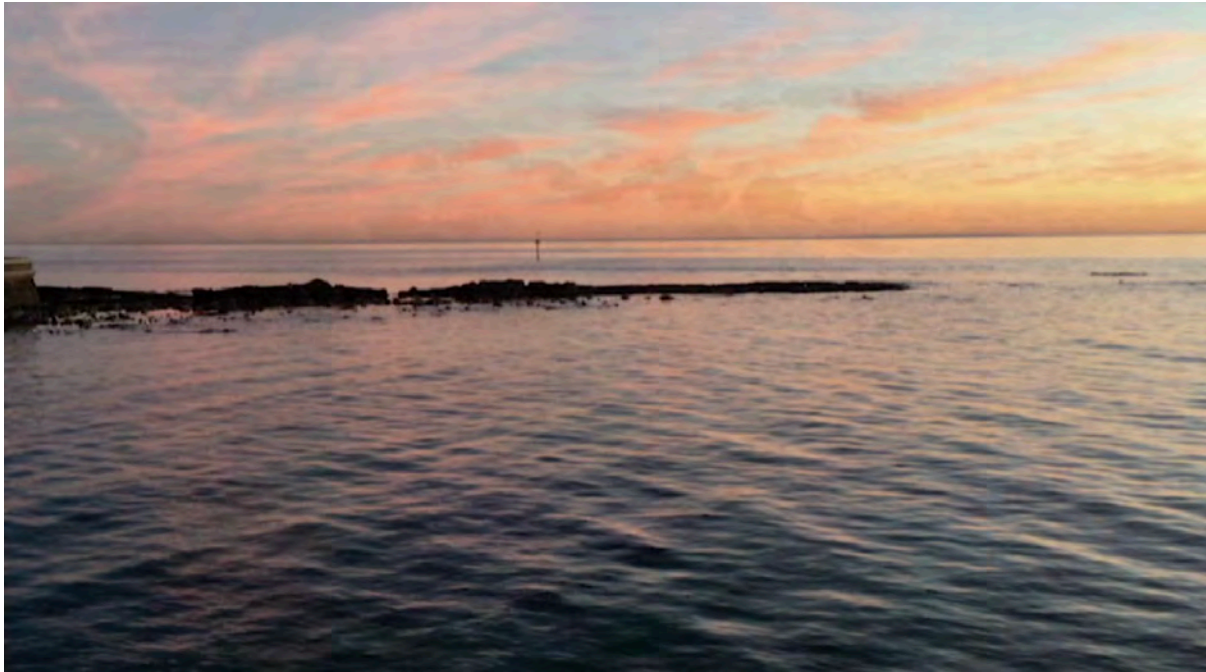

Fig1. Main layer for *Bluelines at Blackrock*.

My thoughts turned to Rebecca Solnit who wrote about how horizons, depths, water, and distance appear blue. She claims that blue comes from light that gets lost and gives us beauty. Her essay is constructed as a series of conjunctions where her thoughts meander tenderly between philosophy and the materiality of her experience searching for epiphanies. She speaks poignantly of the beauty of her experience of walking towards Antelope Island one drought year and how while she could not get literally lost, she lost all track of time so that being lost was not about "dislocation but about the immersion when everything else falls away" (Solnit 36). I videoed the sea with the reference point of a horizon line that I would use later in the editing process to evoke a sense of immersion.

Fig 2. Overlay from *Blue Lines at Blackrock*.

I thought I could riff off Solnit's musings about getting lost in moments of wonder - my intention became to evoke the corporeality of the common human experience of losing one's self in the horizon line between the sky and sea at sunset around sunset when the angle of the sun and earth creates a magical light, which tends to evoke an atmosphere of reverie. I videoed numerous clips of the horizon line.

Digital wayfaring is integral to my creative process. I posted some of the video clips to Instagram and Facebook to gauge people's reactions. (Later I would blur and disrupt the horizon line with overlays of the sea with no horizon for reference.) I added poetic phrases to photos. The process of composing video poem through digital wayfaring had commenced. I continued to post clips and haiku about this experience on social media. The reactions I received were very encouraging and my images were evoking reveries.

Fig 3. Screen shot from *Blue Lines at Blackrock* with main layer and overlay.

Later, I compiled the poetic phrases and haiku I had posted. I edited these into a narrative poem which became the voice-over to go with the vision I had shot. I sent the poem to a friend in the UK who read it for me – she had read my poetry out loud before and I liked how it sounded. Then I chose some clips and edited the footage using overlays as depicted above in Figures 1 and 2 and added the voice-over recording. My intention was to blur and disrupt the horizon to draw attention to its slipperiness as a reference point in our lifeworlds. I used a main layer (Figure 1) with an overlay (Figure 2) to achieve the effect I wanted.

I use film and poetry as a way of understanding a place and then sharing that understanding with others and feeding the reactions in real-time back into my filmmaking. Utilizing digital wayfaring as a method, my mobile media art expands the field of screen production and mobile media art. Furthermore, my research strategy using mobile filmmaking and digital wayfaring connected into a constellation with a non-representational ontology and

ethos of animation (Vannini) allowed me to address the troublesome sensory and dynamic

aspects of places and lifeworlds in a systematic way that provided new insights about how

relationships to geographic places may be constituted, conceptualized, and shared.

    Blue Lines at Blackrock is a valid contribution to knowledge in screen production

research and creative practice research methodologies because it places digital wayfaring,

smartphones, and a non-representational ontology applying Vannini's ethos of animation at the

center of our conceptualizations of media production. I found that Vannini's explication of non-

representational theory through an *ethos of animation* (319) is a helpful theory frame to analyze

creative practices and processes. Digital wayfaring is a valuable research strategy that can

expand ways and methods for capturing and sharing lifeworlds through vernacular creative

practices, storytelling, and art-making using smartphones.

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Producing Sounds from the Past of Media:
Mary Had a Little Lamb (2019) and *We Were Away a Year Ago* (2023)

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Introduction

In this essay, we describe two of our artworks, namely, *Mary had a little lamb* (2019) and *We were away a year ago* (2023), both from our project titled *Life in the Groove* (2018). This project aimed to revisit the common materiality of sound reproduction (Jo and DeMarinis). As Jonathan Sterne notes, the frequently told stories of Bell, Edison, and Marconi are powerful because they indicate to us that something happened to the nature, meaning, and practices of sound in the late nineteenth century. However, these stories alone are incomplete. In each case, the inventors had a partially functional device before the moment of their "famous first" (Sterne 353). In this regard, we argue that reality is more complex than that in oft-told tales of ingenious discovery and invention.

The problem of materially recorded traces constituting the "tales" of sounds is compounded. This is because of the rapid proliferation of such recordings, which threatens to overtake and foreclose on sounds yet unheard in the form of bots as producers and streamers of

digital audio media. For scholars or archaeologists of audio media, the authoritative first recording (Feaster) is a shifting and malleable target. Faint traces of long-vanished sounds may exist anywhere, intentionally or not.

In addition, as Christoph Cox writes, the sounds emanating from these mechanical contraptions such as radio, tape, and record, unwittingly revealed an aesthetic value in their ability to articulate sounds and in the noises, hums, hisses, and crackles produced by the apparatus (Cox 2). Such noisy, lo-fi sounds, distant from those of our contemporary practices, are the "voices" of the inventions (Thompson 41). These voices represent the medium and the means of sound reproduction.

Related Works

The appropriation of technology for artistic creation has been a prevalent theme throughout the history of media arts. Media artists often approach uncertain media objects from the past in archaeological ways (Huhtamo). Using resources from different times and spaces, they rediscover abandoned technological ideas and reinvent cultural memories. This approach is exemplified in the works of media artists such as Anderson (2005), Iwai (2000), and Sengmüller (2008). By taking a sideways invention from conventional development (Buechley), the resulting artworks illuminate the hidden branches of media culture that include failures, and allow us to question a linear form of technological determinism.

Over the past two decades, however, there has been a growing interest in art-based practices that either envision the future (Dunne and Raby) or excavate the past (Hertz and Parikka). In the former case, the practitioners aim to critique the potential applications of technologies through their practices. The outcomes provide opportunities for further discussion with various stakeholders, including sociologists, politicians, and economists. In this approach,

however, the functional utility of technology used in their practices/creations is of little importance, and these works do not necessarily need to function in practical manner. Conversely, in the latter case, the goal is to extend the discourse on media archaeology and develop it to a methodology for do-it-yourself (DIY)-based art practices. The practitioners employing this approach revitalize, bring back into use, and rework discarded waste media as "zombie media," resurrecting them for new applications, contexts, and adaptations. Consequently, such works serve as a platform for contemporary media reflection and critique.

In our artistic practice, our focus is not simply envisioning the future or delving into the past. Instead, we aim to revisit the common sense of the "past of media" by producing artifacts that are not only functional but also living. We engage with the materiality of sound reproduction using basic scientific principles and contemporary computational tools (Gershenfeld). Through these two distinct artworks, we have re-examined the notion of the realities emerging from the reproduced internal sounds of the apparatuses. Using the "voices" of the inventions, our aim is to unveil the traces of analog sound within today's digital environment.

Mary had a little lamb (2019)

In *Mary had a little lamb* (2019) the sound is produced through the flow of electronic current in a
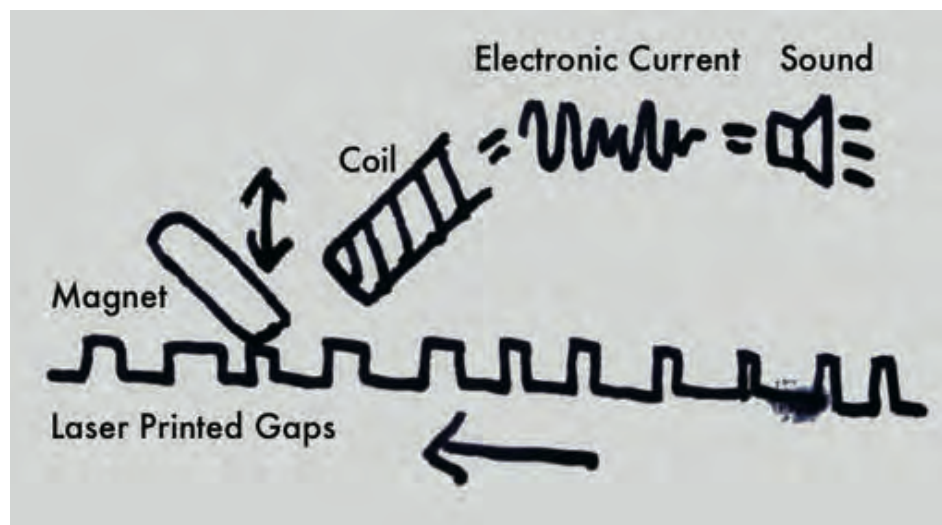

Fig 1. The schematic drawing of *Mary had a little lamb*.

coil, generated by a magnet vibrating over gaps laser printed on paper (Figure 1).

This work combines the principle of applying ink to paper, a common process in various printing methods ranging from woodblock to laser printing, with electromagnetic induction. Electromagnetic induction is a physical phenomenon discovered approximately between 1831 and 1832 by Faraday and Henry. The process produces electrical current due to changes in a magnetic field. This combination enables the printed material to serve as a medium for sound production. The objective of this work was to produce "speech," a goal that was originally sought by many sound reproduction technologies. This process is described as follows:

- The oft-quoted phrase "Mary had a little lamb" is attributed to Edison, and brought to life by WaveNet (Oord et al.), a deep learning system that generates human-like voices by directly modeling waveforms. The result (i.e., voice data) was saved as uncompressed audio.

- The produced sound data were then transformed into a compressed 1-bit format (1 and 0) using the BTc Sound Encoder (Black) and displayed as black-and-white striped vector data (1 for black and 0 for white).

