Proceedings of Audible Futures:
Media, Ecology and Art

Edited by Kyung-Young Chung

International Conference on Politics of Sound and Technology

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Preface

The Music Research Center at Hanyang University held its international conference titled **"Audible Futures: Media, Ecology, and Art"** on March 28–29, 2025. This event marked our first in-person gathering in six years and held particular significance for our center.

Since 2015, the center has been committed to exploring sound within social, cultural, and historical contexts—pursuing this work under the name of **sound studies**. In 2018, we hosted our first international conference, *"Rethinking Sound"*, followed by the second, *"Differentiating Sound Studies: Politics of Sound and Listening"*, which was held online in 2022.

This year's conference was a meaningful occasion to commemorate the center's ten-year journey and to reunite in person on campus to imagine the future of sound together. It offered a valuable opportunity to revisit the questions we had raised over the past decade and to reflect on possible directions ahead.

When we began our work in sound studies, we were inspired by Jacques Attali's assertion that *"the world is not for the beholding, it is for hearing."* A decade later, we took the time to reflect on how our initial curiosity and excitement have matured into a deeper sense of responsibility and commitment.

This international gathering brought together esteemed researchers from more than ten countries. We would like to take this opportunity to extend our sincere gratitude to all the presenters who joined us and offered profound insights into the study of sound. Thanks to your contributions, this conference became more than a space for envisioning visible futures—it also allowed us to analyze, interpret, and dream of **audible futures**.

Finally, we would like to express our deepest thanks to all contributors who revised their presentations for inclusion in this volume, to Dr. Yi Eun Chung for his editorial work, to our research assistants, and to every member of the center who helped make this conference and publication possible.

Kyung-Young Chung

Dean and Professor, College of Music, Hanyang University

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Content

Why Was Noise Defined as Non-Musical Sound in the Mid-19th Century?

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ABSTRACT

The Definition of Noise

The modern concept of "noise" was defined as "non-musical sound" by von Helmholtz, a 19th-century giant scientist, who called it *Geräusch* in German and differentiated it from the emotionally annoying noise, *Lärm* (Von Helmholtz 1863). *Geräusch* had been used in the acoustics and hearing research arena until it was replaced by "unwanted sound" around the 1930s. Von Helmholtz said, "The sensation of a musical tone is due to a rapid periodic motion of the sonorous body: the sensation of a noise to non-periodic motions" (Von Helmholtz 1863). In the acoustics expression, musical tone presents a line spectrum, whereas non-musical sound presents a broad spectrum.

Von Helmholtz's definition was supported in the music arena; for instance, Hanslick claimed that the musical sound was the harmonious sound of Western music properly performed, saying, "Unless a certain measurable, fundamental tone be sounded on a musical instrument, there can be no auxiliary tones and consequently no harmonic progression" (Hanslick 1891, 109). The word "measurable" means the sound is harmonic. As Hanslick emphasized, harmony is an essential material of music in the West.

Why Did Harmony Become So Significant for Western Music?

The Greek and Roman culture and civilisation, including the theory and philosophy of harmony, were transmitted to the Arabic world first. The first Arab dynasty, the Umayyad Caliphate, was founded in 661, where Greek and Roman literature was translated into Arabic, and Greek science and philosophy came to be transplanted into the Islamic world, with music theory being included among them. The first

100 years of the Abbasid Caliphate, which overthrew the Umayyad Caliphate and became a great empire that stretched from North Africa to Persia, is also known as the "Golden Age" of music. The Later Umayyad emirate, founded in 756 in Cordoba on the Iberian Peninsula, was no less prosperous than the Abbasids. The Greek-Arabic musical theory, having developed to such an extent, saw its peak in the Cordoba School and influenced the musical theories of medieval Europe as well as the rest of the world (Kishibe 1952).

Sounds in the Medieval Towns

In the light of the history of harmony stated above, a question arises: Why did the comparatively less developed/civilised part of the planet, the West, undergo such a development to make exceptionally and distinctly harmonious music compared with the kinds of music of the rest of the world?

A theory was proposed by HaCohen, saying that Western music's obsession with harmony was the other side of the music libel against the Jews, in a sense, anti-Semitism. But before proceeding to her theory, let's take a look at the sounds heard in medieval European towns.

No doubt, towns in medieval Europe were full of a variety of daily life noises made by town dwellers, at least in the daytime. Church bells rang all around the towns, dominating people's lives. As Huizinga writes: "One sound rose ceaselessly above the noises of busy life and lifted all things unto a sphere of order and serenity: the sound of bells" (Huizinga 1924).

However, thanks to the church bells controlling citizens' lives, the medieval European towns were quiet at night in contrast to the noisy daytime. "With the second bell, the city gates would close and the inside of the city walls would enter the night, when all the daytime bustle and singing would quieten down" (Abe 1981, 285–307).

Clamorous in the daytime, though, unlike in ancient Rome where "many invalids died from sleeplessness" (Juvenalis ca. 100 AD), tranquil at night in medieval Europe, citizens were not much disturbed by noise. However, there was an exceptionally unacceptable noise; the sound coming out of the synagogue.

Noise in the Synagogue

What was the soundscape in the synagogue like then? "One of the most typical characteristics of the authentic synagogue sound" is "heterophonic chant-mumbling" (Tarsi 2002, 71–72), and "the shofar's (ram horn) strident blasts on top, blown during the period of the Jewish High Holidays" (HaCohen 2011, 22). "The nonsynchronized soundscape of the *perfida synagoga* (a sonic texture termed, in professional

musicology, as "heterophony") could not but become a symbol of offensive noise for ages to come: *Lärm wie in einer Judenschule* (noise/shouts/ado as in a synagogue)" (HaCohen 2011, 2). "An expression, the cries of the Jews in their synagogues…apparently means that Christians did not wish to pay close aural attention to that which transpired there; this itself had a history since the first millennium" (HaCohen 2011, 21). "The expression that conveys it clearly signifies noise in the synagogue as an essential, unavoidable fact, such as 'barking dogs' or 'the tumultuous sea.' *Lärm* . . . originates in the synagogue and characterizes its basic soundscape—the soundscape of a defeated people. . . . In the medieval world, . . . the synagogue became not only the acoustic organ of the noise—the animal-like uproar of a resonating body" (HaCohen 2011, 128).

Noise *vs*. Harmony

The emergence of Islam set the boundaries for a new, tightly knit world, the Christian world, and "Christian-Muslim rivalry created the cultural bulwark against which European identity could be defined" (Davies 1996). The formation of the Christian world identity and the crusading expeditions as part of the historical flow linked to that identity, further catalysed by the intensification of that identity, resulted in the development of an emphasis on harmony in Christian music.

The idea of world harmony created by the Greeks and Romans was realised in the church space by the polyphonic music which rose in the 9th century, and the trend became decisive in the 12th century. HaCohen argues that a certain anti-Semitism was a reflexive attempt to fill the sound of the Christian church with harmony as follows: "Beyond 'proper' music, ideas of harmony permeated all avenues of theological, scientific, artistic, and linguistic medieval forms. The harmoniousness bestowed upon the church by these ideas and the musical products that were considered as their incarnation spread beyond its liturgy to include an entire environment, both real and imaginary, in which birds, ecclesiastic bells, and choirs of angels fill the air, the atmosphere—*die Stimmung*—with their concordant sounds" (HaCohen 2011, 27–28). In a world entirely covered with the concept of "musica mundana" where the church was the embodiment of the universe, harmony was not only a term of music but a signification of the harmonious Christian world in every aspect.

HaCohen also insists, "Compared to such a self-assertive, harmonious sonic world, the music of the adjacent synagogue sounded duller, more dissonant, and noisier than any other alien musical world. The sounds emitted by the synagogue were cacophonous and unintelligible to Christians, who considered them as an ongoing testimony of the *perfida synagoga*" (HaCohen 2011, 28).

The progressive harmonisation of Western music took place in the core countries at about the time of the Crusades, and "it is not coincidental" (HaCohen 2011, 3). Thus, the noise made by the Jews in the synagogue was special, as she claims, "Noise is bad—a symptom of sin, decay, and of a God's forsaken

people; harmony is good, providential, and inextricably associated with sacrifice, compassion, and exclusion" (HaCohen 2011, 280).

As a flip side of the reinforcement of the Christian world's self-identity, the noise to be excluded from society was sought in the soundscape of the synagogue to form the epistemological foundation for the distinction between musical and non-musical sounds. It would be safe to regard that it was this foundation that led von Helmholtz to define noise, *Geräusch*, as non-musical sound.

The Reality of Noise Problems Changed the Definition

In their active days of von Helmholtz and Hanslick, the Industrial Revolution was on its way at full speed, expanding the size of the cities which attracted people from all walks of life, and resultantly, streets were filled with various noises from machines and engines as well as street musicians. The reality of the noise problem changed as society did.

In parallel with this change toward the turn of the century, psychiatry made significant progress on the interpretation of mental disorders, such as hysteria, neurosis and neurasthenia. Then, noise came to be accounted as one of the filthy elements causing neurasthenia in big cities (Beard 1881, 99). This was a precursor for the notion of noise to emerge from the music-related interpretation.

The strongest blow to the public's understanding of noise was the shell shock. The WWI was the first major war in human history, an event that saw the use of a series of newly developed weapons that resulted in huge casualties including what is called shellshock, which was due to, as then understood, the noises of machine guns and cannons heard in the trenches and battlefields. "With its multitude of symptoms (deafness, muteness, stuttering, trembling, nightmare, insomnia, anorexia, loss of affect, hyper-reactivity to sound and touch), shellshock could point as well to cowardice and deceit as to brain injury or neurological trauma" (Schwartz 2001, 586). This was a horrible experience for Europe. Noise was not just an annoyance liable to uneducated lower-class people, but it can do mind and brain harm to anybody. In other words, the noise came to be regarded as a toxin or pathogen spreading over society.

One of the most significant aftereffects of shellshock on society was the establishment of the new research field of industrial psychology. (Leese 2002, 162) The industrial psychologists began scientific research on the psychological and physiological effects of noise on factory workers and urban dwellers, regardless of its spectrum shape. The acoustics term *Geräusch* lost its raison d'être in the face of the reality of noise. The time was the 1920s when acoustic engineering came into the world, as science and technology, being value-neutral, swept away the Christian ceiling covering over Western acoustemology. As the definition of noise, non-musical sound was replaced by "unwanted sound" before WWII.

Keywords

noise, music, harmony, Christianity, anti-Semitism

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Endangered Sounds: Participatory Podcast and Immersive Sound for Political Resistance in Internal Areas

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ABSTRACT

Background

Our history is downhill (Calvino 1946).

Internal areas are communities disconnected from basic services such as education, healthcare and transportation and therefore prone to depopulation (De Rossi 2020). The urgent matter of isolated internal areas fractures Europe into two competing soundscapes: the loud mediatised cities and the silent disconnected villages (Scanu et al. 2020). However, sociology, political science and geography focus on macro policies and ignore the people's living voices (Carrosio 2019; De Rossi 2020; Meloni 2015; Tantillo 2023). As a result, broad analyses neglect local struggles to redefine internal areas (Palmieri 2023).

In Italy, the internal areas articulate six "shrinking Italies:" abandoned villages and high lands (the green regions in Fig. 1); valley floors, foothills and "depressed" basins (red); depopulating productive countryside (light blue); struggling urban districts and outskirts (yellow); coasts consumed by overtourism (blue); fragile urban peripheries and interstices (rectangles) (Curci, Kërçuku, and Lanzani 2021). According to the National Strategy for Internal Areas (SNAI), 10% of the Italian population lives in one of the six shrinking Italies (SNAI 2013). The depopulation and isolation of Italian internal areas worsened in the last 70 years, due to a process of internalisation (Renzoni 2018): a pattern of urbanisation paradigms that first tried to exploit the internal areas as raw material, then to outfit them like cities by laying asphalt and rails, and lastly to value them as natural resources to beautify and

touristify. The failure of these paradigms left the internal areas in a state of "penumbra:" few communities that fit into the consumerist categories of tourism (e.g. UNESCO sites) or natural beauty (the so-called "borghi"—immutable villages frozen in time and traditions) come into the light; the others lie in the shade of urban-centric policies.

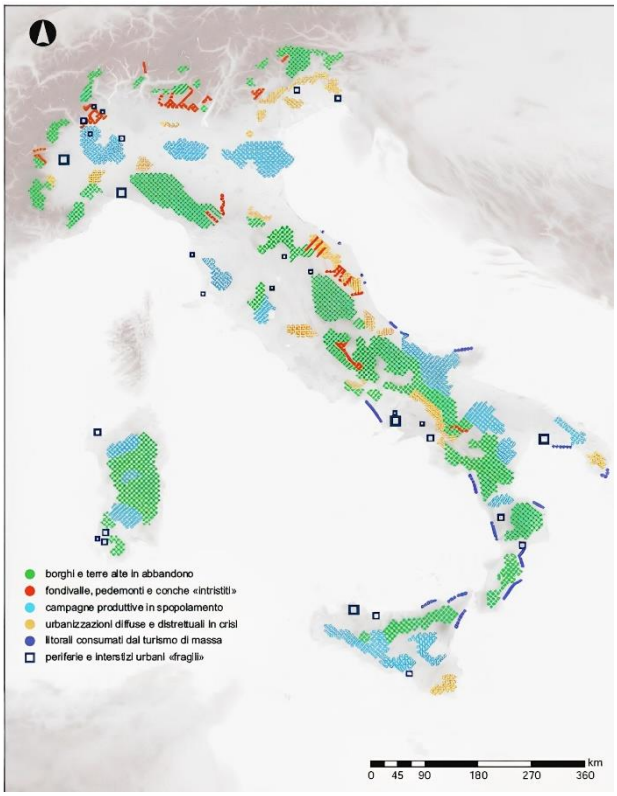

Fig. 1. The six shrinking Italies (Italian internal areas, De Rossi 2020, 135).

My paper addresses voice and the role of sound technology in participatory research (Hilder 2023; Stoecker 2023) in internal areas. *Endangered Sounds: the Voice of Cevo* is a participatory podcast that challenges the city–countryside dichotomy and unearths the liveliness of the Alpine village of Cevo, in the Brescia province. In immersive ambisonic audio, the voices of Cevo merge with their soundscapes into a multispecies archive of community sounds. QR codes throughout the village share the podcast with travellers.

I argue that the participatory podcast (Barbarino 2022; Smith 2021; Wilson 2018) is a tool for political resistance and critical consciousness (Freire 2021; Hofman 2020) and that immersiveness emphasises the authors' positionality within the territory, exposing the power dynamics of audio

technology. In conclusion, this project gives a new voice to the neglected soundscapes of internal areas by using the participatory podcast and immersive sound as tools for political resistance and the preservation of marginalised sonic cultures.

Aims

1. Co-creating a sound archive of voices and soundscapes of resistance in Cevo, an internal area.

Given the historical background of Cevo—a community that was burnt by fascist in 1944—the research studies how the political and gendered concept of resistance developed through the years and how it intersects with contemporary issues of depopulation and marginalisation. Through extensive fieldwork, field recordings and in-depth interviews constitute a public sound archive of the community's narratives of resistance in Valsaviore internal area.

2. Build a participatory framework to create three immersive audio compositions ("virtual cassettes"). Each composition orchestrates the sounds that a participant connects with resistance and community-making in Cevo.

The research adopts a participatory action research frame (PAR) in that it involves the participants in every step of the research design, fieldwork and restitution. A pivotal aim of the research is to restructure the role of the researcher as a facilitator to empower the participants to co-orchestrate three immersive audio compositions with the sound material of the public archive. Regular feedback and listening sessions ensure that the compositions follow the participants' directions and the topics emerging from the interviews and soundwalks.

3. Create a podcast based on the research to experiment with the relational potential of immersive audio for participatory action research. Can an immersive podcast foster a listening relationship between center and periphery?

Ambisonic audio (Edmonds 2023; Paterson and Kadel 2025) is a recording and mixing technique developed in the mid-1970s that places the listener inside a 360-degree sonic sphere, so that their ears receive information coming from all directions, not just from two speakers in front (stereo). The research's ultimate goal is to disseminate the voices and soundscapes of Cevo through streaming platforms in the form of a podcast, to reach cities and foster a listening relationship with internal areas through immersive audio. Disorientating, dynamic, unpredictable and moving, ambisonic mixes force

the listener to pay attention, and to abdicate a passive receiving stance for an active listening participation.

Methods

The research methodology is informed by Smolicki's reframing of Eidsheim's "acousmatic question" in terms of "acousmatrix" (Eidsheim 2019, Smolicki 2025). Eidsheim critiques the essentialist view of voice as an a priori stable connection between an utterance and a univocal identity; rather, she argues that identity is created in the ears of the listeners, who fits the voice in categories such as blackness and femininity. Smolicki draws on Eidsheim's acousmatic question "who is this?" to argue that voice is a complex situation that, in addition to its myriad acoustic signals, consists of action, material, and social dynamics.

Accordingly, the research methodology adopts a stratified ethnographic approach that is both multispecies (Locke and Muenster 2015) and multisensory (Stoller 2010). The voices of the participants are always considered in relationship with their sonic surroundings and the sonic affordances of Valsaviore. Each interview is systematically analysed and the sound mentioned by the interviewees are listed, labelled as "human," "nature," "technology" or "hybrid" and discussed in follow-up interviews. Subjectively meaningful sound sources are then sampled on the field and inserted in the public sonic archive, to form an intersubjective reservoir of meaningful sounds.

