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# Spaces with Ears: Acoustic Ecology Beyond the Body

**Ivy Fu**

Oberlin Conservatory
ifu@oberlin.edu

## ABSTRACT

*Spaces with Ears is an ongoing project that examines the ambiguity between the speaker and the listener in the current age. Today, ownership of body and self is under siege by ultra-sensitive spaces designed to perceive what we are unaware of, creating a feedback loop of redefined reality. This article explores intelligent systems that are made to listen, in which the only sound one hears is a learned response of the sound one has produced, and through which no transfer of energy nor content is initiated except for that which feeds back into itself. Re-examining the processes, function, and meaning of sound in the present age, this paper seeks to discuss a form of acoustic ecology that interfaces with today's complex sonic reality, which often exists in transgressive terms far beyond the boundaries of the body. In recursive processes, the ears are inverted outwards as the only sounding instrument, and the vocal cords implode in the attempt of speaking; within the infinite noise of feedback, we become the botched body without organs of Deleuze and Guatarri's fable. Along with urban and cyberspace soundscapes, the source and focal point of these contemporary vibrations are analyzed, as well as ways in which we can listen with a better understanding of our sonic agency, as ears in our spaces.*

## 1. INTRODUCTION

### 1.1. Ears Toward Noise: No Stop Button

Instead of receiving sound at the natural speed of 343 m/s, our ears now run at fiber-optic speeds (299792458 m/s), wherein natural acoustics and soundwaves are transformed into on/off digits. The 1s and 0s of data are no longer perceived with the spectro-temporal features of natural sound traveling through air, nor the nuances of embodied gestures and spatial reflections; instead, our brain's auditory cortex is confronted with a mysterious, synthetic lack. This is an age of inevitable deafness, where our ears are distracted from pre-established sonic patterns and consumed by oceanic data flows. The soft flickering and murmuring in Ryoji Ikeda's *data-verse* calls attention to the subtle hypnosis of noise under which we live.[1] The vast amount of auditory materials that we encounter daily is largely ungraspable to our original ears. Instead, we are intrigued, confounded and seized by the incomprehensible hum such as that of an invisible CyrusOne data center [1]. Rather than the subliminal mind control of broadcasted audio, it is the soundscape of machines' electronic interference that we finally submit to [2]. In terms of spatial acoustic ecology, it is productive to not only discuss the ontological mapping of our sonic world but also pragmatic strategies for survival in listening, which is critically needed in soundscapes which are turned naturally ambiguous.

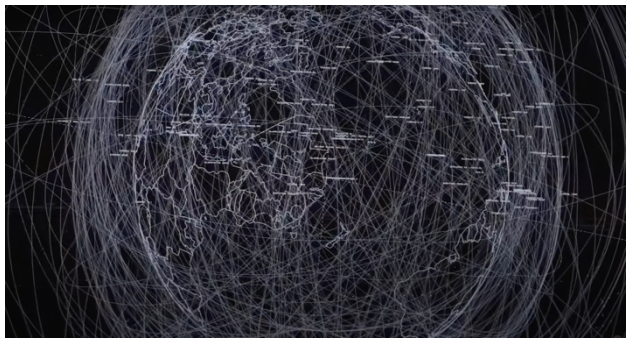

**Figure 1**. Image from Ryoji Ikeda's *data-verse*

### 1.2. Ears Are Cavities

Listening is a process of spatial learning. While our listening has been turned inward in a lack of understanding the incomprehensible external sonic environment, we seem to have found the omnipotent power to create oases, an exodus from this infringing noise. Active noise-canceling headphones, binaural podcasts, meditative soundscapes and white noise smartapps are just some of the highly profitable technologies that stratify the amorphous sonic reality, transforming it into a self-contained and customized sonic environment, as in a seashore or a rainy country field [3]. With just the IRF (impulse response function) of a space and the HRTF (head-related transfer function) "earprint" of the listener, we can create a sonic reality that easily tricks the brain [3]. As sonic Houdinis, we have set traps that capture our ears in a magical picturesque that we think constitutes an escape. However, the facility of these imagistic sound effects