- The stripes were organized in a circular pattern and printed on paper using a PostScript laser printer (Figure 2).
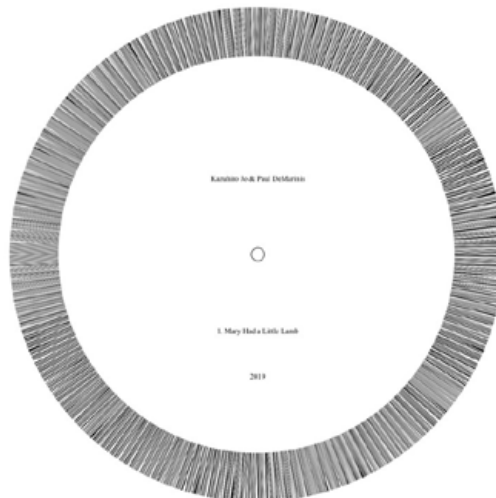

Fig 2. Kazuhiro Jo and Paul DeMarinis. *Mary had a little lamb* (2019).

- The paper was rotated on a turntable and a permanent magnet was pressed against the stripes.

- Changes in the magnetic field, caused by the small vibrations of the magnet as it moves along the gaps of the stripes (ink), were converted into a flow of electronic current by a simple coil of wire attached in place of the cartridge of the turntable (Figure 3).

Fig 3. The magnet (left), the stripes, and the coil (right).

- The electronic current was then amplified by an amplifier, and sound was produced through the speaker as air vibrations.[1]

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[1] Watch the movie here: https://youtu.be/eWxNdnZHodE

The result may initially sound like a collection of collisions and friction. However, once you recognize the phrase "Mary had a little lamb," you cannot help but hear the voice. This is similar to apophenia, where a listener perceives a familiar pattern in random noise, even though none exists. This phenomenon calls to mind an early idea about the phonograph that Edison shared with his friend Alfred Mayer (1878) as follows:

> *They do not expect or imagine that a machine can talk hence cannot understand words.*
>
> […] *but if the first sentence is told him & then reproduced he generally says why that's*
>
> *perfect.* (Edison)

We were away a year ago (2023)

We were away a year ago (2023) is another work in which sound is produced through the flow of electronic current in a coil, generated by the magnetization of magnetic ink on a thin film caused by a magnet next to the coil (Figure 4). Unlike the previous work, there is no physical contact between objects in this project.
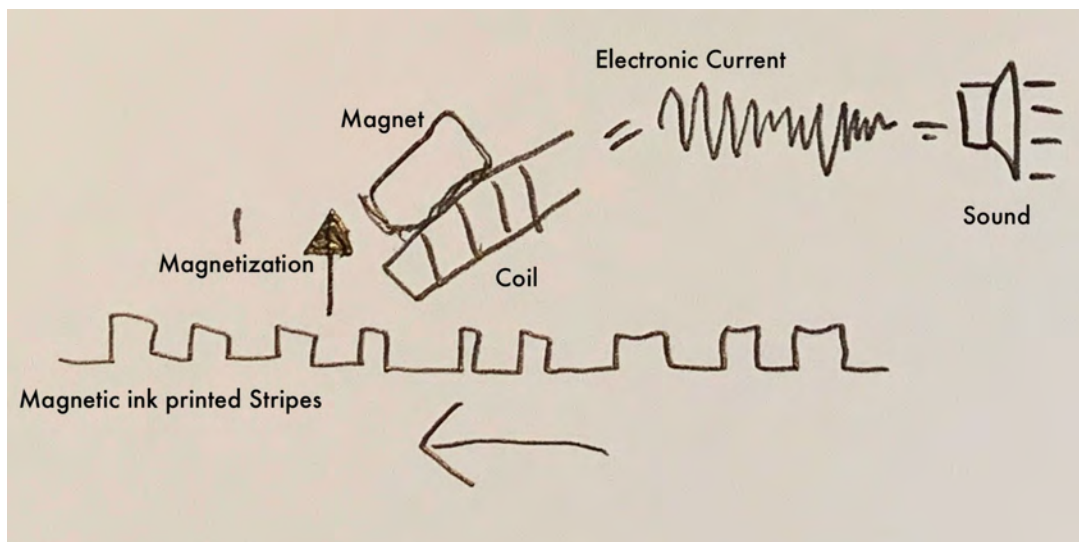

Fig 4. The schematic drawing of *We were away a year ago*.

Similar to the previous work, in this work, we attempted to produce "speech" using a printed stripe. This time, however, we accomplished this by employing digital silk screen printing with magnetic ink, based on the origins of magnetic recordings, as pioneered by Smith and Poulsen (Danie et al.).

Silk screen printing is a technique in which a screen is made of mesh cloth with holes of the desired shape for the ink to pass through. It is characterized by its ability to print not only on paper but also on a variety of substrates such as wood, glass, and metal. In this project, we employed a digital screen maker (RISO GOCCOPRO QS2536) that uses heat to create holes based on binarized image data (black and white). Magnetic ink mixes the ink with a magnetic material such as iron oxide that can be magnetized.

In a way similar to the previous work, this project also employs printed materials as a medium for sound production. However, instead of relying on the physical vibrations of a magnet, the project produces sound by detecting changes in the magnetic field caused by the presence or absence of magnetized ink. The procedure is outlined as follows:

- In contrast to the non-human speech of *Mary had a little lamb*, the phrase "We were away a year ago" was spoken by one of the authors, Paul DeMarinis, the artist behind "Songs Without Throats" (DeMarinis 2019).

- This phrase is one of the sentences used in Consensus Auditory Perceptual Evaluation of Voice (CAPE-V) (Kempster et al.) to assess the severity of auditory-perceptual attributes in voice problems, particularly focusing on all voiced sounds.

- The pronounced speech was converted into compressed sound data in a 1-bit format using a BTc Sound Encoder (Black). Just as in the other work, the data were represented as black and white stripes.

- These stripes were arranged in a circular pattern and printed on the reverse side of a very thin polyimide film using magnetic ink (Figure 5).

Fig 5. Kazuhiro Jo and Paul DeMarinis. *We were away a year ago* (2023).

- The film was then rotated on a turntable, and the coil converted the magnetic field changes, induced by the presence (or absence) of ink magnetized with a neighboring magnet, into electronic current (Figure 6).

- The change in current was subsequently amplified by an amplifier, producing sound as air vibrations from a loudspeaker.[2]

In *We were away a year ago* (2023), the "machine can talk" once confirmed in *Mary had a little lamb* (2019), was validated again by a method that takes twists and turns of the magnetic sound reproduction in the current digital environment.

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[2] Watch the video here: https://youtube.com/shorts/_5IKex56GKY

Fig 6. The film, the magnet, and the coil.

In our daily lives, the generation of music as a sequence of numbers has become a truth, with Jukebox (Dhariwal et al.) released by OpenAI in April 2020. As long as there is a large amount of data, this system and its successors can generate any sound, at least in the domain of digital audio in a computer.

Through our practice, rather than engaging in scholarly or archaeological investigations of oft-told tales of media technology, we have created objects that functionally reproduce sounds along with their distinctive noises (or voices). To accomplish this, we reappropriated basic scientific principles in conjunction with current computational tools to revisit a machine that can talk.

Each of the two works relates to, and extends, the material and historical records of sound reproduction in a manner that challenges the factuality of sound and the subjectivity of sound perception. In these works, the arrangements of apparatus, practices, and reception position themselves in ever-changing configurations. The current constellation of sound recording and attention is subject to continually evolving practices.

In considering the impact of sound technology on our culture in this context, it is significant to question the "novelty" of new media by revealing the "past" inherent within them and deviate from the linear history of technology by producing sounds from the "past of media" that have been excavated.

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Kazuhiro Jo is a practitioner with a background in acoustics and interactive design. He has been presenting his practices in forms of artworks at museums and festivals, as well as papers at international journals and conferences with his projects such as "The SINE WAVE ORCHESTRA" as a practice of the music one participates in, and "phono/graph" to explore fields of sound, letters, and graphics with artistic practice. After working at IBM Japan, Newcastle University, Tokyo University of the Arts, and IAMAS, he became an associate professor at the Department of Acoustic Design at Kyushu University, Fukuoka, Japan, and an advisor at the Yamaguchi Center for Arts and Media. Email: jo@jp.org.

Paul DeMarinis has worked as an electronic media artist since 1971 and has created numerous performance works, sound and computer installations, and interactive electronic inventions. He has performed internationally at The Kitchen, Festival d'Automne à Paris, Het Apollohuis in Holland, and Ars Electronica in Linz, and created music for Merce Cunningham Dance Co. His interactive audio artwork has been displayed at the I.C.C. in Tokyo, Bravin Post Lee Gallery in New York, and The Museum of Modern Art in San Francisco. He has been an artist-in-residence at The Exploratorium and Xerox PARC and has received major awards and fellowships in visual

arts and music from The National Endowment for the Arts, N.Y.F.A., N.Y.S.C.A., John Simon Guggenheim Foundation, Rockefeller Foundation New Media Award, and D.A.A.D. Berlin Artist Fellowship. Email: demarini@stanford.edu.

New Postscripts: Reinventing J.B. Priestley's BBC Broadcasts for a Diverse and Contemporary Bradford

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New Postscripts[1] is an arts-based research project made in collaboration with the BBC and funded by the Arts and Humanities Research Council.[2] The project is made up of a series of commissions by writers and sound artists, inspired by the work of playwright and author J.B. Priestley (1894-1984). The commissions included the creation of a text/script which was then delivered as a sound piece in the style of a radio program with (where relevant) sound effects and music. The *New Postscripts* project was inspired by the focus of the BBC 100 centenary celebrations and paid special attention to radio and sound art, an important aspect of the BBC's remit since its inception but in the twenty-first century an art form, in the face of HD TV and film and interactive media, that was felt somewhat neglected.

It is perhaps worth noting that the project was commissioned as part of a raft of funded initiatives completed to celebrate the BBC centenary. As such there was no direct theoretical

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[1] canvas-story.bbcrewind.co.uk/postscripts/.
[2] The project was managed by Dr Mark Goodall (PI), Dr Karen Thornton (CI), and Dr Yunis Alam (CI) all from the University of Bradford.

foundation for the project other than using a historical (BBC) artifact as inspiration to contextualize the social and political relevance of radio and make a connection between the history of the BBC (past) in the present (now).

The aim of the project was essentially to "remediate" the WWII broadcasts made by Priestley between May 1940 and March 1941. These were short talks of which there were twenty-eight delivered by Priestley across two series and broadcast after the 9 o'clock news on BBC Radio. While other speakers occupied the role, Priestley was by far the most famous public figure, and it was his broadcasts that of all wartime speakers had such a "powerful national impact" (Hawkes 1) reaching at times around 11 million listeners (Hawkes 20). While the BBC received over 100 letters per week, the majority of which were supportive of Priestley, the broadcasts were essentially war propaganda intended to counteract the then immense popularity of the propaganda radio broadcasts from Hamburg of "Lord Haw-Haw" (William Joyce).

Despite this, Priestley did manage to incorporate some of his socialist principles into the broadcasts[3] and to at times shift focus from the military and technical aspects of the war to the effect of the conflict on the lives of ordinary people. This included documenting the quirks of everyday life that continued despite the great physical and psychological damage caused by such a major global conflict.

While it was always the BBC's intention to offer a range of voices with the postscript broadcasts, the popularity of Priestley dictated that the organization was forced to continue with his voice alone. The team behind the project saw it as an important aspect of the *New Postscripts* that the original remit of having a diverse range of voices be included, not only in terms of the

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[3] From the 14 July broadcast onwards, for example, Priestley stressed the importance of maintaining wartime cooperation post-war to "usher in a new and truly democratic Britain and to reject the unjust society of the 1930s" (Hawkes 11).

delivery of the sonic aspects of the commissions but also the subjects and experiences explored

by the contributors. In addition, the effectiveness of Priestley's postscripts was that they offered

a broad portrait of the UK, one that was unfamiliar to most London-centric BBC speakers at that

time. As it happens, the *New Postscripts* covered a range of different subjects, but with a clear

"Bradford" dimension to all the pieces. The aim was to offer a range of sound works that had an

everyday appeal, even in the most experimental works.