The research spanned over three months of fieldwork, and followed this plan:

- Context analysis and archival research regarding the history of the Resistance in Valsaviore (Franzinelli 1995);
- Co-creation of the research plan with the local community, according to the guidelines of participatory action research (Stoecker and Falcón 2023). The community was involved in the choice of the participants, the sounds to be included in the archives, and the final restitution. Three women were chosen for the project: the bar owner, the director of the Resistance Museum, and the town band director.
- Participant observation and listening of the daily activities of the participants; in-depth interviews with each on the topics of resistance and community-making in internal areas, and the relationship between soundscapes, community and identity.
- Participatory soundwalks in the woods and trails around Cevo with the participants, during which sounds were recorded with a Zoom H5N and a Sennheiser MKE600 shotgun microphone.

- Co-creation of three ambisonic compositions based on each participant's personal soundscape of Cevo. Each composition stemmed from two input questions: 1) "80 years ago, resistance meant fighting against the fascists and rebuilding the community. Is it still a relevant concept in your community and, if so, what meaning does it have for you today?" 2) "Imagine having to leave your home forever. You are given 24 hours to collect the sounds of Cevo that you would take with you on a cassette. Which would you choose?".
- Ambisonic mixing and final binaural export of the compositions, using the IEM plugin suite and the Reaper DAW.
- Listening session with the participants.
- Final restitution with a plenary listening session and discussion in the town hall.
- Printing and hanging of plaques with the QR code linking to the published podcast in the key places of the research: outside the bar, in the Museum, and by the music rehearsal room.

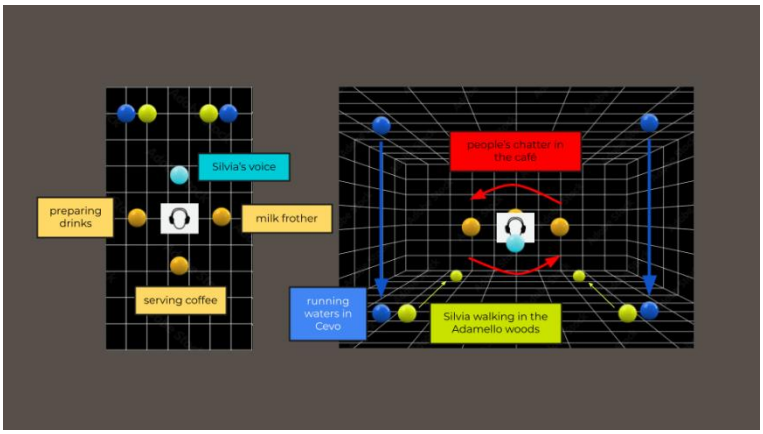

Fig. 2. Simplified illustration of the ambisonic composition of Cevo's soundscape according to Silvia, owner of Bar Centrale (Central Bar).

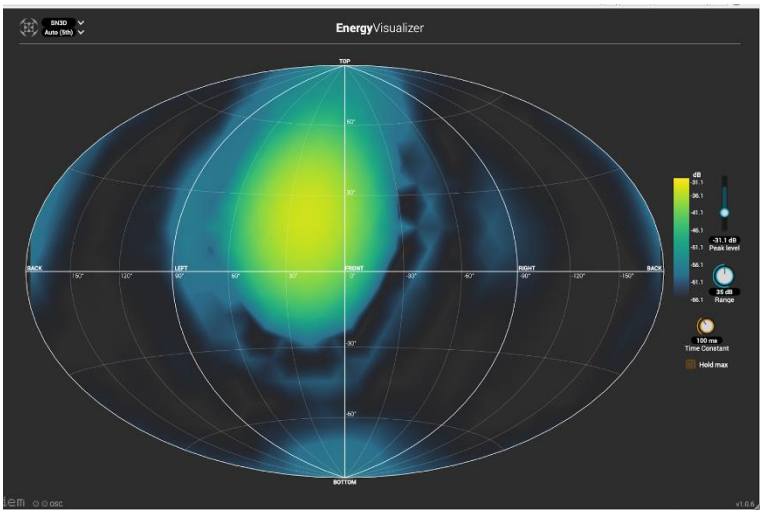

Fig. 3. Energy distribution on the sphere of the ambisonic input signal of Katia's (director of the Resistance Museum) composition. Her voice occupies the centre of the sound space, and is surrounded by the sounds of her childhood in Cevo (back, front right), a recording of her Istrian mother, and water flowing in Cevo (bottom)—EnergyVisualizer plugin by Institute of Electronic Music and Acoustics (IEM).

Implications

To conclude, the research pointed out that:

- The soundscapes of resistance in Cevo are decidedly more-than-human. Concepts such as resistance and resilience are inextricably tied to mountainous actors such as bird songs (and their absence in the city opposed to Cevo, where "you can *still* listen to them," "they *resist* here"), water as a vital resource for energetic independence and a bittersweet companion (many workers died in the 1950s and 1960s while building hydroelectric plants, due to asbestos poisoning), and the sound of places (the bar's chatter "looks after" the owner's quiet grief while she mourns her partner, who passed away in a car accident—this soundscape supports her and pushes her to be "resilient," to "stay here"). Moreover, the interviewees express their very identity as an intersection between personal biography and the landscape, suggesting that the natural and technological habitat of the Valley offers specific affordances for their voices to develop and be heard, as bartenders, teachers, band directors, and entrepreneurs.

- The experimental use of ambisonic mixing to create immersive compositions of each participant's "soundscape of Cevo" supports the previous observation. In fact, the sound sources in the compositions are less human, and rather environmental or technological (e.g., a recurring song

played by the car radio, that times the distance between Cevo and the city downstream).

Open questions and further development:

- Sound research can be intrusive, especially in small communities where interviews, field recording and soundwalks may disrupt the community's temporality (e.g., interrupting restaurant service, delaying early morning preparations in the local bakery). A promising way to address this issue could be to provide the participants with handheld or wearable recorders.

- During the research, the participants often tied their identity to the emotional bond with natural elements of the Camonica Valley (which Valsaviore and Cevo are part of). In turn, these natural elements offered spaces of A) independence, B) participation and C) multispecies community. These affordances openly contrast the fascist staples of A) statalism, B) self–abnegation of the individual and C) urbanism. This is not to suggest a straight comparison between the political and moral values of historical Resistance with today's identity-making in mountain communities; rather, the relationship between socio political values, identity-making processes and mountain soundscapes should be investigated further in contemporary internal areas, which tread a fine line between reactionary isolation and democratic experiments.

Fig. 3. Art cover of the podcast *Endangered Sounds: the Voice of Cevo* (italian version). English version available here.

Keywords

internal areas, podcast, participatory action research, ambisonic sound, multispecies soundscapes, resistance.

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Political Resistance Through Experimental Music and Sound Art

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ABSTRACT

Background

In this brief essay, I will discuss a soundwork I composed that was inspired by a protest movement—or to be more precise, by a series of events that began with Covid19, followed by the Canadian government's political response to Covid19, and finally, by a protest in reaction to that political response. Notwithstanding the title, the focus here will not be on the music per se, but on everything else, that is, the circumstances that led to its creation, rather than the creation itself.

I will begin with a brief background on the protest, paying special attention to the multiple roles sound played during the course of these events as well as its role in our perception of these events. Here, I understand noise not just as undesirable sound, but also in the multisensory perspective of media noise as an inundation of messages amplified not just aurally, but visually as well through television and the Internet, messages that both united and divided Canadians around this protest self-named the Freedom Convoy.

In his book, *The Logic of Filtering: How Noise Shapes the Sound of Recorded Music*, Melle Jan Kromhout points out the inherent transdisciplinarity of noise, noting that "the very definition of noise itself remains notoriously unstable" (2021, 5). Similarly, Kim, Huang and Emery (2017) engage in an academic debate with Allem and Ferrara (2016) over how to treat "noise" in social media data, while Andreeva and Polianina (2021) consider noise as a form of public information distributed through mass media. There are, in fact, countless such examples which refer to a concept of noise that extends beyond the domain of the purely sonic, including in visual media. I only name these few to demonstrate that noise here may be both physical and communicational waves à la Shannon's information theory—not to

mention the noises of protest that made their way into my above-mentioned piece. I thus accept the implicit invitation by the aforementioned authors to open up my understanding of noise in the discussion that follows.

For those who may have heard about this protest, they may know that the subject is quite divisive, which has been exacerbated by the way it was covered in the media. If my opinion seems transparent, my interest is not in promoting a given view as much as seeking other possible ways of understanding the cultural phenomenon of this protest, notably, through the lens of sound…if one accepts my awkward, if apt, mixed metaphor.

At some point during Covid19 in Canada, around late January of 2022, as the weight of the various restrictions grew less and less tolerable for many Canadians, an exemption for vaccine requirements for cross-border truckers was lifted, which suddenly meant thousands of truckers could no longer ship their goods, and more immediately, earn a living, unless they either quarantined, which represented a grave obstacle to their livelihood, or took the Covid injection, which was unpalatable to many, under the circumstances.

Small protests began cropping up nationwide, and these smaller protests eventually coalesced into a larger movement that would become one of the most significant grass roots political movements in the history of Canada, sparking similar protests worldwide. If one listened to the mainstream media, the predominant message was that the movement was simply an anti-vax movement by far-right extremists. Academics, too, furthered this unidimensional narrative. What the media didn't show, or showed far less often, were the bouncy castles, the BBQs, the hockey games, the families with children, the music, the unity, and significantly, the diversity of both truckers and protesters that characterised the movement: Indigenous and Sikh protesters became "white supremacists"; Jewish protesters became "anti-semites"; Liberal protesters became "far-right protesters"; and families with children became "extremists."

While it is probably inaccurate to attribute one single motive to the protests, the media's labels, its noise, defied common sense: When it was revealed, for example, that most truckers were actually already vaccinated at a rate comparable to or greater than the general public, the "noise" of the Freedom Convoy as an anti-vax movement became less convincing.

While protests are inherently noisy affairs, the Freedom Convoy represented a very special connection to noise: it was as if the entire movement were encapsulated in the honking horns that were projected along the highways and city corridors. It was symbolic, in a way, of a complete inversion of the traditional horn processional that would announce the arrival of the royalty: here, the horns were not trumpets or bugles, but rather the cacophony of vehicles that were both instrument and livelihood for a segment of society at quite the opposite side of the spectrum of privilege.

Truck commerce is one of the hidden pillars of polite society, but without any of its adornments. The

job is a physically grueling one and carries little to no prestige; it is taxing for anyone wishing for a stable life as one must be absent for extended periods of time, the work is solitary and little appreciated. Truckers transport goods that do not belong to them destined largely for others' consumption. Yet through the noise of their vehicles, the heralding of the truckers' arrival at this particular historical moment was received with a boisterous, euphoric frenzy that would make any true royal envious.

These truckers found themselves in a situation that called them to politically act, to resist, and, lacking any direct means of communicating with their government, they resorted to resistance through noise. And it was potent: The noise became a rallying cry throughout Canada, and eventually around the world, giving birth to similar movements in the United States, Australia, New Zealand, France, Holland, Brazil and Korea.

Sakakeeny writes that "Institutions absorb dissent, domesticate insurgency, and tame abolition through practices of selective inclusion and exclusion" (2024, 316). Indeed, one can observe the completely opposing positions of the then (now former) Prime Minister, Justin Trudeau, with regard to the Black Lives Matter movement in comparison with The Freedom Convoy: In the former, he met with protestors, listened to them, kneeled, even, in solidarity with them, while for the Freedom Convoy, he never once agreed to listen to them, much less hear them.

Just as noise was the defining feature of this protest, so, too, was it singled out as the primary complaint and principle justification to shut it down—a fact that was not lost on those who wished to silence it. A PR company was even contracted within these few short weeks to create a rather sophisticated interactive online tool that allowed the general public to visualise the impacts of the Freedom Convoy's noise, among other things. Suffice it to say, such tools don't come cheap: It would appear powerful interests were invested in controlling the public's perception of the Freedom Convoy.

It was also claimed that the "protest convoy truck noise caused hearing loss." This idea appeared in the Ottawa City News and was echoed in at least 10 media sources. Same article, different journals, presumably different journalists, though this could not be verified, for all of this "noise" has since been taken down from the web. Evidently, The opponents and proponents of the Freedom Convoy were hearing the same thing, but not listening in the same way. Instead, the noise of the protest was weaponised against the protestors by those same media channels financially subsidised by their own government.

Eventually, a high profile legal firm, Champ and Associates, initiated a class-action lawsuit against the Freedom Convoy movement, inviting 21-year-old Chinese-born Canadian Zexi Li, described as a "civil servant," to serve as figurehead for the suit. In the multiple references to her online, including an interview, one could not find her actual occupation, nor any mention of who was footing the legal firm's bills.

So, I was naturally curious when the Freedom Convoy came to my area and decided I would take field recordings of the protest. My goal was to transform these contested sounds into something aesthetically pleasing—this counter-perspective, as a as a form of political resistance to the negative one portrayed in the media.

After two weeks, Prime Minister Trudeau called, for the first time since its creation in 1988, the Emergencies Act, forcefully removing the truckers, impounding their vehicles and throwing the organizers in jail (without bail). All this, done in the name of silence.

So I would like to end at the beginning, the title of my piece, *E pur si muove*, which is a quote attributed to Galileo, who supposedly muttered them to himself (his own sound of resistance) during the Inquisition when he was forced to "abjure, curse and detest" his own "opinion" that the earth moved around the sun—rather than stood motionless at the center of the universe, as was thought. By evoking a time of oppression in the past, I want to underscore how fragile our current state is, how sound can be a double-edged sword, and how utterly important it is that we listen not only to those with whom we agree, but especially to those with whom we disagree: we always have the power to listen, and that, I believe, is one good way to assure an audible future for everyone.

Aims

The aim of this essay to "critically engage with the political dimensions of sound . . . as they intersect . . . cultural phenomena . . . to unpack the power dynamics . . . embedded in our sonic environments" (Music Research Center, Hanyang University, 2024).

Methods

The methods used were a mix of standard soundscape composition practice (data collection: field-recording practice, music composition) and cultural criticism based on empirical first-hand observation.

Implications

The implications of this research are to suggest that certain media discourses in Canada surrounding an historic protest movement during Covid19 can be understood as a form of "noise" that transmitted a very incomplete signal, at best, to people with regard to the aforementioned movement, and that improving our listening skills can help us to hear through such "noise" to better grasp the entirety of a given situation.

Keywords

protest, freedom convoy, listening, music, noise

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Sound and Access to Information: The Political Implications of the Loudspeaker Broadcasts to North Korea

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ABSTRACT

Introduction

South Korea's use of loudspeaker broadcasts across the Demilitarized Zone (DMZ) has long been a prominent form of psychological warfare aimed at North Korea. These high-decibel propaganda broadcasts—blaring South Korean news, K-pop music, and critical commentary about the Pyongyang regime—represent a unique intersection of media technology, sensory experience, and geopolitical strategy. This research examines how such sound-based media influence political perceptions and actions within an authoritarian context, and why the North Korean regime perceives hostile broadcasts of information as a greater existential threat than traditional economic or diplomatic pressure. Two key questions guide the analysis: (1) How do loudspeakers, as sensory media, influence political perceptions and actions within authoritarian contexts? (2) Why does the North Korean regime perceive sound (in the form of loudspeaker broadcasts) as a more profound threat than conventional sanctions or diplomacy? These inquiries are grounded in media ecology theory—which considers how communication media shape human environments—and information asymmetry theory—which explains power imbalances created by unequal access to information. Drawing on these theoretical frameworks, as well as empirical evidence from the Korean Peninsula, the paper argues that sound can penetrate closed societies in ways other media or pressure tools cannot, fundamentally challenging authoritarian control over information.

Theory

Media ecology theory posits that the form of a medium—beyond the content it carries—profoundly shapes societies and human perception. Marshall McLuhan famously asserted that "the medium is the message," suggesting that each medium engenders its own social effects regardless of content (McLuhan 1994). In the case of loudspeakers, the sensory immediacy and omnipresence of sound play a critical role. Unlike print or digital media, sound cannot be easily escaped or ignored when it envelops an environment; it is "hot" media in McLuhan's terms, flooding the senses with high-intensity input (McLuhan 1994). The very presence of loudspeaker broadcasts in the acoustic environment of the border region creates a new mediated reality: North Korean border guards or villagers do not actively seek this information—it literally forces itself into their senses. Media ecology scholars note that such environmental media can reconfigure awareness and social behavior by altering what is perceptually available in the milieu (Strate et al. 1996). A media ecological approach thus directs attention to how the loudspeaker, as a communication technology, reshapes the context in which North Koreans near the DMZ live and process political messaging.

Complementing media ecology is information asymmetry theory, which in political contexts refers to unequal access to information between a regime and its populace (or between competing states). The Kim dynasty's survival has long hinged on controlling the narrative available to North Korean citizens, fostering what scholars term a "sealed information environment" (Baek 2016). In such a system, external information—even in small doses—can have outsized effects because it reduces the asymmetry. The regime holds power partly because it knows the true state of the world (and its own weaknesses) while the people do not. Information asymmetry theory suggests that when new information flows disrupt this imbalance, citizens may update their beliefs and behavior in ways detrimental to authoritarian stability (Egorov, Guriev, and Sonin 2009). Thus, the introduction of external broadcasts over loudspeakers can erode the regime's informational control advantage. In essence, media ecology provides insight into how loudspeaker broadcasts alter the sensory-political environment, while information asymmetry theory explains why those alterations threaten regime power. Grounded in these theories, the following sections examine the historical deployment of loudspeakers toward North Korea and their perceived political impacts.