[1] Henry Bruce-Jones, "Ryoji Ikeda Presents: Data-Verse," Fact Magazine, February 15, 2022, https://www.factmag.com/2021/05/20/ryoji-ikeda-presents-data-verse/.

makes us lose essential aspects of the processes and effects of multi-modal and spatially explorative listening. What we lose might be more than we have accounted for. According to Brandon LaBelle [4], listening is about auditory position—a sonic sensibility that enables us to nurture modes of engaged attention – for listening is a necessarily relational act that extends across "bodies and things, persons and places." Sound is naturally an "animate medium" that transduces energy by passing vibrations from inside to outside the body, from one body to another [4]. The study of acoustic ecology is enabled through the complex interrelationships that sound is able to manifest, which is challenged when our ears have been turned into virtual cavities in which we hide and indulge in the solace of control and domination over the vibrations that colonize our bodies.

## 2. EARS, THE IMPLOSIVE MACHINE

### 2.1. Racing Ears: Intelligent Listeners

The false sense of control over our sonic environment from the act of turning inward is complicated by machines' algorithmic ears, modeled upon biological ears. They filter noise and craft narratives by shaping noise, amplifying certain voices over others curtailed to our needs except for the fact that our true needs have never been sounded nor listened to. In no age other than the current day have we seen the act of being listened to capitalized upon to such a degree. The intelligence of machine ears creates social phenomena such as that of the aliased body.

### 2.2. Ears Toward the Aliased Body

Recently, the Chinese live-streaming scene has exploded in popularity, with the country's live streaming industry estimated to be worth over $4 billion in 2020 [5]. Users spend hours watching their favorite streamers perform various activities, from singing and dancing to eating and gaming. In the documentary *Inside the Daily Life of a Live Streaming Star*, one sees the reality of a live streamer's life, where every tiny fracture of the throat is captured in the mic, while thousands of people pay to listen closely to one person.[2] The distance between the sound-source and the microphone, between the microphone to the listening ear, is infinitesimal. In discussing VR technology, Frances Dyson has pointed out that cyberspace challenges us to consider the "ontology these few centimeters of distance represent" [2]. What happens when the sonic landscape of the live-streamer and the listener are "inside" of or completely overlap with each other? The listener scolds the live streamer for showing signs of exhaustion in her voice. The sound of a listening ear has proceeded that of the live-streamer.

One of the most prominent issues that one encounters in digital signal processing is what is known as "aliasing": an effect that causes different signals to be confused with, or become *aliases* of one another when sampled, resulting in a distortion or loss of signal when a digital sample is reconstructed to be a continuous analogue output [6]. In this case, we are witnessing a phenomenon of the new digital auditory age: the aliasing of a live body. What happens is a phase-cancelling of the actual vibrations of the body. The live-streamer responds with silence. The listening act itself has reduced the body into an ear in the process of de-stratification of sonic meanings and the destruction of sonic connections: a body without organs (BwO), stretching and intensifying to be itself the listening machine – one that then captivates and catatonicizes the murmuring of the mechanized and stratifies another resonating body into a ear toward a single aliased body, the anti-production of sound.

### 2.3. Ears as Loudspeakers

Immersed in noise and captured by the all-enveloping ears of our networked surroundings, no vibration of vocal cords nor transmission into the auditory cortex happens in the chain of aliased bodies. Without any new information, a decision is already made and sounded. When one live-streamer shared in her streaming session that she wanted to drink the bottle of pesticide she held because of her depression over a recent relationship, only to receive the respond "drink quicker, drink fast," she did accordingly, which made the video viral.[3] In its attempt to make an impossibly loud sound, the aliased body only implodes in the internal feedback of being an ear at the same time as being a loudspeaker. The loudest sound that the aliased body produces and hears is the sound of its self-destruction. This destruction is captured and intensified as the re-stratifying desire of the de-territorialized socius: an economy of failed BwOs, attracting more and more ears and bodies which transform into aliased ears and bodies. In algorithmic listening sampled at a scroll of a thumb, listening ears sound out what is given, and the aliased body obliges in a feedback loop of self-reinforcing narrative.