Remediation

Priestley considered writing, unlike radio as a "lonely art" (Mitchell 41). Yet his original

Postscripts were delivered, typically for the era, "dry" with just the writer's voice heard

throughout. With the *New Postscripts* the impulse was to create more of a soundscape, in

keeping with some of the innovative radio that has been created by BBC Radio 3 and BBC Radio

4 in recent years.[4] In addition, we acknowledged that the *New Postscripts* would be inspired by

issues other than military conflict. In this sense they were not copies of (or a homage to)

Priestley's original broadcasts but were examples of what Bolter and Grusin argue are

Remediations, creating an interplay between the original broadcasts of the 1940s in retaining

certain elements (a personal, subjective focus and a style of intimate speech-delivery) while

incorporating new elements (sound design, music and dramatic dialogue).

The piece by Adelle Stripe exemplifies this process and only works when all of these

elements (subjective speech, field recordings, a specially commissioned musical track) are

combined together in a complex sound mix. This process of reconfiguration turns what could

have become a nostalgia piece on Bradford's Ice Rink into revision, operating as both a

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[4] See for example the BBC radio series "Between the Ears." The episode on Gateshead car park portraying "An unlikely journey of sound through the concrete building that faces demolition as part of the town's redevelopment" was a particular influence on the current project (bbc.co.uk/radio3/betweentheears/pip/dm920/).

celebration of the original media and as a contemporary critique, exploring memory and culture history, and the iconic Bradford landmark that is still relevant today. In a similar way but examining the impact of Bradford Council's new Clean Air Zone initiative, Augustin Bousfield takes this as a starting point to reminisce on personal connections to the cities' "green spaces," bringing past and present together to create a clear and current connection.

One of the innovations of the original Priestley postscripts was that the scripts were delivered by the author with his characteristic West Yorkshire accent, unusual then at the BBC which favored RP English. Initially, the plan was for hired actors to deliver the *New Postscripts* until it was realized that the authors speaking in their original "natural" voice was preferable, creating a further link with the original broadcasts. When producing Bob Stanley's celebration of the rise of the social club(s) and their relevance in local communities, the initial recording was performed by a third party and this immediately lacked the authenticity present in the other postscripts, performed by the original authors. The piece was subsequently re-recorded with Stanley delivering the script, with the intonation and pace perfectly performed by the author himself (see Figure 1).

The team also decided to retain the "written" aspect of the original postscripts. We quickly realized that the pieces would only work if the words were put down "on paper" first and that in turn determined the choice of artists commissioned. A call was put out to invite contributions to the project, and once commissioned, the submitted texts were studied and approved before any audio recording took place. According to Hawkes (2008), many of the passages in Priestley's postscripts "invited a deeper understanding of what it meant to be alive in these islands at this time." With the *New Postscripts*, we hope to achieve, in a modest way, this kind of effect in the listener. For her contribution Bradford author, poet, and educator Kirsty

Fig 1. Bob Stanley recording his postscript (copyright University of Bradford).

Taylor reconfigured two key scenes from her upcoming play *Cashy C's: The Musical* which documents working class struggles from inside the set of a pawnbroker's shop. Whilst this is clearly a story set in Bradford, it speaks to all those living with working-class struggles, wherever they happen to reside (see Figure 2).

Similarly, Tammie Ash, exploring the term "melting pot" in relation to what culture means in 21st-century Bradford is evidently exploring issues that are not confined to a "Bradford only" experience. As is Saima Mir in her exploration of, and the transformative effect digital technology has had on the equality of opportunity within previously excluded communities. Mir talks about the power of being connected and the value being online has brought, celebrating what is often a much-maligned aspect of contemporary culture. The use of authentic voices and differing stories claims inclusivity and diversity and the co-creation of the podcasts as a more democratic form of media production.

Fig 2. Augustin Bousfield recording Kirsty Taylor's postscript (copyright University of Bradford).

As a legacy of the "remediation" process, we intended to use the sound works produced as inspiration for subsequent audio-visual works. Indeed, one of the *New Postscripts* (by Pisani but not included in the BBC website) incorporated video footage so that it works as either an audio or an audio-visual work. In addition, Furaha Mussanzi's postscript has also inspired a short film about the work of the author as a social activist and her role in the faith community. Drawing on her background as a Congolese refugee who with her family has made her home in Bradford, Mussanzi's postscript explores the universal concept of self-identity and home.

In choosing to celebrate 100 years of the BBC by remediating an iconic radio broadcast, we ultimately believed that this medium, even in the 21st century, is a vital tool of mass communication. A number of the recordings use location sound to immerse the viewer in the world of the narrator and thus add a level of authenticity to the broadcast/podcast format. A public event promoting the *New Postscripts* (at the 2023 Bradford Literature Festival), a

listening *and* speaking experience, inspired a range of responses to the project, including

Priestley's wider work, the role of the media in The Second World War, the future of local radio

and broadcast propaganda, reflecting how radio can encourage broader cultural reflection.

The project demonstrates the continuing power of sound art and re-affirms how the audio

realm can be as influential, if not more so, than images. As Eric Sevareid has pointed out,

television pictures "reduce all to literalness; they cannot show an idea or value; they block out

the imagination of the listener: they have no eloquence" (Sevareid viii). That may be going too

far, but still, the spirit of the argument, that sound can be as powerful if not more powerful than

images, was at the heart of the *New Postscripts* project.

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Dr Karen D Thornton is the program leader for BA Film and Television Production at the University of Bradford, UK. Her latest publication "*Rolling Thunder Review* and the (re)presentation of history" in the edited volume *The Art of Fact: The Place of Poetics Within Documentary Filmmaking* explores the ways in which Martin Scorsese mixes fact and fiction in his 2019 film *Rolling Thunder Review: A Bob Dylan Story* and how ideological and historical "truths" can be sought within constructed representation(s). Email: k.d.thornton@bradford.ac.uk.

Exhibiting Computational Language Art

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Introduction

I use the phrase "computational language art" to describe work created for aesthetic purposes where computation and language are the primary mediums. I take the perspectives of literature and poetics in developing such work, so I could just as easily use the term "literary" rather than "language." The choice is a matter of emphasis and suggests different connections rather than precluding any. For my purposes here, I will focus on how the artworks I discuss engage and are made out of language, rather than on all of their many literary dimensions. While I mention aspects of these works that are common to literature and art, such as intertextuality, reference, and allusion, my approach here is not grounded in poetics, as it is in some of my other discussions.

Christiane Paul makes a division in her *Digital Art* between practices and works in which digital technologies are used "as a Tool" (chapter 1) and those in which such technologies are used "as a Medium" (chapter 2). What I refer to as computational art is mainly treated by Paul as software art, on a single page of the book (Paul 124). Although software art seems to have little representation there, it's true that there are a huge variety of other digital art practices. Paul's framing of this practice helps make clear that in computational art, computation is not used

instrumentally, but is the stuff out of which artworks are made. And, finally, it shows that computational language art, while a vibrant category from my perspective, is in a subcategory of a subcategory.

At the same time, computational language art connects to rich historical traditions of story generation research that have spanned sixty years, recent generative AI systems based on large language models, and concise, evocative computer programs written by a wide range of artists and programmers. On the last count, these range from well-known art world figures such as Alison Knowles (who programmed *The House of Dust* with James Tenney in the late 1960s) to people who promoted popular engagement with programming, including David Ahl (who edited *101 BASIC Computer Games* and the magazine *Creative Computing,* which reached millions in the early days of home computing). This type of media art, and computational art, has historically been resonant and has welcomed many into the potential of the computer.

Computational language art can manifest itself variously. It has circulated on floppy discs (Kirschenbaum) and via bulletin board systems (Driscoll), and of course is now often accessed via the internet, the Web, and app stores. Leaving aside for the moment that computational language art can be programmed in performance (livecoded) (Blackwell et al.) it can also be run live as it is screened at an art festival or a demoparty (Reunanen). One might imagine that a computer has to be used to present the work, but no: The output and code can appear in a printed book. I edit a series of these, Using Electricity (published by the nonprofit press Counterpath, based in Denver and New York). *Travesty Generator* (Bertram) provides one of several excellent examples of this sort of work, in book form, beyond my series.

In addition, computational language art can be shared in exhibitions, which has unique advantages—along with challenges. To make my discussion of these concrete, I will focus on

four of my own artworks. Before discussing *Round*, *Autofolio Babel*, *Process Pages*, and *Tech Section*, however, I offer one reason these text-forward projects do not have the straightforward appeal of text art.

Computational Language Art and Text Art

Artists have incorporated text (numerals, letters, words, phrases, etc.) in many ways in recent decades, and some of this work has contributed to the development of text art, a.k.a. word art. Contributions have been made by artists working in traditional media, such as Robert Indiana, Jasper Johns, and Kay Rosen, as well as conceptual artists—e.g., Jenny Holzer, On Karawa, Barbara Kreuger, Glenn Ligon, and Lawrence Weiner. Many of Holzer's projects are digital media works in that they use LED displays and projection; they are generally not well understood, however, as *software* artworks or *computational* artworks.

Text art is varied and has important cultural engagements. It can quote from significant texts to keep them alive in memory and bring them into contemporary contexts—Glenn Ligon's *Untitled (I Am A Man)* and his *Give Us a Poem* (which quotes Muhammed Ali's spontaneous "Me—We!") are two examples. Note, however, that language is not needed to achieve this sort of reference and memorialization; it can and has been done with image in other cases. Artist Michael Winker, whose practice involves a visual tracing of spelled-out words and who questions some of the assumptions of Saussurean semiotics, believes that, because of text art, "visitors to galleries were being conditioned to assume that a simple reading of the text would instantly convey the message in language-based works" (Winkler 110). Text art, of course, is also not computational. Whether it involves language or not, computational artwork can invite the viewer to imagine what underlying process is generating that which is visible. This

is not alien to the experience of art, since people often imagine the artist's process. But computational work also prompts us to think about non-human, computational processes.
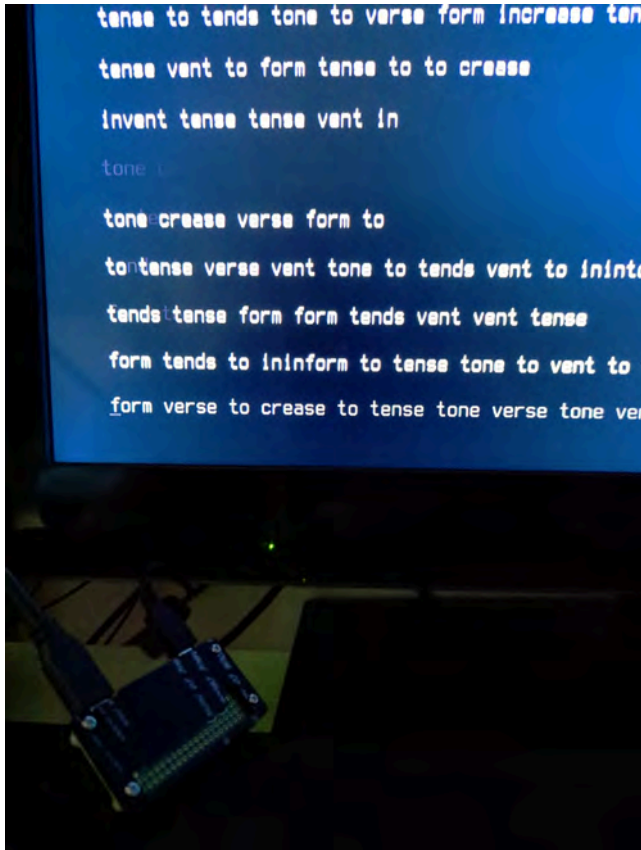
Round

Fig 1. Detail of *Round* (2014). Live computational artwork. Landscape-orientation flat-panel FHD display, cables, single-board computer, free software OS, custom free software program.