Loudspeakers as Sensory Media in an Authoritarian Context

From a media ecology perspective, loudspeaker broadcasts function as a sensory disruptor in North Korea's controlled information environment. In an authoritarian state noted for its near-total censorship and propaganda, the regime tightly choreographs what its citizens see, read, and hear (Tufekci 2017). The introduction of unsanctioned sound—physically emanating from beyond the state's borders—

bypasses many typical control mechanisms. Unlike radio receivers or foreign DVDs (which North Korean authorities can criminalize and confiscate in clandestine raids), loudspeaker broadcasts require no active agency by North Korean listeners. The sound simply arrives in their villages or guard posts, intruding into daily life. This involuntary exposure is crucial: it reshapes the audience's sensory field without requiring them to seek information actively, thereby reaching even those who might never consciously take the risk of consuming foreign media (McLuhan 1994).

Sound itself carries particular psychological potency. Audio messages, especially when delivered loudly and repeatedly, have an immersive quality that can provoke emotional and physiological responses. Studies on propaganda broadcasts across the DMZ indicate that content accompanied by music or dramatic audio cues can heighten listener engagement and retention of messages (Lim and Lemanski 2017). In media ecological terms, the acoustic medium alters the ratio of the senses engaged in receiving information, potentially engaging listeners in a more holistic and less critically guarded manner (Carpenter 1973).

Implications

North Korea's leadership has repeatedly denounced South Korean loudspeaker broadcasts as an intolerable provocation—often reacting more sharply to these sonic barrages than to economic sanctions or diplomatic censure. Understanding why Pyongyang perceives sound as an existential threat requires examining the regime's core survival strategy. The Kim regime bases its rule on an enforced information isolation of its populace, combined with an all-encompassing propaganda apparatus that glorifies the leadership and demonizes outside influence (Myers 2011). In this context, any penetration of outside information is not merely an annoyance—it is akin to a deadly virus breaching a sealed biosphere.

Furthermore, North Korea's own media strategy reflects its acknowledgment of sound's power. Domestically, the regime itself employs ubiquitous loudspeaker systems—every North Korean town has public address speakers that broadcast approved news and martial music every morning—essentially a one-way internal loudspeaker propaganda network. If sound were not impactful, the state would not invest in saturating its citizens' soundscape with it. This symmetry is telling: Pyongyang understands that whoever controls the soundscape can influence minds. When Seoul's loudspeakers seize a portion of that soundscape, the regime loses its monopoly on defining reality within earshot. In a sense, the DMZ broadcasts turn the regime's own tool against it. The existential threat is thus twofold—losing control over the population's perceptions, and the symbolic emasculation of the regime's information sovereignty. No wonder, then, that North Korean negotiators have at times prioritized securing a halt to loudspeaker broadcasts even over obtaining sanctions relief.

Keywords

loudspeaker broadcasts, DMZ, North Korea, media ecology, information asymmetry

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New Music Critiques Neoliberalism: Arts Funding and Fake Feces in Norway

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ABSTRACT

Background

The reception of Norwegian composer Trond Reinholdtsen's publicly funded, music-theatrical piano concerto *Theory of the Subject* (2016; hereafter *Theory*) shows how the artistic outcomes of a society choosing to free artists economically can conflict with a neoliberal governing rationality that seeks to economize everything. Integrating elements of concerto, performance art, art theory, installation, live video, and political commentary, *Theory* offers an institutional critique aimed not solely at the New Music institutions it inhabits but more broadly at the world which creates the conditions for the failures of these institutions. *Theory*'s theatrical narrative is the story of New Music piano soloist Ellen Ugelvik's struggle (and failure) to play truly new and socially transformative music within a neoliberal world. The work's ridicule by the right-leaning Norwegian Facebook group "Sløseriombudsmannen" and its inclusion in Morten Traavik's theatrical production *Sløserikommisjonen* (2021) propelled *Theory* into the heart of polarizing debates concerning the role and value of publicly funded art in Norway. Through its role in this debate, *Theory* expanded the political discourse of New Music, demonstrating public art's capacity for powerful societal introspection.

In 2020, a Facebook post by Sløseriombudsmannen featured a video excerpt from *Theory*, depicting a ghost-like figure dancing in a bathroom smeared with dirt resembling feces. Sløseriombudsmannen, which translates to "The Waste Ombudsman," purports to investigate governmental fiscal mismanagement, particularly targeting state-funded art its followers deem *dritt* [shit]. The page, which has amassed over 125,000 followers—a number equal to nearly 2.2% of Norway's population—employs a neoliberal rhetoric akin to that used by figures like Elon Musk and Donald Trump to cut US public

expenditures on education and environmental protection. The timing of this post coincided with the early stages of the COVID-19 pandemic and the Norwegian government's *Ytringsfrihetskommisjonen*'s or Freedom of Expression Commission's efforts to update its 1998 report on free expression. During this period, public art's status in Norway became a contentious issue that was exacerbated by scandals involving Norwegian art organizations and commission members. This discourse examines how *Theory* contributed to these national debates on publicly funded art's role and legitimacy.

In 2018, Reinholdtsen posed the following question to himself, one that is central to understanding his work: Did my art change the world or merely interpret it? That summer, he toured Europe in a van screening performance videos in order to "directly engage with the proletariat of Europa," hoping to give new power to their collective struggle. After ten days of varying degrees of success, Reinholdtsen and his team resorted to pitching a tent under an Austrian highway overpass for a private screening. Within a video documenting this day on tour, Reinholdtsen, in his characteristic exaggerated style, lamented, "Buhu! We only interpreted the world. We didn't change the world." This blend of dark humor and self-reflection typifies Reinholdtsen's compositional approach, which often dramatizes the artist's plight in attempting to create work that transcends its political milieu to effect genuine change.

Theory of the Subject represents the zenith of Reinholdtsen's series of "Buhu" lamentations. As a 70-minute multimedia music theater piece, it utilizes the piano concerto form to critique neoliberalism's pervasive global influence. German music philosopher Harry Lehmann lauded *Theory* in his book *Music and Reality* as "a work that normally only appears once in a decade." The piece critiques not just the institutions of New Music but the broader societal conditions that undermine these institutions. *Theory*'s narrative follows a New Music pianist, portrayed by Ellen Ugelvik, whose subjectivity fractures as she fails to produce music that is both novel and socially transformative. Early in the performance, Reinholdtsen, via video projection, informs the audience that *Theory* is "programmatic music, as it describes in a brutal but truthful way THE SYSTEM or if you like, THE STATUS QUO OF OUR WORLD."

In a companion article to his installation *Konserthuset*, which is also incorporated into *Theory* through video projection, Reinholdtsen identifies neoliberalism as the prevailing status quo. He argues that art is ensnared in a cycle of "mimetic exacerbation," a concept coined by art critic Hal Foster, which describes the artistic strategy of repurposing consumer products or "parts of the capitalist rubbish heap" to create works that, at best, highlight fractures within the neoliberal order or, at worst, celebrate them. Foster cites artists like Jeff Koons and Takashi Murakami as exemplars of this phenomenon.

As one of the most familiar and mass-produced musical instruments, the piano has been thoroughly compositionally explored; therefore, playing something truly new on it is very difficult. In *Theory*, this challenge becomes insurmountable for the pianist as she finds herself entrapped within the cycle of mimetic exacerbation. *Theory*'s first piano notes are played by a player piano (*not* a pianist). Meanwhile, Ugelvik (the concerto pianist) reads Alain Badiou's *Theory of the Subject*—a philosophical text

combining Hegelian dialectics, Lacanian psychoanalysis, French Maoism, and mathematical set theory to analyze human subjectivity—in the concert hall's green room, which Reinholdtsen again communicates to the audience via video projection. Later in the narrative, Ugelvik, overwhelmed by anxiety, is shown again in green room. As Ugelvik's anxiety intensifies, Reinholdtsen interrupts to provide the audience with her aesthetic-political backstory. The projection screen then shows an excerpt from Ugelvik's performance of hours of piano literature in an outdoor art installation in Oslo's central square a few months earlier, after which she had lamented, "New Music feels old somehow." As her backstory continues from this disillusionment, she joins a group of artists forming a utopian commune on Hovedøya island in the Oslo fjord, initiating her "process of subjectivation." However, the commune was swiftly dismantled by seafaring capitalists, portrayed by synchronized swimmers.

Motivated by Che Guevara's video-projected famous words "It is not necessary to wait!" and her utopian commune experience, the narrative returns to the concert stage where Ugelvik finally commences the concerto by violently striking the grand piano as the orchestra mimics her rhythmic clusters. Despite her efforts, she only produces pastiches or direct quotations of piano works associated with various artistic or political movements of the 20th-century. In each of the four sections, the orchestra overwhelms her with distorted mimicries of her playing while her performance gradually loses its conviction. Ultimately, she fails to achieve what Reinholdtsen terms "the revolutionary, totally society-shattering, New Utopia." The piano, representing a mimetically exacerbated consumer product, confines her, rendering any attempt at artistic innovation futile. The section concludes with the orchestral piano's destruction by a Mahler hammer, which itself is a reference to past Fluxus works of instrument destruction. Here, Reinholdtsen illustrates that destruction itself is neither radical nor transformative within a neoliberal system.

Defeated, Ugelvik retreats beneath the piano and cuts off two of her fingers, committing professional pianist suicide. Through this act Ugelvik finally severs her bondage to the piano but at a significant cost. Via video projection, Reinholdtsen concludes *Theory* in celebration of Ugelvik's struggle by presenting a tour of the brain matter influenced by the literary works she has consumed. Reinholdtsen's final image—a painting of Hovedøya island (where Ugelvik joined a utopian commune)—suggests that while the pursuit of transcendence beyond mimetic exacerbation may be arduous or even impossible, the endeavor itself can be beautiful, even if it is an ultimately futile and absurd act.

The *Theory* video clip posted by Sløseriombudsmannen, referenced earlier, misrepresented *Theory* and was one of the page's most viewed posts at the time. This post's commenters expressed disgust that their taxes funded work they found so objectionable, with many suggesting Reinholdtsen seek psychiatric help. Before the Facebook clip's place in *Theory*'s narrative, Reinholdtsen directly addresses the audience (microphone in hand) with a description of his own split subjectivity while making large works like *Theory*. Reinholdtsen's description here functions as a theatrical foil to Ugelvik's splitting subjectivity. Essentially, this section of the piece from which the Facebook clip was derived, is only a

sidenote to the main narrative. Here, Reinholdtsen describes how artists often lose themselves in their *Geist* or creative spirit (which he represents with someone wearing a white blanket with two eye-hole cutouts and the word *Geist* written across it). The *Geist*'s bathroom dancing (which takes place later in the narrative) represents Reinholdtsen ineffectually indulging the impractical side of his artistic self. Here, Reinholdtsen is himself critiquing artistic decadence. So ironically, the sentiments of the post's commenters echo Reinholdtsen's own sentiment in *Theory*. None of the post's hundreds of commenters refer to this fact or seem to have seen more of Theory than this three-minute video clip.

In 2021, *Theory*'s discussion extended beyond Facebook. Norwegian theater director Morten Traavik, known for provocative projects such as a beauty pageant for Cambodian landmine survivors, collaborated with Are Søberg—the man behind Sløseriombudsmannen—to create *Sløserikommisjonen* (2021), a theatrical production styled as a live TV broadcast with a studio audience. In the production, Søberg, as the "Grand Inquisitor," leads a "People's Tribunal" where cultural figures defend their work's public funding. Traavik described *Sløserikommisjonen* as "Jerry Springer meets The Commission of Free Speech." During the performance, Søberg presented *Theory* as *the* most wasteful publicly funded Norwegian artwork. Soon after the premiere, Søberg was appointed to Norway's Freedom of Expression Commission, further entrenching the debate over public art's value and funding in Norway.

Theory reached beyond academic echo chambers (though for a somewhat depressing reason). Its reach extended from a misunderstanding or (perhaps even) a deliberate distortion of it. Nevertheless, *Theory* played a role in shaping an important debate about freedom of expression in Norway. In terms of political impact, *Theory* achieved far more than almost any contemporary musical work ever does. Returning to Reinholdtsen's question to himself on whether his art has changed the world or merely interpreted it, one might conclude that he has indeed affected meaningful change, albeit modestly and by unintended means.

This case study prompts three questions concerning the interplay between public art and neoliberalism: Situated in the singularly unique context of Norway (which provides the highest levels of state funding for artists in the world), how can this case study more broadly help us reflect on the political implications of publicly funded art in an increasingly far-right-leaning, neoliberal world? More specifically, how can we examine the tension between a necessity of public artists to be accountable to the public (which seems to push art, towards meeting certain expectations [that align with preexisting notions of the order of reality]) and artists' strivings to illuminate new ways of looking at the world (which are often at odds with these expectations) be examined? In essence, how do the artistic outcomes of a society choosing to economically liberating artists conflict with a neoliberal rationality that seeks to commodify all aspects of society?

Aims

To show how the artistic outcomes of a society choosing to free artists economically can conflict with a neoliberal governing rationality that seeks to economize everything.

Methods

A case study supported by a music-theatrical narrative analysis of the piano concerto *Theory of the Subject* framed by art critic Hal Foster's concept of "mimetic exacerbation" and political theorist Wendy Brown's conception of neoliberalism as well as the concerto's reception history.

Implications

Theory of the Subject exemplifies the ability of New Music and public art more broadly to be a powerful tool for provoking societal introspection.

Keywords

public arts funding, public art, Norway, *Theory of the Subject*, Trond Reinholdtsen, New Music, neoliberalism, music theater, Morten Traavik, Are Søberg, Sløseriombudsmannen, mimetic exacerbation, piano concerto, *Sløserikommisjonen*, Ellen Ugelvik

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Reel-to-Real: The Material Logic and Political Ecology of Magnetic Tape

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ABSTRACT

Background

In his 1957 lecture "Experimental Music," John Cage announced, "whether one uses tape or writes for conventional instruments, the present musical situation has changed from what it was before tape came into being" (2013, 11). In 2025, looking back on almost 100 years of magnetic tape's existence, it's hard not to agree with Cage's assessment. After all, once it emerged in the 1940s, magnetic tape quickly became *the* prevailing recording medium of music (and sound more generally) for the remainder of the 20th century—not to mention countless other kinds of media and data. Although various *consumer* music formats waxed and waned during the same time (such as vinyl records, cassette tapes, 8-tracks, CDs, MP3s, and more), almost all recorded sound was originally recorded onto some form of magnetic tape—whether "analog" or "digital." The inescapability of tape's dominance is maybe most frankly expressed by Alvin Lucier who—in describing the production of his 1969 work *I Am Sitting in a Room*—stated plainly, "I didn't choose to use tape, I had to." (1980, 33).

But why did magnetic tape become so dominant? Or rather, *how* did it become *the* compulsory recording medium in the 20th century? Although many normative histories of recorded music have characterized tape as just another determinist improvement in the development of audio recording technologies, others have claimed that its material logic is distinct. On their account, unlike the wax cylinders, acetate discs and wire spools that preceded it chronologically, magnetic tape is "non-inscriptive"—its data is only stored onto its surface, not etched into its substance. According to Peter McMurray, this materio-logical difference actualizes the possibilities of cutting, splicing, looping,

erasing and reusing that "allow sonic data to be preserved, but they also call attention to the fact that not everything that was preserved (i.e., recorded) should be preserved forever (i.e., saved)" (2017, 27).

However, as Kyle Devine (2019) demonstrates in his political ecology of recorded music, the production, distribution and consumption of recorded media don't always consider these media's limited cultural lifespan or inevitable physical disposal. In this way, magnetic tape is *not* unique from other musical media formats—it is also deeply entangled with extractive economies, petrochemical industries and systems of labor exploitation that constitute a globalized network of environmental and labor exploitation.

Aims

This research intends to elucidate the tensions between the material logic and the political ecology of magnetic tape. Specifically, it aims to problematize the assumption that magnetic tape's affordances (cutting, splicing, looping, erasing, and reusing) arise solely from its intrinsic "material" properties rather than alongside the ecological, political, economic and social relations of its production, usage, and disposal. In so doing, this research seeks to interrogate what exactly we mean by "materiality," if we're all talking about the same "materiality," and what we are doing when we appeal to "materiality" as such. By doing so, this research questions how such appeals crystallize into specific understandings of both "technology" itself, as well as how these understanding implicates social forces in the physical materials of our technological lives. The goal of this examination is not to reject material analyses but to expand and refine them by arguing that political ecology is critical to a more complete understanding of what "materiality" might mean when it comes to medias like magnetic tape.

Methods

This research primarily employs media archaeology to trace both the historical and contemporary production of magnetic tape from the extraction of its raw materials to its manufacturing processes, distribution, uses, and its eventual disposal. Additionally, it utilizes Deleuzean inspired philosophical methods to understand magnetic tape itself as an assemblage of materials, technologies and practices that exist within, while also themselves constituting, chemical, environmental, geological, cultural, economic, and political forces and temporalities.

Specifically, this paper focuses on the principal materials used in the most dominant forms of magnetic tape: polyethylene terephthalate (PET), polyurethane binders, and iron-oxide. After outlining common technical uses and the physical composition of tape, this paper surveys claims that attribute tape's affordance of "impermanence" to two different aspects of its "materiality": the oxides used in its

production, and its "superficiality" (McMurray 2017, 27). These claims are then juxtaposed against historical accounts of tape's production that foreground the ecological, economic, and political forces that were involved in the extraction, production and disposal of their raw materials. PET is historically situated as a product of petrochemical industry that became increasingly utilized not only due to its technological affordabilities, but also due to the availability of cheap oil and the post-war economic boom in the West. Similarly, the iron-oxide used in magnetic tape is linked to the war time production of ammonia by subsidiaries of the German chemical conglomerate IG Farben.

