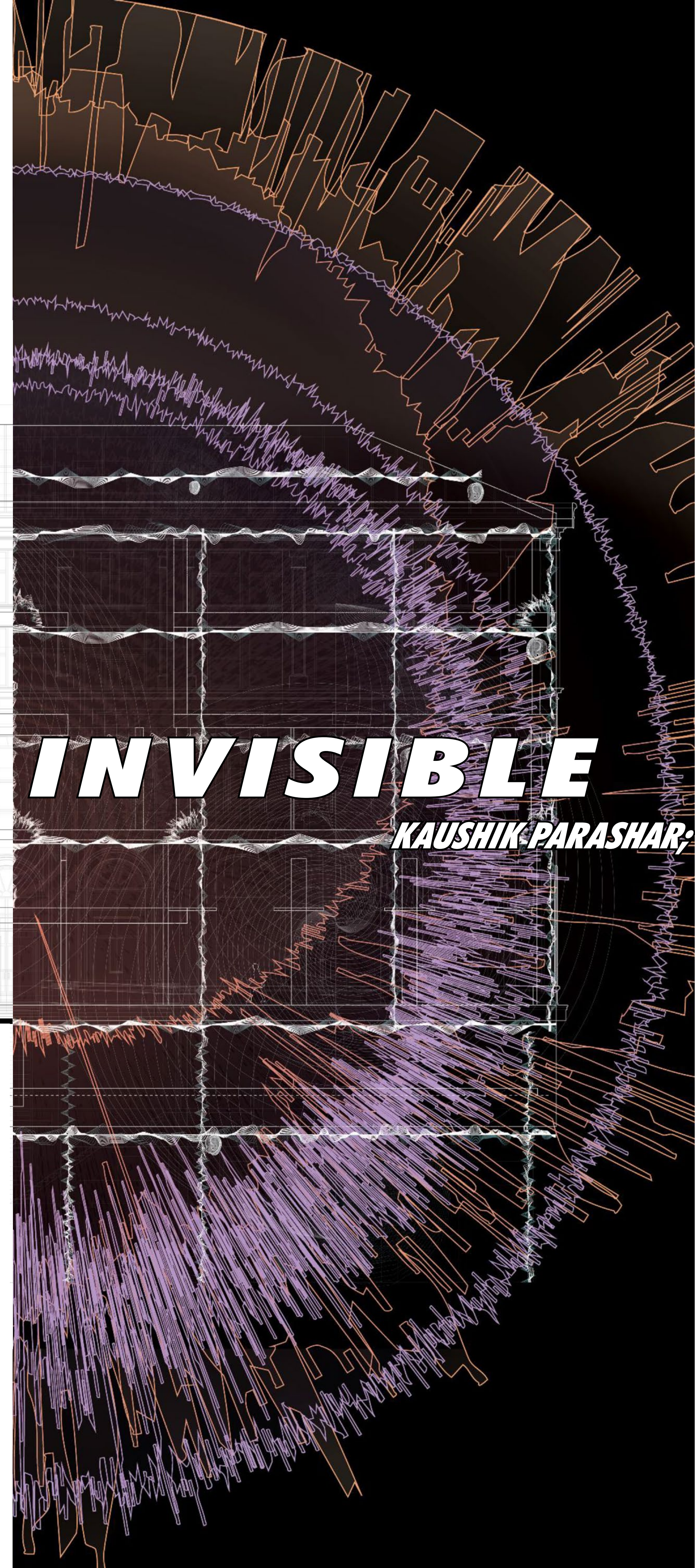
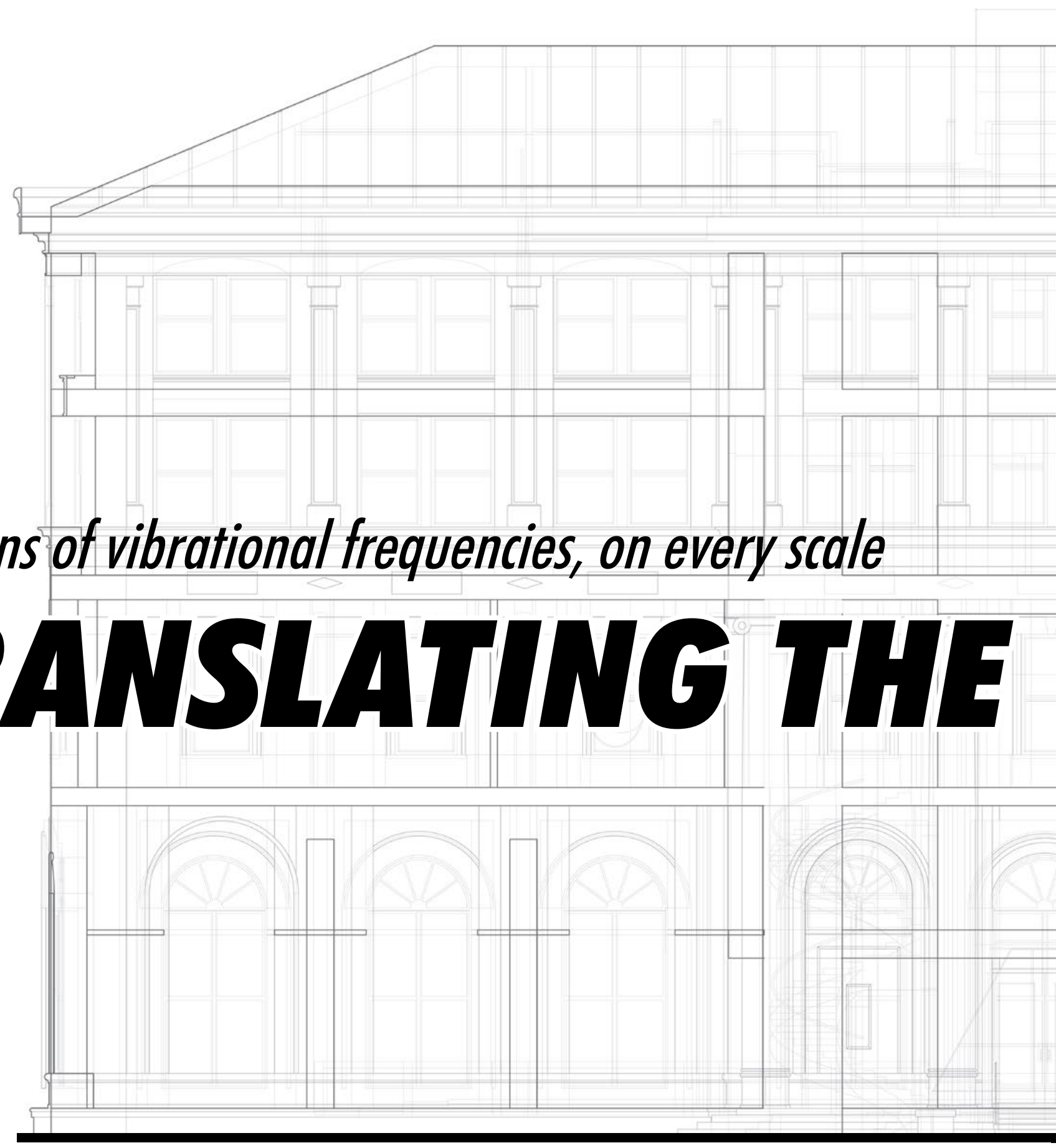


the world, as we know it, is simply manifestations of vibrational frequencies, on every scale

TRANSLATING THE INVISIBLE

KAUSHIK PARASHAR; MSAAD '26; COLUMBIA GSAPP



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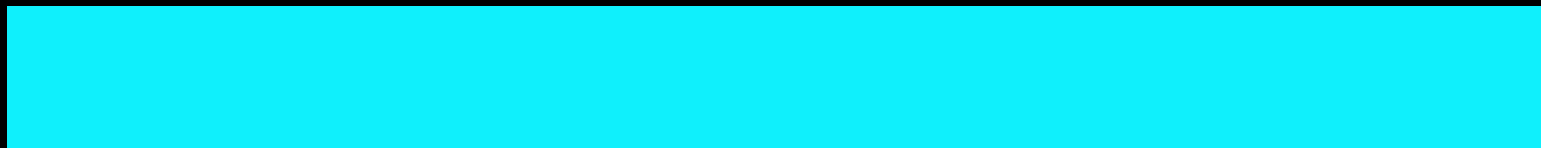
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THE SENSORIUM

- 1. DIAGNOSING THE VISUAL*
- 2. MAPPING PHYSICAL SOUND*
- 3. MAPPING SENSORY MEMORY*

1. DIAGNOSING THE VISUAL



Symptom of a Sick Discipline An Enactment of Architectural Friction

"We used to build towers. We used to command horizons. Now we inflate domes on our heads and whisper to ourselves in echo chambers... We used to build for eternity. Now we build for 20-minute psychedelic episodes!"

But perhaps that is the point. Perhaps architecture is no longer about containment. Perhaps it is about leakage. The body breathes. The mind glitches. The system overheats. And architecture? It doesn't protect us anymore. It exposes us.

The human sensorium was always the site. We just needed to build a building small enough to fit inside it."

- Excerpt from a satirical critique of Haus-Rucker-Co's Mind Expander, performed in defense of sensory architecture.



Freddie Mercury performing with Queen at Wembley for Live Aid in 1985. Source: theguardian.com Photograph: Brook Lapping/BBC/Band Aid Trust

“To understand what sensory design can be, imagine a concert. Sound isn’t isolated from space, it defines it. The vibration in your chest, the shift in air, the movement of the people around, the glowing light that grazes your skin, the stillness between notes. Architecture, like music, isn’t a static object. It’s a score. It is played by the movement of bodies, by wind, by footsteps.”

- Excerpt from the paper ‘Seeing too Much’, Summer ‘26

“Tracing a sensory arc: from the erasure of embodied experience in the IBM Pavilion, to its speculative return in Haus-Rucker-Co’s Mind Expander, and its grounded reawakening in Anupama Kundoo’s Wall House. These case studies form a conceptual triptych: the screen, the distortion, and the re-embodiment. Together, they reveal how architectural meaning shifts when vision is no longer king. Sensory design is not simply aesthetic; it is ethical.

It calls for inclusive, more-than-human spaces that acknowledge neurodiversity, aging bodies, nonhuman agencies, and ecological entanglements. In an era marked by digital saturation, environmental detachment, and urban alienation, sensory architecture offers a counterproposal: one of grounding, slowness, and embodied presence.

This paper argues that sensory design is a return to the ancient, more-than-human foundations of architecture as well as a progressive approach to designing environments that move, heal, and endure by reestablishing architecture’s connection to the full spectrum of planetary perception.”