Round was first shown June 18–21, 2014 in the *Electronic Literature Organization Media Arts Show* in Milwaukee. The work has other manifestations: An online HTML page with CSS and JavaScript, a Python program people are welcome to download and run, and part of the print book *#!* (pronounced "Shebang"). *Round* has an algorithmic basis, with two platform-specific programs exploring how Python and JavaScript implementations differ. It is not abstractly algorithmic, however, but deeply engaged with the material specifics of software and hardware platforms. *Round* displays the digits of π. Instead of using the numerals 0 through 9, it presents

short strings of text that correspond to each digit. Eight are words that can stand alone, one is the prefix "in," and one is a line break, shaping the poem into lines of irregular length. Since 3 is represented by "form," 1 by "in", 4 by "tends," 1 by "in", 5 by "tense," and 9 by "verse," the poem begins (3.14159) "form intends intense verse."

Round is a computational poem (also an artwork) that is both non-interactive and deterministic (the text produced is the same each time, as are the digits of π). The poem is infinite, as is π, without a final line or internally specified condition to cause it to stop. Its output serves as a score to be read aloud, allowing sound to suggest sense. I have often presented the beginning of the work in readings and performances, where listeners can appreciate how the elements of language fit together in particular, evocative ways.

There is no list of the digits of π in *Round,* so the program can never come to the end of such a list. The program computes each digit using my implementation of a spigot algorithm. As it runs, the production of text slows down as more and more steps are necessary to determine the next digit. If a multitasking computer is used, it will run other processes more slowly. The computer can physically heat up and its fan can speed up, cooling the processor as it labors to complete computations.

The appearance of the artwork when it is exhibited is simple: A single-board computer, rather than being hidden, is shown as driving the small flat-panel monitor. *Round* serves to remind us that despite all the talk about the immateriality of computing—"the cloud" and the evanescent "Web"—computers are material artifacts, literal machines that run. When *Round* is exhibited, for instance at a festival, it can be revisited as a running process at different points, over time, and visitors can notice the slower rate at which output proceeds.
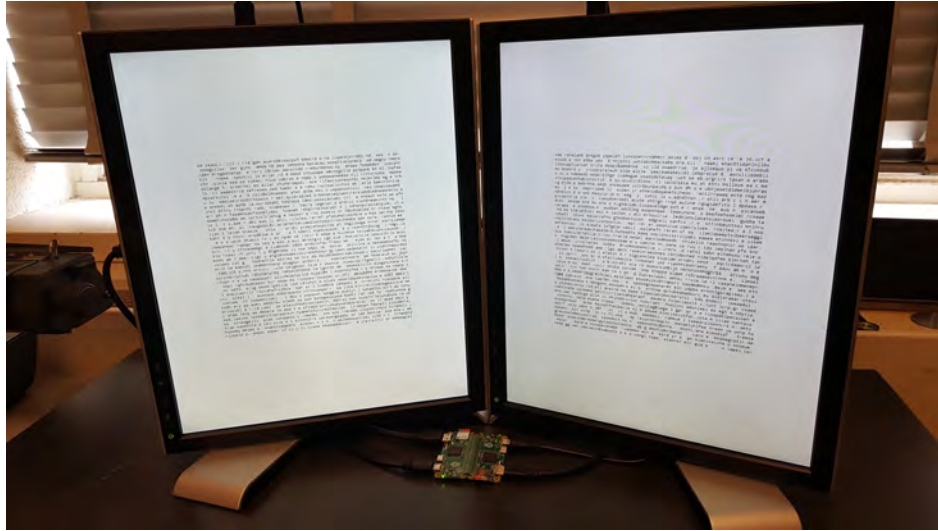
Autofolio Babel

Fig 2. *Autofolio Babel* (2018). Two-channel live computational artwork. Salvaged flat-panel displays with stands, two single-board computers, twist ties, USB cables, power cables, video cables, free software OS, custom free software program.

This piece runs a rotated version of a free, open-source artwork of mine called *Una página de Babel*, first shown at *Translations—Translating, Transducing, Transcoding* in Porto, July 18–22, 2017. However, *Autofolio Babel* constitutes its own work, a hardware and software assemblage incorporating salvaged monitors and single-board computers in a particular self-connected configuration. It was first presented in the group show *History of the Future* at the Boston Cyberarts Gallery, May 26–July 1, 2018.

Autofolio Babel is a folio of flat-panel monitors, recto and verso, providing power via USB to a folio of two single-board computers, bound by wire—which in turn provides the monitors with video signals. Running on each computer is a program that is based on Jorge Luis Borges's description of the pages in the immense but not infinite Library of Babel, a building that houses every possible 410-page book, that is, one book for each possible sequence of a fixed set of characters. The on-screen "pages" are actually Web pages, although the self-contained system runs without a network connection. They are of the same format as the pages of Borges's

books but populated by the glyphs in his story, the original Spanish-language text, "La biblioteca

de Babel," instead of the special ones he specified.

"Reading," of course, must mean something different here, even in comparison to a

reading of the hard-to-interpret *Round*. This output is unpronounceable and illegible and would

be even if we had a screenshot rather than a rapid progression of pages. The reading has to

involve an understanding of the work's interconnections, a contemplation of how it relates to

Borges's story, and perhaps a willingness to study and even modify the code of *Una página de

Babel*. "Reading" can also involve seeing this configuration of hardware and software as a sort of

book and considering its relationship to book history and book art.

Process Pages

Fig 3. *Process Pages* (2022). Three-channel live computational artwork. Three landscape-orientation flat-panel FHD displays, power cables, video cables, three mini PCs, free software OS, custom free software programs, toner on colored letter-sized paper.

Process Pages is a collection of twenty-one very tiny Web pages with JavaScript, each running

live. Each of the three channels presents seven pages in a fixed sequence, synchronized. The

work was first installed and shown at PikselXX in Bergen, Norway, November 17–20, 2022. The

individual pages are visual poems, artworks, and computational systems—but not the typical

sorts of Web pages found online. If anything, these non-interactive pages are more like

demoscene productions; their development was informed by sizecoding practices in which programmers aim for extremely small programs. No page exceeds 180 bytes.

Unlike most demoscene productions, these pages explore Unicode and the nature of writing and poetry. *Process Pages* raises the question of why we find certain characters in strange corners of the Unicode standard. Many code blocks do not really represent writing systems and sometimes have elements that are not used in direct connection with writing. These pages explore how rather obvious computational techniques can compellingly manipulate characters, using default fonts and the standard black-on-white presentation of text. As part of this installation, visitors are invited to take one or more sheets of paper from three stacks, one under each monitor. The sheets contain the complete source code of the 21 pages, seven on each sheet. While the gallery setting may not facilitate the examination of this code, it can be brought into another context—home, café, bar—and serve as fodder for individual study or discussion. Visitors are also welcome, of course, to type in and try out any or all of the pages themselves.
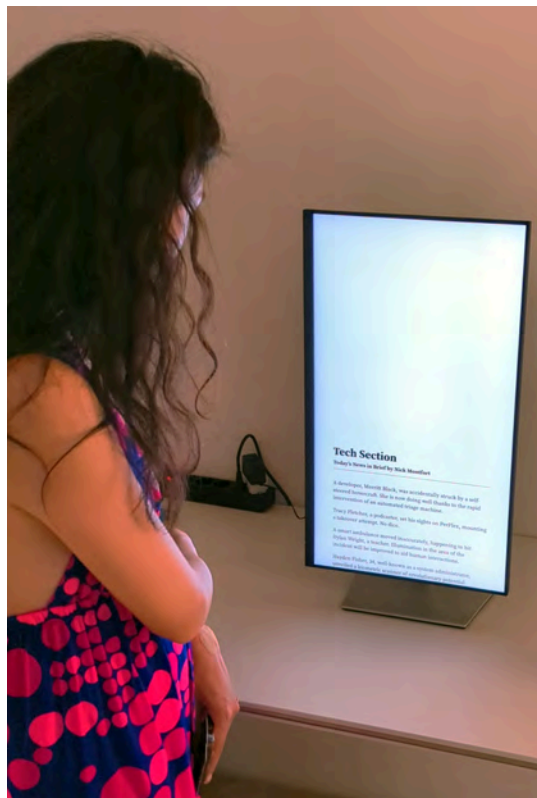
Tech Section

Fig 4. *Tech Section* (detail, 2022). Live computational artwork. Portrait-orientation flat-panel FHD display, cables, single-board computer, free software OS, custom free software program.

A flat panel presents an ever-scrolling ticker of very short, computer-generated news items in *Tech Section,* first shown July 12–15, 2023 in *Resistance* in Coimbra, Portugal. The work is inspired by Félix Fénéon's *Nouvelles en trois lignes* (translated to English as *Novels in Three Lines* by Lucy Sante) and an accident report by Franz Kafka. The texts are generated by concise grammar, although the program at the core of the work is still much longer than in the other three cases.

Today, when people are killed by self-driving vehicles and other autonomous systems, this is news, and definitely worth an article! How remarkable will such incidents be in a few decades? When Fénéon wrote his brief items (initially filler copy for a 1906 newspaper), he mentioned even non-fatal automobile accidents, which certainly would not be newsworthy today. *Tech Section* projects a world in which a failed corporate acquisition and an intriguing invention may be worth a few sentences, but at the same time, a serious collision between robot and human has become barely fit to print.

Surprises can arise, amusing events ensue. Even after the individual incidents begin to seem repetitive, there is variation in how they are expressed that can draw visitors in and encourage them to continue reading. Eventually, visitors may notice that there are set categories into which each item falls and that there is journalistic rhetoric at play. The near-future feed represents human relationships with computing technology—particularly with autonomous robots—using only a few dramatic situations, as Georges Polti called them. It also models some of the classic tropes that technology journalists use in writing stories. The project's compact, self-contained nature invites others to inspect its workings—they can even base their own projects on this system. As with the other three artworks, all source code is made available as free (libre) software.

The gallery is not a reading room, but it is a place where very short narratives of the sort generated here can amass meaning. Visitors who see the slow-scrolling *Tech Section* can't get it going faster; they are invited, instead, to await the deliberate, deadpan emergence of the next item from the bottom of the screen. Exhibition also encourages those who pass by an artwork several times to look at it again, perhaps to read further and in different ways. While some may associate exhibitions with casual glances (at least until a work really attracts the eye), these settings can invite a more relaxed consideration than the fast-paced Web, which is often purposefully, even doggedly browsed. Web reading is often done in isolation, while visitors to a gallery may comment to each other on interesting aspects of a computational language artwork. Of course, such artworks also benefit from being juxtaposed with others that address similar themes or work in similar ways.

New Viewing and Reading Angles

Exhibition has highlighted different things about the relationship been computing and language in each of these four cases. The material nature of the exhibited work is especially important in the first two. *Round* is about how computation is a mechanical process that takes energy and becomes more effortful over time. A visitor who happens to see the work at two different times may notice the pace of its output changing significantly. Unlike the three other artworks here, *Autofolio Babel* is a particular art object incorporating the software artwork *Una página de Babel* twice; It shows how parts of both software and hardware systems are commonly set up to take the outputs of other parts and send their outputs onward. A monitor faces a monitor and a computer faces a computer the way a page faces a page, in a peer-to-peer way. While *Round* can be read aloud (and I present it this way), *Autofolio Babel* is a confusing and incredibly rapid grid of characters, far beyond any reasonable sort of pronunciation.