Implications

This research suggests that references to tape's inherent material logics have not sufficiently contended with the broader networks of geological, economic, political and social forces that make media technologies like magnetic tape simultaneously possible and problematic. This evidences that "material" analyses of magnetic tape are not only dealing with different scales or concepts of "materiality" but also that the contemporary prevalence and importance of these appeals itself deserves critical analysis. While "materiality" can provide a critical alternative to wholly socially constructivist or transcendental accounts of technologies such as magnetic tape, they must be careful not to themselves reproduce this dialectic movement. This raises significant philosophical and methodological concerns about the relationship between technology and society itself, how we understand ourselves in the production of current and future technologies, and who are implicated in their social, political and ecological consequences.

For example, although magnetic tape's usage in recorded music has become specialized and niche in the twenty-first century, IBM has recently developed large-capacity archival data libraries that employ tape as a storage medium—claiming that "tape helps to lower carbon impact, TCO [total cost of ownership], and energy consumption of long term data retention" (2025). These multi-petabyte systems are frequently used for storing genomic data, bioinformatics, legal records, surveillance footage, climate data and financial records, as well as redundant, long-term backups for disaster recovery. These emergent applications not only present novel claims about magnetic tape's material logic (such as permanence and being "green"), but raise political and ethical concerns about how these specific technologies might simultaneously contribute to—and mitigate—different aspects of climate change.

Keywords

magnetic tape, recording, political ecology, technology

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Streaming Immersion and the Isolation of the Listening Space

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ABSTRACT

Introduction

Although the experience of listening to sounds in a physical space is largely dependent on the disposition of the listeners, they are generally considered singular, static and neutral observers in the design of modern "immersive" audio technologies. This scenario has profound effects on the ways contemporary media is consumed, especially in the social realm as immersive experiences are increasingly being marketed to individuals rather than collective audiences.

To understand why immersive audio technologies are best suited for individual listening, I probe the science that underpins much of current spatial audio systems, the history of how audio technologies have been adopted and shaped by the film medium, and the social ramifications of "immersion" as drawn up by the entertainment tech industry. I show that spatial recording and playback systems require maximal separation between sound sources, spatial artefacts and receivers, and that this separation has been necessary in the film medium to let producers adopt intricate storytelling techniques. I further postulate that the form of immersion being marketed by the entertainment tech industry is one that strives to extend the scope of separation and isolate the listening space of one individual from another's, an outcome completely aligned with the design philosophy of modern immersive technologies.

Object Basis

At the heart of my thesis is the concept of "object-based" spatialization that is predominant in current immersive audio systems. This form of spatialization treats sounds as objects in an idealized virtual

space. The sounds themselves may not have any discernible spatial characteristics, but they are assigned positions (like objects in a virtual scene of a game or animation) during post-production. The objective is to translate this spatial information to physical reality using amplitude-based panning within a variable loudspeaker array.

An often-understated feature of this system is that to experience a faithful reproduction of the virtual space, the listener needs to be situated at a specific location in relation to the speakers. This location preserves the binaural localization cues that are designed to imitate the cues produced by a real sound source. The cues are not preserved at other listening positions. Why are spatialization systems designed this way?

The answer can be found in the long history of the development of spatial audio, driven by the needs of the film industry. The quest for a playback system that could surround the audience began in the early twentieth century. Engineers began experimenting with multiple channels of audio with the aim of reproducing localization cues. Alan Blumlein pioneered this work and seemed to have come to the realization that stereo headphones were the most suitable devices for preserving such cues. The film industry, however, was interested in loudspeaker-based solutions for their collective audiences. Through Fantasound, Cinerama, "split surround," Quintaphonic Sound, etc., Hollywood first expanded the scope of sound's movement across the screen and then beyond. A crucial limitation remained—not all audience members could access optimal spatial cues due to their seating positions. But that did not seem to take anything away from the experience of collective viewing. The film industry was not bothered either and it still is not, evidenced by the small number of theatres worldwide that moved beyond their 5.1 systems. Even if they did move beyond 5.1, it would not necessarily render the "sweet spot" extinct.

In the production pipeline of this sort of spatialization, maximal separation between individual sounds is preferred, giving producers the ability to place them independently in the virtual space and apply spatial effects such as reverb and filter to imitate real spaces. This meticulous control over spatial characteristics cannot, however, be taken for granted on the listener end, especially since the proliferation of home theatres that have widely varying playback configurations. If there was a way to collapse the subjective listening space, a more direct flow of information from the creators to the audience could be achieved. And this seems to be the thrust in the development of modern "immersive" systems.

Immersion

The word "immersion" has been used and misused in countless ways in its lifetime. Filmmakers have been particularly obsessed with the idea. To them, a film is often more than a work existing in the real world; it is a world in itself that they want the audience to become a part of. There have been PR

campaigns that infused the real world with elements of the fabricated one, such as Warner Brothers' participatory games launched prior to the release of *The Dark Knight* (2008).

There is a new definition of immersion that the entertainment tech industry has been propagating to boost the market of immersive audio equipment. It can be glimpsed at in Dolby's introduction of their flagship spatialization technology Atmos: "Dolby Atmos has reinvented how entertainment is created and experienced, allowing creatives everywhere to place each sound exactly where they want it to go, for a more realistic and immersive audio experience." This definition hints at the collapse of the listener's subjective space as I described earlier. It frames immersion as an idealized unidirectional communication between the creator and the audience.

But how can the subjective space be collapsed effectively? The industry has gone back Blumlein's preferred device for preserving localization cues: stereo headphones. The technology, without a doubt, has come a long way, some allowing users to create customized filters that work with the specific shapes of their ears. Object-based spatialization offers an effective way to build a pristine virtual world of sounds that can then be translated for particular headphone models and ear shapes.

Another clear sign that the industry has been advocating an individualized form of listening is the distribution of Dolby's binaural decoding software on a considerable subset of mobile devices. The decoder translates the virtual space for headphone listening. This is only a component of a software ecosystem that allows creators to easily encode spatial properties to sounds, allows media distributors to spread the content on a wide array of platforms and devices, and allows listeners to experience the idealized virtual world.

The shift towards individualized listening comes at a time when media consumption is also becoming an increasingly solitary activity. Streaming services (music and film/TV) are increasingly crafting individualized browsing and viewing experiences suited for personal devices. They have also been adopting object-based audio formats offering support for Dolby Atmos and DTS:X. Apple has taken several steps to facilitate individual consumption in the last five years, such as offering ear scanning on their AirPods Pro, adopting Dolby Atmos in not just its mobile devices but also offering integral support for it in their media production software, and most recently releasing their mixed reality headset Vision Pro.

Conclusion

While there are signs that this shift towards personalized listening has a splintering effect on the social and political dimensions of media consumption, broad conclusions along this line are difficult to make. We can, however, observe a range of alliances being formed between entertainment tech giants

that are eager to establish their products as the standard for immersive listening. If they succeed in their goal, they may have unparalleled power to shape our worlds. Philip Dick expressed this same concern in a 1978 speech: “Unceasingly we are bombarded with pseudo-realities manufactured by very sophisticated people using very sophisticated electronic mechanisms. I do not distrust their motives; I distrust their power.” Perhaps if we can continue to engage with media as collectives, we will reserve the power to discuss, question, critique and dismantle their narratives.

Keywords

immersion, isolation, spatialization, streaming, subjective space.

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(Inter-)Facing the Music: Engaging with Television Series Soundtracks in the Streaming Era

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ABSTRACT

Background

Streaming platforms have fundamentally changed how we consume television series and consequently how we engage with their soundtracks. Careful closed captioning and subtitling supply an additional interpretive layer in real time by revealing not only the names of artists and titles of pre-existing songs used but also their lyrics. Episode recaps jog not only viewers' narrative memories but also their musical ones. The skip-intro and post-play functions appear to curtail engagement at two prominent sites of extended musical occurrences: the opening title and the end credits sequences. However, careful examination of a growing body of television series reveals a much less uniform deployment of these platform-specific features, evidencing that they can be strategically employed to play crucial narrative roles.

Aims

Drawing on approaches in critical platform interface analysis (CPIA) (Hesmondhalgh et al. 2024), I aim to demonstrate what analyses of television series soundtracks stand to gain from taking into consideration the series' platform- or media-specific habitats. Taking Disney+'s *The Mandalorian* (2019–present), Amazon Prime Video's *The Lord of the Rings: The Rings of Power* (2022–present) and *Fallout* (2024–present) as case studies, I map out the bespoke musical strategies contemporary series utilize to maximize the narrative affordances of their streaming platforms' interfaces. In this extended

abstract, I focus on the post-play function with the aim of elucidating how streaming platforms and their interfaces are transforming storytelling through music and engagement with series soundtracks. Ultimately, I aspire to contribute to a better understanding of how streaming platforms' interfaces expand our opportunities to engage with series soundtracks through the lens of their drillability (Mittell 2015) and spreadability (Jenkins, Ford, and Green 2013), or what I call their "sprillability" (Lee 2024).

Methods

My research builds on scholarship exploring the influence of digital platforms and interfaces in shaping contemporary cultural experiences. Particularly, I adapt what David Hesmondhalgh and his colleagues call critical platform interface analysis (CPIA), which "concentrates on the *interpretation* of user interfaces of culturally oriented platforms and apps" and "highlights how platform interfaces potentially shape understandings of the domain in which they intervene" (Hesmondhalgh et al. 2024, 3260, emphasis in original). For my case studies, I adapt their approaches to television series on streaming platforms in general and these series' soundtracks specifically. How essential are opening title sequences if we are given the option to skip them? How negligible are the end credits if we are briskly and automatically whisked ahead to the next episode within 5 to 10 seconds? How do closed captions guide our ears to particular musical components such as melodic, harmonic, rhythmic, or timbral aspects and dictate their narrative connotations? What about other sonic parameters and nuances that defy straightforward descriptions? Space permits me to explore only a few salient examples that best elucidate what is at stake, but my aim is to open up a conversation about how television streaming platforms' interfaces shape our engagement with series soundtracks in terms of drillability and spreadability.

For all the three case studies discussed in this extended abstract, I examined the end credits of each episode in the first season of the respective series. I observed recurring patterns, particularly regarding the timing of the post-play function's activation, and also took note of deviations not only in the post-play function's onset but also in the musical and visual elements. Subsequently, I deployed (film-)musicological analytical strategies to draw conclusions about how platform-specific configurations such as the post-play function influence viewer engagement with television series soundtracks.

Implications

In my first case study, *The Mandalorian*, I examined how the post-play function directs our attention to specific parts of the series' main title theme and strengthens the association of specific sounds with

the series' sonic identity. For *The Mandalorian*, Disney+'s first live-action series for its narrative franchise *Star Wars*, the twin concerns of continuity with but also departure from John Williams' iconic *Star Wars* music are frequently stressed by series composer Ludwig Göransson in interviews. The main title theme, which plays in full accompanying the end credits, best encapsulates Göransson's efforts in scoring new characters within a pre-established narrative universe. One particularly notable strategy of Göransson's is using a combination of standard and non-standard orchestral instruments—including recorders, guitars, as well as the heavy use of synth timbres and electronic processing—which contrasts with the predominantly orchestral sounds of Williams' *Star Wars* scores. I found that the post-play function is activated during the section of the main title theme that is scored exclusively with standard orchestral instruments. This means that viewers are automatically subjected to the fresh-sounding parts, rather than the Williams-homage part of the main title theme–unless they actively choose to cut the end credits short. Thus, the Göransson sound, rather than the Williams sound becomes most strongly associated with the series through the user interface's programmed repetition. The interface's configuration thus supports the series' narrative emphasis on exploring new aspects of the *Star Wars* universe while acknowledging the legacy of the original film trilogies. By default, viewers are aligned with this narrative agenda through the music.

Subsequently, I compared *The Mandalorian* with *Fallout*, whose end credits also feature fascinating visual art besides being given ample time to unfold before the post-play function is activated. However, in *Fallout*, a different pre-existing song or original composition by Ramin Djawadi accompanies the end credits in each episode. Furthermore, *Fallout*'s end credits' illustrations explore one particular location of the nuclear Wasteland per episode (often setting up the location for the next episode) rather than revisit various events in multiple locations from the outgoing episode as in *The Mandalorian*. Thus, *Fallout*'s delaying of the post-play function creates an opportune moment to visually extend the worldbuilding process into the realm of the end credits in anticipation of the next episode, besides sonically referencing the video games upon which the series is based. The use of mid-century US-American popular music has become a hallmark of both the games and the series for its anachronism and its jarringly light-hearted tone amid the devastating post-apocalyptic images. The visually elaborate and musically deliberate end credits thus serve to reinforce the series' identity within *Fallout*'s transmedial franchise, offering a narratively and aesthetically coherent expansion of *Fallout*'s narrative universe for existing fans besides providing a tonally consistent entry point for newcomers. As such, *The Mandalorian* and *Fallout* use similar audiovisual means to unique narrative ends, testifying to the innovative ways post-play settings may be tailored to achieve bespoke narrative goals.

Finally, for *The Rings of Power*, I noticed the extra time given to the first episode's end credits before the activation of the post-play function: the end credits sequence runs for almost a full minute before viewers are directed to the second episode. Notably, it is only in the first episode's end credits that music is given ample space to expand despite the lack of extravagant accompanying visuals. Crucially, all

subsequent episodes' end credits only last for roughly five seconds before the post-play launches the next episode. This suspension of the next episode is remarkable considering the first two episodes were released together, and subsequent episodes were released one per week. Perhaps an exception was being made for the inaugural episode of the series? The wisdom of hindsight has revealed that it was here that the musical theme for the eponymous Rings (of power) in its full-length form was first introduced—that is, notably, in the end credits, before it was heard accompanying any on-screen action. This mysterious piece of extended music prompted fans to share their theories (particularly on Twitter/X) on the music's relevance. Indeed, some fans correctly identified it as the musical setting of J.R.R. Tolkien's famous Ring-verse but without words. The release of the vocal version of the track "Where Shadows Lie" one week before the season finale proved these fans right. A "drillable" aspect of the soundtrack—one that involves deeper engagement with musical storytelling forms that enhance narrative understanding and appreciation—turned into a "spreadable" offshoot for musically-attentive fans on social media. Thus, the custom programming of the post-play function made possible not only the unfolding of a musical theme for appreciation and enjoyment early on in the season but also the introduction of an important theme whose significance would become clearer as the season progressed: it would be confirmed as the leitmotif for the Rings in the season finale. This exceptional allowance fosters audience engagement with the music at the beginning of the series and, perhaps more crucially, lays the groundwork for a more satisfying reveal of the music's significance at the end of the first season. The *Rings of Power* case study thus demonstrates how interface configurations influence fandom reception practices in terms of both drillability and spreadability.

Streaming platforms' interfaces significantly shape viewers' sonic reception of contemporary television series, even if their effects tend to be overlooked amid the anticipation of starting a new episode or the automatic progression into the next one as in the scenarios involving end credits and post-play functions. The results of my analysis presented briefly here show that streaming platforms take versatile and flexible approaches to their post-play strategies, often in reaction to music's role within the series' storytelling agenda. They negotiate the need to maintain the viewing flow by promptly ushering in the next episode and providing space for audiovisual postscripts that are employed to various narrative ends. Going forward, the platform- or media-specific habitats of television series must be adequately considered in order to better understand how soundtracks are engaged with in the streaming era.

Keywords

television series, soundtracks, streaming, interface

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Digital Archiving, Authenticity and Public/Private Listening: Emerging Sonic Cultures in the Cartophonic Project AudioSpaces

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ABSTRACT

Background

In recent years, the increasing ubiquity of digital and online audio technologies has seen a proliferation of so-called *cartophonic* tools that incorporate sound into some given cartographic medium, which involve a combination of building and organising sonic archives as well as (re)signifying acoustic space. The most common form of cartophony is that of "sound maps"—using a "mimetic approach" to representing space, in which recorded sounds directly represent each acoustic space on what is usually a conventional, flat map (Thulin 2018). This quality draws especially on the priorities of acoustic ecology, which also often carries a concern for audio quality and fidelity, found for example in the brilliant Aporee, Cities & Memory or the Montreal Sound Map (and other local variations).

Recent scholarship on cartophony has challenged these latter features as part of a tendency towards the aesthetic moralism historically present in acoustic and soundscape ecology (Fargier 2020). Others highlight the gendered and class-based cultural hierarchies that seem to both underpin and be reproduced by many sound maps (Waldock 2018; Droumeva 2017). It seems reasonable to extend this consideration to other social relations such as those of race, geography and age. Cartophony beyond conventional sound maps, however, is a broader notion that simply points to the ways sonic and cartographic practices can feed into each other in a variety of interesting ways. Sound maps can be seen

as one kind of cartophonic practice, but not the only one.

AudioSpaces is a project centred on listening, recording and memory, launched in 2023 using our own mobile application, which we suggest leans towards a more open cartophonic approach that challenges the potential limitations of the conventional sound map. While the latter may principally be the territory of artists, field recordists and other professionals or hobbyists in sound, our explicit goal has been to prioritise a non-specialist and diverse community of contributors. This is done with a simple user interface and almost no curatorial restrictions on equipment, sound quality, audio length or what kinds of sounds or audio someone might want to contribute, nor any concrete guidelines to represent spaces in any specific way beyond a few keywords such as "memory." It therefore seems sensible to use the wider framing of "cartophony" over the more loaded term "sound map."