- Excerpt from the paper ‘Seeing too Much’, Summer ‘26

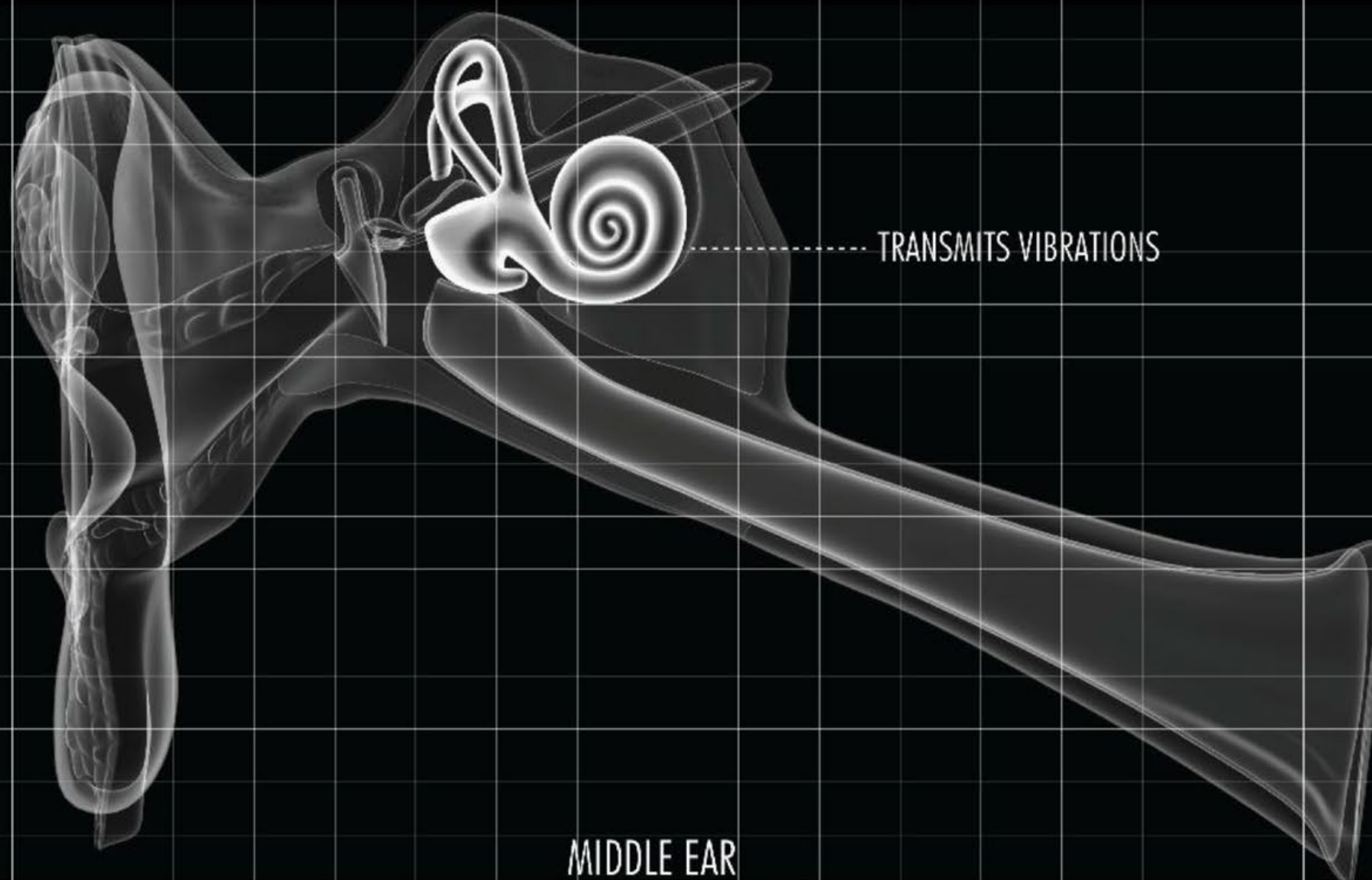
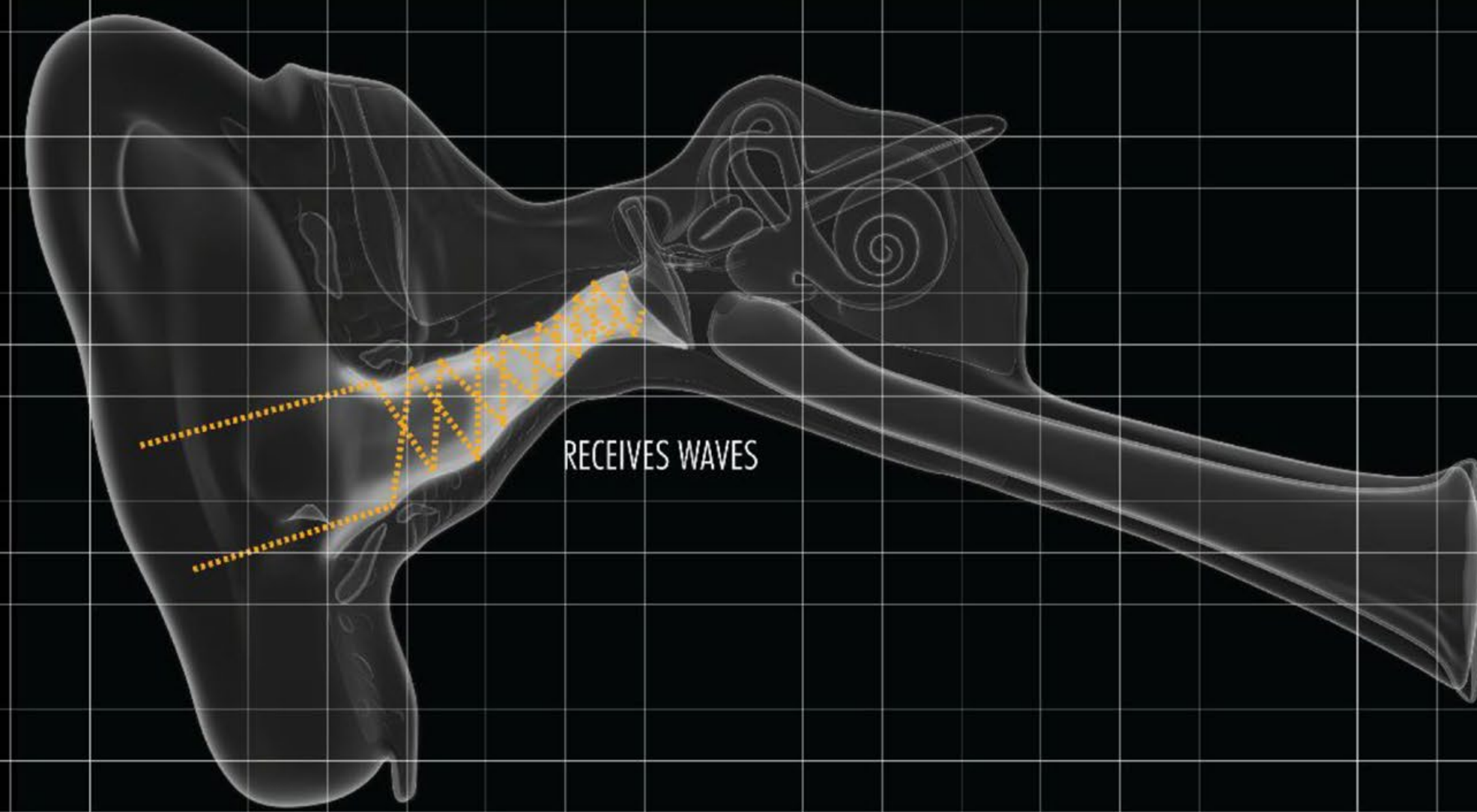
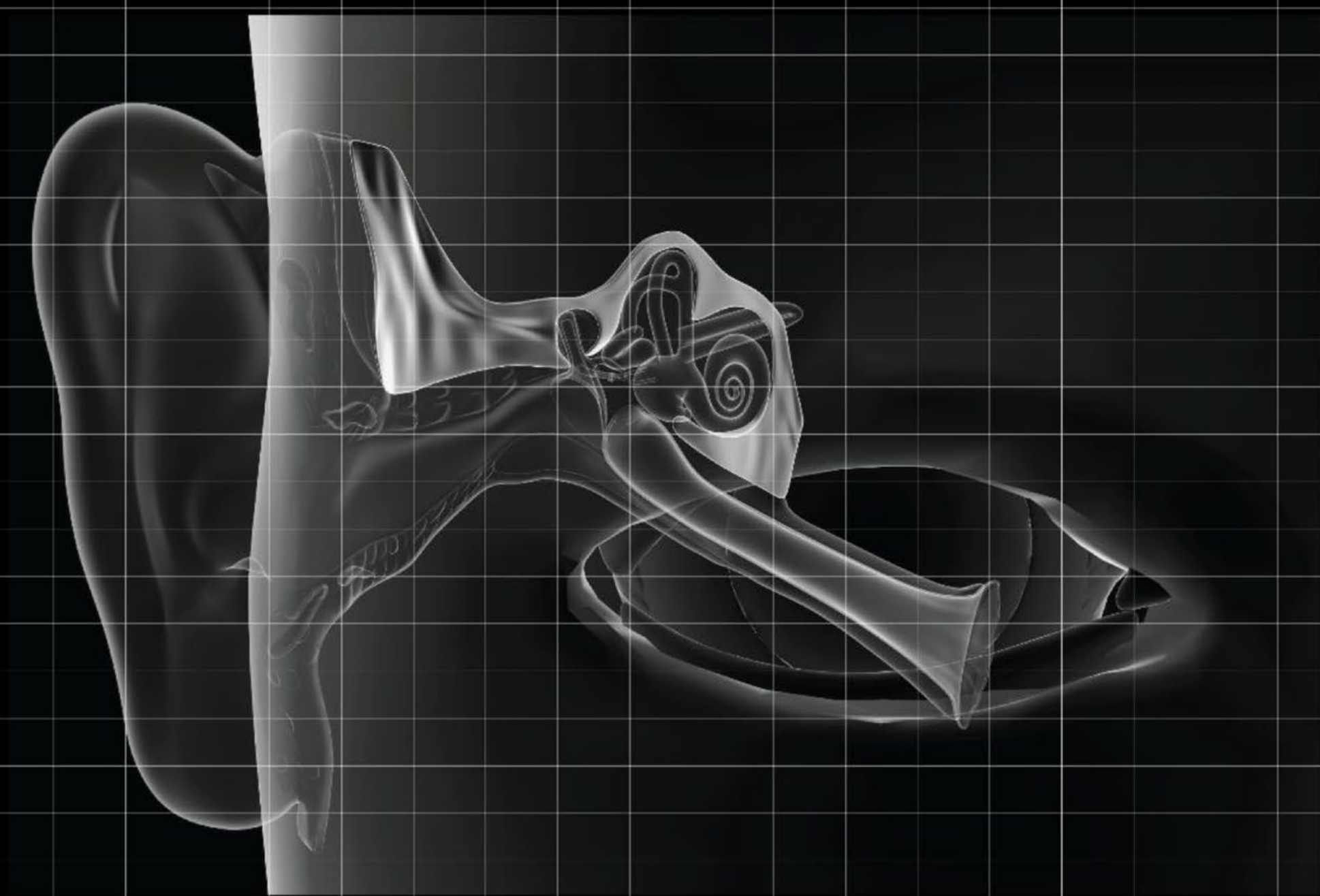
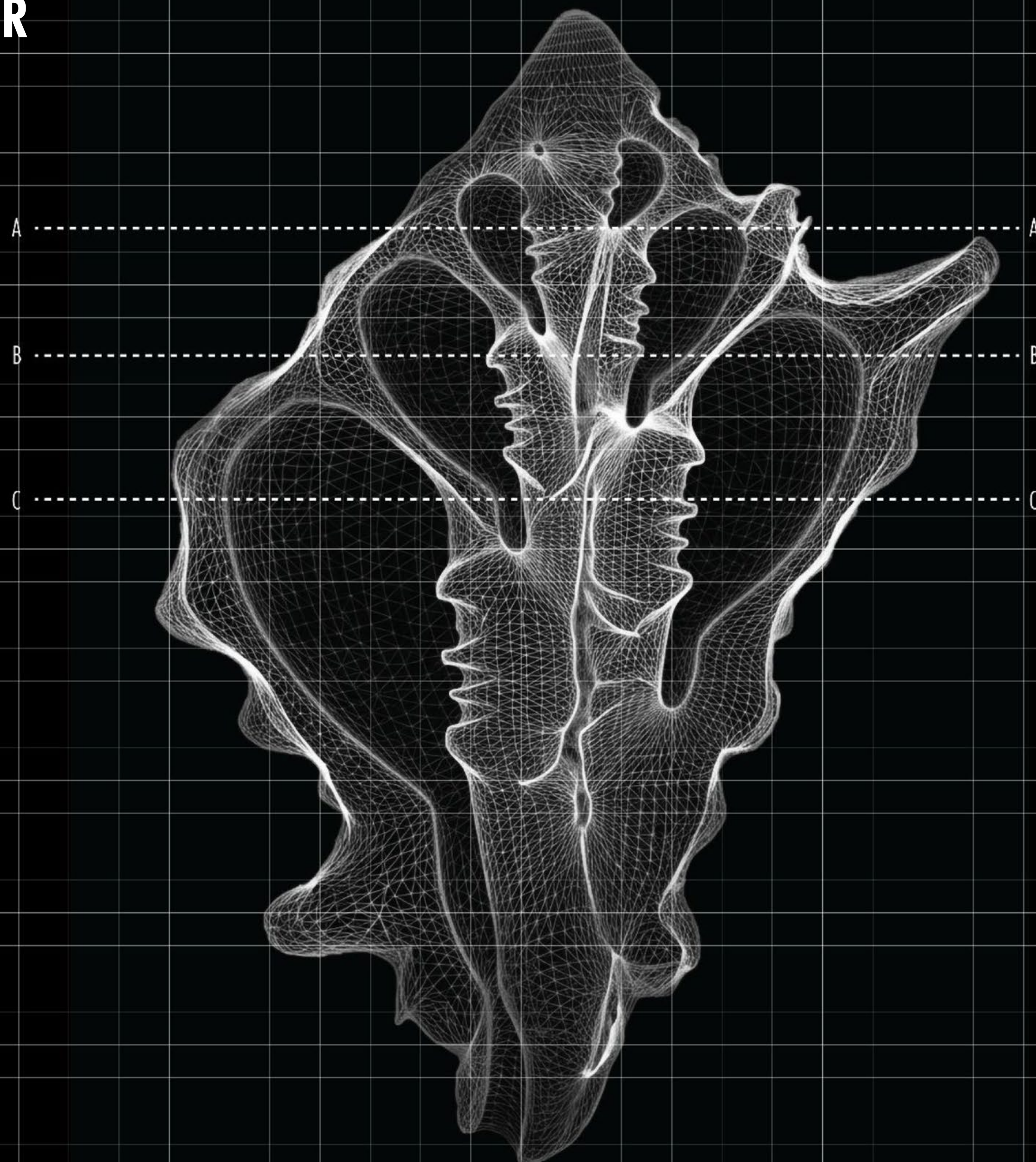
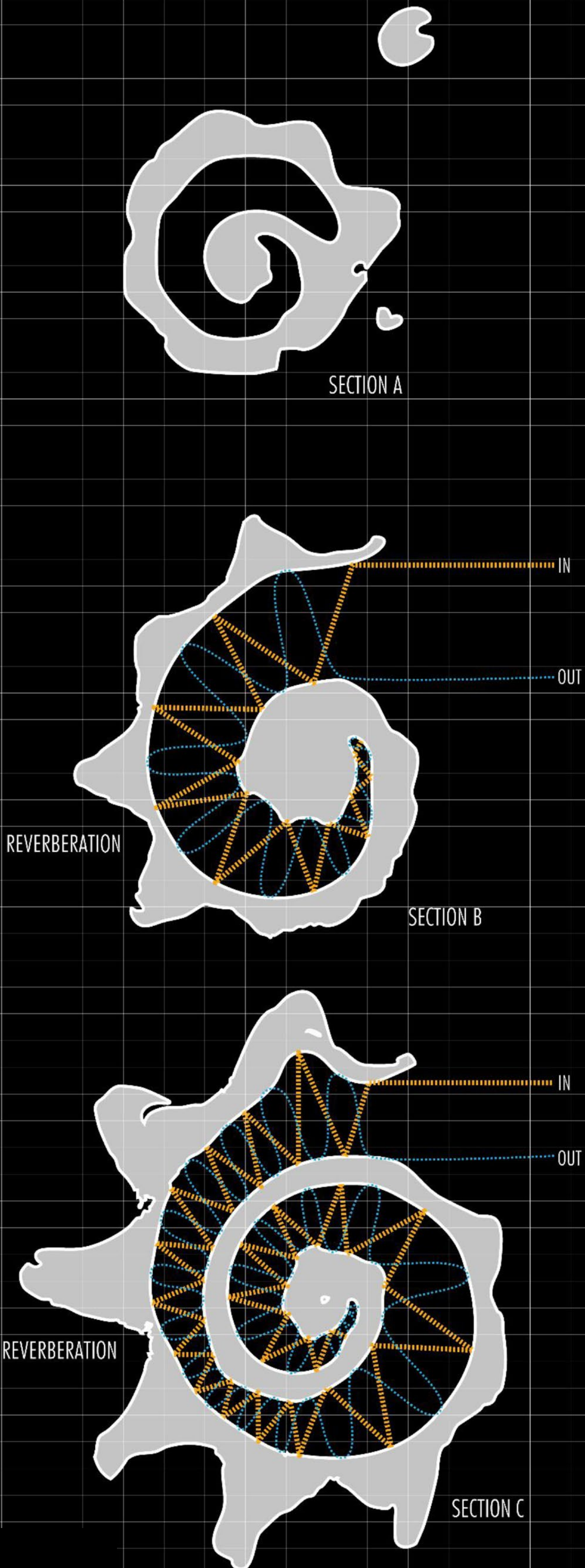
2. MAPPING PHYSICAL SOUND

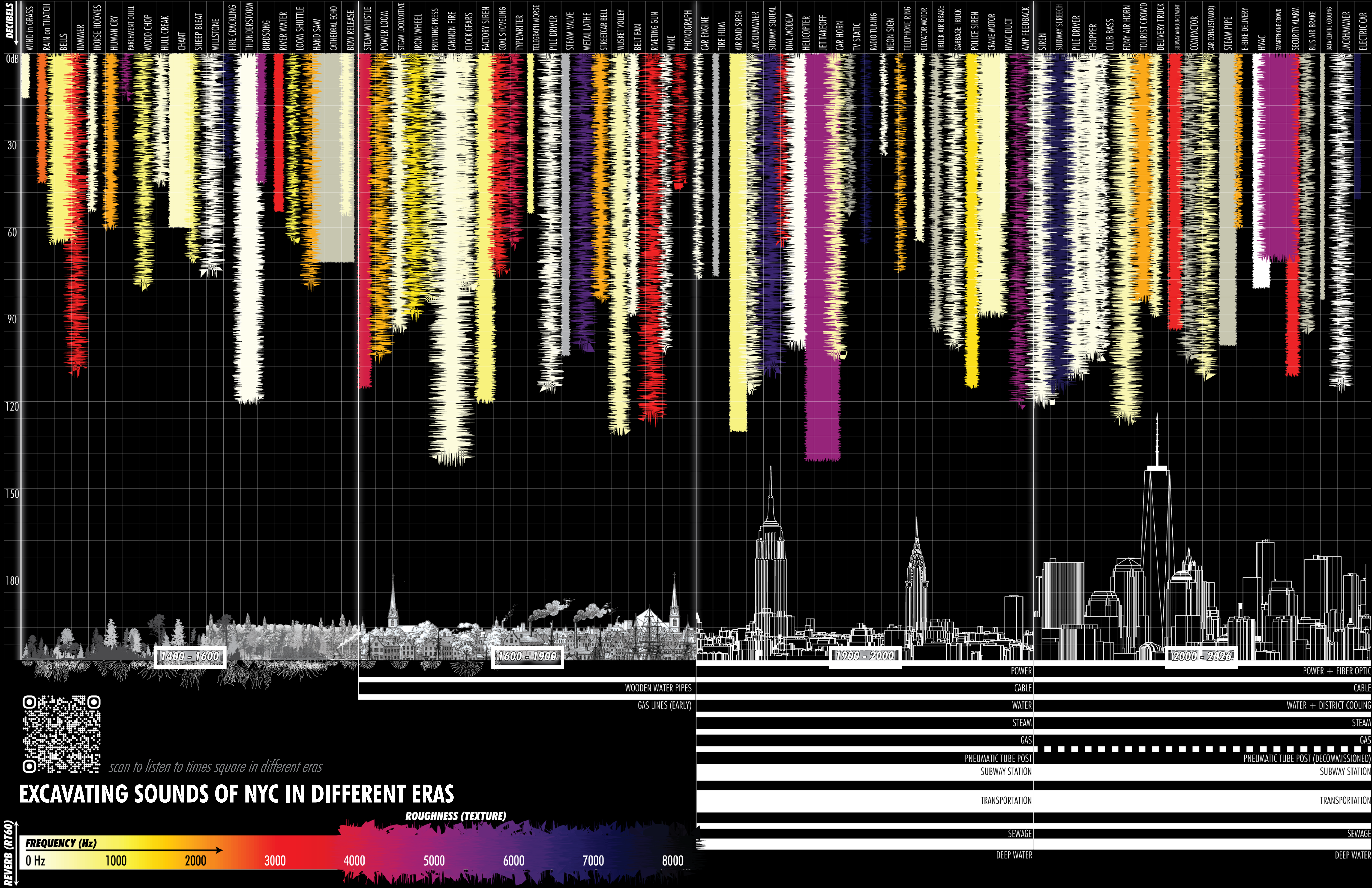
If the ocularcentric bias of modernism has blinded us to the true sensory depth of a space, how do we begin to design differently? We must invent a new protocol.

LISTEN --> ANALYZE --> MAP --> VISUALIZE --> INFORM

This is a pre-design acoustic methodology. It is an argument that sound is not an afterthought of form, but a generative driver of space. Through these five steps, we give architecture the same deliberate, negotiated relationship to sound that it has always held with light, structure, and climate.

FORENSIC ANALYSIS OF RESONATOR AND RECEIVER





CONCRETE EAR



RAF Denge, England, 1920; Source: TheTelegraph.com

In 1920, at RAF Denge on the southern coast of England, the British military constructed a series of massive concrete acoustic mirrors to listen to the incoming aircraft. This historical precedent, architecture operating as a physical lens to capture, process, and inform us of hidden frequencies, serves as the foundational conceptual framework for the diagnostic methodology being applied to Avery Hall.

CONCRETE EAR IN AVERY HALL

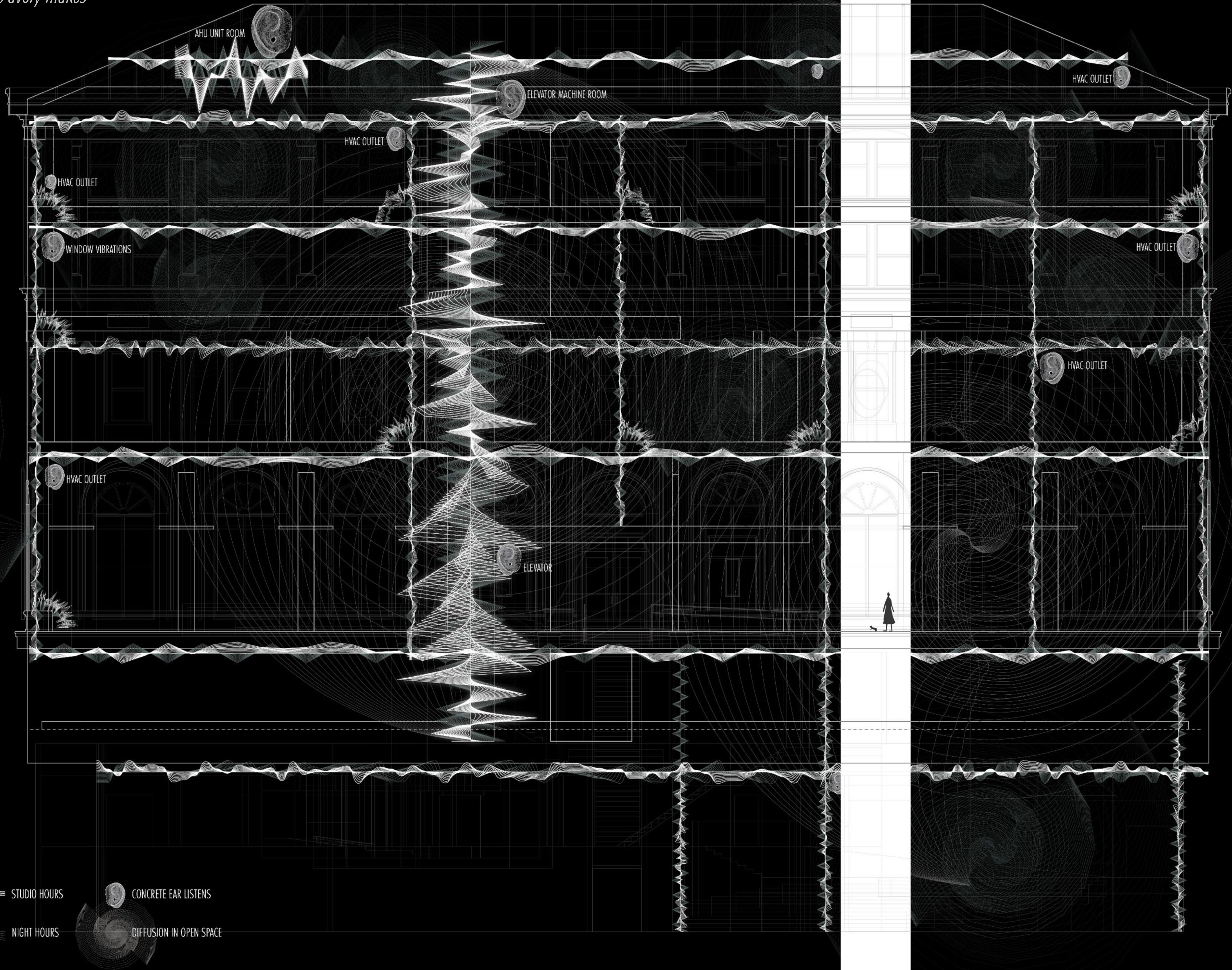


The primary instrument of the project is the Concrete Ear, a cast of a human ear with a microphone embedded flush at the back, pressed against architectural surfaces to record the acoustic life of a building. Two physical concrete ear models were produced for this project and used throughout the Avery Hall recording study.