Process Pages benefits from the gallery setting because its rapid display of Unicode characters can be enticing and because the offer of printed code welcomes those who wouldn't "View Page Source" online. When "Changes" (a page that rapidly displays large hexagrams of the I Ching) is running, it can be visually appealing even to those who know nothing about these glyphs. Those who do might find the extremely fast procession of these symbols strange — they are meant for contemplation, after all. Beyond that, those willing to look at the code and see that these hexagrams are represented in Unicode could begin to ask questions about the nature of modern-day computing: How are they ordered? Why are they placed where they are? Why are these even built into our predominant format for encoding writing systems?

Finally, *Tech Section* takes inspiration from writing that really was not considered literary to begin with, but has been appropriated into literature. The texts produced read, in some ways, like the antiquated filler of a 1906 newspaper, while the gallery presentation also recalls news tickers that can still be seen in places, for instance at 1211 Avenue of the Americas in New York City. The deliberate pace will not drive everyone away: Those who can't bear to wait for the next news item can skip around the screen reading what has already been generated.

These are works that are based on language and computation—they of course have abstract algorithms behind them, but all four artworks include specific programs running on particular platforms. Some (such as *Round*) have several manifestations, including one for the gallery or museum; *Autofolio Babel,* on the other hand, is a unique object to be apprehended only at an exhibition. The presentation of these four artworks in festivals and at galleries was able to invite people in certain ways to the complexities of language—even to its literary dimensions— as well as to engagement with computational art. Computational language art can have the effect of military shock and awe or the powerful theatrical effect that Richard Foreman termed a

"disorientation massage," but the works I have discussed here do not tend that way. Many works in this category call for a presentation that will invite viewers into computational and linguistic cognition—to read, to imagine what program is running, and to run that program in their minds.

This is not just a step toward *computational thinking* in a STEM learning sense, or, to expand Science, Technology, Engineering, and Mathematics to include the arts, a STEAM learning mode. It is a mode for the reception of artwork that brings in new types of perception and cognition while also allowing for the serious provocations and significant interventions that art can accomplish. The challenges of making, presenting, and approaching computational language art are notable, but they are worth facing, as the potential of this sort of art is also great.

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Metric Displacement:
The Sound of Network Friction

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You might be sitting in an office, or maybe on the couch at home. After an instinctual glance behind you, you open your laptop and click on the link to the "meeting;" Zoom comes to life with the words, "Connecting…," and then you're in. But instead of a phalanx of faces, there are no people at all—just three spinning turntables. Each is sitting on a plinth and lit from above, and though the equipment looks the same in each square, the rooms are all different, gallery spaces with windows that show traffic outside, or trees; one day-lit, another apparently in the middle of the night, a third in the gloaming. Each Zoom rectangle is labeled with coordinates, revealing places that are distributed across the planet's longitudes. And instead of entering a conversation, you're immersed in rhythm.

It's a polyrhythmic pulse of clicks and drones, experimental electronica that might work for a dance floor if not for its meditative bent. At first, it seems to be highly repetitive. But as you listen, endless micro-variations become subtly audible. The structure of the beats is unstable

as the tracks wobble against each other in time, producing a rhythmic feel that ebbs and flows—

and occasionally skips, drops, and stutters. These musical effects are in fact the result of the

contingent network connections between the three turntables and your computer.

This is *Metric Displacement*, an "installation" produced by sound artists Annie Aries,

Brian House, and Marcel Zaes that incorporates physical spaces in three cities as well as a Zoom

meeting (figure 1). Network infrastructure works hard to create an illusion of simultaneity

between users in distant geographical locations, facilitating virtual interactions that feel as

seamlessly in sync as possible. First staged in 2021, *Metric Displacement* inverts this bias to

highlight the temporal displacements inevitably in play with digital networks and to use them

toward aesthetic ends. In this article, we explore the socio-technical context of the piece, which

was developed at the height of the COVID-19 pandemic, and discuss the result of artistic

research into the implications of our quarantined collaboration. We propose *Metric*

Displacement as an example of how sound art can be used to point to sites of power that might

otherwise be left implicit. And as it draws on strategies used in music-making that index

materiality, we suggest that the work offers an alternative and perhaps more sensible means of

relating to an ever-more-dominant, yet perpetually fallible, network infrastructure.

<div align="center">❧</div>

The idea of making a video call is perhaps as old as the telephone itself, regularly appearing in

science fiction such as Stanley Kubrick's *2001: A Space Odyssey* (1969). By the 2010s,

broadband internet had made virtual meetings technically feasible, but regularly seeing each

other face-to-face became truly widespread in the United States only in 2020 with the COVID-19

pandemic. As businesses and schools went to online formats, Zoom—previously a modestly

successful service in the shadow of Google and Microsoft—saw its usage grow from 10 million

to 200 million people in just a few months. It trumped its competitors largely due to its ease-of-use, support for large meetings, and video quality, features that to some extent came at the expense of security and privacy when they bypassed the safeguards of users' computers (Fleishman).
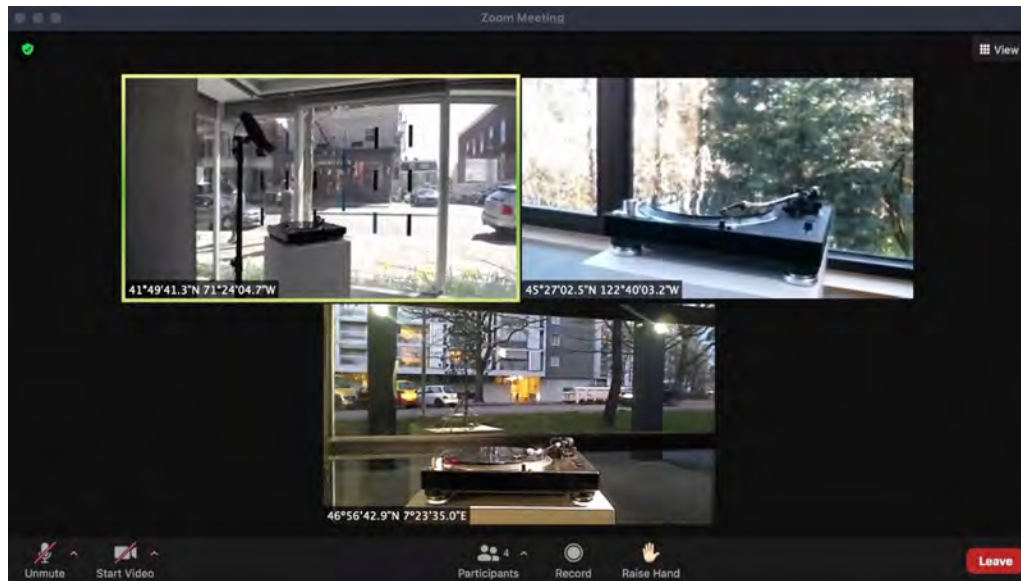

Fig 1. Screenshot of *Metric Displacement*, 2021 (© 2021 Aries House Zaes).

Zoom's stated mission is to "make communications frictionless," (Zoom, "Platform"), and in some ways, it has. But friction doesn't just disappear; it is obfuscated, deferred, and redistributed. First and foremost, the pandemic laid bare the divide between people whose livelihoods easily migrate online and those "essential workers" employed in physical work who are excluded from that option—disproportionally people of color and those without a college degree (McNicholas and Poydock). Such work necessarily includes the physical maintenance of data centers—Zoom utilizes around 50 facilities scattered across the globe—as well as the energy grids that provide them with power and the cables that link them across continents to connect with your home and office (Zoom, "Data center").

Such friction-filled work on physical machines in real places is obscured when the time it takes data to travel from one location to another appears to be zero. In the world according to Zoom, time and distance are uncoupled: I can talk in real-time to anyone, anywhere, as long as they have a connection. This is in line with how networks were originally conceived as maps of interconnected nodes, such as Paul Baran's now classic diagram (Baran 1, 9). Such visual representations of networks, which are now ubiquitous, reflect the idea that what happens on the way from one node to another is unimportant, so long as both nodes are simultaneously "visible" to the network. A network understood as a map, in other words, has no sense of duration (Certeau 35). But as much as this is a technological objective, it is also an ideological orientation (Chun 18).

As such, the engineering feats that make a network appear so timeless are kept behind the curtain. Mountains are carved up to run cables; data centers are built atop geothermal vents, in rivers, and even on the moon (Rabie); and time-keeping itself is redefined to wait out network latency (House 123). But all this materiality is desperately covered by a smooth interface (Burrington). Amazon wants its "Prime" service to signify free next-day shipping at a single click, not a behemoth of data-driven logistics, just as "tweets," "tiktoks," "snaps," and other weightless things appear to float up from social media apps to a "cloud" that instantly "streams" content back down to them. Furthermore, like Facebook co-opted the ordinary term "friend" to inconspicuously insert itself into a natural social relation, Zoom wants the "meeting" to be something that happens as readily via its software as in a physical conference room. Power lies with whoever controls the means of connection, and so it is possessed proportional to the degree to which a platform manages to make its materiality disappear into the fabric of everyday life— no matter the extraordinary effort made to maintain it.

Of course, network infrastructure is never perfect. We inevitably sometimes see the

loading bar, "throbber," or so-called "spinning beach ball of death" (Soon); failing that, our

streams freeze, glitch, stutter, pixelate, or drop-out entirely. Depending on the situation, these

effects can range from annoying to devastating. Even when everything is working properly,

things can feel weird. As anyone who has attempted to sing Happy Birthday with a group over

Zoom can attest, the appearance of synchrony is an illusion, and trying to match each other's

rhythms is the surest way to reveal the inherent delays. One consequence is that while musicians

have attempted to "jam" over the internet since its earliest days, creatively compensating for the

unavoidable latency is perhaps inevitably a central concern of so-called "telematic" performance

(Weaver 1; Robinson 65).

Nevertheless, the ideal of a frictionless network is endemic to our time, in which

everything is understood as a timeless map of interconnections, whether social relationships, the

brain, ecosystems, or the global economy (Galloway). When a connection glitches, it's seen as a

temporary aberration. But what happens if we flip things around and instead embrace friction as

the defining substance of network interaction? To focus on the materiality of the network rather

than its ideological imaginary? As Anna Munster has put it, "although we might look at diagrams

of the network … It is never going to be possible to 'see' ... the coming (in)to experience of

networking" (28). However, precisely because of our aural sensitivity to timing, we might be

able to hear it, attending to the complex layers of mediation in videoconferencing by listening

(Sagesser 90).

❧

Metric Displacement began as a regular get-together of three sound artists, separated by

continents, as a way to be creatively engaged during quarantine. Sharing our work over Zoom,

we found that the way in which the platform affected what we played was compelling in its own right. While continuous musical audio from multiple simultaneous streams is decidedly not Zoom's intended use, this was precisely how the most interesting and unpredictable rhythmic variations emerged; temporal distortion became a "matter of compositional poetics" in itself (Ferraz and Teixeira 10). Following a series of experiments, we came up with the piece. First, we'd make vinyl records with a selection of our beats. Then we'd play them back on turntables set up in gallery spaces in our respective cities (figure 2). Finally, we'd continuously stream the audio and video from each one to a 24/7 Zoom meeting, where visitors could log in and hear the layered rhythms filtered through their own network conditions (figure 3).

As musicians, we're interested in how the "feel" or "groove" of music is linked to the body. This subtle variation in micro-timing is inherent to physical performance (Iyer 398). Digitally produced music can explicitly incorporate it, although a lack of variation—such as in the regular pulses of techno—is also an important aesthetic (Danielsen 4). Regardless, "feel" is central to how our bodies receive music and are induced to move. In our case, the micro-timing would come from the network—derived from the "body" of cables that traversed the thousands of miles between us. And in turn, we'd intuitively try to find some corporeal sympathy with the rhythms rather than experiencing them as a disruption.