On the other hand, at the level of playback we reconfigure the relationship between the virtuality of an online sound archive and the physical materiality of sound "out there": users must physically find themselves in a given sound's pinned location to listen to the full recording, thereby involving a mobile, interactive engagement with material space from the outset. As a result of this design, the manner in which the sonic archives that constitute AudioSpaces are linked to a given set of places or themes features prominently in every engagement with the tool, but crucially it is as open as possible for each individual contributor's own auditory techniques (Sterne 2003).

Aims

Conventional sound maps have been used for some time as a source to examine not just the acoustic profile of places, but also what we might call the "sonic cultures" of different fields or milieus. By this latter term, broadening Brian Kane's notion of "auditory cultures" (2015), we mean simply practices and conceptualisations of listening, recording, archiving and otherwise dealing with sound, which emerge and transform historically. But interesting for us is the potential to explore what sonic cultures emerge in contemporary vernacular contexts—that is, everyday, non-specialist and from a more varied set of sociocultural backgrounds than the dedicated sound mapping community.

Given the priorities and designs mentioned above, our project has in this respect led to an interesting range of contributions and trends in how people engage with cartophony. With this paper we set out to explore the nuances of the sonic cultures emerging within the specific parameters of AudioSpaces. To put it simply, we aimed to analyse the AudioSpaces "map" (or "maps") in order to speak to the following questions: how do people engage with the acoustic world in vernacular contexts today? And relatedly, in a highly technologically mediated sonic environment, how might people conceptualise themselves as listeners and/or recordists?

Methods

Our analysis is based on the following methodology. First, a close interpretive reading (or listening) of four individual contributors, who we deemed paradigmatic examples of wider engagement with the project so far. Attention was paid to metadata, the "maps" in their overall structures of meaning as well as the more granular characteristics of individual recordings. We then conducted in-depth, semi-structured interviews with each contributor, in person and online, in which we reflected collaboratively on their recordings and the auditory dispositions they might reveal. It will help to briefly introduce them. We use their chosen usernames on the app with their permission.

jody lives in Lisbon, having moved there from his hometown Luanda several years prior. His motivations during the period we examined were generally twofold: to provide an honest soundscape of the places he navigates (between daily movements in Portugal and to a lesser extent Angola) and as a means of personal and creative sonic journaling.

siobhan is a mother of three adult children living in North London. She has a professional background as an audio journalist, so is not a novice in terms of sonic practices but neither is she part of the field recording community as such. The most notable orientation she has with her recording is to tell a story.

hello, who also lives in London, had been moving between homes in what were at times precarious circumstances during the period we analysed for this paper. In a time of significant personal upheaval, *hello*'s interest had been often to capture his own feelings and his relations to the spaces around him at an emotional level.

concon lives in Leeds, and drawing from his electronic music practices takes a deeply artistic and experimental approach to sound. Along with various contemporaries and friends in Leeds who also contribute to AudioSpaces, his practices have often involved exploring the sonic world in its acoustic and vibrational textures.

Implications

Drawing from these four case studies, we focus on two overlapping themes which speak to contemporary sonic culture as it has emerged in the AudioSpaces project: concerns around authenticity as well as various dynamics between the public and the private. Firstly, all of the four contributors express some concern with authenticity with regards to their engagements with AudioSpaces, and in fact tend to draw some association to sound as somehow felt to be more authentic than other media. Nevertheless, unsurprisingly given the slipperiness of the concept itself, being authentic seems to mean different things between each contributor, and how they might achieve authenticity through sound

varies too.

For *jody*, sonic authenticity seems to translate to what he calls a kind of "transparency". He demonstrates a kind of emotional closeness that comes with capturing sound—a transparency of emotion that may allow honesty and reflection—which in our discussion he contrasts to the superficiality, and perhaps opacity, of visual and written media. The most important source of this for *jody* is the voice, describing both a recording of one's own voice in its initial vocalisation and its listening back as a kind of window to one's own inner self. From singing to passing reflections and recited poetry, the voice attends to the sentiment that "I was here, and this mattered to me."

For *siobhan* the theme of voice also arises, but more with recording other people. She notes a tension: "I'd quite like to try recording voices [but] it's hard because you've got to be there in the moment. You don't want two minutes of people just waffling on. You want them to say something, the thing that captures the moment." This idea of "capturing the moment" seems to indicate a truth value–a kind of authenticity, in other words—placed upon a noteworthy sonic event that happens (contrary to *jody*) outside the listener. *siobhan*'s professional background comes through in her resistance to interfere with the object of her recording, as well as her aim for maximum clarity and fidelity of a sonic event for some imagined public listener. Yet her practices seem to transform over time, with authenticity as story or true moment becoming more personal, more tied to the qualities of her own acoustic spaces: the affectivity of the family car, or the drone of cicadas making audible the sluggishness of a Spanish summer.

In addition to authenticity, we found the theme of the public and the private arise both in terms of how contributors imagine their listening publics, and to what extent the objects of recordings were considered public or private sounds. There seems at first glance a split between our four selected participants. *siobhan* and *concon* conceptualise the sum of their recordings as publicly available archives, and their practices follow this in the invisibility of the recordist, the attention to fidelity and the object being external sonic events deemed notable or telling of a particular location. In contrast, *hello* and *jody* almost take an opposite approach, though always aware that their recordings are publicly available, nonetheless so often consciously placing them in spaces of intimacy, microphoning closely and addressing themselves.

hello uses his own vocality very effectively to construct a meaningful sonic event. One of the key contextual elements here is the value of privacy in uncertain conditions—the quiet moment of being alone in one's own private acoustic space, which at times he struggles to find. The voice, in his most reflective monological contributions, features in his personal "map" in relation to other sonic signals, ambiences and objects significant to *hello*—a scattered assemblage of sounds that taken together attend to a notion or feeling of "home." As such, when the stable boundaries of home are hard to come by the voice in this case becomes a means with which to navigate the ambiguity between public and private, between exteriority and interiority.

A sense of home also seems to seep through much of *concon*'s contributions, even if at the first instance they appear more texturally exploratory and abstract. The sounds he contributes with ties to the home are not just domestic ones, but include a range of noises, ambiences and voices scattered across Leeds and other English cities. The blurriness between the private and public is shown in one recording of *concon* flicking through his own local radio stations. It brings with it, by our ears, connotations somewhere between public record, local heritage and an ultimately nostalgic memory of sitting at home, bored, not finding anything interesting to listen to. Overall, we suggest such preliminary findings indicate the great potential that cartophonic projects such as AudioSpaces have for in-depth interpretive analysis of vernacular sonic cultures. This is perhaps the best possible moment for such an examination, given the increasing accessibility of sound technologies amongst a wider diversity of non-specialist listeners.

Keywords

cartophony, vernacular sonic cultures, authenticity, public and private, AudioSpaces.

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Sonic Materialism and Sonic Nostalgia: Designing Immersive Soundscapes for Memory and Emotional Well-Being

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ABSTRACT

Background

Around the turn of the millennium, the concept of noise began to emerge more explicitly as a byproduct of industrialization and urban expansion. In modern cities, we are constantly immersed in mechanical, digital and industrial noise, which has been primarily treated as a problem to be eliminated or masked. From soundproof walls and noise-cancelling devices to healing apps that offer white noise, our dominant strategies focus on escaping sound. However, this functional approach overlooks the potential of sound to act as a carrier of memory, sensation and emotion.

This study responds to that gap by turning to the frameworks of sonic materialism and sonic nostalgia. Inspired by philosophical currents like New Materialism and Acoustic Ecology, these frameworks suggest that sound is not simply heard but felt—that it possesses texture, shape, weight and memory. From whispered voices to rhythmic heartbeats, certain sounds are capable of evoking deeply personal yet culturally embedded emotional responses. This project reframes sound not as disturbance, but as a resource for care, presence and sensory restoration.

Aims

This study explores the potential of Sonic Materialism and Sonic Nostalgia as methodological

frameworks for creating immersive auditory content that enhances emotional well-being. Departing from the notion that sound is purely an ephemeral auditory event, this research investigates how sound can function as a material entity—something physically felt, emotionally resonant and spatially shaping.

The central question guiding this work is: *Can sound be designed as a material phenomenon that evokes memory and provides emotional care?* In contrast to traditional sound masking strategies aimed at blocking or avoiding noise, this research engages with sound as a form of sensory presence—one capable of holding, supporting and transforming subjective experience. It aims to articulate a new approach to auditory design that functions not only aesthetically, but also therapeutically.

Methods

The theoretical foundation draws on New Materialism (Coole and Frost 2010), Posthumanist Thought (Braidotti 2013) and Acoustic Ecology (Schafer 1994), all of which support the redefinition of sound as a physically and emotionally potent medium. Building on Cox's (2011) concept of Sonic Materialism, which emphasizes the physical intensity and affective force of sound beyond representation, and Voegelin's (2014a) notion of listening as an act of Relational Becoming, this study explores sound as a tactile and immersive presence. Following Cobussen's (2022a) Sonic Onto-epistemology, it considers listening as a form of embodied knowledge production.

Sonic Materialism is thus here understood as a framework in which sound possesses tactility, continuity and memory—shaping not only perception, but also embodied experience. Sonic Nostalgia refers to the design of sound textures that trigger personal or collective memory by mimicking familiar auditory materials.

Two case studies were developed to test and illustrate these ideas:

1. Sound Garden

Fig. 1. Sound Garden installation at Kyobo Bookstore, Seoul. Pictured: the sound plant *Sealing*, which emits ambient textures inspired by the theme of love. Supplementary Video available at: https://youtu.be/QrotZl3_30Q?si=JAi4SoaVg2JcYiPG

Developed in collaboration with Kyobo Bookstore in South Korea, *Sound Garden* was a sculptural sound installation featuring five "Sound Plants," each inspired by literary fragments exploring themes such as love, longing, loss, hope, and nature. Each plant offered a hybrid experience in which a curated sentence from a selected book was paired with a corresponding sound theme, allowing visitors to hear and feel both the emotional tone and literary context simultaneously. These plant-shaped structures emitted designed ambient textures–such as whisper-like violin trills, electronic swells resembling wax sealing, and synthesized heartbeats, the latter forming the sonic material of the sound plant *Sealing*.

The installation combined field recordings with motif-driven composition, reinterpreting elements like whispers and sealing into violin trills or synthetic swells to evoke literary and emotional resonances. In this way, the plant does not merely produce sound–it creates a sensory experience, demonstrating how sound can be felt as much as heard, engaging the body as well as the ear.

Using tools like Ableton Live, these abstract sonic expressions were composed to invite intuitive, emotional responses. Over 5,000 written reflections were collected during the one-month exhibition, with recurring keywords such as home, mother, warm, and quiet–revealing how the sound textures evoked associative memories often linked to the intimate experience of reading. This early experiment marked the beginning of a shift from symbolic sonification to more materially grounded, memory-oriented sonic design.

2. ROOM App

Fig. 2. App interface of ROOM, a customizable ambient noise application designed to support emotional well-being through tactile sound design. Pictured: sound rooms including *Under the Floor Fan*, *Carol in Socks*, *Flock*, and *Porgy in Strange Rain*, each composed of auditory textures, colored noise, and soft rhythmic patterns.

ROOM is a customizable ambient noise application designed to support emotional well-being through tactile sound design and nostalgia-driven sonic textures. Each "sound room" in the app is composed of three elements–auditory texture (e.g., feather, bell, wing), colored noise (e.g., pink, brown, grey), and a soft rhythm (typically 60–80 bpm). For example, *Under the Floor Fan* evokes culturally embedded memories of Korean summer homes through ambient fan noise, while *Porgy in Strange Rain* incorporates distant rainfall and jazz textures to conjure solitude and emotional introspection.

Drawing from both emotional themes and literary references, the compositional process includes: the selection of symbolic sound materials; tactile evaluation based on warmth, decay and sharpness; spatial mixing through binaural layering; and integration of field recordings with low-frequency design for immersion. Produced using Ableton Live, these rooms do not merely deliver background sound–they aim to create environments of "Quiet" understood not as silence, but as intentional, gentle sonic presence.

User data–including average session durations, return usage patterns, and qualitative feedback–demonstrates that users repeatedly seek soundscapes that elicit emotional familiarity and comfort. These findings suggest that curated auditory environments rooted in nostalgia may play a meaningful role in sensory restoration.

Implications

This research offers three key contributions to sound studies, sonic arts and immersive wellness technologies:

1. Auditory Design as Emotional Care

By treating sound as a material form of care–akin to scent or touch–this approach expands the aesthetic function of sound into therapeutic and restorative domains. In particular, users of ROOM report feeling "held," "calmed," or "focused," indicating the affective efficacy of its auditory design.

2. Sonic Nostalgia as Embodied Memory Activation

Rather than conceptually representing memories, Sonic Nostalgia functions through embodied recognition. Users frequently report that ambiguous sound textures trigger deeply personal emotional states, recalling atmospheres, mood, and mental imagery rather than specific events. This demonstrates how sonic materials can recall not events, but atmospheres, states of being and internal images.

3. New Potentials in Personalized Ambient Technology

With ROOM, we envision AI-based systems that adapt sound environments in real time based on mood, time of day or even biometric feedback. Rather than static playlists, these environments become "living" auditory companions that support neurodiversity and sensory well-being. Generative audio models–such as those using diffusion or neural networks–could also be integrated to create personalized ambient textures on the fly, enhancing the system's adaptability. Feedback from users with sensory sensitivities suggests potential applications in inclusive design.

Ultimately, this work reframes sound not as passive background but as an active, embodied presence–resonating through memory, space, and the nervous system. It proposes a future in which emotionally intelligent, materially grounded, and therapeutically engaged sound environments are developed through collaboration between artists, designers and engineers.

Keywords

sonic materialism, sonic nostalgia, sound studies, listening, ambient, memory, sensory experience, sound art, sonic care, tactile composition, new materialism, immersive technologies

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Vocality and Indigenous Epistemology in the Man-Eagle Partnerships of Post-Soviet Kyrgyz Eagle Hunting: Voicing Heritage, Negotiating Agency, and Mediating the Human-Wildlife Conflict

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ABSTRACT

Background

This paper explores interspecies vocality as political ecology and heritage. In Kyrgyz eagle-hunting, eagles are trained to return to their masters through vocalisations (Nardella 2025; McGough 2019; Soma 2015). The practice, intimately tied to Kyrgyz ethnic identity, leans on Indigenous ecological knowledge and epistemology. The vocal weaving of these interspecies bonds fosters human/nonhuman interconnection and the possibility for coexistence, dialogue, cooperation. However, voice is also potentially a tool to assert dominance over the nonhuman (Harrison 2021).

Hunting with golden eagles has a long history in Central Asia as a tradition and, recently, tourist attraction (McGough 2019; Soma 2015). Steeped in nomadic knowledge, it entails catching female eaglets from the nest when they are two months old, training them to hunt foxes, jackals and wolves, and living with them for thirteen to fifteen years, after which the eagles are released. Consistent vocal engagement is a tool through which intimacy and partnership between men and golden eagles are developed. Hunters use four main types of vocalisations in their interactions: the sounds *kyittu* and *ku* as summon calls (the latter when the eagle is far away, on the mountains); talking; and singing/crooning/humming. Eagles vocally interact in response to hunters or to attract their attention. My presentation examines whether the use of human vocality strengthens or strains human relations

with the environment.

In man/eagle vocal and relational dynamics, nonhuman power and control are manifested through listening, challenging the perceived hegemony of human vocality. Eagle-hunters' vocalisations honour alterity and nonhuman agency as they rely upon the nonhuman subject's listening. I draw on de Castro's definition of subject as an entity that has a point of view (1998). The hunters acknowledge the eagle's subjectivity, aware that their entire partnership relies on the eagle's willingness to listen and that it might disagree with the human or choose to not listen to him. Traditionally, a falconer is recognised as a master upon proving his eagle has learnt and agreed to listen. Negotiating and achieving mastership thus challenges the notion of the human voice as source of authority. The "leading" voice depends on its "object," turning it into a subject.

In arguing that vocality, here, does not imply dominion, I think of recent sound scholarship on the relationship between sound and (imperial) power (McMurray and Mukhopadhyay 2024) and as a differentiator, used to justify and control alterity, as well as defining and theorising personhood and musicality (Ochoa 2014; Mundy 2018). In my proposed reading, voices define and distinguish ontological entities (i.e. men and birds) but this is conducive, in this partnership, to bonding and shared accomplishment of goals (catching prey). Following Nazan Maksudyan's interpretation that "sound should be analysed as a relationship between a listener and something listened to" (Maksudyan 2024, 56), I interpret sound, as vocalisation and listening, as a site of encounter between two entities (man and eagle) that define themselves against each other but for whom the difference that sound emphasises is not conducive to conflict or domination.

In Central Asian Turkic cultures, powerful symbolism is ascribed to the golden eagle. According to traditional sources, Tanrı (God in the ancient Turkic religion Tengrism) sent the eagle to teach men how to protect themselves. However, the lack of a shared language between the eagle and men caused it to return to Tanrı (Bayat 2005). The eagle is revered for its strength and courage. In shamanic beliefs, it is regarded as the enabler of communication between the earth and the sky (Şahin 2021), which endows it with an aura of sacrality. Eagle-hunters often stress the traditional role of eagles as helpers, surpassing dogs and horses. Masters Aitbek Sulaimanbekov and Salavat Aibekov have remarked that, in the pre-Soviet period, an eagle could sustain the people of twenty yurts with her catch, and thus played an essential social role as provider.