## 3. LISTENING BEYOND THE BODY

### 3.1. A Sonic Territorial Morphology

Surrounded by ears-turned-cavities, outrun biological ears, ears toward the aliased body, ears as loudspeakers, we've only found our ears further and further removed, exposed to a self-destructive force conjured by seemingly benign and nonchalant noise. When collapsing inwardly stops being the solution, how do we reopen our ears and bodies as a successfully freed BwO, to reestablish relationship to the spatial reality and curiosity of sounds?

[2] See https://youtu.be/DlnfiULnmMY

[3] See https://www.todayonline.com/8days/chinese-influencer-dies-after-netizens-encourage-her-drink-pesticide-during-live-stream.

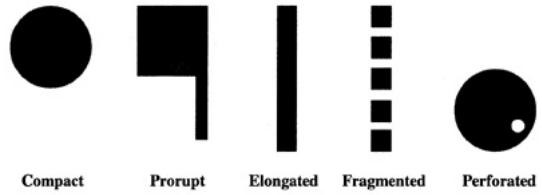


**Figure 2**. Territorial morphology

Staying stratified is still better than throwing the strata into demented or suicidal collapse [7]. To listen with a sense of locality, grounding and relation are essential for recreating an act of listening that honors our body as a mediation of sounds, and repositions the ear as an apparatus rather than a mere receptor.

### 3.2. A Tactful Eavesdropper

If auditory excess is inevitable, eavesdropping is our condition. An eavesdropper of the current age is a listener that has realized the agency of the ear as apparatus. In their project *eavesdropping.exposed* [4] the nonprofit art organization Liquid Architecture explores the diverse modes and functions of eavesdropping, which includes contemporary mechanisms for listening-in, but also activist practices of listening back, which is concerned with both malicious listening and the liberatory responsibilities of the earwitness [5]. From what LaBelle describes as listening to "the space between" one can envision the potential of a tactful eavesdropper: one who hears, with "tact and tenderness," the textured surfaces that are demanded in contact with the alert and hypersensitive contemporary soundworld [4]. A tactful eavesdropper is a true sonic revolutionary that introduces new ways of navigating the intelligent ears in the room, participating in a redefining "narrative of encounter" with them to sense what is otherwise unimaginable.

Composer Jessie Cox paints a beautiful picture of a hypothetical cyborg race that migrates via "DNA-Transmolecularization Vibrationsurfing" and creates new patterns of meaning with noise: *To win this game is to find the Transmolecularization technology, to find the music-maker* [8]. Instead of closing ourselves off within a familiar sonic landscape in fear of the unimaginable, to be a full BwO is to finally integrate with our developed machine-auditory cortex.

## 4. CONCLUSIONS

Shutting our ears off for self-protection only leads to the uncontrollable and catastrophic over-destratification that botches the sonic BwO. But opening them allows noise to crawl in and puts us in constant struggle. However, this opening also sends us on an adventure to find the music-maker, developing our bodily sonic territory and turning us into tactful eavesdroppers who thrive in new, complex, and fast-changing sonic environments as multi-dimensional listeners.

While current technology focuses on solving problems, finding answers, and providing clean and directional illusory soundscapes, the basic act of explorative listening is more and more disenchanted with the invention of artificial auditory contexts that sever rather than establish new connections to reality. A critical acoustic ecology that is no longer passive and does not orient around the sonic normalcy we find ourselves in is necessary for the future. Such an acoustic ecology must root itself in uncertain discourses and visionary dreaming that strategizes and navigates the ears in the room while they extends and envelopes as the desiring machines.

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