SOUNDSCAPE OF AVERY HALL

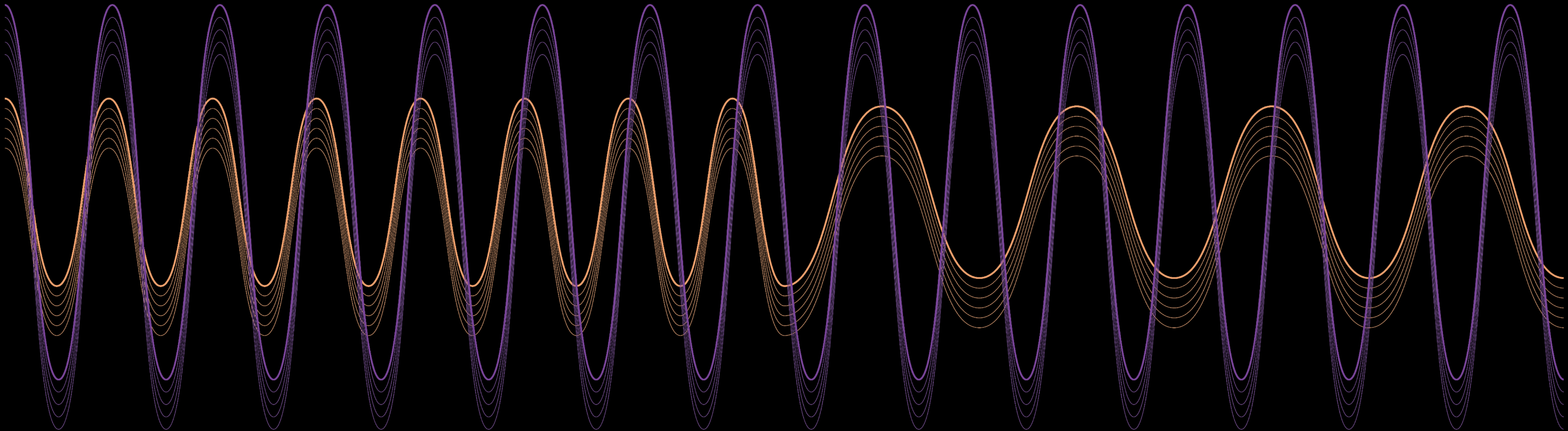
Listening to the sounds avery makes



LEGEND

- STUDIO HOURS
- NIGHT HOURS
- CONCRETE EAR LISTENS
- DIFFUSION IN OPEN SPACE

RHYTHMANALYSIS CONCEPTS



EURHYTHMIA

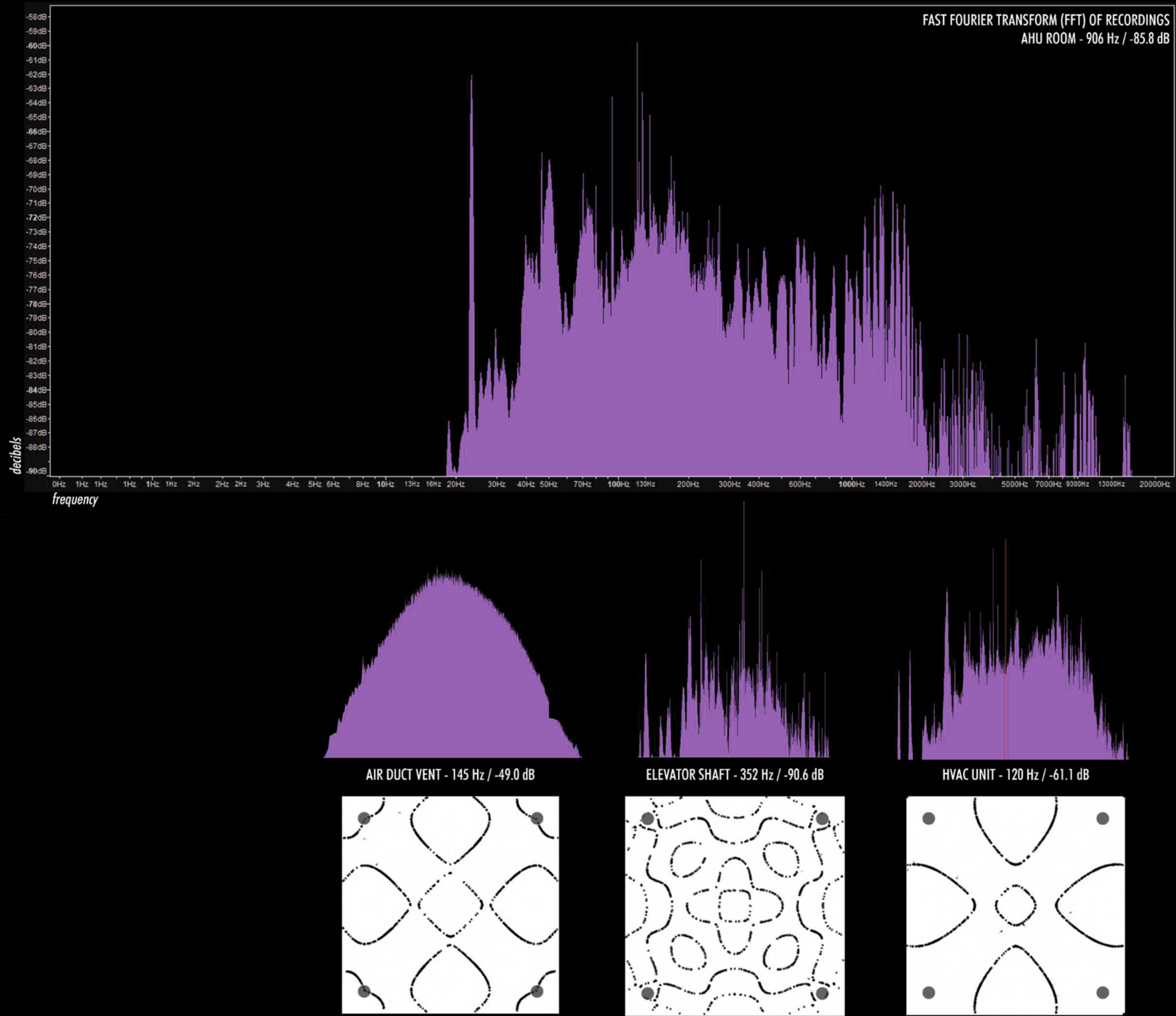
ARRHYTHMIA

On the left, the mechanical (orange) and social (purple) rhythms align in perfect, constructive harmony (Eurhythmia). As they progress, the rigid mechanical rhythm remains static while the fluid social rhythm shifts. By the right edge, they drift entirely out of phase, collapsing into Arrhythmia, a state of spatial dissonance and conflict.

CYCLICAL RHYTHM

**LINEAR RHYTHM
SOCIAL RHYTHM**

ANALYSING SOUNDS OF AVERY HALL

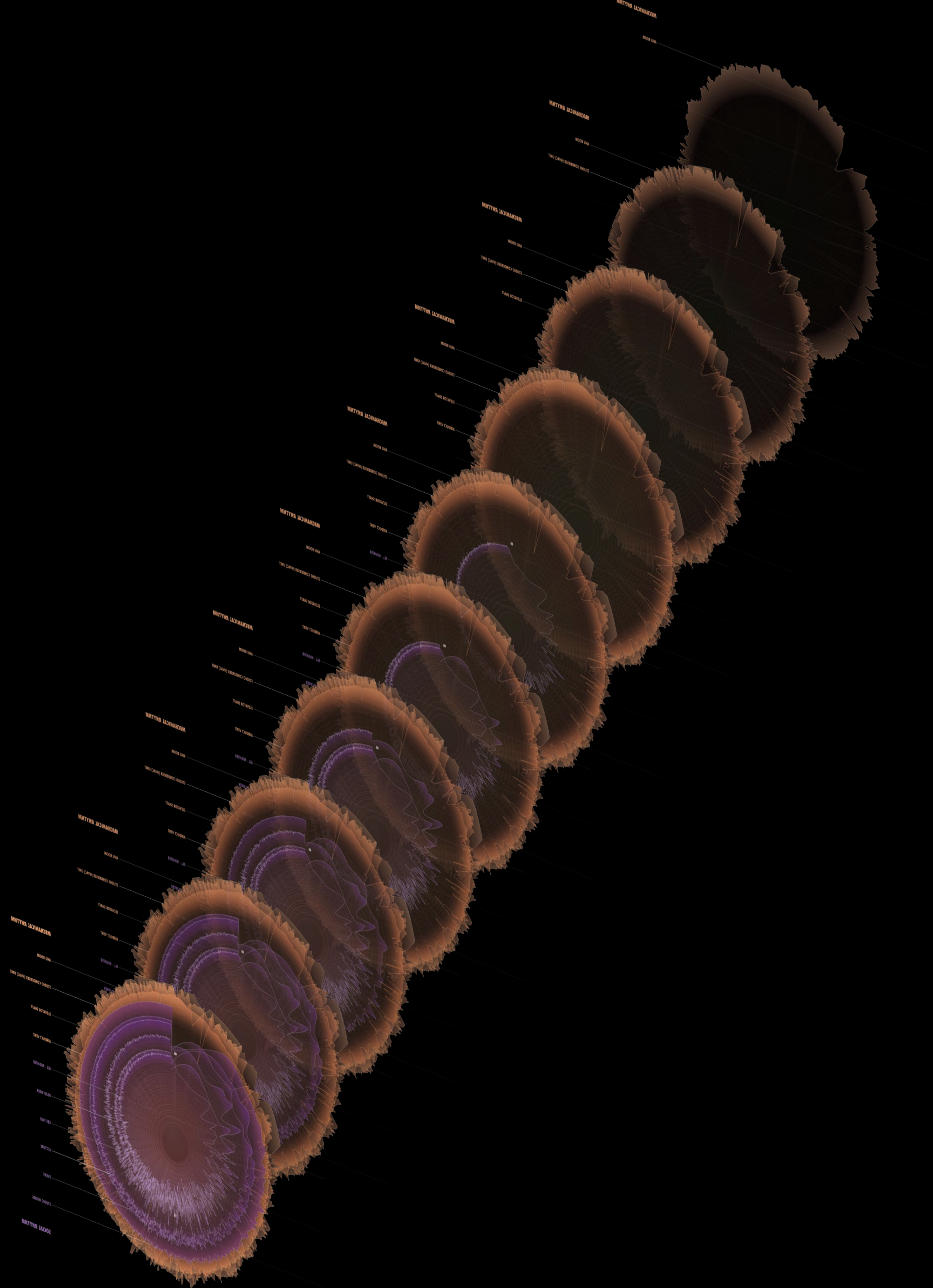


Frequency (Hz)	Level (dB)
0.366211	-184.728699
0.732422	-179.614288
1.098633	-168.347794
1.464844	-161.421936
1.831055	-156.206436
2.197266	-151.569016
2.563477	-148.292038
2.929688	-144.261719
3.295898	-141.757782
3.662109	-140.820724
4.028320	-138.538498
4.394531	-136.860947
4.760742	-133.581665
5.126953	-131.843887
5.493164	-130.524551
5.859375	-128.851654
6.225586	-127.462654
6.591797	-125.961365
6.958008	-124.728775
7.324219	-122.914162
7.690430	-122.234062
8.056641	-120.385750
8.422852	-118.405441
8.789062	-115.294472
9.155273	-113.845650
9.521484	-113.733063
9.887695	-112.560158
10.253906	-109.460297
10.620117	-108.476654
10.986328	-106.474098
11.352539	-103.326607
11.718750	-104.185074
12.084961	-103.329704
12.451172	-103.198044
12.817383	-101.466728
13.183594	-100.614021
13.549805	-100.657379
13.916016	-101.518524
14.282227	-100.834961
14.648438	-101.088699
15.014648	-101.710342
15.380859	-102.770912
15.747070	-101.968613
16.113281	-101.872505
16.479492	-101.149269
16.845703	-99.533096
17.211914	-99.514236
17.578125	-97.044151
17.944336	-93.342880
18.310547	-89.479355
18.676758	-79.763962
19.042969	-80.570602
19.409180	-90.933807
19.775391	-94.205185

SPECTRUM PLOT OF RECORDINGS

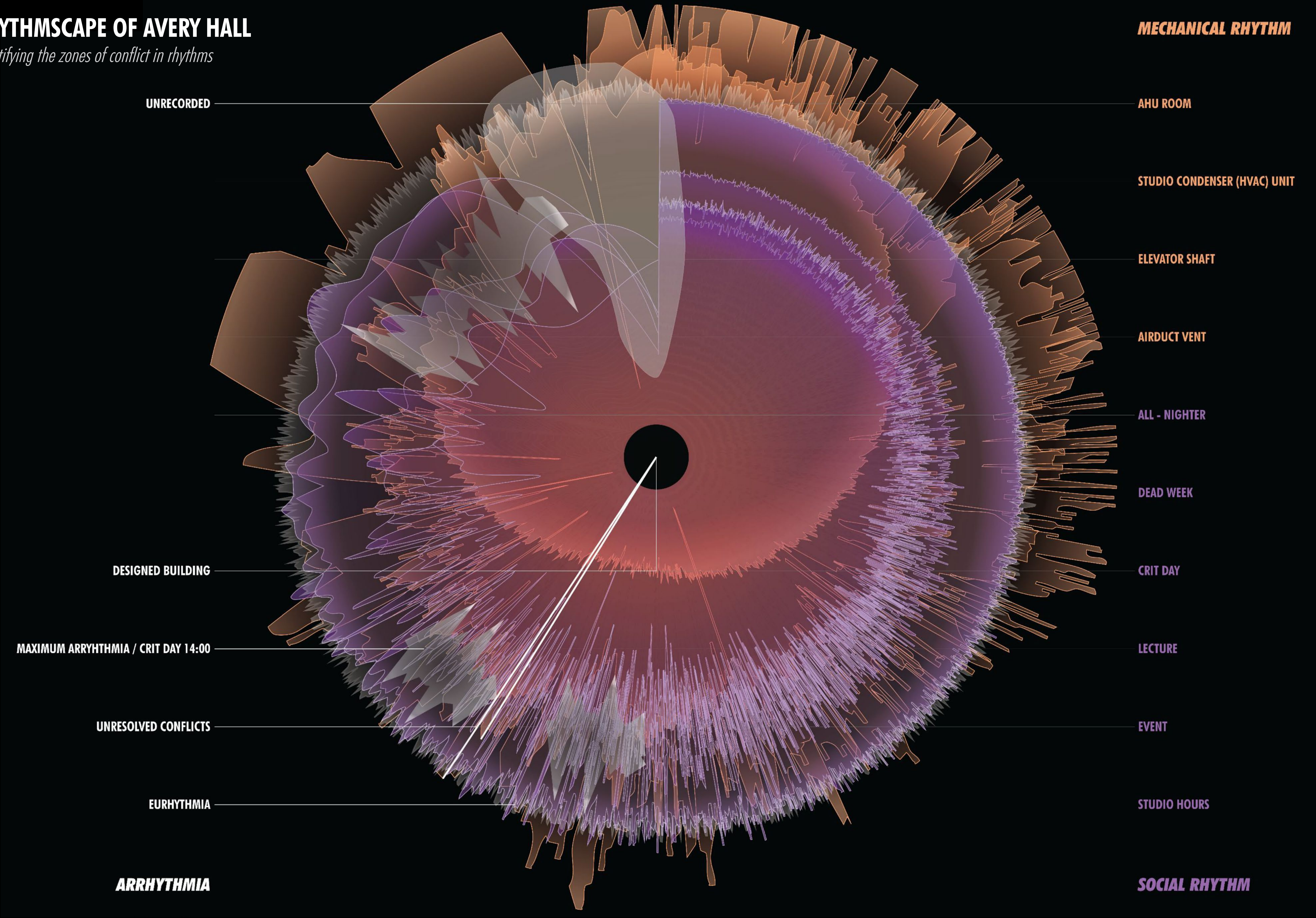
This drawing documents the analytical process by which the project extracts design-relevant data from field recordings. It makes the methodology legible and reproducible.