Developing a bond with an eagle means weaving a bond with heritage. This is vocalised: *kyittu*. This is specific to Kyrgyz hunters, passed down from master to apprentice as "the sound of our ancestors" (Rinat Mirlanov, interview with author, August 12, 2024). It connects hunters and eagles to ancestry and the pre-Soviet past, linking humans to nonhumans through chains of mastership and apprenticeship. A theme in recent sound and voice studies is that of voice—or sound—in relation to time, memory and the archive (McMurray and Mukhopadhyay 2024). Bentivegna and Edlund have

highlighted the "importance of listening and paying attention to the way in which post-human voices become spaces and 'channels' for forgotten, erased and future memories" (2022, 5). In this sense, the vocalisation *kyittu* acts as a channel, linking entities across species and time.

The role of vocality in maintaining this interspecies bond and the bond with heritage is as central as orality is in the wider context of Kyrgyz history, particularly in its transmission through the epic poem *Manas* (Reichl 1992). The poem is at the heart of Kyrgyz ethnic and national identity, preserving the "values and character of the Kyrgyz people" (Mairamkul Musabai, interview with author, May 5, 2025). Voices carry stories, histories, relationships, the knowledge of masters, genealogies. Generations bound together as pearls by a string, a river flowing across time. Voices are not embodied—they embody. They are not carried—they carry, across species and generations. In saying *kyittu*, eagle-hunters summon both their eagle and their ancestry back. It reinforces an interspecies entanglement that embodies the entanglement of the present with the past in the context of the current cultural revival in Kyrgyzstan. The call to return is, therefore, meaningful both in its symbolism of interspecies mutuality and the relationship with pre-colonial past. In both contexts, voice simultaneously channels human identities as they are defined against the nonhuman and gives voice to heritage whilst defining postcolonial identities with and against it.

Exploring renewed approaches to human/nonhuman agency (Bennett 2010; Steingo 2024), this paper addresses the centrality of Indigenous stewardship and interspecies vocality in mediating interspecies conflict (see Dolar 2006) whilst connecting both human and nonhumans to heritage in the postcolonial space (Weston 2024).

Aims

This project's aims are:

- to produce an ethnographic study of human and avian vocality in the interspecies partnerships of post-Soviet Kyrgyz eagle-hunting;
- to produce new knowledge on how to manage and mediate interspecies conflict;
- to define a new musical terminology and framework to describe interactions in the specific context of eagle-hunting in Kyrgyzstan.

Methods

This presentation draws on three cumulative months of ethnographic fieldwork, between 2023–

2024, in the village of Bokonbayevo, Kyrgyzstan. My methodology is qualitative. In the summer of 2023 and 2024, I interviewed eagle-hunters, participated to eagle training sessions and demonstrations for tourists, as well as the "Birds of Prey Festival" (Tong District, August 10, 2008) and eagle-hunting competitions in Kyrgyzstan (Cholpon Ata, August 30–31, 2024) and Kazakhstan (Astana, V World Nomad Games, August 8–15, 2024). In winter 2024, I briefly lived with an eagle-hunter and joined him on a hunting trip.

During my visits, I recorded vocalisations used in all the contexts mentioned, that range from private to public (hunters' homes, training, public events). More recently, my methodology has shifted into the musical analysis of these recordings of intraspecific (eagle–eagle) and interspecies (eagle–man) vocalisations. I focus on interlocking rhythms and melodic patterns produced by several eagles in a home setting and out in the fields, and the patterns that emerge in their interaction with men.

Implications

The project's implications for music and scientific studies are a deeper understanding of interspecies vocal interaction and how this informs mutualism and human/wildlife coexistence versus conflict. Human/avian vocality has been examined by scholarship (Leach 2007; Feld 1990; Ramnarine 2009), just as musicking with humpback whales (Rothenberg 2008; South 2022) and nonhuman musicalities (Mundy 2018). This is the first study to focus on human/golden eagle vocality and its role in this interspecies partnership, thus advancing emerging research on human/nonhuman agency, creativity and musicality.

Keywords

vocality, eagle-hunting, Central Asia, indigenous epistemology, Kyrgyzstan, soundscape ecology

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The Brazilian Indigenous Sonic Culture through Music: A Study Based on the Discography of Egberto Gismonti

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ABSTRACT

Background

Indigenous peoples have a millennia-long history in Brazilian territory, with recorded presence dating back at least 12,000 years. Before the arrival of Europeans in the sixteenth century, in 1500, it is estimated that there were between 2 and 5 million Indigenous people, distributed among more than 1,000 distinct groups. These groups occupied almost the entire national territory, from the Amazon to the coast (Cunha 1992). However, following the European arrival in the sixteenth century, Brazil witnessed the onset of a dramatic decline in its Indigenous population. This demographic collapse resulted from a confluence of interconnected factors, including systemic violence, introduced epidemics, forced enslavement and territorial dispossession.

Today, according to data from the Brazilian Institute of Geography and Statistics (IBGE 2022), there are around 1.5 million Indigenous people in Brazil, belonging to 305 groups. These groups are primarily distributed across Indigenous lands, which correspond to about 13% of the national territory, with significant concentrations in the Amazon region, where around 60% of the country's Indigenous population lives. Other regions with notable Indigenous presence include the Northeast, Central-West and South. Despite similarities in terms of struggles for territorial rights and cultural preservation, there is an enormous variety of traditions, worldviews and ways of life among these peoples, reflecting the richness and complexity of their histories and identities.

Broadly speaking, the 20th century in the arts was characterized by a search for and appreciaton of defining aspects of Brazil as a nation, fostering the emergence of several artistic movements in the

country. In this context, following the work of authors such as Mário de Andrade and Heitor Villa-Lobos, Gismonti positions Indigenous peoples as central to the construction of a national imaginary. Egberto Gismonti (b. 1947) is a composer and multi-instrumentalist who plays piano, guitars, flutes and percussions, with an extensive discography, with over 70 albums released. Whether as homage, allusions to ceremonies and festivities, or representations of soundscapes, sounds of Indigenous cultures are incorporated into his discography (Junior 2017; Lopes dos Santos 2018). These sounds are crafted using a variety of creative techniques that alternately communicate atmospheres and spaces in a literal and descriptive manner, as well as recreate certain environments in a more metaphorical and subjective way.

In the late 1970s, Gismonti spent 42 days in the Xingu Indigenous Park in the Amazon region, where he experienced life in the Yawalapiti community. In an interview published in Rolling Stone magazine in 1979, he talked about his reception in the village and the musical experience he had with the Yawalapiti people: "They opened the door for me. They play just feelings, they had no compromise. It wasn't music, it was life." (as cited in Pinto 2009, 30). Through these and other statements, one can perceive an artist who demonstrates a kind of fascination with this culture. This is, in fact, evident in his discography through the number of compositions and albums dedicated to Indigenous peoples, as well as the presence of related elements and themes.

Aims

The aim of this paper is to demonstrate how Gismonti reinterprets and recontextualizes certain characteristic contexts and sonic elements of Brazil's Indigenous peoples in his work, particularly those of the Yawalapiti tribe. We seek to investigate how this sonic culture is embedded in the artist's compositions and in the musical narrative of his albums. Furthermore, we aim to identify the sound sources, compositional procedures and strategies employed in these representations within the phonographic recordings. By considering the contexts of the tribe, the composer and the albums, we propose an interpretative perspective that reveals the significance of these works beyond the domain of music itself.

As a consequence, by considering questions regarding the role of art and the position of the artist within this type of compositional approach—one that is grounded in a culture other than their own–this study aims to explore how such musical creations may, ultimately, contribute positively to the struggles of Brazil's Indigenous peoples.

Methods

Through an interdisciplinary lens that combines ethnomusicology, sound studies and musical

analysis, this research examines selected examples from Egberto Gismonti's repertoire that express and represent elements associated with Brazil's Indigenous peoples. The discographic analysis is grounded in the work of Nicholas Cook (2013), who, among other contributions, emphasizes the importance of performance and recordings as central to the construction of musical meaning.

The corpus analyzed comprises Gismonti's discography from 1969 to 1989, based on the mapping of the representations of soundscapes in the sample. From this process, three albums were identified as containing significant associations with and references to Indigenous sonic culture: *Dança das Cabeças* (1977), *Sol do Meio Dia* (1978) and *Feixe de Luz* (1988).

Following the identification of these albums, we conducted a detailed analysis of each phonogram. We employed the software Sonic Visualiser to extract data on musical parameters such as tempo, dynamics, texture and timbre. For the musical analysis, we drew on Robert Hatten's (2004) theory of musical gestures, in order to characterize how gestures are integrated into musical structures. This approach enabled us to observe how certain gestures function as fundamental elements in the construction and communication of musical meaning.

These data allowed us to trace meaningful connections between musical structures and broader socio-cultural contexts, engaging with foundational scholarship in acoustic communication (Truax 2001) and sound studies (Sterne 2003).

Implications

At the beginning of the piece "Quarto Mundo #1", from the album *Dança das Cabeças* (1977), we hear the use of whistles and vocal effects that emulate natural sounds, in dialogue with recorded environmental audio. According to the composer, this album narrates the story of two Indigenous children undertaking a long journey through the forest. In Gismonti's own words: "The album begins with you entering the forest, hearing insects, the first birds and the human presence. It then traverses everything within–swamps, streams, pleasant and unpleasant things." (Junior 2017).

In the second section of the piece, the forest-like sonic elements gradually dissolve, giving way to a solo flute theme. The timbre of the flute closely resembles that used in Indigenous musical traditions, possibly suggesting the emergence or presence of human life within the natural soundscape.

According to Gismonti, during his visit to the Yawalapiti community, he was invited by Sapain, the community's spiritual mentor, to enter the House of Flutes–a private and sacred space where men prepare for the Kuarup ritual (Gismonti 1988). This experience appears to be sonically evoked in the introductory section of the track "Sapain", from the album *Sol do Meio Dia* (1978). The piece opens with a solo passage on the eight-string guitar, after which the flutes gradually take over the soundscape. In

the second section, Gismonti layers the flutes with vocalizations that perform brief melodic figures and sonic effects. As the piece progresses, one can hear the presence of drums, flutes, chants and body percussion–all combining to construct a dynamic atmosphere suggestive of ritual movement and collective expression.

In contrast, the track "Yualapeti", from the album *Feixe de Luz* (1988), features a prominent use of synthesizers in combination with environmental sound recordings captured from the Indigenous community, evoking a ritualistic moment. The sonic character of this piece is noticeably more intense and energetic than the previously discussed tracks, potentially alluding to a more heightened or complex stage within the rituals or communal activities. In this case, we observe a convergence between the technological and the natural, where electronic resources are employed to amplify the sense of tension or vitality associated with a specific moment experienced by the composer during his time with the tribe.

However, across the discography analyzed in this study, it is possible to observe the application of a range of techniques aimed at representing Indigenous sonic culture. Notably, the use of environmental sounds appears in diverse combinations with instruments such as flutes, drums, voice, synthesizers and body percussion. These musical pieces may be understood as a sonic portrait of the Yawalapiti cosmological universe, wherein music serves as a vehicle for exploring and celebrating the interconnectedness of humans, nature and the divine.

Considering both compositional and production processes, as well as the broader social contexts involved, this study argues that these musical representations function not only as cultural artifacts that illustrate aspects of Indigenous life, but also as active contributions to the preservation, transmission and resistance of sonic cultures within contemporary society. As such, these works may also be understood as creative translations, maintaining their communicative function and reinforcing the interconnection between environment and culture (Truax 2001). This perspective resonates with the notion of survivance (Fischlin and Heble 2004), wherein artistic recreation becomes a means of dynamic preservation—rather than a static form. In this context, we underscore the potential of musical practices to extend beyond mere artistic expression, framing them as powerful resources for preserving and documenting facts, experiences, histories and social struggles.

Keywords

Brazilian indigenous sonic culture, Egberto Gismonti, soundscapes, musical composition, ethnomusicology

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Messiaen's Ecological Listening and Performativity of Musical Temporality

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ABSTRACT

Aims

This study reconsiders the concept of musical temporality not as a fixed or inherent property of musical works, but as a construct that is shaped and enacted through repeated performative practices. Traditionally, music theory has treated time as an objective structure embedded within the musical score–a framework to be analyzed through rhythmic subdivisions, formal structures, and harmonic progressions, and so on (Kozak 2023). This Newtonian view of time assumes that time exists independently of human experience and is simply mapped onto music (Kozak 2023). Even alternative approaches that focus on subjective listening experiences tend to presuppose a stable temporal structure within the composition. As such, musical time has often been regarded as a pre-existing container to be decoded or perceived.

However, recent work in music theory has questioned these assumptions. Mariusz Kozak, in his book *Enacting Musical Time: The Bodily Experience of New Music*, argues that musical time is not something that exists *a priori*, but something that is enacted through the embodied, sensory and social engagement of the listener (Kozak 2020). Time is not found within the score; rather, it emerges through attentive interaction with sound. This performative view of time resonates with Judith Butler's theory of performativity, which posits that identities and norms are not fixed traits but are constituted through repeated actions (Butler 2006).

Building on these perspectives, this study introduces the concept of "ecological listening" as a way to rethink musical temporality. Informed from the ecological philosophy of Timothy Morton and Object-

Oriented Ontology (OOO), this approach challenges anthropocentric assumptions that frame sound primarily in terms of human perception, intention, or meaning. Instead, ecological listening calls for an attunement to the temporalities of non-human sonic entities–those sonic agents whose patterns, rhythms, and durations resist assimilation into human-centered musical structures.

By applying this framework to the listening practices and compositional methods of Olivier Messiaen, the study explores how ecological listening enacts an alternative mode of temporality—one that emphasizes coexistence, relationality and non-linearity. Messiaen's engagement with birdsong is not interpreted here as symbolic metaphor, but as a performative act of tuning into the ontological rhythms of non-human life.

Methods

The methodological framework of this study draws on an interdisciplinary constellation of theories from performative theory, music theory and ecological philosophy. At the core is Judith Butler's theory of performativity, which reconceptualizes identity not as a fixed or natural category, but as something constituted through repeated actions (Butler 2006). Butler's insights, originally developed in the context of gender theory, are here applied to music: musical temporality is not an inherent trait of the score, but a phenomenon produced and stabilized through iterative acts of listening, playing, and composing. These acts carry with them cultural assumptions, historical norms, and embodied habits that shape our temporal experiences.

In parallel, Mariusz Kozak's *Enacting Musical Time* offers a music-theoretical perspective that complements this performative view by emphasizing the embodied, sensorimotor engagement with sound. Kozak critiques models that treat musical time as a coordinate grid, instead proposing that it emerges through the listener's sensorimotor engagement with sound. Listening becomes a performative act: time unfolds through one's bodily attention to the sonic world (Kozak 2020). Kozak's model allows for an understanding of temporality as an emergent, contingent property of listening itself–not a property derived from compositional syntax alone.

To further push this performative model into ecological territory, the study incorporates Timothy Morton's ecological philosophy, especially his adaptation of OOO, initially proposed by Graham Harman. OOO posits that all objects—whether human or non-human—possess ontological integrity and agency, existing beyond human interpretation or utility (Harman 2011). Building on this, Morton develops OOO into a method for ecological thinking. For Morton, ecology is not about preserving nature for the sake of humanity, but about recognizing and coexisting with the unique temporalities and agencies of non-human beings. He argues that the ecological crisis stems from a dualistic worldview that separates the human from the non-human. Therefore, all objects must be understood as having equal ontological

status, not merely as resources or background for human life (Morton 2019).

This ontological shift provides a new perspective for interpreting the modern temporality embodied in Messiaen's musical practice. Messiaen's fieldwork in transcribing birdsong over decades is interpreted not merely as naturalistic curiosity but as a disciplined mode of ecological listening. Rather than filtering birdsong through human musical structures, Messiaen sought to render it on its own terms, preserving its asymmetry, irregularity and internal logic. He approached birds not as musical metaphors, but as co-composers whose sonic temporalities could interrupt, reshape, and reframe the temporality of Western musical thought.

In analyzing Messiaen's approach, this study considers both his birdsong transcriptions and his compositions often interpreted as expressions of religious faith—not as static objects of analysis, but as performative practices through which temporal norms are destabilized, reshaped and reimagined. Thus, the methodology emphasizes not only what Messiaen composed but how he listened, what kind of listening practices he enacted, and how these practices reveal a non-anthropocentric mode of time.

Implications

This study reconsiders the foundations of musical temporality by interpreting Olivier Messiaen's compositional practice as a form of performative engagement. Over several decades, Messiaen listened to birdsong, transcribed it, and incorporated it into his compositions. This study conceptualizes these practices as acts of ecological listening. Instead of understanding musical time as an objective property embedded in the score, this study proposes that musical temporality is enacted, embodied and realized through repeated practices of listening, transcribing and composing. Accordingly, the analysis of musical time shifts from score-based paradigms to relational, affective and process-oriented conceptions.

The theoretical foundation of this study draws on three key strands of thought. First, Judith Butler's theory of performativity underpins the study's central premise that musical time is constituted through repeated practice. Musical time is not a pre-existing structure but something continually produced and renewed through actions such as performing, listening and composing. This perspective reconceives musical temporality not as a fixed structure but as a dynamic and relational practice. Second, Mariusz Kozak's theory of embodied musical time reinforces this performative understanding. In *Enacting Musical Time*, Kozak argues that time in music is not simply measured or interpreted but lived through sensory attention and bodily interaction, emphasizing the experiential and perceptual dimensions of musical time (Kozak 2020). Third, Timothy Morton's ecological philosophy and OOO provide an ontological framework for rethinking temporality through relationships with non-human entities. Morton asserts that non-human beings possess their own rhythms and temporal agencies, challenging anthropocentric assumptions and proposing the possibility of ecological attunement (Morton 2018).