We used various hardware and software synthesizers to construct our initial beat-oriented material. When this is filtered through the network, the musical result is in dialog with the "glitch" style of electronica. In particular, work from the early 1990s by artists such as Oval, Autechre, and Ryoji Ikeda explicitly incorporates the sounds of skipping Compact Discs and artifacts of digital encoding into highly rhythmic compositions. Exposing the physical limits of this emerging technology allowed that music to subvert the association of the digital with the

precise and the pristine, instead expressing what it was to live as an embodied human immersed

in an emerging media environment (Cascone 12–13). Our work operates similarly, only the site

of malfunction has grown from the CD and the DAC to the scale of fiber optic cables and data

centers.

Fig 2. Turntable with lock groove record (© 2021 Aries House Zaes).

        Incorporating vinyl records and turntables into this otherwise digital ecosystem is a way

to make visible the work's concern with its own materiality. Whether through the spin of the

platter or the texture of the grooves, no other means of sound reproduction showcases its own

medium quite so effectively (figure 4). In this respect, the use of records also invokes the

turntablism of Hip Hop's DJs, in which musical content is recontextualized by direct

manipulation of the medium (Miller). Additionally, cutting our records on a lathe links them to

the "dubplates" of sound systems in Jamaica and the UK, which have used the same one-off

manufacturing process to play exclusive mixes of reggae and related styles since the 1960s (Veal

51). Lathe-cut records degrade significantly on repeated plays, which is especially true in our

case as we use only lock grooves—1.8-second loops that play repeatedly until the needle is manually moved to another track. As the grooves wear out during an exhibition, docents randomly select new ones. Because every loop on our records is the same length, whichever way they are combined will generate a sense of musical meter. What changes is how the tracks are displaced relative to one another, both as a result of when the needles are placed on the platter and through the subsequent network effects.

The cultural organization Swissnex San Francisco produced the first exhibition of the piece, running it 24/7 for a full week, and *Metric Displacement* has since been staged at the New York City Electroacoustic Music Festival. The most distantly linked trio of cities has been Portland, Oregon in the US, Bern in Switzerland, and Shenzhen in China. While the piece could have been understood as a concert, we've presented it as an art installation to emphasize, once again, how materiality is central to the work, and hence an assemblage of objects both seen (the records, the galleries) and unseen (the network cables, visitors' homes and workplaces)—but all heard. In this respect, it eschews Cage's dictum to hear "sound in itself" (Kahn 559) while
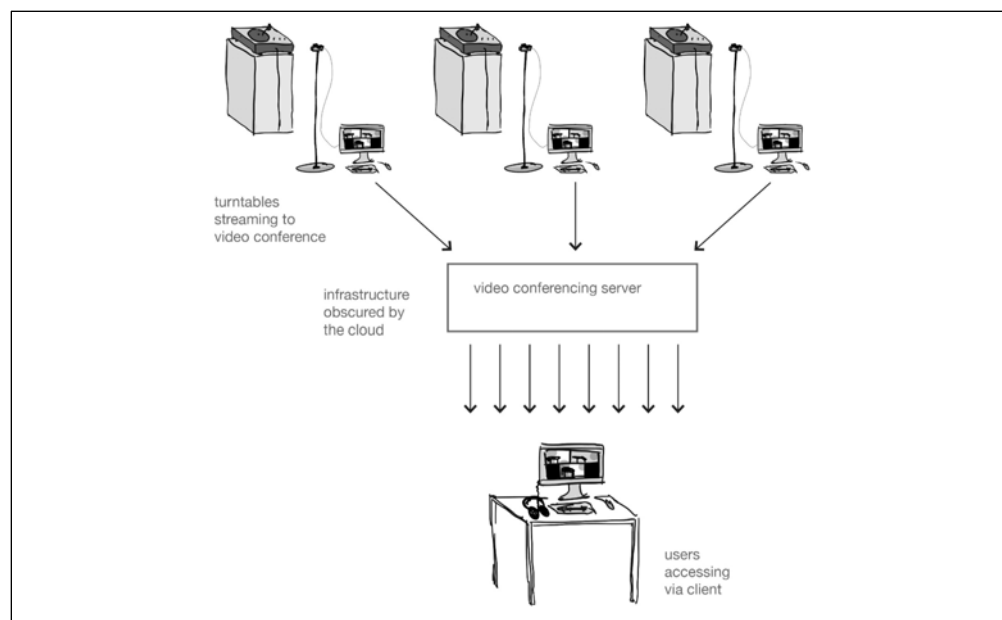

Fig 3. Installation diagram with record players in three different geographical locations streaming audio and video to the audience via a Zoom meeting (© 2021 Aries House Zaes).

embracing, as curator Caleb Kelly has written, sound as "part of a political ecology in which it is deeply linked to various histories … that form and hold the materials of [its] making" (Kelly 1).

Visitors have initially encountered the work as a reframing of the videoconferencing experience, as it destabilizes the norms of a meeting; there is no greeting or sign off, only audio equipment and the "background" of the three galleries are on view, and though visitors can see if other people are watching and listening, there's no possibility of interacting with each other (the video and audio of visitors remain off). This defamiliarization of the platform opens a space of possibility (Shklovsky 6). *Metric Displacement* fills it with the performance of the medium itself, as carried by music. For some, this has been disconcerting, grating, or simply boring. For others, the glitching audio streams, perhaps counterintuitively, have led to a greater sense of connection than they have otherwise experienced on Zoom. We believe this is because the polyrhythms felt by visitors derive from the actual material conditions of the network rather than an imagined simultaneity.
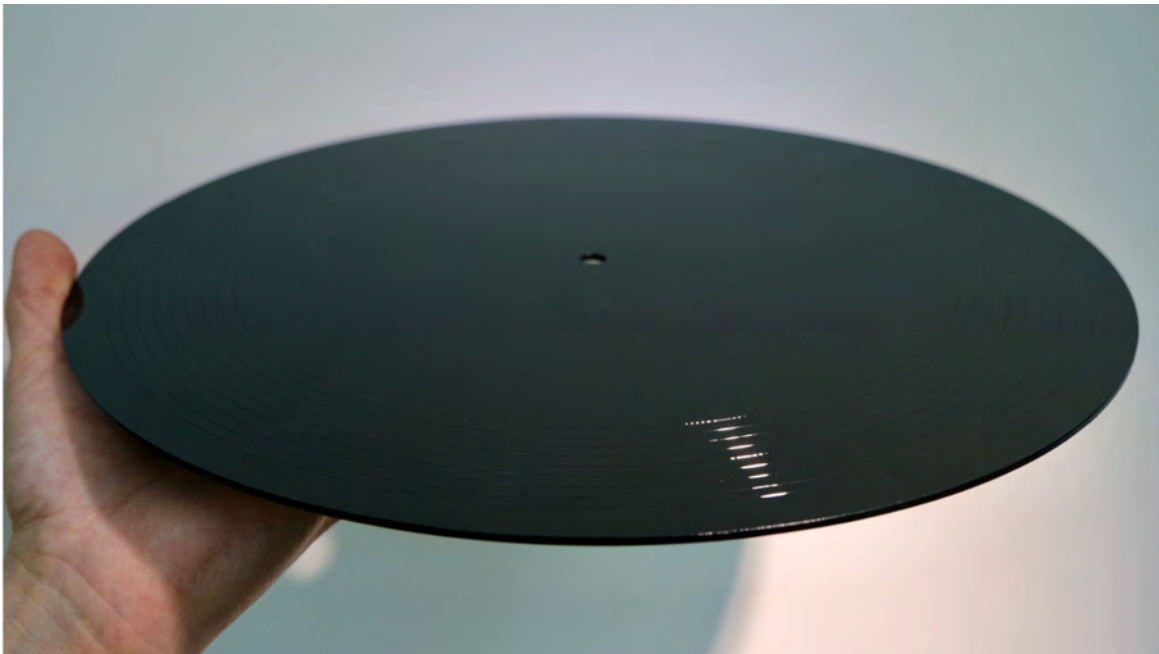
Fig 4. Lathe-cut Metric Displacement record showing lock grooves (© 2021 Aries House Zaes).

❧

Quarantines have been lifted, but many of the shifts engendered by the pandemic are here to stay. Online work, healthcare, and education have been normalized. Meta and Apple have made enormous investments in specialized hardware for virtual meetups and digital avatars, even as Zoom has smoothed over some of the rough edges that first made our installation possible: the pursuit of frictionless experience is as spirited as ever. At the same time, we have the rise and fall of cryptocurrencies and NFTs, instability in global markets, the implosion of Twitter as a "public" forum, and logistics infrastructure buckling under climate change, all of which point to the fallibility of networks as a general principle of connection when divorced from the specifics of their implementation. In such an environment, we might seek out aesthetics that allow us to navigate networks as they are, rather than as they aspire to be.

We have proposed that the affordances of sound art hold particular promise to do so. When the globe is spanned by networks, friction manifests temporally. While our eyes might be inclined to overlook skips and jumps, when they are incorporated into music, these traces of the underlying physical infrastructure come to the fore. Though conceived under quarantine as a means of reckoning with the constraints of online collaboration, the political valence of *Metric Displacement* remains pertinent under our continued networked condition, and it points to future work that re-centers materiality—and the social conditions with which it is entangled—otherwise obfuscated by technological dreams.

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Rotoscoping Saint Agatha out of her own Myth in an Aesthetics of Reparation

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"Take off my breasts. I can nourish the world with my inner breast!" These are the alleged

words of Saint Agatha, spoken in 251 CE and recorded in the Acts of Saint Agatha's Martyrdom

(Voragine 25). "I feel great joy in these pains," she continued on her deathbed when she was

about to have her breasts amputated with pliers as a punishment for refusing the sexual advances

of the Roman governor Quintianus.

There is nothing new about Catholicism idolizing a misogynist story as such, but what is

particular about this story is how its *violence-infused female eroticism* (most male martyrs were

clothed) comes close to a form of religious pornography. As Martha Easton explains, in medieval

imagery representing Agatha's breast martyrdom, "it may be the combination of the religious

and the erotic that gave the images much of their power and made St. Agatha such a popular

iconographic subject, particularly in the later Middle Ages" (Easton 85). To say it with Giuliana

Bruno in her analysis of Francesco Guarino's famous painting of Agatha's breast martyrdom,

there is an inherent erotic voyeurism in this representation. (Bruno 319-321)

In my film *Devoti Tutti* (*Devoted*), a hybrid documentary that could also be called a docu-

fiction, I reacted to the Agatha myth's emphasis on the violent depiction of a woman's breast

amputation with two preoccupations in mind. The first was the long-term effect of violence. As

we know from neuroscientist and psychiatrist Bessel Van der Kolk's influential book *The Body*

Figs 1 and 2. Ambrogio Bergognone and Bernardino Luini, High Renaissance paintings, early sixteenth century.

Keeps the Score, long-time effects of trauma on the body and mind of a victim of

violence are kept in the "emotional brain" whose memory lasts a lot longer than the "rational"

brain's. The omnipresence of the myth of Agatha's breast amputation and its re-telling over

almost 2,000 years on Catania's streets as well as in its pagan and Christian rituals led me to read

the Agatha myth as rooted in the city's emotional brain. To say it with fairytale and myth

historian Jack Zipes, myths are stories that weave themselves into the fabric of people's lives as

ways of coping with the reality and trauma depicted in them (Zipes 4). I aimed to reconstruct this

fabric ethnographically, by listening to the contemporary voices and testimonies of her story as

they can be found on the streets of Catania: by the fishermen, street children, the clergy, and the

Mafiosi who have organized the yearly Festival of Saint Agatha since the Middle Ages. I also

turned to a more conventional means of documentation that draws a line between Agatha's story

and its contemporary relevance and started looking for contemporary victims of sexual violence

in the community of Catania, eventually finding a protagonist, Angela, who was willing to

participate in my film and become a "modern-day Agatha" whose lived experience of violence

could connect the audience to Agatha's story.