LAYERING RHYTHMS TO VISUALISE CONFLICT

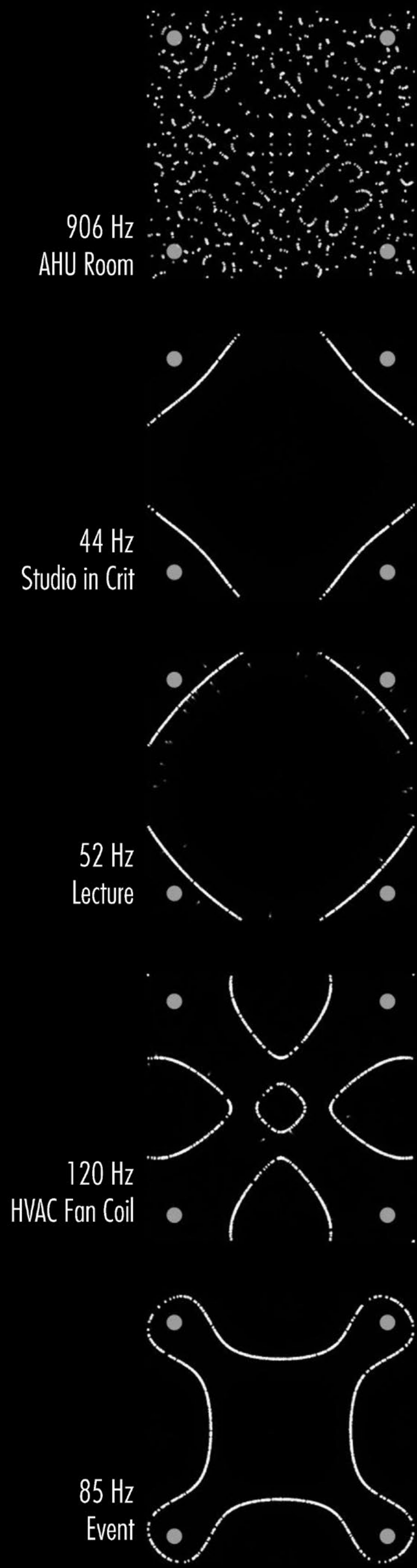


RHYTHMSCAPE OF AVERY HALL

identifying the zones of conflict in rhythms



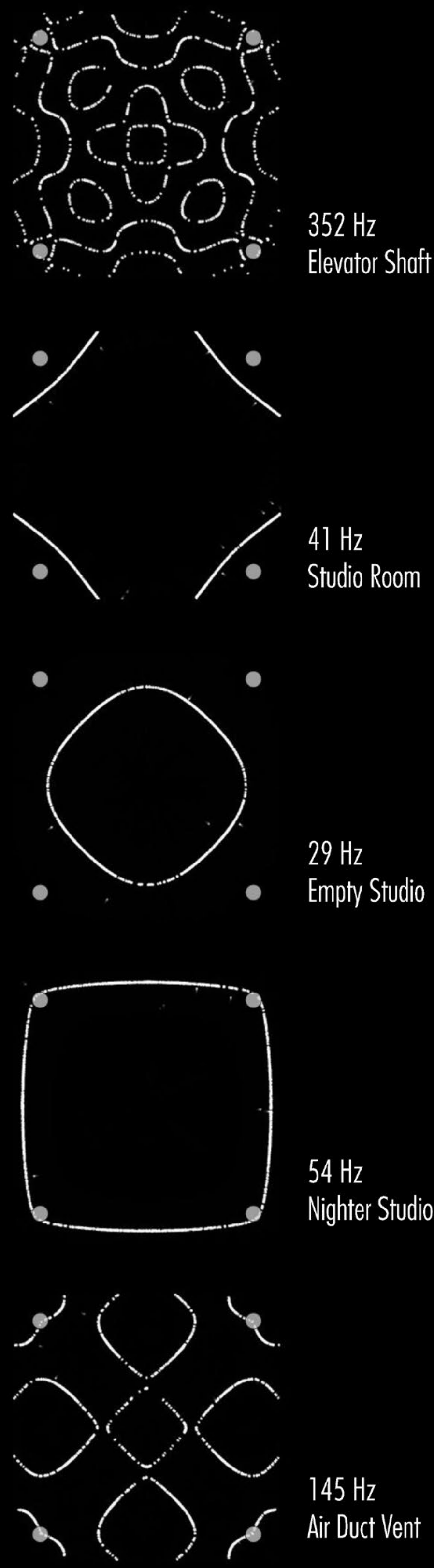
CHLADNI OVERLAP OF RHYTHMS



eurhythmia

arrhythmia

Determining arrhythmic frequencies in Avery over time





scan to watch the Architecture Score

elements of music *through* the five senses

BASS



PERCUSSION



RHYTHM



MELODY

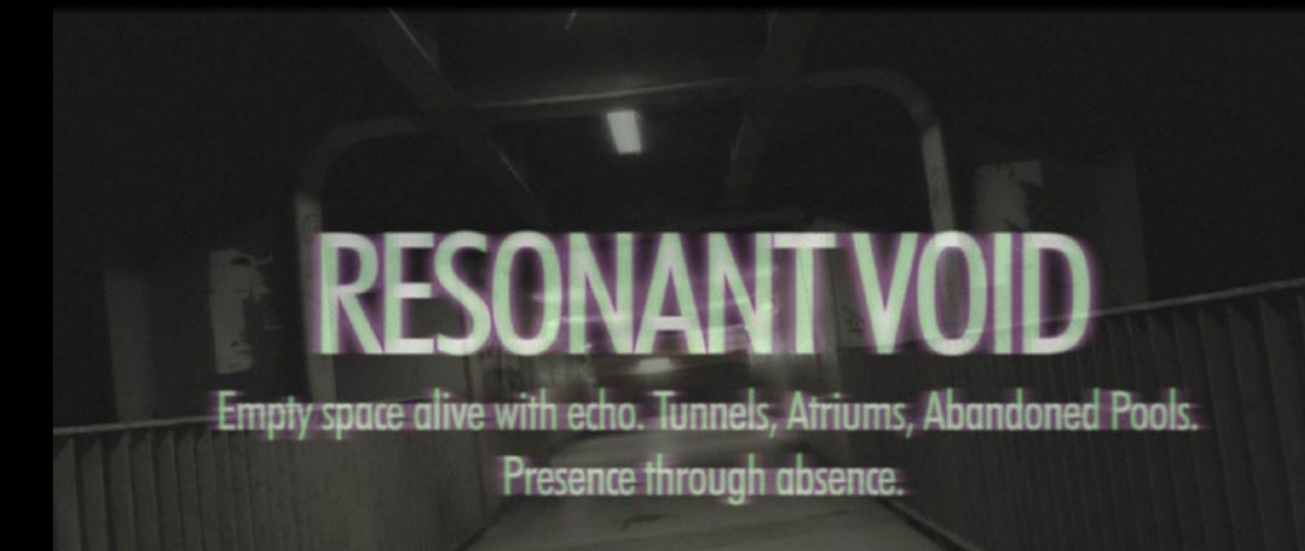


VOCALS



3. MAPPING SENSORY MEMORY

12 new *vocabulary* for architectural experience



Empty space alive with echo - tunnels, atriums, abandoned pools. Presence through absence.



The trace a space leaves behind. Tar smell on clothes, sand in shoes, the ring of bells in your ear.



The body's memory of movement through space - a staircase learned by muscle, not by sight.



ODOTECTURE

Spaces shaped by smell. Wood beams, damp corridors, kitchens, gardens - scent as design.



SONIC MATERIALITY

When sound itself acts as a building block - walls as instruments, echoes as structure.

AURAL THRESHOLD

The moment a space is heard before it is seen. Footsteps in a stairwell, subway rumbles underground.



Timestamp	1. What smell immediately reminds you of a specific place?	1.2. What is the place?	2. What sound immediately reminds you of a specific place?	2.2. What is the place?	3. On a scale of 1-10, how vividly does this smell/sound bring you back to the place?	4. When you recall this smell or sound, what do you feel in your body? (comfort, unease, warmth, tension, etc.)	5. Do you think this memory is personal (only yours) or collective (shared by others in that place)?
9/29/2025 13:22:16	Pft door smell of earth reminded me of my grandparents house.	Old houses, small town.	Bell ringing.	Classroom	9	Comfort	Personal as well as collective
9/29/2025 13:41:34	Food	Home	Chants	Stadium	3	Chills	shared/collective
9/29/2025 13:48:31	Sweet Osmanthus	my hometown (Nantong) in Autumn	Cicadidae	my hometown (Nantong) in Summer	10	comfort	collective
9/29/2025 14:05:29	The smell of linen sheets	hotels	birds chirping	Undergrad university dorm	10	comfort and warmth for the hotel/home, anxiety for the birds	I associate both answers to memories specific to me: 1- My house always smell fresh and new like a hotel everytime I came home after summer vacation, 2- I only heard birds chirping when I stayed up all night to complete assignments during my undergrad so it meant that the deadline is approaching
9/29/2025 14:31:22	Perfume - Department Store on Christmas with my dad	Perfume - Department Store on Christmas	Birds	Grandma's home	7	Pressure which seems like I can't move forward with the intense longing for the days that I can't go back.	personal
9/29/2025 14:48:54	Chlorine	Swimming Pool	Bell	School	9	Comfort & Warmth - A memory, familiarity	Could be both
9/29/2025 15:14:05	It is mostly perfumes or incense sticks	Of a person or temple respectively	Hans zimmer instrumental	Me studying on my home's study desk	6	Nostalgia - it's like a casual magic for me and I feel happy just by thinking Abt it	Yeah it's personal... Not because only I have sensed it but because the way I've sensed and how my brain remembers it(might induce a completely opposite feeling in someone else)
9/29/2025 15:44:00	Bad smell	Food carts	Street sound	Times Square	1	Unease with the smell, nothing specific with the sound.	I guess the bad smell would be a bad experience for many.
9/29/2025 15:57:35	Idle	american airport lounge(not specific)	my alarm	dorm where I used to live	7	warmth	personal
9/29/2025 16:39:46	cardamom	grandma's kitchen	rain	monsoon season in India	7	warmth	personal (not alot of people relate to it)
9/29/2025 17:09:34	Smell of freshness	Home	Sound of birds	My evening balconies	7	Comfort, calm	Collective
9/29/2025 20:11:43	Bubble gum extra brand	Mane	The pledge of allegiance	Elementary school	8	Comfort	Shared
9/29/2025 20:30:31	perfume	ex	scratch	classroom	8	yearning memory	personal
9/29/2025 22:31:15	the smell of sunshine on a quilt/comforter/duvet after being aired in the sun	Home	The sound of wind blowing the leaves	My high school	8	Comfort, calm, warmth	Collective
9/29/2025 23:23:26	Burnt wood	The mountain	Thunderstorm warning siren	Florida	9	Smell, comfort, warmth, longing. Sound: unease, alertness, familiarity	Both personal and collective
9/29/2025 23:34:32	The fragrance of white flowers, Petrichor	My grandmother's house	Morning Birdsong	My bedroom back in Thailand	8	Warmth, Sense of place	It is personal, a memory woven slowly through time and experience.
9/29/2025 23:40:38	Sea salt	Uruguay	Santana	Dad's house	10	Comfort	Personal
9/30/2025 0:05:31	coffee	my parents' home	crickets	the sea	7	I feel secure	i think it is collective
9/30/2025 0:17:02	the toasty smell of sesame	the mill	The sound of typing	Studio	8	Comfort	Collective
9/30/2025 0:56:00	The smell of stone flooring in elementary school on a rainy day	elementary school	The smell of gasoline at the gas station we went to in my dad's car	the gas station	8	It makes me feel nostalgic, a little sad because it reminds me of happy memories from the past.	personal... but sometimes it is collective
9/30/2025 7:01:02	A specific dish that my grandmother makes (pumpkin dessert)	Home	The sound Of birds singing	My grandparents farm	9	Calm	Personal
9/30/2025 8:05:00	Spanakopita (spinach pie) just out of the oven	home	The clatter of backgammon pieces	local coffee shop, men drinking coffee and playing	10	warmth	collective
9/30/2025 10:03:52	Fish	Acapulco, a beach 3 hours away driving from Mexico City	Birds singing	Golf Course in Cuernavaca	8	Calmness and peace with both of them	Collective
9/30/2025 14:22:29	warm and wooden smell with a little hint of charcoal	My appointment in the midwest during the winter, that has a fireplace	tree leaves rustling in the wind	The yard of my home in China	10	Warmth, chilling, safe	Collective with people who had the same living experience in similar environments.
9/30/2025 14:25:55	Smells of disinfectant	Hospital	The echo sound from hard and smooth surfaces and long hallways	Museums and hospitals	10	Complex mix of safety, certainty, mind-clearing and tension	Relatively personal
9/30/2025 14:28:37	Burnt wood and wood dust	Wood shops (model shop)	Cutting and routing machine	Wood shops	10	Weirdly calming and little annoying	Collective between lots of design students
10/1/2025 13:16:53	Combination of bergamot, jasmine, and cotton. Crisp smell of rain mixed with grass from the night before.	Italy	Chatter from the news, taps from the dog's nails, clanging of pans from the kitchen	Home	7	Comfort, familiarity, peace, nostalgic	I think these memories are collective as some of these cues are shared from a cultural or biological part of view.
10/2/2025 16:34:13	The smell of Naphthalene balls	My grandmother's house	The bell	School	7	Comfort	Personal and the other one is collective

survey results



scan to listen to the songs

composed 3 songs from survey of 100 designers



ECHOES OF SPACE



SCENTS OF SPACE



SPACES OF MEMORY

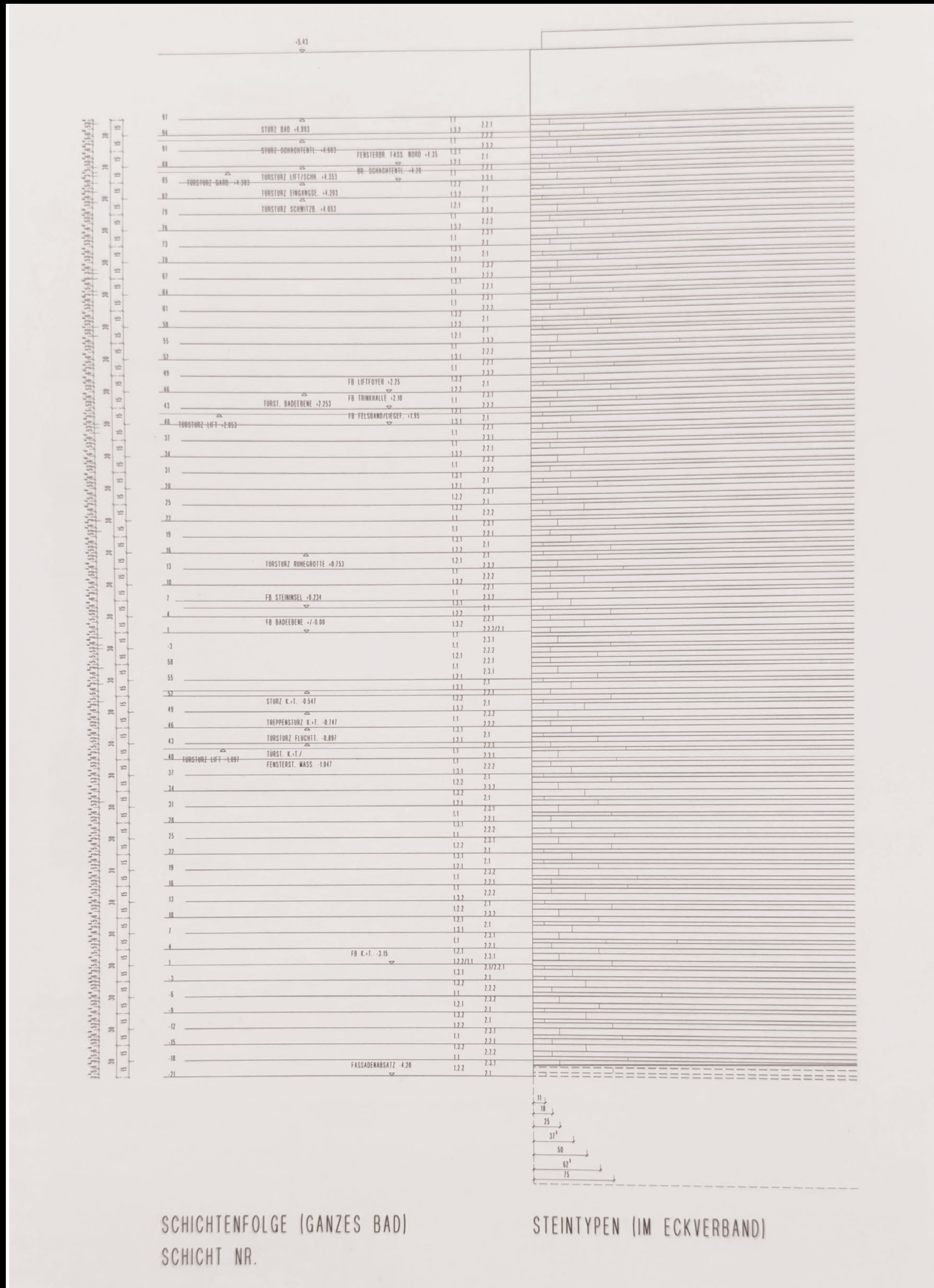


THE ASSEMBLY

to design is to negotiate

Having sensed our senses, we look at the spaces around us and realize we are not alone. Architecture is a negotiation between humans, materials, and invisible biological/chemical forces.

THE COSMOPOLITICAL ALGORITHM



"This document subverts traditional architectural representation. It is not an elevation depicting a fixed pictorial reality; it is a generative script. By explicitly fixing the Z-axis (height) and liberating the X-axis (length), the drawing enacts a precise redistribution of agency. It does not tell the mason what the wall should look like; it tells the wall what it must become."

- Excerpt from the paper 'The Cosmopolitical Algorithm', Spring '26



Therme Vals, Switzerland; Source: www.materialspace.co.nz/stone-vals-vals

"The transscalar nature of the drawing lies in its capacity to regulate multiple temporalities. By legally mandating only the thickness while liberating the length, the drawing transformed the quarry's geological unpredictability into a productive asset. It minimized ecological waste, maximized the economic survival of a regional industry, and sustained the cultural knowledge of Valser stone masonry."