Synthesizing these theoretical perspectives, this study presents ecological listening as a new analytical and methodological tool. Rather than interpreting sound as a message or symbol, ecological listening centers on how temporality is shaped through responsiveness and relational engagement with sonic entities. Musical time is no longer understood as a structure embedded in the score but as something co-constructed through interaction with sound.

From this perspective, Messiaen's music is reinterpreted not as a product of religious symbolism or rhythmic theory, but as a site where temporality is enacted through performative practices such as birdsong transcription and integration. The innovation of his music lies not in resistance to tradition per se, but in its openness to non-human temporalities. While rooted in Messiaen's work, the framework of ecological listening can be applied to a wide range of repertoires, offering new ways to analyze temporal experience and listening practices. It allows for an expanded approach to musical time in works shaped by environmental sounds, contextual listening, or the agency of non-human actors, thereby fostering interdisciplinary dialogues between musicology, sound studies and ecological humanities.

Finally, this study raises broader ethical and cultural questions: Whose sounds do we attend to, and how? Ecological listening encourages an ethical form of attention that moves beyond anthropocentric habits, attuning to the rhythms and temporal presence of non-human others. Music becomes a space of care, coexistence and attentiveness. In an age of ecological crisis, this rethinking of temporality and listening provides a new ethical foundation for sound as a shared medium of being and responsiveness.

Keywords

musical time, performativity, ecological listening, object-oriented ontology (OOO), Olivier Messiaen

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Sounding Out the Borderland: Ecological Sound Art at the Korean DMZ

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ABSTRACT

Background

The border and the borderland may be simply defined as a line and as a space surrounding it, respectively. However, such lines and spaces also have the functions of demarcating self from other, and mediating the encounter between them (Pine 2021, 5). The border and borderland are fundamentally inorganic existences, and as such they are always contested and must consistently be defended (Donnan and Wilson 2010, 11).

Given these definitions, I can characterize the Korean Demilitarized Zone (DMZ) region as encompassing the borders and borderlands of the divided Korean peninsula. The region includes (1) the DMZ itself, composed of the military demarcation line (MDL) or the 250 kilometer territorial border running across the peninsula and the two kilometer buffer that extends from both sides of the MDL; (2) the civilian control zone (CCZ), a heavily guarded area spanning five to ten kilometers southwards from the DMZ; and (3) the border area, which includes the CCZ and extended areas within eight counties and seven cities that make up the region (Kim [Eleana] 2022, xi). As a result of its status as a borderland, the DMZ region is a culturally indeterminate and thus also culturally dynamic environment (Hastings and Wilson 2010, 8–9).

The non-human ecology of the DMZ region is its most prominent symbol and its primary value (aesthetic, cultural, political and even economic). Indeed, limited traffic and land development in the region since the cessation of the Korean war have transformed it into a haven for flora and fauna. The propagation of this ecological narrative has also been helped by the fact that the region is notoriously

difficult and even dangerous to approach in person. More than seventy percent of the DMZ region remains inaccessible to the public (Koh 2022, 67), and even if human traffic were permitted, the ubiquitous presence of American landmines makes the area virtually impossible to roam (Koh 2019, 666). Thus, Suk Young Kim (2014) notes, "most [South] Koreans encounter the DMZ not as an actual physical space, but through mediated images: photographs, plays, films, and exhibitions" (104). I argue that the "wilderness" of the borderland is pronounced in the South Korean aesthetic imagination and interpretation of the DMZ region.

Following Angus Carlyle (2021), the wilderness can be defined as a distinctly human projection of what is considered to be un-human "nature." In terms of sound, wilderness explored in aesthetic forms often translates into geophony (sounds of inanimate objects like rain, rocks and wind) and biophony (sounds of non-human animate beings like birds, bugs and frogs) (Carlyle 2021, 292). The sonic manifestation of the wilderness is particularly important because, for example, one can hear a lot more in the dense forests of the DMZ than they can see (Kim and Jeon 2015).

However, when wilderness is emphasized as the primary virtue of the DMZ region, it becomes imagined and interpreted as a "paradoxical coexistence of manmade conflict and an environment of natural wildlife that is completely indifferent to the surrounding human world" (Kim 2011, 397). This paradox reveals that the wilderness characterizing the DMZ region is ultimately a romanticization. In reality, Eleana Kim (2022) argues, ecology and war–like nature and culture–cannot be separated, so this paradox does not hold up. This is similar to Carlyle's (2021) conception of the wilderness where geophony and biophony are necessarily embedded in anthrophony (292, following Dipesh Chakrabarty). Realistically, the DMZ region is an anthropogenic landscape, or what Anna Tsing (2004) defines as a space that is neither domesticated nor truly wild (174). The sounds of the DMZ region also include the noises from loudspeakers spewing from both sides of the border, the military operations that continue in contradiction to the region's own name, and urban developments (Brady 2008; Kim 2022).

Additionally, South Korean academics, artists, journalists and politicians often extol the virtues of peace and biodiversity of the DMZ region, and then extrapolate them onto an ideal Korean future (Kim 2022; Koh 2022). Even though campaigns for non-human peace in the DMZ region and human peace on the peninsula are mutually exclusive, they are conflated together for economic and political goals (Kim 2022, 5–6).

Aims

I argue that artists who imagine and interpret the DMZ region attempt to engage audiences sensorily (including sonically) with the space for the purpose of effectively "inhabiting" it, a task that would otherwise remain unfeasible. The value of virtually inhabiting the DMZ region lies in establishing

rapport with the space and thus what it may symbolize in the South Korean collective imagination. The DMZ region encapsulates the trauma of the Korean war and nostalgia for a time before division. Increasingly, the area also serves as a conceptual sandbox in which to imagine possibilities for a so-called peaceful future, whether such peace assumes the reunification of the Korean peninsula or not.

I am concerned with the aesthetics of sounding out the DMZ region across various times, and the mechanisms thereof that afford multisensory experiences of the area. Here, I focus on three sound artists who place particular emphasis on the anthropogenic quality of the DMZ region. Their sound artworks call into question the region's assumed identity of stillness and biodiversity that motivate its conservation in the present, as well as agendas for a peaceful future on the peninsula. The works discussed are Chang Hun Kim and Young Ki Jeon's sound album, *Karma DMZ Soundscape* (2015), Joon Kim's sound installation, *Mixed Signals* (2015, 2021), and Kyong Ho Ko's sound sculpture, *Reflection-Big Voice* (2021). I discuss the aesthetic and political goals behind the platforms that supported their work, mainly the *Real DMZ Project* and *DMZ Art and Peace Platform*. I analyze the affordances of media technology in the "sonic-spatial imagination" of these sound art projects (Ouzounian 2012, 74) and situate them in relation to the political landscape of the Korean peninsula today.

Methods

Following Alan Licht (2019), I define "sound art" as an artistically motivated experiment with sound that critically induces a "*listener-to-listener* relationship between the artist and audient rather than *player-to-listener*," given that the artist is also a listener of the sounds that constitute his project (6, emphasis in original). These sonic experiments pertaining to the DMZ region can additionally be considered what Jonathan Gilmurray (2017) terms "ecological sound art," which allow "us to experience normally inaccessible aspects of the environment" (35). I treat the three case studies–*Karma DMZ Soundscape*, *Mixed Signals* and *Reflection-Big Voice*–as ecological sound artworks that reveal the artists' orientations in sounding and listening to the anthropogenic space of the DMZ region. The materials available to me in this analysis include artist webpages, liner notes, newspaper articles, pamphlets, photos, sound recordings and videos.

I also define sound art as a product borne out of the practices of sounding and listening. I consider sounding (i.e. creating or utilizing sound across varying degrees of intentionality) and listening as fundamental conditions of being and knowing in the world, which inform and are informed by individual and collective desires, identities and values. In this regard, I correlate the act of sounding to imagining and listening to interpreting sounded meaning. In practice, sounding and listening are related activities. For example, an artist who sounds out the DMZ region through the process of recording or by other means is also interpreting or listening into that environment. The audience who listens to these

mediated soundscapes is also imagining them—that is, sounding them out in space and time. Combined, sounding out and listening into the DMZ region become crucial modalities of "inhabiting" that space. I find it useful to consider sounding and listening as dynamic processes by which South Korean artists and audiences can (re)constitute their relationships with the DMZ region, rather than endow sounds or sound artworks themselves with any inherent political meaning.

Implications

In the present work, I focus solely on sound art, but there is a consistent production of South Korean films, scholarly work, virtual reality experiences and websites that allow audiences to virtually inhabit the DMZ region (e.g. Kim et al. 2019; Choi et al. 2022). The concept of the sound art itself has no one form: *Karma DMZ Soundscape* is a collection of recorded sounds, *Mixed Signals* is a combination of recorded sound with images, and *Reflection-Big Voice* is a sound sculpture. I imply that the particular anthropogenic focus of these three sound art projects may bring South Korean artists and audiences alike to (re)imagine and (re)interpret the DMZ region and their place within it across time. To what extent these efforts are seriously taken up by South Korean audiences and how these efforts may actually affect the political realities of the peninsula are still to be determined.

Keywords

borderland, DMZ, ecology, Korea, sound art, sounding

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Negotiating Spectacle: Sonic Failure and Transformation in Jordan Peele's *Nope*

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ABSTRACT

Background

This project, which offers original, interdisciplinary analyses of music, sound and narrative in Jordan Peele's film, *Nope* (2022), takes into account both familiar methods of film-music scholarship and paradigms from sound ecology and biology—fields gaining renewed attention in music scholarship (Watkins 2018; Labaree 2023). That the film's narrative concerns the survival of a small group of characters, including a protagonist finely attuned to animals, coincides with my disciplinary trespass into the life sciences, and specifically invites it.

The story of *Nope*, a neo-Western, horror/science-fiction film, centers on OJ (Daniel Kaluuya) and Emerald Haywood (Keke Palmer), siblings who struggle to maintain their family's horse handling business in California. Their father dies in an accident involving an object falling from the sky, and work opportunities for the Haywoods in Hollywood productions are drying up. Following a mysterious incident at a neighboring Western-themed amusement park, OJ sees what he thinks is a flying saucer, and he soon leads a small group of characters—including his sister, an electronics store employee and an eccentric film director—in an effort to film it to become famous. The characters realize the flying object is a predatory creature, and OJ names it "Jean Jacket," after one of the family's horses.

Nope critiques the treatment and erasure that minorities face as workers in industries of spectacle, which it unveils as the ultimate predator. Peele, who wrote and directed *Nope*, identifies "spectacle" as the film's driving dualistic concept. Peele specifies the "insidious" nature of filmmaking: "it's impossible to work in this industry for very long without having scars from moments where you feel like you were

exploited" (*Entertainment Weekly*, 2022).

Sound, broadly conceived, signals in a variety of ways the ill state of occupational health Peele describes. Most obviously, this is expressed through the sounds of technological failure. This dying sound functions like an alarm in *Nope*; when the creature comes near, the power wanes and sounds slow down to a stop. Even the pre-existing songs, which might offer the comfort of familiarity or reward of recognition, lose these potential functions as dying power habitually wipes them off the soundtrack. Sound effects by Johnnie Burn likewise are ambiguous, so as to undermine the stability of the soundtrack's relationship to what we see. These approaches to amplified and recorded music and effects define the particular disrupted aesthetic of *Nope* and reinforce the film's thematic concern with the allure and danger of spectacle industries.

Sound and music work in other sophisticated ways across the film; for example, when characters play recorded announcements and music through speakers to shape the emotional experience of their audience and to attract Jean Jacket. Michael Abels crafts genre-appropriate music for the horror and western genres, and his music signals the state of the characters throughout the film; particular emphasis falls to the soundtrack, because OJ says relatively little. Pre-existing music also serves the film in multiple ways. Exuma's "Obeah Man," serves to both attract Jean Jacket and reflect OJ's assumption of leadership and confidence. The song strikes up a particularly complementary stylistic relationship with Abels's piece, "The Run (Urban Legends)"; taken together, these pieces tell of OJ's rapidly changing relationship with Jean Jacket.

Aims

This project aims to provide an original interpretive strategy for film sound and music, one that accounts for a selection of disciplinary approaches, including recent directions in film-sound and film-music studies, and disciplines such as biology, which open onto other beneficial perspectives. The project brings these to bear on *Nope* primarily through the analysis of a selection of scenes across the film. The analysis first establishes the soundtrack's characteristic behaviors (e.g., the versatility of popular music, the alarm function of failing amplified sound, the ambiguity of sound effects) and it affords exploration of scenes that involve invisible or unspoken narrative developments.

In this analysis, the matter of the identity of a musical artist and stylistic affinities between the original score and other musics come into play in registering the experiences of the characters. The reliance on biology as a model for understanding OJ's behavior and the music that accompanies him effects a reframing of music's behavior as contingent and living processes. With the help of biological models the project dares to ask, what if we treat the soundtrack like a living thing? In this way, we would imitate OJ, who collects knowledge about Jean Jacket on the basis of observation and knowledge passed

through generations of his family to move forward.

Methods

The methods of this project display an interpretive methodology that is informed by both sound ecology and biology, on one hand, and traditional means of film-music analysis, on the other. The project interprets narrative, dramatic and visual elements with respect to the soundtrack's original music, by Michael Abels, pre-existing popular music—largely by Black American artists, and sound effects as a way of tracing the progress of the characters in *Nope*.

Music and sound are uniquely charged with conveying the emotional states and behaviors of the laconic protagonist, OJ. Interpreting his actions with respect to the score benefits from an openness to biological models, which offer ways to reframe narrative in terms of behaviors of living creatures, for example in the process of migrating or seeking food. Such paradigms bring efficacy to the task of interpreting this film, and speak directly to its thematic interest in exploring the relationship between entertainment industries—including its attractions and dangers—and the humans that move within them.

Implications

This research suggests beneficial new directions for film-music and film-sound scholarship by inviting trends in other disciplines to mix with traditional forms of musical and visual analysis. To read elements such as musical style, pre-existing music, and technological disposition with respect to various systems of organization—narratological, musicological, biological—opens the analysis of film music and sound to a wider range of interpretation, and holds promise for more nuanced and flexible illuminations of sonic and musical meaning in film. These analytical models, furthermore, hold promise for accounts of sound and music in films about Afrofuturism and the diaspora, urgent and distinctive topics in Black contemporary filmmaking.

Keywords

technological failure, stylistic imitation, neo-Western, horror

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What Happened to Environmental Music in 1980s Japan When It Was Reevaluated as Kankyō Ongaku in the 2010s?

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ABSTRACT

Background

This presentation focuses on Japanese environmental music composed in the 1980s and its subsequent reevaluation as Kankyō Ongaku in the 2010s. Originating in the 1980s from artists such as Yoshimura Hiroshi and Ashikawa Satoshi, with the first commercial releases appearing in 1982, this music experienced a significant rediscovery and reevaluation around the 2010s. This later phenomenon was spurred by factors like exploration in used record stores and YouTube's recommendation system, leading to the compilation album "Kankyō Ongaku: Japanese Ambient, Environmental & New Age Music 1980–1990" (Light in the Attic, 2018).

The core aim of this presentation is to compare these two periods of the music, viewed within their different historical and cultural contexts. By doing so, it seeks to provide insights into the transformation of the approach to the soundscape and the environment, central concepts explored throughout the analysis. By accomplishing this presentation, the presenter seeks a way to adopt serious contemporary music studies to popular music studies.

Aim

The primary objective of this presentation is to compare Japanese environmental music from the 1980s with the music reevaluated as Kankyō Ongaku in the 2010s, examining them within their distinct historical and cultural contexts. By undertaking this comparison, the presentation aims to provide

insights into how the music which takes into consideration the concept of the environment and the soundscape has transformed over these periods.

The structure of the presentation reflects this objective. It begins by explaining both environmental music and Kankyō Ongaku. Following this, it highlights the differences in the contexts surrounding these two forms of music and the distinct functions or importance attributed to their recordings. environmental music in the 1980s, produced by artists like Hiroshi Yoshimura and Satoshi Ashikawa, saw its first commercial release in Japan in 1982. It emerged from the context of the bubble economy and the contemporary music world, significantly influenced by Brian Eno's ambient music, R. M. Schafer's soundscape theories, and Max Neuhaus's sound installations. This music was appreciated for its focus on the environment at that time.

Conversely, Kankyō Ongaku in the 2010s experienced a rediscovery and reevaluation, largely facilitated by used record stores and recommendation systems like YouTube. This reevaluation is evidenced by the release of compilation albums such as "Kankyō Ongaku: Japanese Ambient, Environmental & New Age Music 1980–1990" (Light in the Attic, 2018), popularity on YouTube, record reissues, the emergence of dedicated record shops and so on. This phase occurred primarily within the context of popular music culture.

Through this comparative analysis of two periods situated in different contexts, the presentation seeks to identify how the music and its relationship with the environment and soundscape have transformed. Furthermore, it proposes a hypothesis regarding the transformation of the soundscape since the 1990s. Ultimately, the presentation aims to offer a new framework for understanding the evolution of environmental music in the digital age.

Methods

The presentation proceeds by first explaining both environmental music and Kankyō Ongaku, then detailing the differences in their contexts and the importance placed on recordings. It concludes by offering a hypothesis about the transformation of the soundscape since the 1990s. So, the methods of this presentation involve a multi-faceted approach centered on comparison and analysis of the historical and cultural contexts surrounding the music. The central method is the comparison between 1980s environmental music and 2010s Kankyō Ongaku. This comparison is primarily conducted along two key dimensions: the contexts and the function/importance of recordings.