This led me to my second preoccupation: how to change the Agatha myth's story-line to

allow the mythical figure of Agatha to heal by telling the story with her own voice (Shukla et al.)

in the mode of what feminist film theorist Laura Mulvey called a "'woman-inflected cinema' that

takes up topics and perspectives hitherto neglected or simply not imaginable by a male-

dominated culture" (Mulvey 10). For *Devoti Tutti*, all of the existing films that circulated and

that I had seen about Saint Agatha represented and even perpetuated a patriarchal story-telling of

the saint. In contrast, my intervention undermined the canonical storytelling of Agatha's

martyrdom by re-*animating* her and her amputated breasts and turning an objectifying gaze into a

living gaze. Healing from a trauma like Agatha's means not only telling the story in a new

fashion but also stressing and emphasizing a victim's sense of empowerment, since, as Judith

Herman has put it, "recovery… is based upon the empowerment of the survivor and the creation

of new connections" (Herman 133). Following Herman, I envisioned Agatha's empowerment

coming through her taking agency over her story but also through her ability to feel good again

in her body (Van der Kolk 265-278). In addition, I wanted to give her back what was taken from

her: her breasts. Finally, with the technique of rotoscoping, which consists of drawing on the

images of a live actor, I instilled Agatha with a point of view she never had in the representations

that objectified and celebrated the violence against her body.

The idea of *reversing the gaze* was of course not new.[1] As British filmmaker Pratibha

Parmar has put it, "It is in representing elements of the self which are considered 'other' by

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[1] In this act of *reversing the gaze*, I was inspired by many filmmakers including Pratibha Parmar, Trinh T. Minh-ha, Tracey Moffatt, Chantal Akerman, Andrea Arnold, and Rosine Mbakam, to name a few. For a longer discussion of

dominant systems of representation that an act of reclamation, empowerment and self-definition occurs" (Parmar 97). We have seen such acts of reclamation of women's stories, stories of the LGBTQ+ communities, and stories of the colonized or erased populations through their own lenses and eyes in the long history of women's cinema. My hybrid feminist intervention into the Agatha myth was informed by and based on this history of a feminist film practice that aims at reversing the canonical gaze and speaking from the point of view of a *lived experience*.

In their work on practice-based research in the creative arts, Linda Candy and Ernest Edmonds point out that when practice is inserted into a research process, not only will the practice be enhanced, but the research also benefits, not only the individual researcher but also by contributing to a broader picture. With *Devoti Tutti*, I wanted to communicate the wider and perhaps even universal dimensions of the cultural trauma of memory, which manifests itself through the ritual enactments of martyrs in the annually celebrated cult of Agatha. I intended to give the depiction of Agatha's breast amputation a different reading, one that goes beyond a hagiographic reading of sexual violence (Easton 97), and that allowed Agatha's voice to retell the story. Through the making of the film, I also gained new knowledge about the nature of trauma that very much aligned with Candy and Edmond's findings (Candy and Edmonds 63). In what follows, I will lay out and discuss my practice-based filmic intervention into the Agatha myth in detail, as well as the specific knowledge of women's trauma from sexual violence that I gained through it.

Methodology

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some of these filmmakers' gaze reversals see Ann Kaplan's "Women, Film, Resistance," as well as Wegenstein and Mushro's (eds) *Radical Equalities and Global Feminist Filmmaking*.

To reappropriate the myth of Agatha, I needed to accomplish two distinct goals: give the story a

realism that inserts itself naturally into the rest of the film's aesthetic and narrative, but also

allow for a magic-realist intervention that brings Agatha to life. To do both, I decided to use a

rotoscoping technique inspired by the baroque chiaroscuro paintings that one sees throughout the

city of Catania. As we know from Imamura Taihei's classic essay on Japanese versus Disney

animation practices, the power of what Taihei calls the "cartoon" comes from the fact that the

drawings are based on real recorded movements of living actors who perform the actions

with *inner motivations* (Taihei 109). These recordings are traced over by frame-by-frame

drawings in a technique, rotoscoping, that was invented by Max Fleischer in 1915. The Disney

animators were not constrained by the long artistic traditions of drawings such as Impressionism

in France (with the example of Degas), or the tradition of Oriental Art in Japan, traditions that

resisted photography because of its potential competition with their own artistic traditions and

their relationship to realism. Similarly, in my idea of animating Agatha, I was not constrained by

a prior history of her animated gaze as she lacked inner motivation that went beyond sacrifice

and passive martyrdom in any of the representations I had seen.

Ryan Pierson recalls Michael Barrier's critical notes on this new art of rotoscoping,

combining a mixture of ontological registers as "disorienting and unpleasant in the same way

that an out-of-focus film is" (Barrier 115). Pierson believes this reaction stems from an early

approach to rotoscoping called "rotoscoping by outline," and sets it apart from "rotoscoping by

through-line," which was developed over the middle of the twentieth century: "In rotoscoping by

through-line, the outline is seen as a secondary property of an underlying site of forces, a set of

through-lines that hold the figure together." Pierson goes on to suggest that this relationship

between the line and the footage underneath it used in the process of "rotoscoping by through-

line" might be best described as a "relationship of love," whereby the loving line is "responsive to and changes with the loved one" (Pierson 117).

Overall, my goal was to create Agatha's world out of a fabric of positivity to create an aesthetic of reparation and healing for the character herself and for the viewer to enter into her sphere. To achieve this, I started by casting my daughter, Charlotte Egginton, for the reference performances of Agatha's actions, as I could not think of a more loving relationship than using a teenager I knew as well as my child, and who knew me as well and would trust me as much.

For the actual reference performances of Agatha I had my daughter work on the character design together with the animator, the Columbian mixed media artist and animator Adriana Copete.[2] As Jason Kennedy explains, recordings of reference performances are not only used to draw over them but also to study the actions themselves: "once recorded, animation reference can be used to better understand the physical mechanics of actions" (Kennedy 97). Accordingly, Agatha's animator recorded herself first to understand the rhythm of the actions better and to inhabit them as an actress-animator: "When I perform an action, I already think about the fact that I will animate this action" (Copete). Once Adriana had recorded her performance, she handed it over as a reference to Charlotte, who re-enacted it using her own body and activating her own "inner objects."[3] We then divided Agatha's performances into three stages according to Judith Herman's stages of recovery: "safety and stabilization," "remembrance and mourning," and "reconnection and integration."

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[2] adrianacopete.com

[3] Kennedy writes: "An inner object allows the actor to substitute a fictional story element for a person, place, thing or event from the actor's real-world experience, which enables the actor to react to a story beat in a way that is emotionally and intentionally consistent with the character's response within the story" (101).

For the first stage, we created a safe environment for Agatha in her cell inside the Cathedral of Catania where Agatha's relics and her bust are kept in darkness, but in actuality, we filmed in my basement in Baltimore. We wanted to provide an environment that we could fully control and that Charlotte could fully trust and know: our own home. For the breasts, we used laundry balls as place-holders and Adriana connected to the breasts through her own, positively connoted story of breast-feeding: "I remember [the doctor] telling me that my breasts are not twins but they are sisters." (Copete)

Fig 3. Agatha in her cell together with her flying breasts.

Another intervention into the safety of the environment happens thanks to Agatha's companions, the flying breasts, which are normally sitting on a platter next to her, and which she strokes like pets (see Figure 4). For their character design, we studied *Snow White and the Seven Dwarves* to better re-enact a young woman interacting with her little helpers. In Figure 3, which is the first time the viewer encounters the characters of the flying breasts, the breasts are flying around very animated.

Unlike in the myth and numerous representations from art history, in *Devoti Tutti*, Agatha is wearing clothes and even a modern sweatshirt on which the breasts are alluded to by a youthful design that is deprived of any sexual connotations[4] (see Figure 11). The presence of the breasts in Agatha's cell serves as a reminder that violence is not something that can ever be forgotten either by the subject who suffers violence or by the culture that produced or witnessed the act of violence.

Fig 4. Agatha is stroking her breasts who keep her company.

The second stage in Herman's phases of recovery presents Agatha in her cell practicing "remembrance" by occasionally drawing memories as the people of Catania continue telling bits and pieces of the myth. Her remembrance occurs mainly in a voice-over narration by the famed Italian actress Donatella Finocchiaro,[5] who has a personal connection to Catania and Saint Agatha. Finocchiaro provided the film with the lived experience of speaking from the point of

[4] The design was created by Adriana Copete and the reference performance artist Charlotte Egginton.
[5] imdb.com/name/nm1006993

view of a Catanese woman, which added to the reversal of the gaze since Donatella, more than

myself, could relate to the story on a very personal level. As she told me, "I have a visceral

relationship to Agatha as a Catanese woman. I am related to this myth that is a part of me"

(Finocchiaro).

Figs 5 and 6. Agatha draws her myth from her memory while the breasts sit beside her.

Honoring the act of "mourning," which is part of Herman's second phase of recovery,

Agatha is also shown in several postures that express her depressed state of mind. One of them is

a posture that would be unusual for a saint: seated on the floor with her legs pulled up in front of

her. In this posture, the charcoal-colored outline of her body has now changed from chiaroscuro

to a kaleidoscope of shrill colors that expresses confusion, fear, and desperation.

Fig 7. Agatha in desperation says, "I am tired of being a Saint." Voice-over narration by
Donatella Finocchiaro.

Another posture Agatha assumes is that of resignation when she puts her hair in front of her face. Here is how Charlotte related to the emotions conveyed through these actions: "I tried to remember all of the conversations that we had about what Agatha would be feeling and her confusion and desperation in these scenes—it didn't feel particularly hard because we were portraying Agatha as a girl of about my age" (Egginton).

Fig 8. Agatha is putting her hair in front of her phase in a posture of resignation.

The last and most rigorous intervention into the original Agatha myth occurs during stage three of Herman's *Trauma and Recovery*, which she calls "reconnection and integration." This part was by far the hardest one in terms of finding the right tonality within "a semi-realistic style," i.e., believable but with some heightened or exaggerated performances" (Kennedy 97). In our version, Agatha learns from her breasts that she, too, can fly, and together with them she leaves her confinement and flies out of the Cathedral and away from Catania.

This final step of our intervention was entirely enabled by the art of rotoscoping and, in this case, by the detachment of the actress from any connotations of suffering and by the

animator imagining a positive moment of liberation rather than a flight (Egginton). Even from

the animator's point of view, this third part of Agatha's recovery was the most complex to

achieve. To make the rotoscoped images feel like they belonged to the physical spaces of

Catania, colors, and strokes needed to be repeated and adjusted to find that magical *loving*

line that makes us believe that the reference footage belongs to the drawing and vice versa: "The

line that loves is distinct from the line that has powers of transformation over and against

anything around it" (Pierson 141). In this sense, the animator used a personal "line that loves" for

Agatha's escape. Referring to the memory of hiking in one of her favorite spots in Colombia she

told me, "I imagined myself flying away from the top of the mountain that was the top of the

Cupola of the Cathedral after a really hard hike. The end of the hike was the liberation I

imagined" (Copete).

Figs 9 and 10. Agatha leaves her confinement and flies away together with her breasts.

The final voice-over narration by Donatella Finocchiaro in Sicilian dialect expresses Agatha's freedom and empowerment very concretely, as she tells us: "One day I will tell you my whole story, but now I have too many things planned."

Fig 11. Agatha is leaving her own myth behind.

In the final frames of rotoscope animation, we see Agatha smile for the first time and her figure fills out the entire screen. She flies away from us into a world located outside of the film. With this last image, I wanted to instill a feeling that Agatha, who has been represented as an unaware abused woman for close to 2000 years, has now become "self-aware."