- Excerpt from the paper 'The Cosmopolitical Algorithm', Spring '26

When the architect draws a 3mm line, they are simultaneously regulating the metabolic rate of a mountain and the phenomenological duration of a sensory experience.

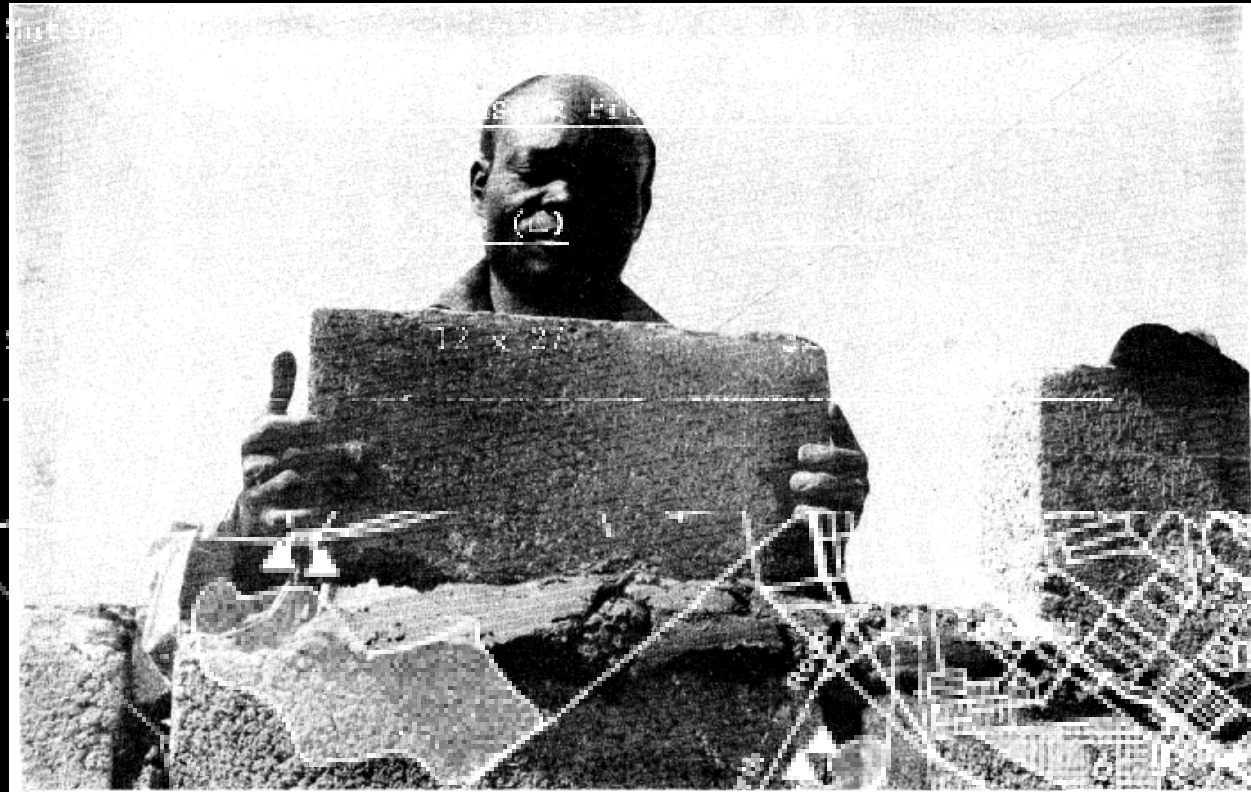
SERVICED PLOT AS APPARATUS

- 53 -

TABLE 2.2: COMPARISON OF PLOT SIZES

Low-Cost Housing Areas Under L.C.C.		
Location	Size (m)	Area (m2)
New Kamwala	11 x 21	231
New Kabwata	13 x 21	273
Chilenje	14 x 21	294
South Libala	14 x 21	294

Old Sites and Services Under L.C.C.		
	Size (m)	Area (m2)
Kaunda Square	9 x 18	162
Marrapodi	14 x 22	308



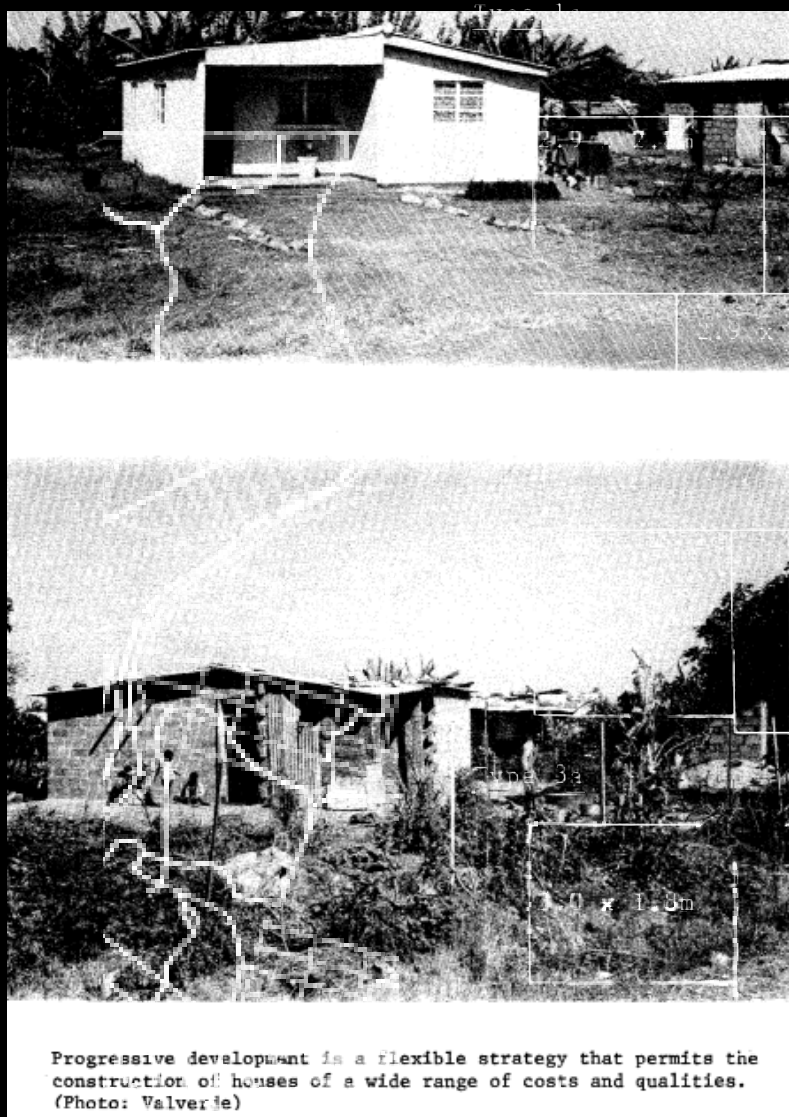
Most families preferred to purchase ready made building blocks rather than make their own. (Photo: Valverde)

TABLE 2.4: PROPOSED COMMUNITY FACILITIES IN THE FIRST LUSAKA PROJECT

Location	Markets	Material Stores	Community Centers	Demonstration Houses
George & overspill	3	1	4	1
Chaisa	2	1	2	1
Chipata & overspill	2	1	3	1
Chawama & overspill	5	1	3	1
Total, squatter & overspill	12	4	12	4
Site 1	1	1	1	2
Site 3	1	1	1	1
Site 4	1	1	0	1
Site 5	1	1	1	1
Sites 6 & 8	1	2	2	2
Total sites & services	5	6	5	7
Project Total	17	10	17	11
Service Level	1 per 10,000 pop. or per site	1 per site	1 per 10,000 pop. or per site	1 per site (determined by available staff)

Source: World Bank Data.

Figure 2.1: OVERSPILL AREAS: CORE HOUSES AND THEIR COSTS (Mid 1978)



Progressive development is a flexible strategy that permits the construction of houses of a wide range of costs and qualities. (Photo: Valverde)



(Plans not precisely to scale)

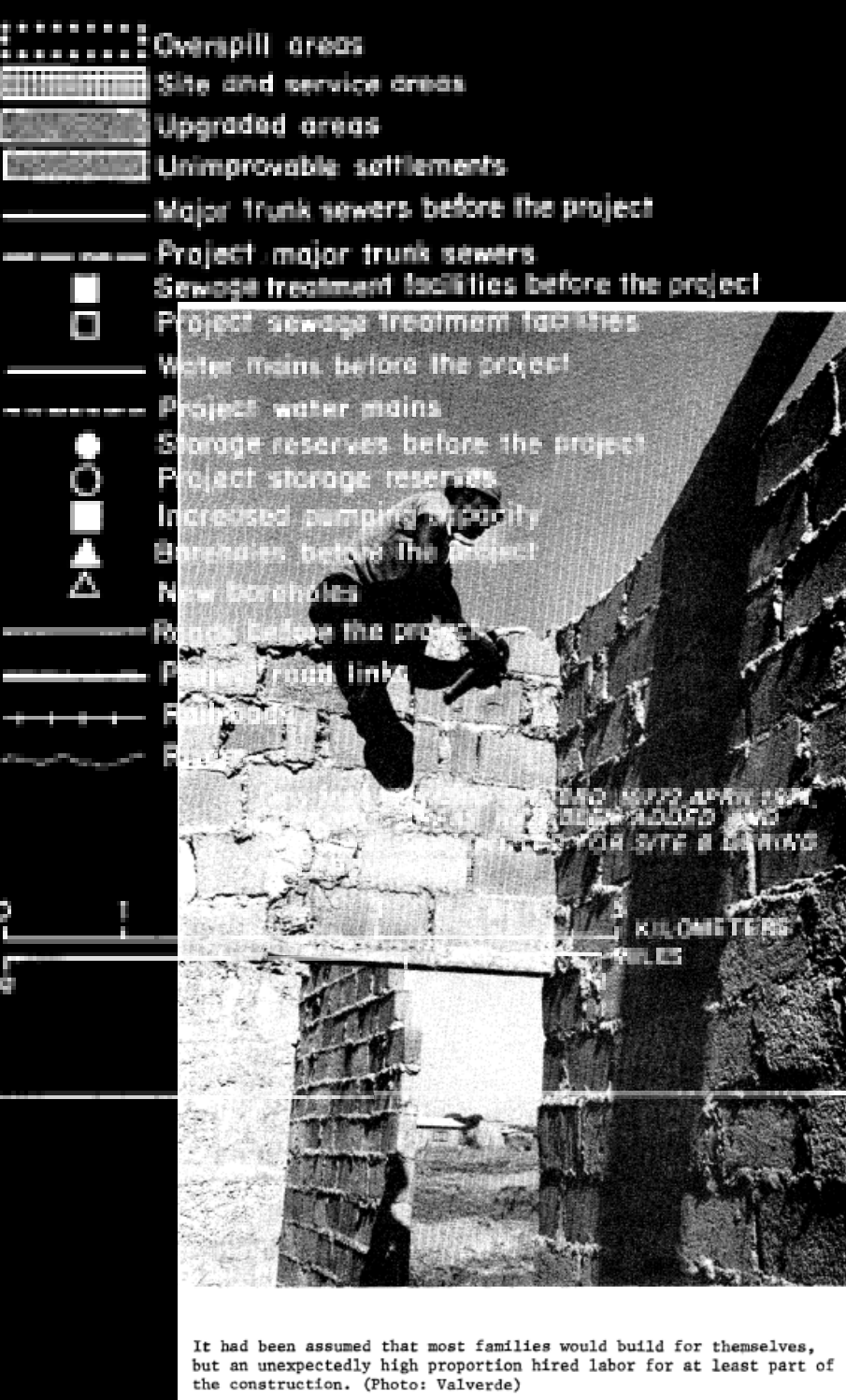
Source: David Todd, "Housing Costs in the Lusaka Housing Project", Urban Community Research Unit, University of Zambia, May 1979.



ZAMBIA: LUSAKA
PROJECT SITES AND
PRIMARY INFRASTRUCTURE



Meetings with participants took place at all stages of the project. (Photo: Courtesy Housing Project Unit)



It had been assumed that most families would build for themselves, but an unexpectedly high proportion hired labor for at least part of the construction. (Photo: Valverde)

“By means of the interconnected technologies of the mortgage loan, the instruction manual, and the cadastral grid, the ‘squatter’ became a ‘homeowner’, a subject that could be read by the government, owed money to the bank, and subject to discipline by the very structure that offered them freedom. The subject created here was the archetype of the neoliberal citizen: perpetually indebted, self-managing, and self-exploiting.”

- Excerpt from the paper ‘The Serviced Plot as Apparatus’, Fall ‘25

Non-human agency is not limited to geology or technology; it is also embedded in bureaucracy. In 1970s Lusaka, the ‘Serviced Plot’ became a technology of the self, an apparatus where the World Bank used media, manuals, and debt to script the behavior of self-help builders. The document is an architectural actor.

MUNDANE ARTEFACTS

just like the mountain, everyday objects also hold agency and dictate human behavior.

The interaction between a human body and a technical object. In *The Berlin Key*, Bruno Latour argues that objects are not passive tools but active mediators that carry a ‘script.’ They impose a program of action upon us. In my **POEM** ‘The Spotlight,’ I explored how a simple lighting fixture creates a hierarchy of visibility. The light is not just illuminating the stage; it is governing it. It forces the actor to ‘pace in rhythm’ and ‘trade obedience for momentary shine.’ The object possesses agency; it dictates where the body can exist and where it vanishes.”



THE SPOTLIGHT

The stage is black until the light ignites,
a circle appears, commanding my rights.
To enter it is to breathe, to exist,
step outside, and I’m instantly missed.

I pace in rhythm with the operator’s hand,
too fast and I vanish, too slow and I stand.
The light sets distance between me and another,
it bends my body, constrains me from cover.

Its heat on my shoulders, a weight I must bear,
chosen, yet singled, suspended in glare.
It scripts a hierarchy sharp and severe,
some bodies matter, while others disappear.

I trade obedience for momentary shine,
it lends me presence, yet never fully mine.
But the pact is fragile, a dangerous art,
one slip and it pulls its recognition apart.

On stage I may act, but I do not reign,
the spotlight governs; its beam holds the chain.

TECHNICAL FAILURE (Shoulder to Shoulder)

we only notice these invisible networks of agency when they break down



scan to watch the video

If objects script behavior, then bad design is a script that forces a ‘psychopathology of everyday things,’ as described by Donald Norman. In this experiment, I documented a urinal in our school basement. The lack of dividers and the misplaced soap dispenser (requiring a reach-over) are not just aesthetic flaws; they are failures of ‘mapping.’ The architecture ignores the user’s mental model of privacy, creating a ‘forced intimacy.’ The users in my video push and shove not because they are aggressive, but because the space affords conflict rather than comfort. The design has failed to predict the social friction it generates.



STREET LIFE

Zooming out from the broken object into the public realm.



scan to listen to the song

Moving from the object to the city, I adopted the role of the ‘Urban Researcher’ to trace the ‘infra-ordinary’, the term Georges Perec uses to describe the background noise of life. In my song comparing Little Island to a sticker-covered traffic light, I found that the city’s true vitality lives in the residue. Little Island is a ‘curated calm,’ a design that tries to freeze time. In contrast, the traffic light at the Whitney Corner, covered in peeling stickers and slogans, represents the ‘handwriting’ of the multitude. As Richard Sennett suggests in *Building and Dwelling*, the open city is one that allows for this kind of rewriting and adaptation.

STREET LIFE (LYRICS)

It starts with a small question . . .
what happens in a city when no one’s really watching?
When beauty isn’t trying,
and the noise just breathes?

It begins at the edge of the water,
everything’s calm, designed to feel free.
People drift slow with their cameras raised,
chasing the light that was built to be seen.

But underneath there’s a hum,
steel bones trembling under the sun.
Wood creaks, wind bends, water repeats,
and the seagulls cut through the air like edits.

They don’t care for perfection,
they’re the glitch in the plan,
reminding the city that even control
needs a bit of chaos to stand.

They don’t care for perfection,
they’re the glitch in the plan,
reminding the city that even control
needs a bit of chaos to stand.

It’s alive, it’s alive, it’s alive beneath the shine,
the city keeps whispering between the lines.
In the hum, in the cracks, in the glue, in the grime,
it’s alive . . . it’s alive . . . all the time.

Then it moves inland,
finds a pole at the corner, a collage of the street.
Stickers on stickers, voices that meet
a stickman, a saint, a barcode in heat.

Each one talks for a second,
then fades into rain.
It’s messy, but it’s honest,
this is how cities explain.

It doesn’t need approval,
it doesn’t ask to last.
Meaning lives in the leftovers
the future built on the past.



It’s alive, it’s alive, in the residue and signs,
the city keeps writing between the lines.
In the sticker that peels, in the corner that shines,
it’s alive . . . it’s alive . . . all the time.

It ends at a quiet street corner,
familiar, like déjà vu in brick.
Screens rise like small altars,
remembering what never was thick.

The façade just listens, tired but kind,
as real life passes by behind.
Delivery bikes, barking dogs,
memories looping on autopilot fog.

The city rehearses its past while inventing its now.
Every wall, every voice, still figuring out how.

The tourist takes the photo.
The dweller walks past.
The flâneur drifts slowly.
The voyeur just lasts.
But the researcher
the one who listens
walks without rushing,
follows without asking.

It’s alive, it’s alive, in the footsteps and flight,
in the hum, in the rain, in the edge of night.
Every surface, every sound, every sign of design,
it’s alive . . . it’s alive . . . all the time.