1. Comparison of the Contexts: The presentation contrasts the context of the 1980s, where environmental music was situated within the artistic and contemporary music scenes, influenced by

figures like John Cage, Brian Eno, R. M. Schafer, and Max Neuhaus. It was evaluated as music attentive to the environment. This is contrasted with the 2010s context, where Kankyō Ongaku was reevaluated within popular music culture, driven by factors such as used record exploration and YouTube recommendation systems. In this latter context, the music is primarily evaluated based on the recorded sound itself, though interaction with the listening space may still be considered.

2. Comparison of the Function/Importance of Recordings: The presentation argues that in the 1980s environmental music context, recordings were often considered secondary; the interaction between sound and the physical environment or space was paramount. Hiroshi Yoshimura's perspective emphasizing the environment within various settings over pure musical works illustrates this. In contrast, the 2010s Kankyō Ongaku places the recorded sound at the center, as suggested by the focus of figures like Chee Shimizu, who approaches music primarily as physical media (records). While the relationship with the listening space is still considered, the emphasis shifts. This difference is highlighted by contrasting quotations or perspectives from Yoshimura and Shimizu.

3. Hypothesis Generation: Based on the comparison and analysis, the presentation posits a hypothesis that the spread of the internet since the late 1990s has significantly altered the concept of the environment and soundscape. It is hypothesized that the internet should now be considered part of our soundscape, and consequently, Kankyō Ongaku may reflect this change. Furthermore, it hypothesizes that Kankyō Ongaku, influenced by the internet, shares characteristics with internet-native genres like vaporwave and may represent a new form of environmental music in the digital age. The presenter acknowledges that this is a preliminary hypothesis requiring further investigation.

Implications

This presentation offers several significant implications for the study of music, environment and technology.

Firstly, it underscores the critical importance of examining music genres within their specific socio-cultural and technological contexts. By comparing 1980s environmental music with 2010s Kankyō Ongaku, it illustrates how the reception, evaluation and function of music are profoundly shaped by its surrounding context.

Secondly, a major implication is the suggestion that the concepts of "environment" and "soundscape" are not static but are transforming alongside technological changes, particularly the rise of the internet.

The presenter hypothesizes that the internet has expanded our understanding of soundscape, arguing that it must be included in this understanding in the 21st century. This implies a need for rethinking soundscape studies and musicology to incorporate digital and networked environments alongside physical spaces.

Furthermore, the hypothesis that Kankyō Ongaku shares traits with internet-born genres like vaporwave and might represent a new form of environmental music for the internet era has implications for how we categorize and understand musical evolution. However, the presentation also importantly implies that these conclusions and hypotheses are tentative and require further research.

Keywords

environmental music, Kankyō Ongaku, soundscape, ambient music, sound installation, 1980s Japan

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The Songs of Cicadas: The Dong People's Diverse Imaginaries of Cicadas in Dong Music

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ABSTRACT

Background

The total population of Dong ethnicity was around 2,960,293, and they mainly reside in the Hunan, Guangxi, and Guizhou areas (Dong Ethnic Group 2017). The ecological environment of the Dong communities in Guizhou is unique and sustains an important ecological connection with the culture. In fact, all four of the Dong villages where most of my interviews were held—Zhaoxing, Xiaohuang, Huanggang, and Sanlong—are adjacent to abundant mountain ranges.

Ethnomusicologist Catherine Ingram has pioneered major research on Dong music. One of her works discusses how the lyrics in Ga Soh reflect the ecological environment in visual and acoustic aspects (Ingram 2011). Ingram also shows that Dong songs "allow sounds of birds and insects to be felt as emotions of people, and allow people to think of themselves as features of the natural environment," and "there is a similar sense of 'oneness' between people and the sonic, visual and experiential or lived environment" (Ingram 2011). Building on her essay, my research specifically focuses on the songs of cicadas in the genre of Ga Soh, and also moves beyond the technical analysis of the lyrics to introduce the perspectives of Dong residents that delineate their personal imaginaries of this music.

Based on the findings of my research, I argue that the songs of cicadas help the Dong people conceptualize the ecological environment and connect them with nature, but also carry the innermost emotions of the Dong people. To the Dong people themselves, their imaginaries of cicadas break the conformity to universal beliefs and add unique color to the songs that embellish the significance of cicadas in the community.

Aims

This article dissects the Dong people's diverse imaginaries of cicadas in Dong music, and further seeks to show how the sonic features of cicadas help construct Dong people's ecological consciousness and mediate their own personal sentiments. In this paper, I first analyze various ways in which cicadas are imitated and contextualized in the Dong songs with musical analysis. Moving beyond the focus on transcriptions, I document how cicadas are perceived in the folk tales of the Dong people, depicting the indexical/iconic nature of the cicada imitation and sonic ubiquity of the cicadas from a macro-perspective. Lastly, through a micro-perspective, I demonstrate the Dong people's diverse imaginaries of cicadas and draw similarities between them.

Methods

The analysis primarily draws on one-on-one interviews conducted with Dong-ethnic interlocutors of various professions and age groups, complemented by ethnographic observations made during field trips to the Qiandongnan Miao and Dong Autonomous Prefecture of Guizhou, China.

Implications

In the bigger picture, these findings offer insights into how Dong people gain knowledge on multiple spectrums of the world they live in from their cautious awareness of and interaction with the cicadas. These terms of knowledge include the Dong people's internal understanding of their own anthropological and emotive nature. To contextualize, these terms of knowledge include corresponding major life stages of humans with seasonal cicadas. On the other hand, this could be knowledge of the external world, including that of changes such as the shift of seasons and interpersonal interactions. In the bigger picture, the act of integrating a wide range of sound imitations—such as ones of cicadas, bees, and leaves, as mentioned by one of my interviewees—simultaneously and harmoniously in multi-voice singing conceptualizes the harmony of nature in a form of singing that is likely more tangible and understandable by the Dong people. With a solidified understanding of the cosmos that they live in, the Dong people would be more conscious of how they position themselves in the world and how they would respond to the changes in the natural environment and the evolution of their ethnic identity. Furthermore, there exists a reciprocal relationship between the cicadas and the Dong people, in which humans benefit from the cicada, and they reciprocate and express their appreciation in return. The cicadas therefore not only provide terms of knowledge to guide Dong people's life, but have the power of shaping and preserving the culture. The performances of the songs of cicadas on national and world stages (Shu 2024) shaped wide audiences' perception of the uniqueness of the culture, and more

importantly, shaped the ethnic pride within the Dong people's heart.

To extend on this paper, future research can focus on investigating other animals such as the "Du Gu" birds in Dong music. Moreover, further research can analyze the technicality of Dong music's composition and the singing methods in various types of songs. For example, scholars can look at whether the Dong singers use different mouth shapes in their music, and if so, how that impacts the musical expressions. In a larger picture, comparative analysis between Dong music and other types of Chinese traditional music, such as ones performed in imperial contexts, can be conducted to discover connections, if any, between them.

Keywords

Dong people, cicadas, animism, nature imitation, indigenous music, musical metaphors, Guizhou

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Notes on Contributors

Dylan Diego BRADBURY is a doctoral candidate in Latin American Cultural Studies at the University of Manchester, and an AudioSpaces co-founder. In both his academic research and his creative practice, Dylan explores the links between technologically mediated sound and the cultural politics of identity, voice and ecology.

As a sociologist and sound artist, **Dario GALLEANA** researchs the potential of sound technology to voice marginalised cultures. In 2022 I sound-mapped Gagliano Aterno, a village in Southern Italy, to investigate how a remote and depopulating community politicise silence. In parallel, I explored sensory narratives of suffering in juvenile prisons, paediatric hospitals, and psychiatric facilities in Torino. In 2023, as a visiting researcher at SU, I researched how migrants in Stockholm construct a sense of "home" through sound in opposition to the "silencing" policies of the political Right. The Endangered Sounds project is my current contribution to sounstudies.

Nina GOODMAN is a PhD student in Music at the University of Chicago. Her research concerns the ways in which people sound out conditions of being that are fundamentally affected by division and reunification.

Kristopher HILBERT is a PhD student in Musicology at the CUNY Graduate Center and holds a Master of Arts in Philosophy from The New School for Social Research. His current research focuses on the proliferation of magnetic tape in the mid-twentieth century through technologies, music, raw materials, governmentality, and ethics.

Kozo HIRAMATSU is Dr. Eng., Professor Emeritus, at Kyoto University. Born in 1946 in Osaka, Japan, he majored in environmental engineering at Kyoto University. He started his research career in 1972 in noise research, both noise control engineering and the effects of noise on man. One of his topics in noise research is a large-scale epidemiology study of aircraft noise in Okinawa conducted from 1995 to 1999. In the middle of the 1980s, his interest broadened to acoustic ecology, and did fieldwork on the soundscape of Kyoto and its suburbs, Okinawa, Thailand, and Laos. Besides doing fieldwork, he published articles on the significance of acoustic ecology in understanding the acoustic environment. He

is one of the earliest members of the Soundscape Association of Japan founded in 1993 and served as Director General of the association from 1993 to 2010.

Jiarui (Jerry) HU is a young scholar from CIS of Hong Kong. His research focuses on exploring the perception, expression, and function of music in different cultures following ethnomusicological approaches. He established a connection with the ethnically diverse Guizhou Province of China at a young age, and decided to explore the traditional music of the Dong ethnic minority (recognized by UNESCO as a World Intangible Cultural Heritage) academically. During field research, he gained mentorship and guidance from an ethnomusicology Professor from Yale University in New Haven, CT.

Oliver JONAS started AudioSpaces to explore the use of locative audio as a journaling tool and means of expression. He continues to develop the platform and support a growing community in over 50 countries.

Julin LEE is a post-doctoral researcher and teaching associate at the University of Music and Theatre Munich, where she recently completed her dissertation on American television series music and sound in the 21st century. At the 2021 conference of the American Musical Instrument Society, her paper on the Yamaha CS-80 synthesizer and Blade Runner won the Frederick R. Selch Award. More recently, she is the winner of the 2023 Claudia Gorbman Award for her essay on musical instruments in behind-the-score featurettes of contemporary television series. She currently serves on the editorial board of the journal *Kieler Beiträge zur Filmmusikforschung*.

Teerath MAJUMDER is a Bangladeshi composer and technologist who works in interactive and immersive media, computer music, and sound design. He regularly questions socio-sonic dynamics that are often taken for granted, and reimagines relationships between participants through technological mediation. In 2022, he produced *Space Within*, where audience members collaborated with featured musicians to give rise to an hour-long sonic experience. His collaboration with Nicole Mitchell resulted in the immersive sound installation *Mothership Calling* (2021) that was exhibited at the Oakland Museum of California. He composed and designed sound for Qianru Li's immersive multimedia *piece A Shot in the Dark* (2023) that explored Asian-American identity in the face of anti-Black police violence with reference to the shooting of Akai Gurley in 2014. His compositions have been performed by Hub New Music, Transient Canvas, and London Firebird Orchestra among other ensembles. He frequently collaborates with dancers and filmmakers in various capacities and produces genre-bending electronic

music for his studio projects. Teerath holds a PhD in Integrated Composition, Improvisation and Technology from the University of California, Irvine and is currently appointed as an Assistant Professor at Columbia College Chicago.

Kate McQUISTON is Professor of Music at the University of Hawai'i at Mānoa. She is the author of *Music and Sound in the Worlds of Michel Gondry* (Routledge, 2020) and *"We'll Meet Again": Musical Design in the Films of Stanley Kubrick* (Oxford University Press, 2013). Her recent work appears *in The Bloomsbury Companion to Stanley Kubrick, Journal of the Society for American Music, Music and the Moving Image, and French Studies*. She was featured in a 2023 MUBI podcast on music *in 2001: A Space Odyssey.*

Yechan MOON is a PhD student in Political Science at Yonsei University and a graduate student analyst at the Korea Peace Institute. His research interests include nuclear nonproliferation, economic sanctions, and North Korea. He previously served as a research fellow at KAIST's Nuclear Nonproliferation Education and Research Center and at the Comprehensive Nuclear-Test-Ban Treaty Organization–Center for Energy and Security Studies.

Katsushi NAKAGAWA is an Associate Professor at Yokohama National University, Japan. His research focuses on Sound Art's genealogy and comparative studies across Japan, the US, Europe, and Asia, including sound sculpture, avant-garde music, media art, and sound installation. He authored *What is Sound Art?: Four Genealogies of Sound in the Arts* (2023), the first comprehensive description of the term and the genre of sound art in Japanese. His interest in Sound Studies has also led him to publish a co-authored book on the general history of sound media (2015) and to co-translate Jonathan Sterne's *The Audible Past* (2003/2015).

Federica NARDELLA has completed her AHRC-funded PhD in Ethnomusicology at King's College, London under Prof. Martin Stokes' and Dr. Katherine Butler Schofield's supervision. She is an MMus Ethnomusicology graduate from SOAS and holds a BA in English Literature & Creative Writing from Royal Holloway. She has researched the late nineteenth-century Ottoman popular art song form şarkı in relation to literacy, linguistics, language pedagogy and debate, and the emergence of the bureaucracy and the press. Her current postdoctoral project explores the sound ecology of Turkic Central Asia and the use of vocality in constructing partnerships between eagle-hunters and golden eagles in Kyrgyzstan.

Sohyeon PARK is the founder and CEO of SoundWolf, a Seoul-based artistic enterprise integrating sound art and technology. With degrees in Theater and Film as well as Composition from Hanyang University, her work explores the interplay of sound, memory, and sensory design through installations, performances, and mobile applications. Her key projects include Sound Plants, a sound installation combining ecological narratives with artistic soundscapes, and ROOM, an ambient noise app designed for focus and relaxation. Her practice bridges immersive soundscapes and emotional well-being, positioning her at the forefront of innovative sound art and technological integration.

Suin PARK is a musicologist based in Seoul, South Korea. She completed her Ph.D. with research on new temporality and forms in 20th-century music. She is currently serving as a Research Assistant Professor at the Music Research Center at Hanyang University, where she is conducting individual research on "How Temporality is Constructed in Contemporary Classical Music: Works, Listening, Technology, and Environment."

Aaron LIU-ROSENBAUM (PhD) is a Professor of Music Technology and Director of the Bachelor's program in music and sound production, and the Certificate Program in Digital Audio Production at Laval University's Faculty of Music. He is a composer and researcher at the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT, McGill University) and at the International Observatory on the Societal Impacts of AI and Digital Technology (OBVIA, Laval University). His general interests involve the application of sound technologies in artistic creation, pedagogy and research, with a particular interest in acoustic ecology and technologies that facilitate later-life music-making.

Rafael LOPES DOS SANTOS is a doctoral candidate in musicology at the University of Évora, holds a master's degree in music from the Federal University of Paraná, and a bachelor's degree in guitar from the Federal University of Rio Grande do Sul. His research focuses on Brazilian music through the lens of creative processes, intertextualities, and soundscapes, with an emphasis on the contexts of the 20th and 21st centuries. At CESEM, he is a research fellow in the *project Thematic History of Music in Portugal and Brazil.* He is also active as an instrumentalist and composer, performing concerts and producing phonographic works.

Emerson VOSS is an expanded music composer (1991, Pittsburgh, USA) exploring liminal spaces between installation art, site-specificity, theater, performance art, video, and music. His work requires

that he interview physicists at birthday parties, pour buckets of blood over performance artists, sprinkle confetti over undulating loudspeakers full of milk, improvise lighting performances to his music for audience members in his bedroom, rip audio from acting pedagogy videos to write plays, make spectrograms of his voice reading Wikipedia articles, install haze machines in bathrooms, and build enclosures for three-channel video installations about daily life in his Pittsburgh apartment. His multimedia sound installations have premiered internationally, most recently in Oslo, Norway. Last year, he premiered a 40-minute experimental music theater work, which included performance art, installation art, live interactive lighting, live painting, video, and a pianist. He has been a consultant, designer, and composer for many films. His chamber and solo works have been premiered by the JACK Quartet, TAK Ensemble, Dior Quartet, The Boston New Music Initiative, among others. He has received an Artist in Resident Grant from the Physics and Astronomy Department at the University of Pittsburgh for the creation of a new multimedia installation. He has been invited as an artist fellow at the Virginia Center for the Creative Arts. His upcoming projects include an installation set in a kitchen where audience members interact with food-inspired textures hidden in boxes as well as a multimedia work for a bed, video projector, and two actors. Emerson has a PhD in composition and theory from the University of Pittsburgh. He is currently a faculty member in the Department of Music at the University of Pittsburgh.

MUSIC RESEARCH CENTER, HANYANG UNIVERSITY

Since its establishment in 1983, the Music Research Center at Hanyang University has promoted balanced growth in performance and theory, supporting academic exchanges and publishing specialized journals and books, thereby fostering international collaboration between music practice and musicology within Korea. From 2005 to 2015, the Center hosted the International Bach Festival, encouraging the rediscovery and introduction of Western early music and sparking a renaissance of the "early music movement" in Korea. From 2015 to 2018, with support from the National Research Foundation of Korea and the Ministry of Education of the Republic of Korea, the Center conducted the project Sound, Space, Mobility: Soundscape in 'In-between' Spaces, pioneering the introduction of "Sound Studies" in Korea. Since 2019, the Center has pursued a research project Politics of Sound and Listening: A Critical Listening of Culture and Technology, exploring critical relationships between sound and music and society and culture, as well as examining how technological advancements are transforming media environments and the arts. Through active academic exchange and numerous domestic and international conferences, the Music Research Center has established itself as a leading hub for sound studies in Korea and continues to broaden its international influence.

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