Conclusion

Through my feminist practice-based filmic intervention into the Agatha myth, I used hybrid story-telling devices to rotoscope Saint Agatha out of her own myth. The choice of blending cinematic regimes from the past and the present with the surreal realm in which Agatha can fly was key to creating what Mulvey calls a "women-inflected" cinema (Mulvey 142). Such a cinema and a "women-inflected" modality of storytelling seek to break silences around personal and collective traumas (Bianco 287). It is through the mix of these elements that *Devoti Tutti* can

reveal the social truth of patriarchy that lies beneath this myth of sexual violence, while also

showing how Catania's "emotional brain" retained this violence because it never found a way to

process it and heal. Most importantly, the practice-based, rotoscoped interventions created the

possibility to empathize both with Agatha and with present-day trauma victims such as Angela,

thus turning a myth that had ossified into the passive acceptance of patriarchal violence into an

active, woman-centered re-animation of a survivor of that violence taking up her agency and

repairing the wounds of her past.

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Prodigious Protocols

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Le Bureau des Miracles (2020) is part of an ongoing artistic project entitled *L'Inexpliqué* (2015-now)*, in which the French artist Stéphanie Solinas brings together* questions of spirituality, corporeality, and gestures of the sacred. As the name indicates, Le Bureau de Miracles is occupied with miracles—unexplained events, prodigious coincidences—and its primary offer includes the collection, storage, and distribution of these miracles. To participate, a simple procedure should be followed: you send a story of a miraculous event anonymously by SMS to the Bureau which becomes part of the collection, and then in turn you receive, without particular regularity, another story. On the website, the Bureau and its interests, intentions, and participative protocol are described unceremoniously:

> SEND A STORY OF A MIRACLE
>
> BY SMS TO +33 6 68 67 70 20
>
> A MIRACLE YOU HEARD OF,
>
> A MIRACLE THAT HAPPENED TO YOU,
>
> AN UNEXPLAINED EVENT THAT SEEMS MIRACULOUS TO YOU,
>
> A PRODIGIOUS COINCIDENCE, ETC.
>
> 1. YOUR MIRACLE WILL ANONYMOUSLY BE PART OF
>
> LE BUREAU DES MIRACLES COLLECTION

2. YOU WILL OCCASIONALLY RECEIVE BY SMS

A STORY OF A MIRACLE FROM THE COLLECTION. (Solinas)

Appropriating its mode of operation from chain letters, tear-off flyers, and similar

despised products, Solinas' Bureau establishes a subtle alliance between mystery–miraculous,

unexplained events–and everyday life with its inflexible institutions and predictable, technical

arrangements. As with several of her other projects, e.g., the vast exploration of *Dominique*

Lambert (2004-2016) which occupied the artist for more than a decade (Herrie), a strict

methodological setup is in place: to participate, you need to follow a set of rigidly defined

principles. Employing the form of the protocol as well as the limited options offered by the SMS

technology, the project operates on (mimics, parodies) an orderly logic of bureaucracy. To

participate, fill in the form: in this case, the 160 characters that constitute an SMS.

In this essay, I take my point of view in precisely this form, asking what it means to

"speculate" along the lines of the protocol: what ways of seeing, operating, and knowing does

the protocol offer? How does such a "protocological" mode of thinking influence the conceptual

work provided by Le Bureau de Miracles (Galloway 176), and how is it challenged? To

contextualize this kind of art-based research, I draw on Claire Bishop's idea of aggregative

knowledge production (Bishop). I discuss how the assembling of already existing materials—in

Solinas' case miraculous stories from (potentially) all over the world—and the artistic

reconfiguration of them into the "mold" of the bureaucratic institution can be understood as a

research strategy. Rather than being occupied with, e.g., content creation, Le Bureau des

Miracles, and many other, contemporary art-based research projects,[1] seem instead to annex

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[1] Bishop's examples include Akram Zaatari's re-presentation of the preexisting archives (*Objects of Study/Studio Practices*, 2007), Taryn Simon's photographs of folders from the New York Public Library ("The Color of a Flea's Eye: The Picture Collection," 2013), Zoe Leonard's collection of postcards of Niagara Falls (*You see I am here after*

already existing systems of configuration (Joselit "On Aggregators"), creating what David Joselit

has termed an "epistemology of search," (Joselit "The Epistemology of Search") or what Bishop

critically has described as "a desultory updating of appropriation and the readymade" (Bishop). I

explore this trend of employing pre-existing formats to conceptualize from. Yet, while Bishop

remains unconvinced about the idea of artistic appropriation, I aim to show its potential as a

strategy to "think" with (or against) concrete logics underpinning contemporary knowledge

production. As such, this essay is both a reading of Solinas' artistic project and a critical

discussion of its intervention in a broader cultural field, where art-based research has shown that

art practice and research can indeed complement each other and both be considered essential and

valuable for contributing to knowledge production.

Orderly Transmissions

A protocol, in its simplest definition, is a preexisting agreement as to how information will be

structured and how each side of a communicational exchange will send and receive it. Such an

agreement may contain a set of procedures for the transmission of information and a set of rules

for correct behavior. Before its usage in information theory, "protocol" thus referred to any type

of proper behavior within a specific system of convention (e.g., concerning social etiquette,

diplomacy, and international relations). With the advent of digital computing, the term however

took on a slightly different meaning. Now, protocols also refer specifically to standards

governing the implementation of particular technologies (Galloway 6). Like their diplomatic

predecessors, computer protocols establish the essential points necessary to enact an agreed-upon

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all, 2008), Maryam Jafri's compilation of photographs of postcolonial celebration (*Independence Day* 1934–1975, 2009–), Henrik Olesen's *Some Gay-Lesbian Artists and/or Artists Relevant to Homo-Social Culture Born between c. 1300–1870* from 2007, and Wolfgang Tillmans's "Truth Study Center" (2005-). While she is mostly critical towards this third phase of the art-based research project, Bishop at the same time praises some of its exponents, in particular Henrik Olesen. Bishop, Claire. "Information Overload." *Artforum*, vol. 61, no. 8, 2023, artforum.com/print/202304/claire-bishop-on-the-superabundance-of-research-based-art-90274.

standard of action, and, so, they are vetted out between negotiating parties and then materialized

in the real world by its participants.

Le Bureau des Miracles operates in much the same way: just as a computer protocol it

determines the shape and structure that the data must conform to exist in the network. To

experience the artwork–by adding to the collection and receiving miracle stories from others–

spectators must conform to the bureaucracy of the project. Your personal miracle is condensed

into the short format of an SMS, which is then anonymized and transformed into a node in a

decentralized network based on one-to-one interactions. You have no control over its distribution

or its reception in other parts of the network. As such, the Bureau, rather than being a guarantor

of stability and predictability, ironically becomes a generator of sudden, unexpected events.

Whether you are riding the metro, eating your lunch, or in the middle of a meeting, a miracle can

potentially "occur" (Limongi). What are the affordances of such an SMS-driven Bureau, of its

protocological way of operating?

Setting up her project, Solinas does not just use the format of bureaucratic protocols

she *installs* a working protocol that operates autonomously beyond her will. Collecting, storing,

and spreading miracles (whatever they are), the Bureau is a leaky archive that systematically

"connects what cannot be connected," distractedly making connections among disparate points

(Foster), "one miracle per SMS" (Solinas). It employs old-school text messaging, which, with its

character limits and lack of embeddable media and other more advanced messaging services

such as photos, videos, and emojis, is almost provocatively mundane and "boring"–at least in

contrast to the fantastical nature of miracles. To think as a protocol, the project seems to claim, is

to think *bureaucratically*. Because while it is inherently rigid and regulatory in its operationality,

the protocol is indifferent to the content inside it. It is pre-meditated, yet operates spontaneously

on whatever input it is fed, and, as such it marks a radically open starting point for Solinas' experimental setup.

Aggregative Knowledge Production

In her recent essay "Information Overload," Claire Bishop critically examines what she calls a superabundance of research-based art. Identifying four phases, she describes how each of them presents a different understanding of what constitutes knowledge (Bishop): while artists during the first phase in the early 90s would invite viewers to themselves piece together parts of provided materials to form their own historical narratives and bodily experiences, second phase artists would rather craft the narrative as part of their work. And while the third phase, fully post-internet artists will return the viewer to sifting through information, albeit now in a formal, less interactive mode, the fourth phase artists will focus their projects on strong arguments that seem to refute neutrality. Bishop identifies both pros and cons in all four phases yet tends to prefer the interpretative syntheses of phase four over, e.g., the "inchoate curiosity" of phase three (Bishop).

Relating Solinas' Bureau to Bishop's taxonomy, it seems to be a clear-cut third-phase phenomenon. Operating on what David Joselit has described as a logic of "aggregation," that is, configuring, searching for, and making meaning from already existing content, *Le Bureau des Miracles* is precisely *appropriating*. Like other "third phasers," Solinas invites meta-reflection on the production of knowledge as truth, and she is reluctant to draw conclusions. Her material is radically unexplainable, as most of her projects are built on the stuff of myths, miracles, and other supernatural phenomena. Bishop is critical of such aggregative ways of producing knowledge, claiming that artistic projects from this phase no longer undertake their own research, but just sample what is already there (Bishop). "Yearning for selection and synthesis," Bishop lacks "original proposition[s] founded on a clear research question" (Bishop).

While it is true that Solinas with her Bureau borrows, recontextualizes, and samples already existing materials and principles instead of creating her own content, it is interesting to ask *how* she uses these things, and to what extent her artistic research "thinks" with or along them. Working as an artist in today's media culture, the Internet with its vast possibilities and seemingly all-encompassing search engines at your fingertips. A fact that, according to Bishop–and David Joselit whose term of aggregation is central in her critique–has transformed the ways in which artists think and work. "*Search* becomes *research*," Bishop writes, and whereas "[s]earching is the preliminary stage of looking for something via a search engine," proper research "involves analysis, evaluation, and a new way of approaching a problem." Search implicates "the adaptation of one's ideas to the language of 'search terms'—preexisting concepts most likely to throw up results—whereas research (both online and offline) involves asking fresh questions and elaborating new terminologies yet to be recognized by the algorithm" (Bishop). Artists who simply search for already existing content and reconfigure it in order to find what they need and make meaning from it are not proper *re*-searchers.

Whereas Bishop's essay provides a useful taxonomy for approaching the rich and varied field of contemporary research-based art, I see a central issue regarding its narrow focus on the art-researcher subject. Inspired by the protocological thinking of Le Bureau des Miracles, I suggest taking a closer look at the very gesture of appropriation. Instead of centering the argument around an individual art researcher, I would rather ask what it means to "think" with (or against) the algorithmic logics underpinning contemporary knowledge production. Immediately diagnosing this idea of appropriation as just a shallow gesture of "pointing," (of "cut and pasted" information or data "dropped in a vitrine" to use Bishop's formulations) you risk missing the potential of criticizing from the very viewpoint of the algorithmic condition

(Colman et al.). Bishop's focus on the art-researcher subject entails an accidental blind spot in terms of understanding the critical potentials of appropriation, not just of a set of already existing materials or collections, but also of thought systems, bureaucratic infrastructures, or concrete techniques.

"The richest possibilities for research-based installation emerge when preexisting information is […] *metabolized* by an idiosyncratic thinker who feels their way through the world," Bishop writes paraphrasing Mark Leckey. I could not agree more. But does this idiosyncratic "thinker" have to be the *mind* of an artistic subject, or could it also be a theoretical principle, a program, or a concrete technique executing its power beyond our human-to-human everyday life? Le Bureau des Miracles is a wonderfully weird example of a critical research project operating precisely at the limits of our expectations, both in terms of how questions of spirituality can be addressed and interpreted via something as *in*-appropriate as a bureaucratic protocol, and in terms of how an artist-spectator ratio can look like. Solinas' miracles are precisely *metabolized*, yet crucial parts of the body undertaking this process of digesting are conceptual and collective: the "thinking" of the work is done by many actors, some of them technical and theoretical.

In this essay, I have discussed the potential of artistic appropriation as a critical tool to "think" with (or against) concrete logics underpinning contemporary knowledge production. I have asked what it means to see, operate, and know along the lines of the protocol, and in doing so, I have tried to broaden the notion of artistic thinking to also encompass collective, conceptual, and technical contributors, challenging conventional boundaries in the realm of art and research.

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