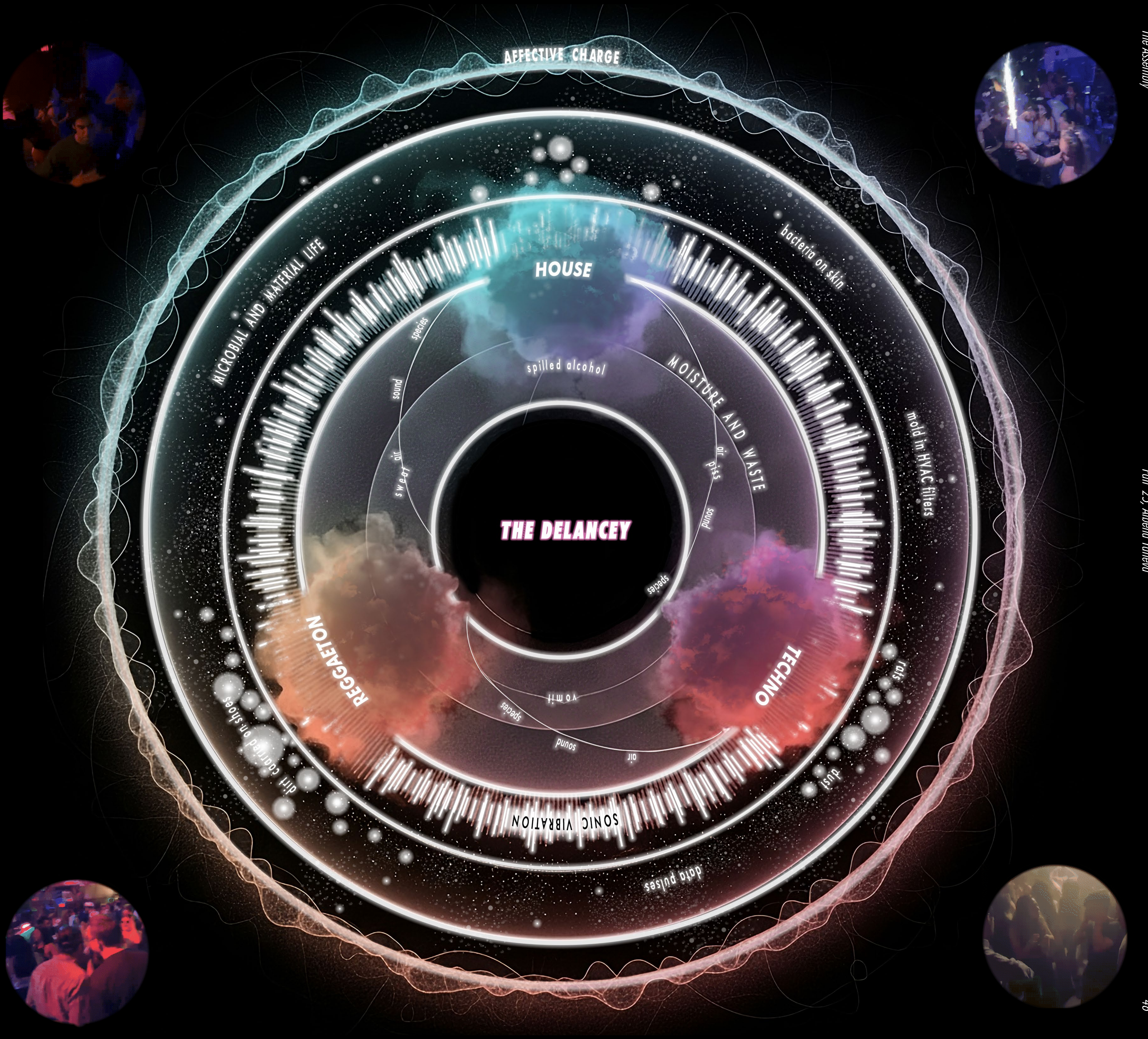
It doesn’t rush to explain.
It just listens.
The city speaks quietly
but only when it’s walking.

It doesn’t rush to explain.
It just listens.
The city speaks quietly
but only when it’s walking.

THE NIGHTCLUB

mapping the invisible chaos

The vibration of the Reggaeton floor is just as architectural as the concrete that holds it up. Diagram of The Reggaeton Affective Charge (mapping techno, sweat, HVAC, alcohol, vomit, bass) Unruly needs of non-human companions.” The architecture is breathing, sweating, and growing mold. The building is alive, and we must design for its metabolism.



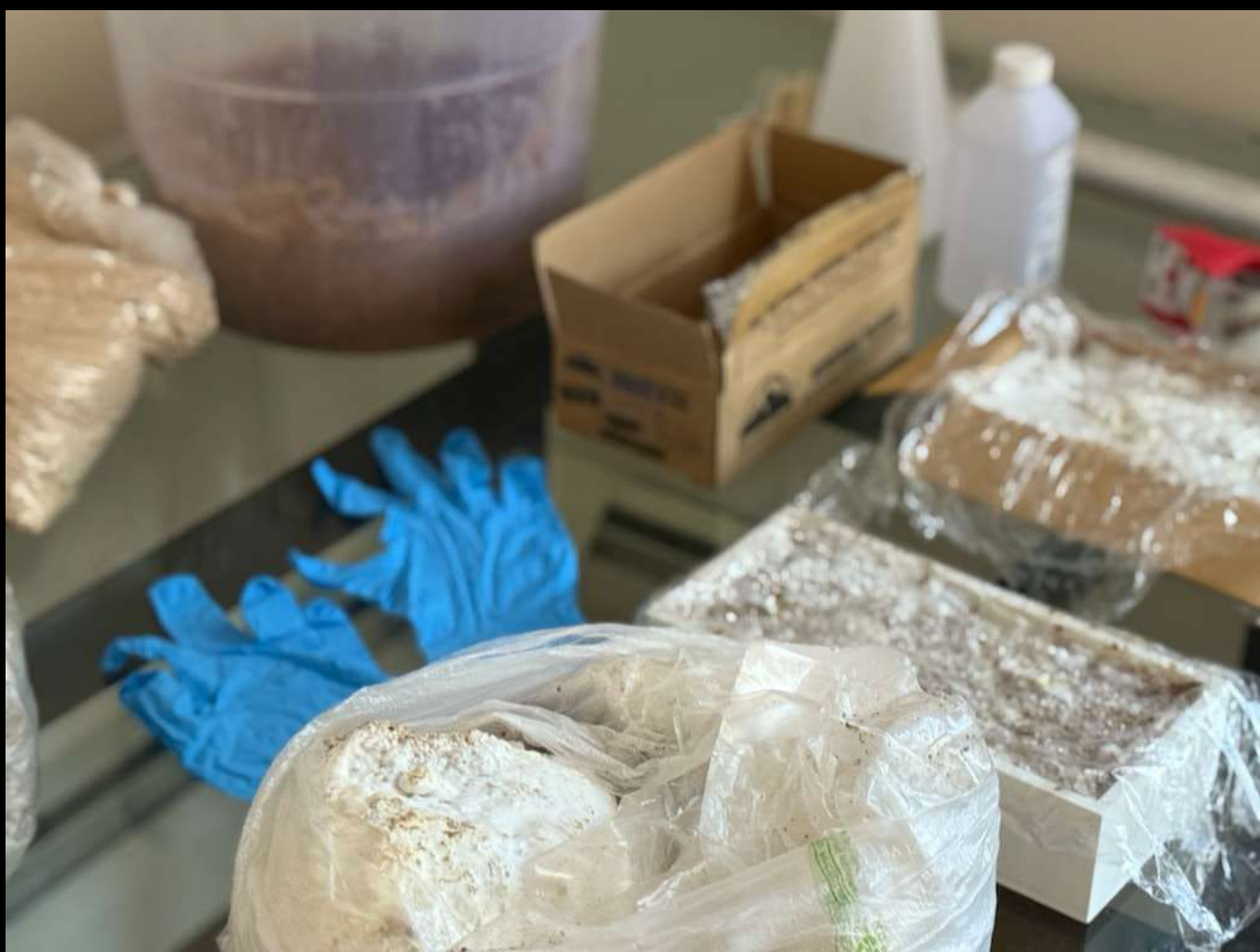
LIVING WITH OTHER SPECIES

If the club is an organism, who else is living in our architecture?



scan to watch the interview

The anthropocentric view of the city assumes that the home is a fortress for humans, designed to keep nature out. However, Anna Tsing’s concept of Unruly Edges challenges this boundary. In my interview with Valeria, who co-habits with growing mycelium, we see the dissolution of the human/nature divide. By bringing the fungus inside, she enters a relationship of care and interdependence. The mycelium is not a passive material; it has biological needs that dictate the conditions of the apartment (temperature, humidity). The ‘home’ becomes a multispecies contact zone.



We are not solitary geniuses imposing form on matter. We are diplomats negotiating with the mountain, the broken machine, the street, and the microbe.



THE APPARATUS

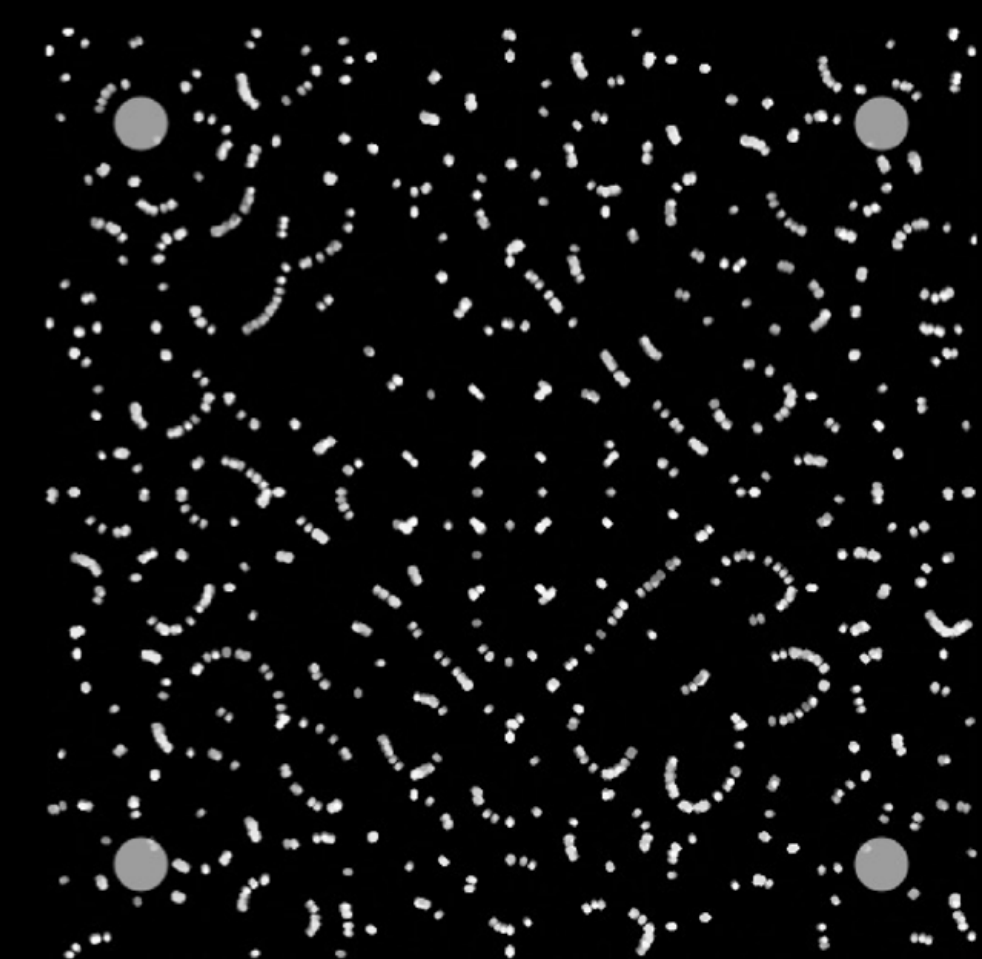
Introduction to architecture as an active, metabolic apparatus

Having mapped the invisible frictions of the city, we must now intervene. Architecture is no longer a static container; it is an active apparatus - a symbiote, an organ, a digestive tract, designed to metabolize the harmful residues of our modern environment

Once we understand the invisible flows of the cosmopolis, we must build for them. The role of the architect shifts from creating static forms to designing metabolic apparatuses - interventions capable of digesting the sensory and material waste of the city.

ARRHYTHMIA OF AVERY HALL

When the mechanical rhythm of the building (HVAC) and the social rhythm of its inhabitants diverge, the space experiences Arrhythmia, a dissonant space where architecture and body actively fight one another."

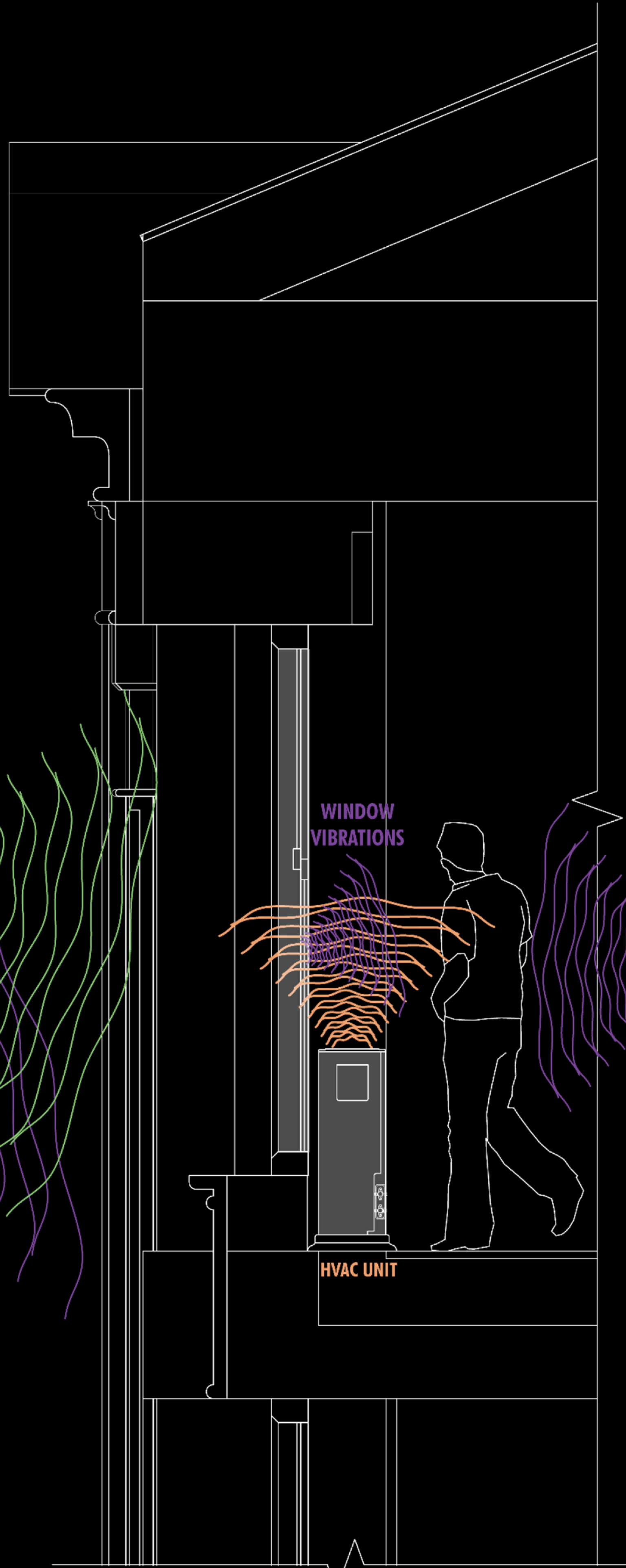


BIRDS CHIRPING
2000 Hz / -65.0 dB



REGULAR CONVERSATIONS
52 Hz / -47.3 dB

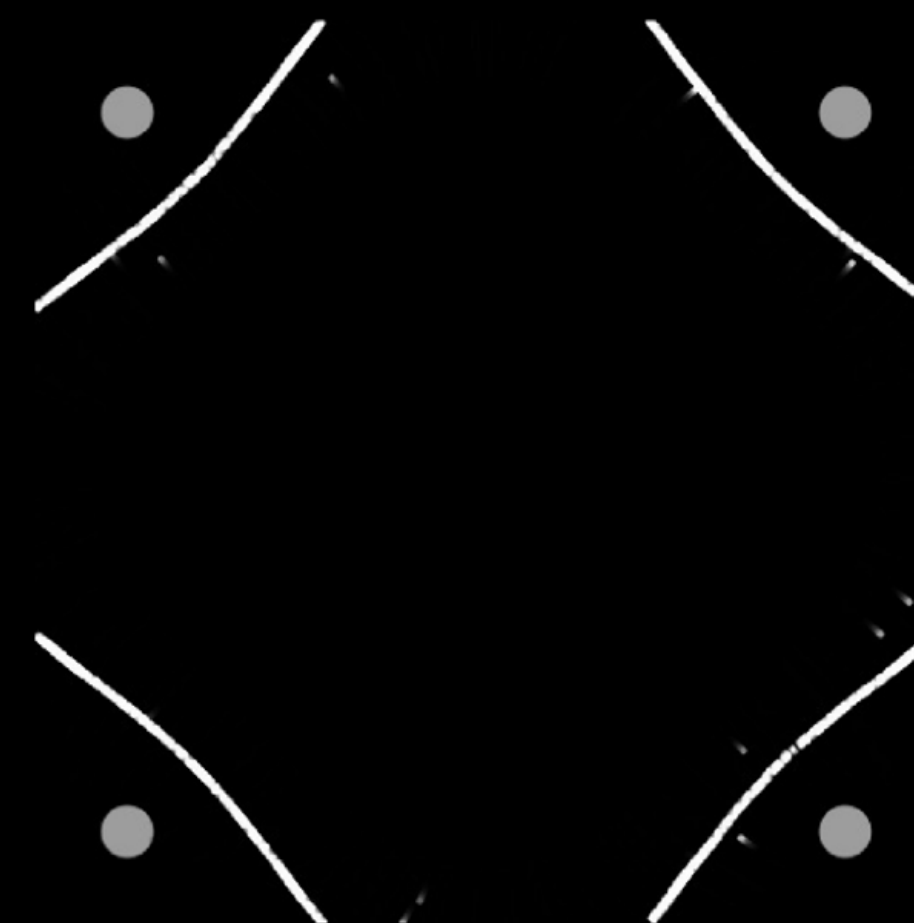
CYCLICAL RHYTHMS
LINEAR RHYTHMS



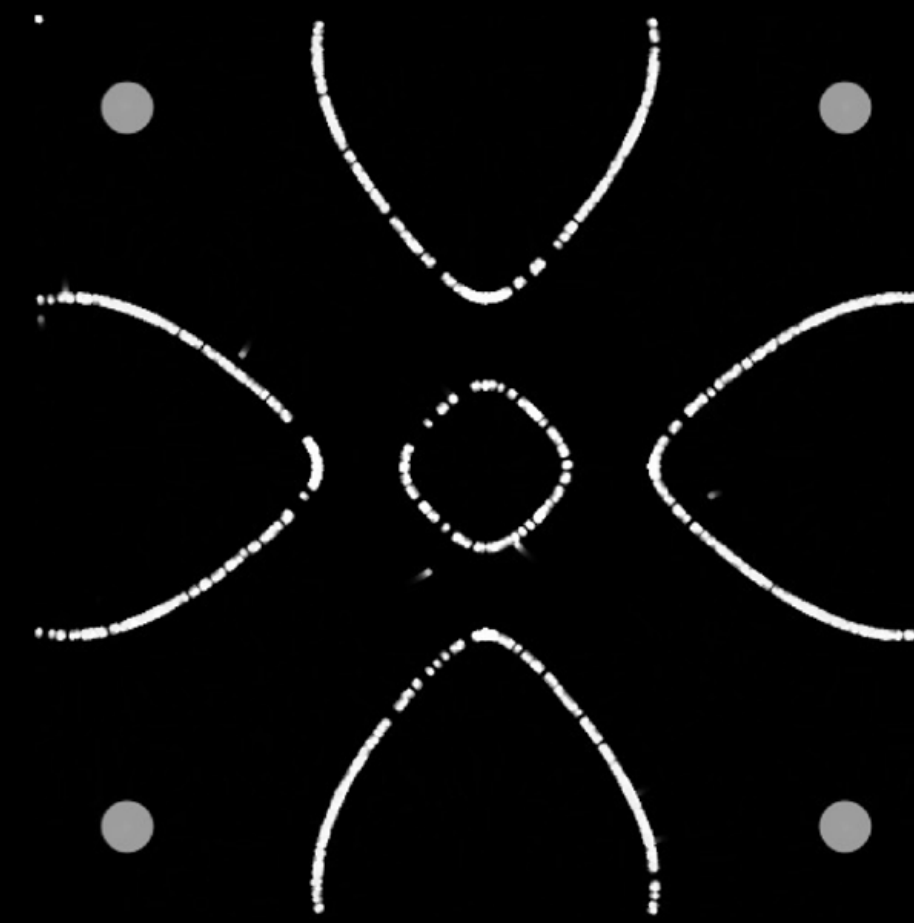
SECTION OF AVERY WINDOW



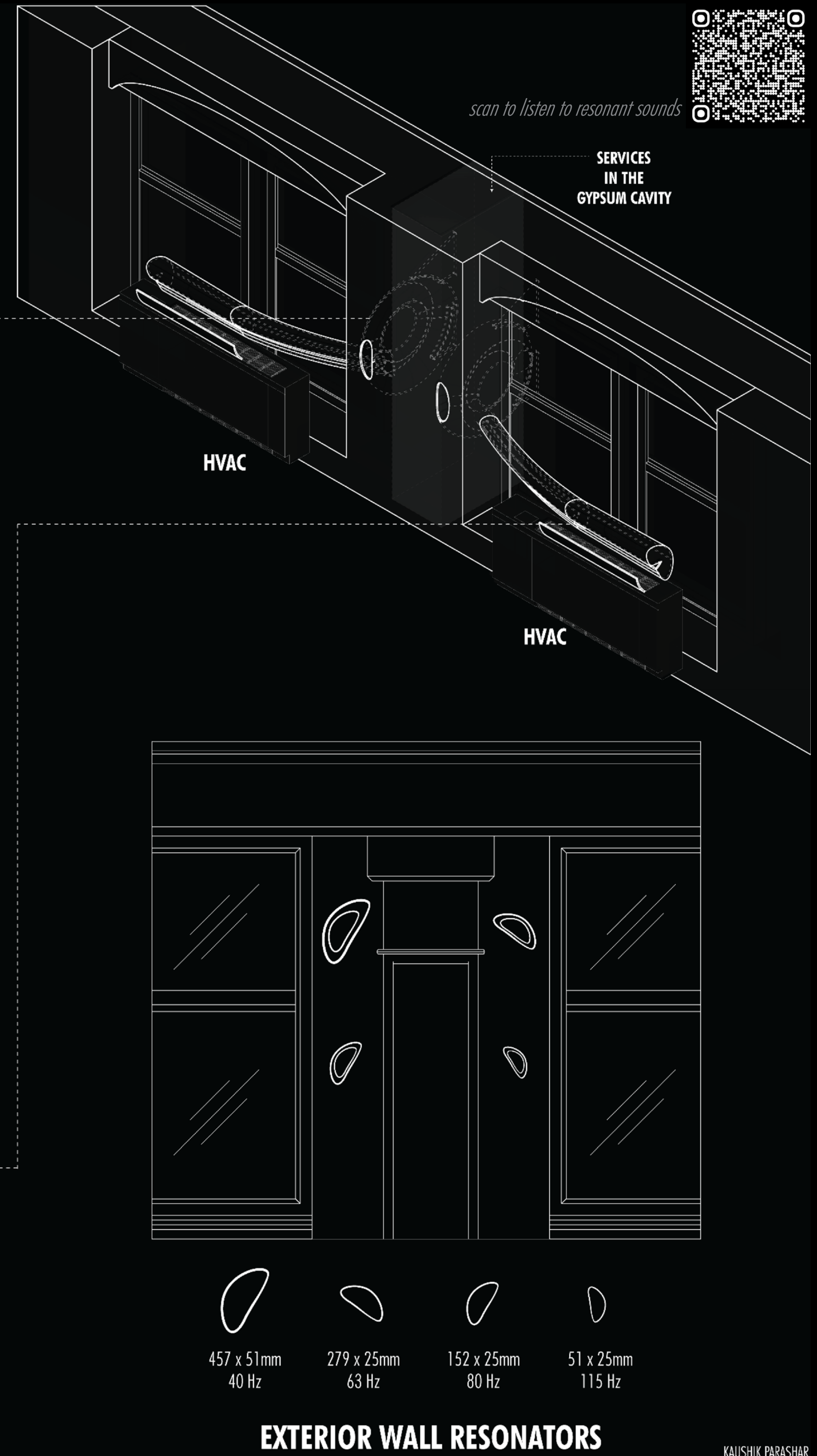
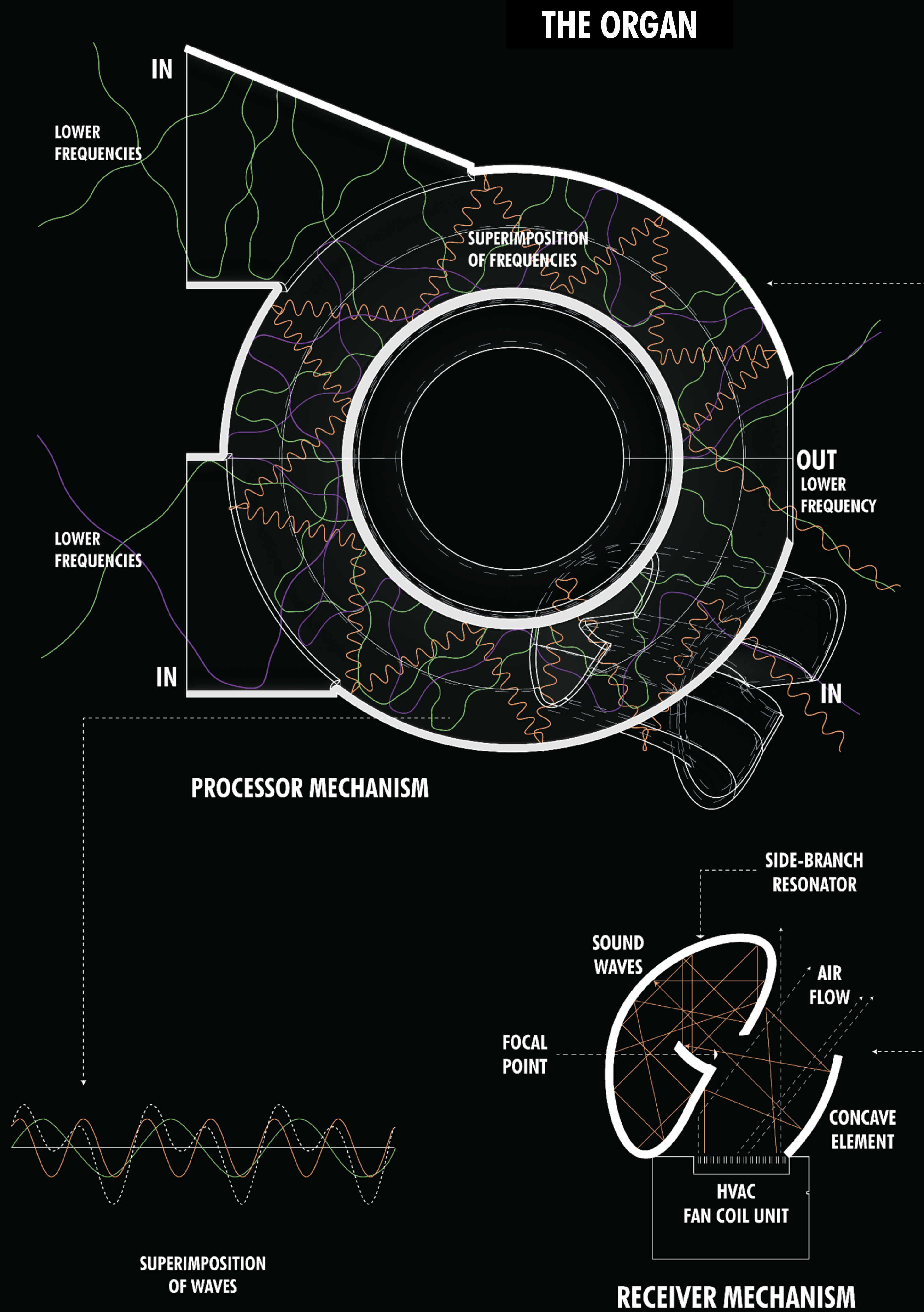
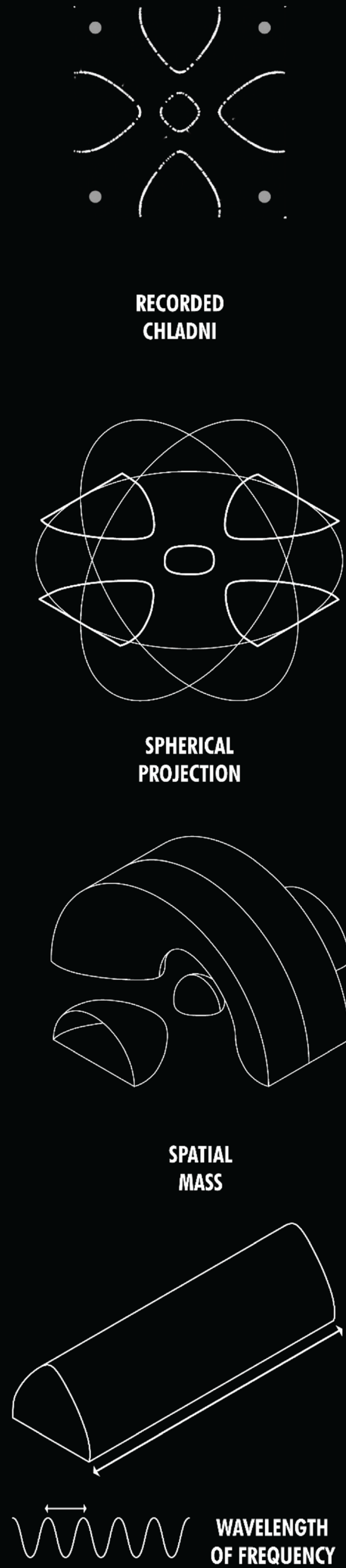
ELEVATOR SHAFT
352 Hz / -90.6 dB



STUDIO
41 Hz / -47.5 dB

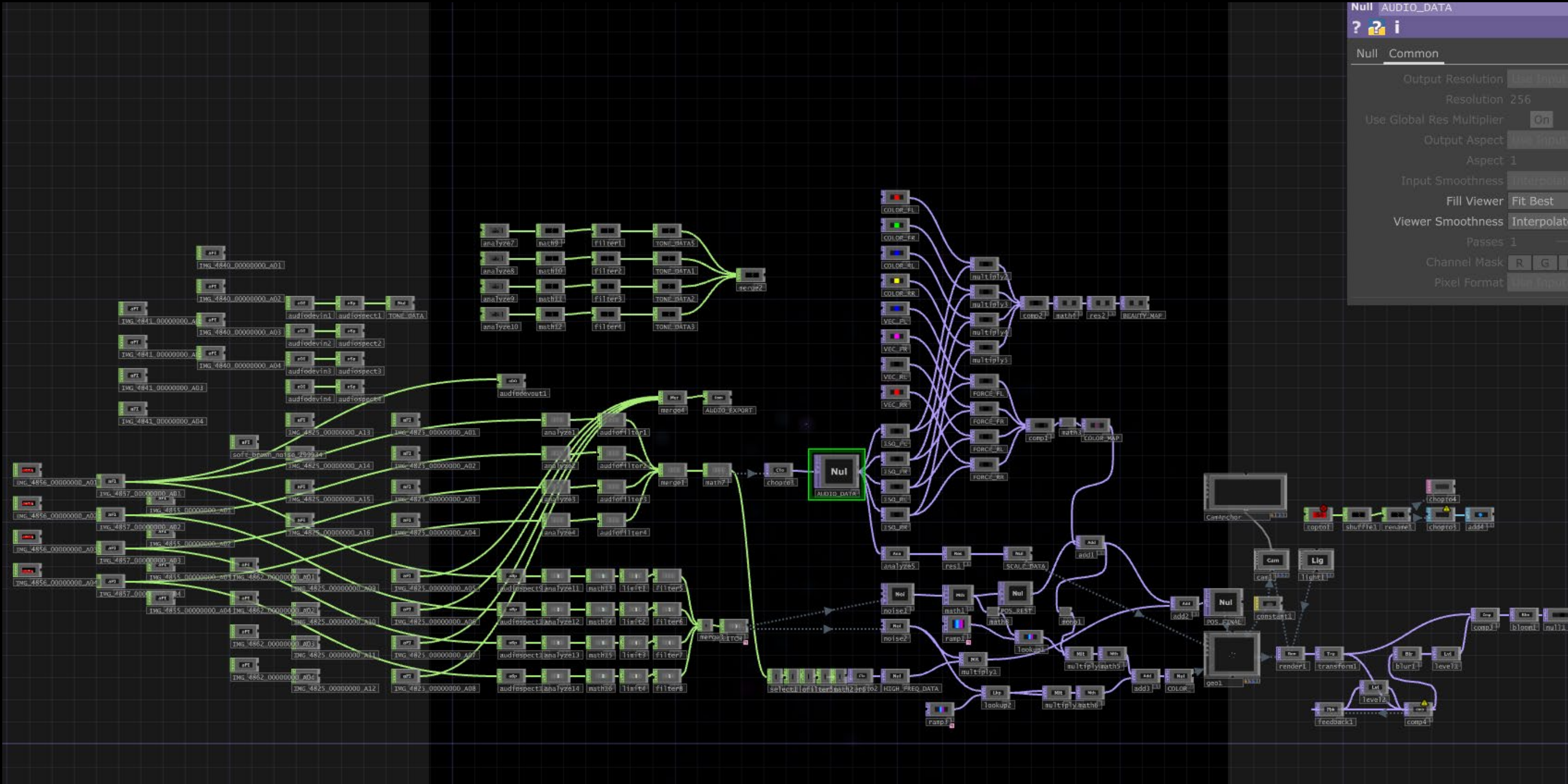


HVAC UNIT
120 Hz / -61.1 dB

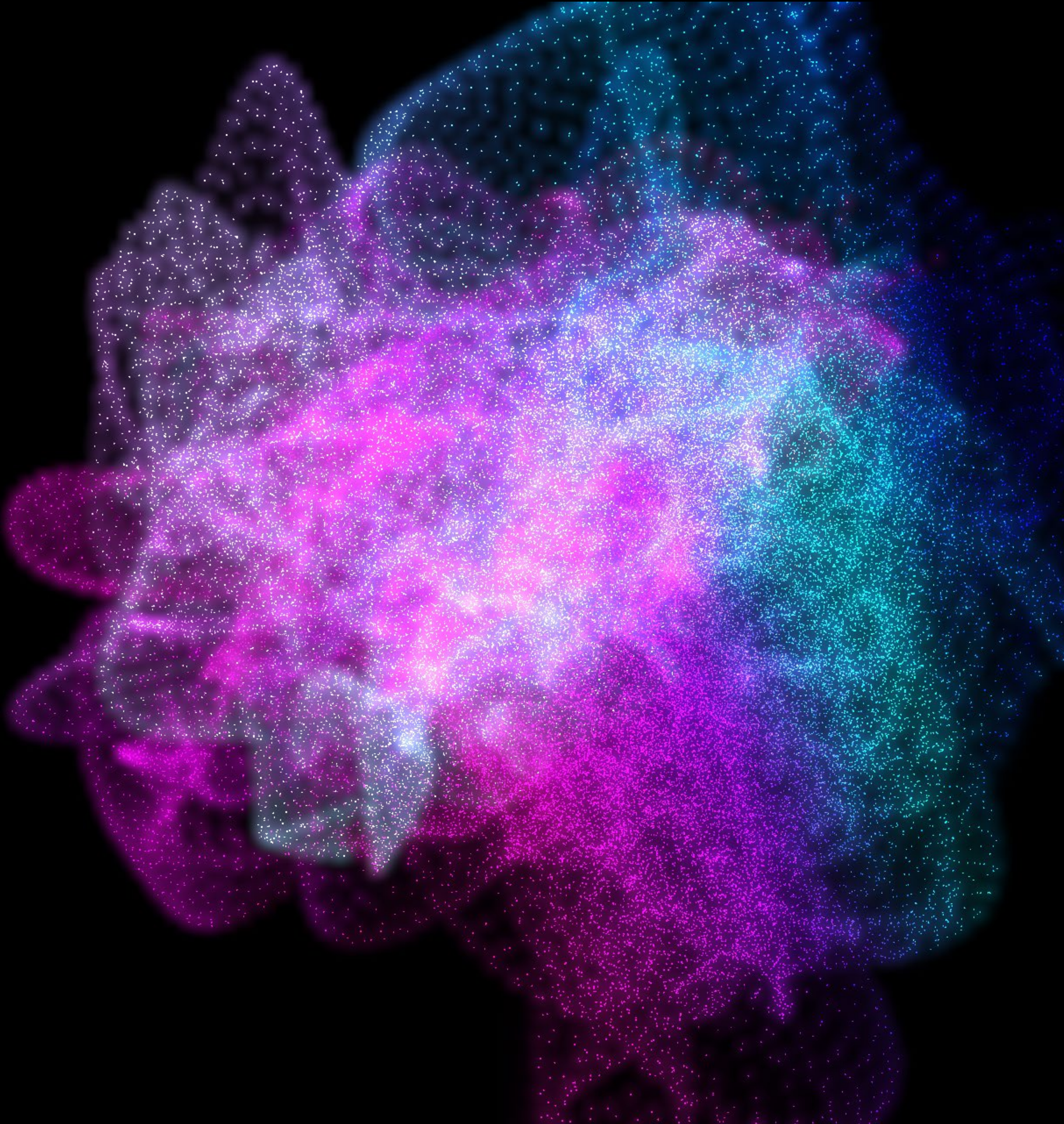


The Organ cures the arrhythmia of a single building. But when dissonance permeates the entire urban grid, a static filter is not enough. To address the chronic acoustic pollution of the city street, the architectural intervention must evolve into a living, parasitic infrastructure: a Symbiote.

ACOUSTIC SYMBIOTE



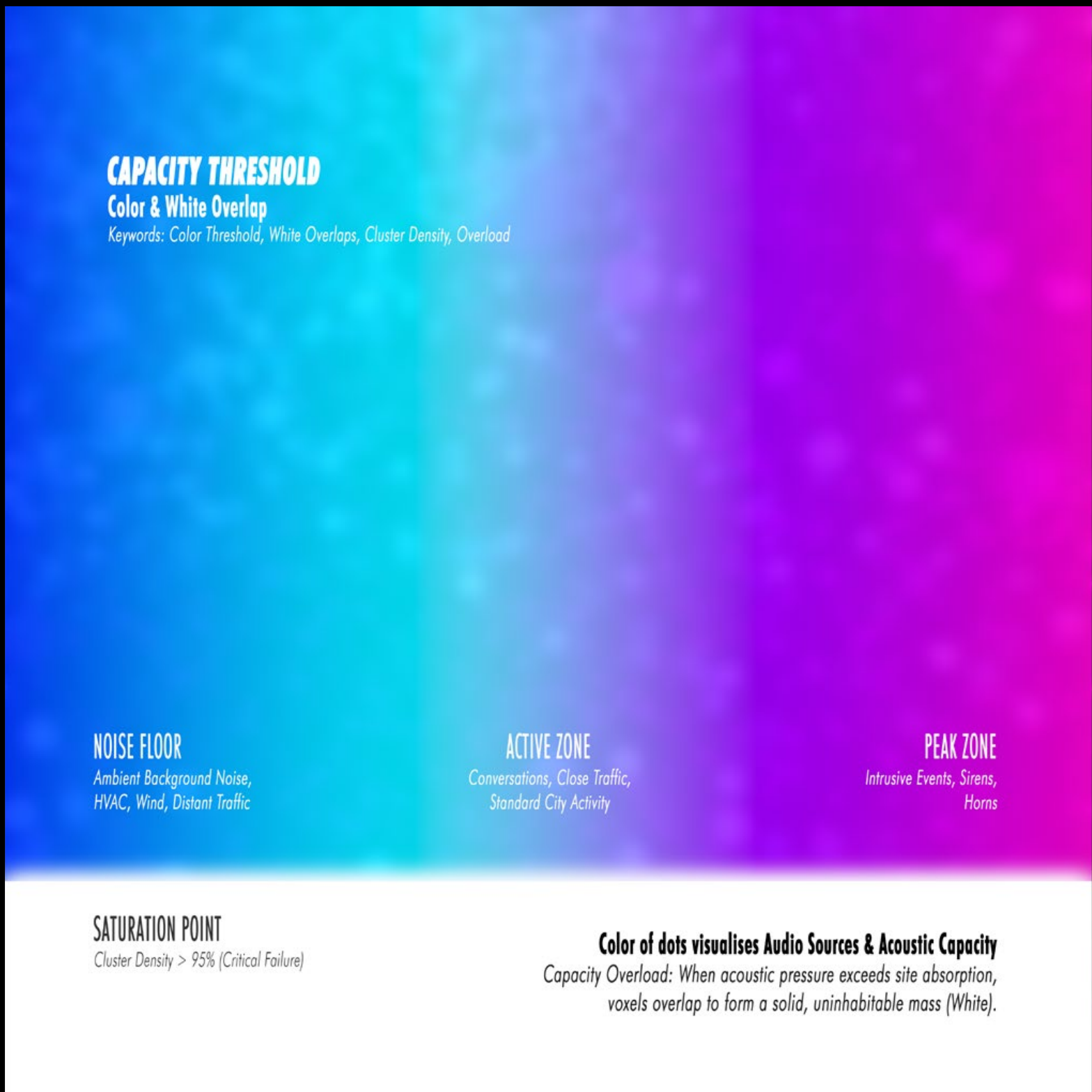
Architecture must act as a vessel for vibration. The Acoustic Symbiote operates as a parasitic infrastructure that feeds off the noise pollution of the city, turning dissonance into a spatial condition.



Fall '25, Joseph Zeel-Henry, Amelyn NG

ACOUSTIC SYMBIOTE

new algorithm to split frequencies in sound and visualise
aural capacity, decay, density of ANY RECORDING

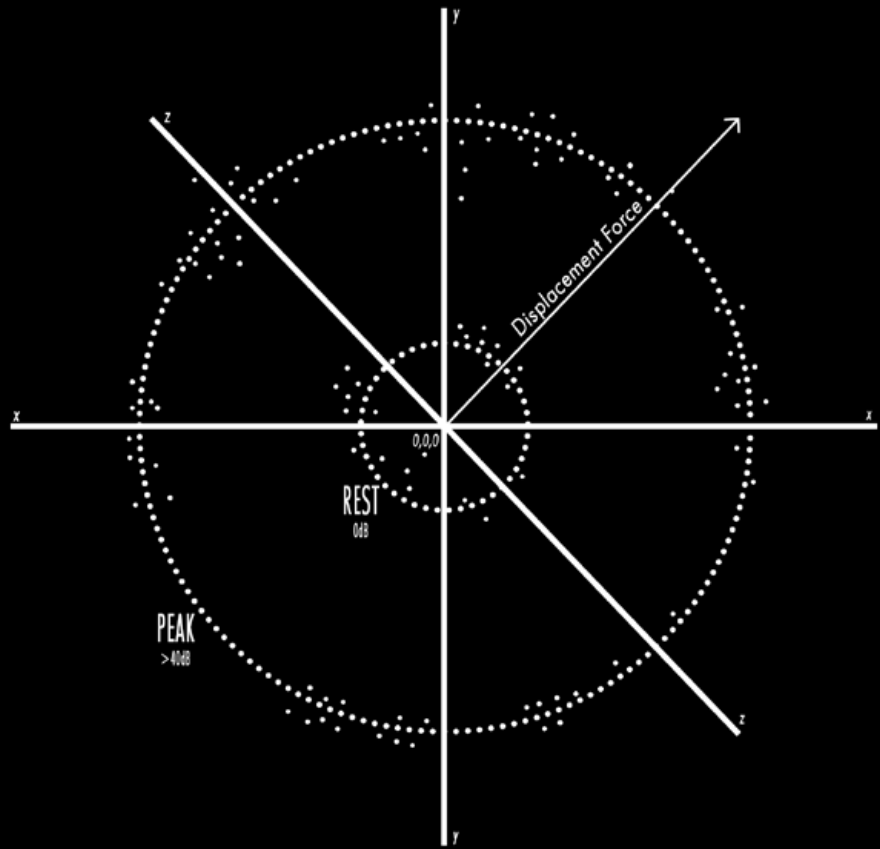


LEGEND TO READ ALGORITHM



DENSITY OF VOLUME

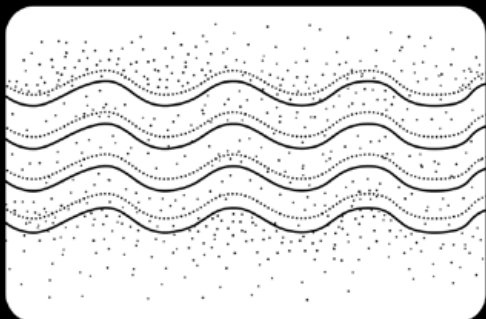
Volume & Size
Keywords: Amplitude Dispersion, Acoustic Compression, X-Y-Z Expansion, Loudness



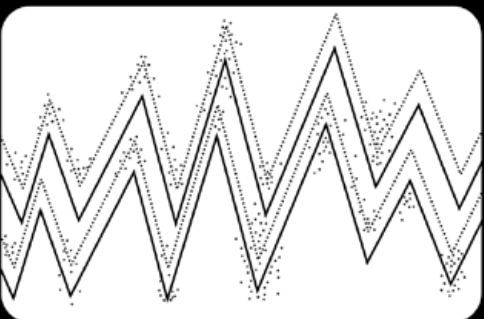
Acoustic Compression: High amplitude forces the voxel cloud to expand outward, pressurizing the site envelope.
Size of cloud visualises Loudness (Volume)

TEXTURE FOR FREQUENCY

Pitch & Density
Keywords: Frequency Density, Smooth vs. Jagged, Bass vs. Treble



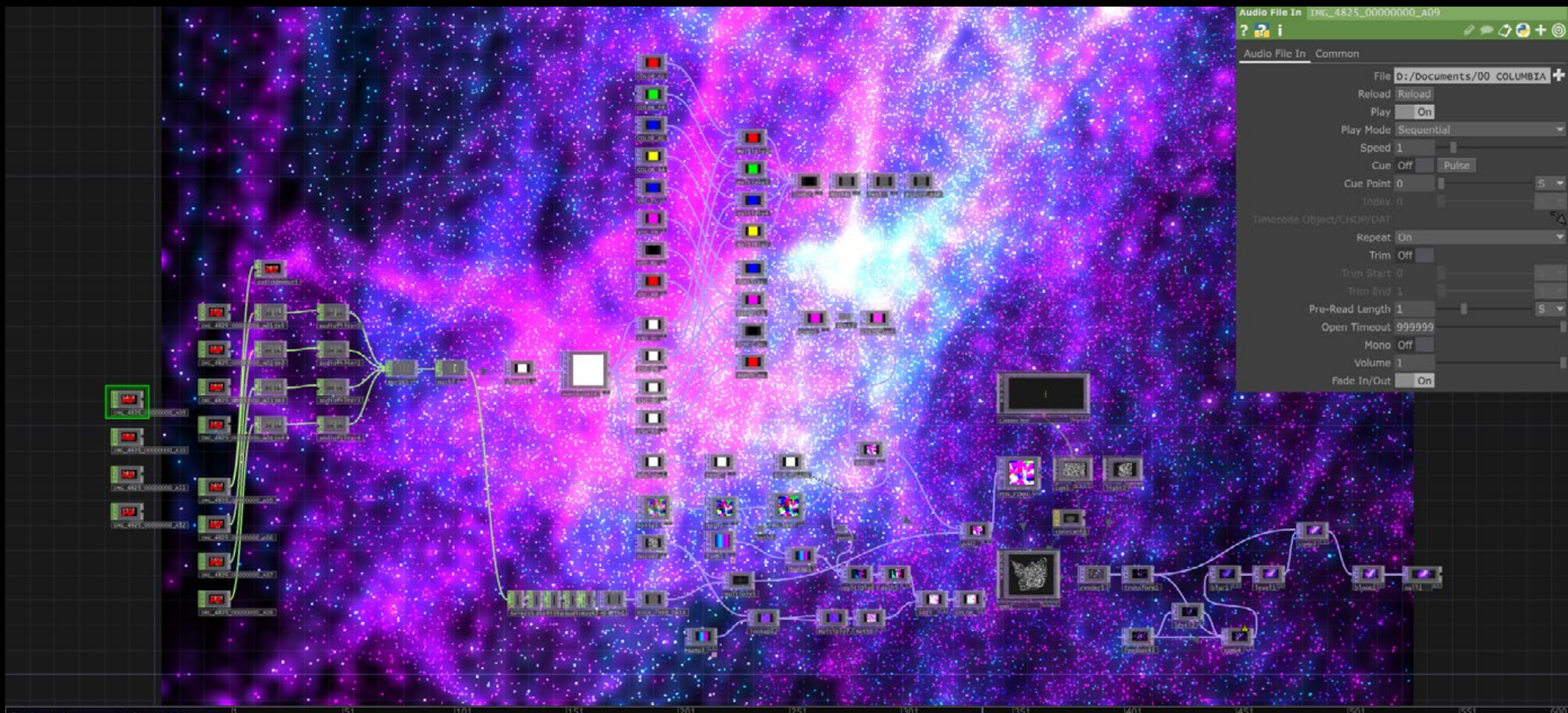
LOW FREQUENCY
Masking
Wind, River Crashing, Truck Hum



HIGH FREQUENCY
Intrusion
Train Screech, Sirens, Drilling, Car Horns

Spectral Texture: Pitch determines the granularity of the atmospheric tissue.
Texture of cloud visualises Pitch (frequency)

ACOUSTIC SYMBIOTE

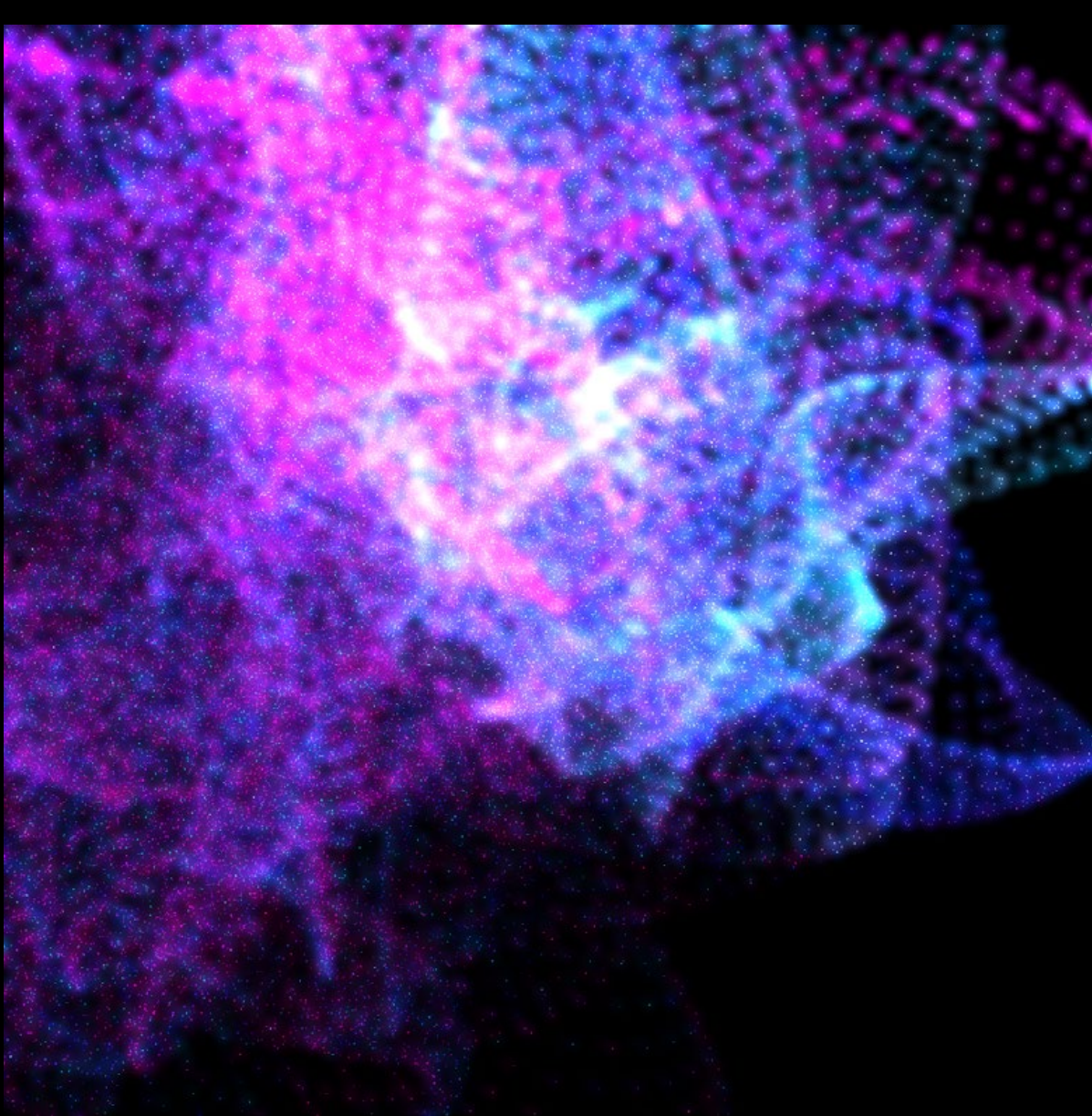
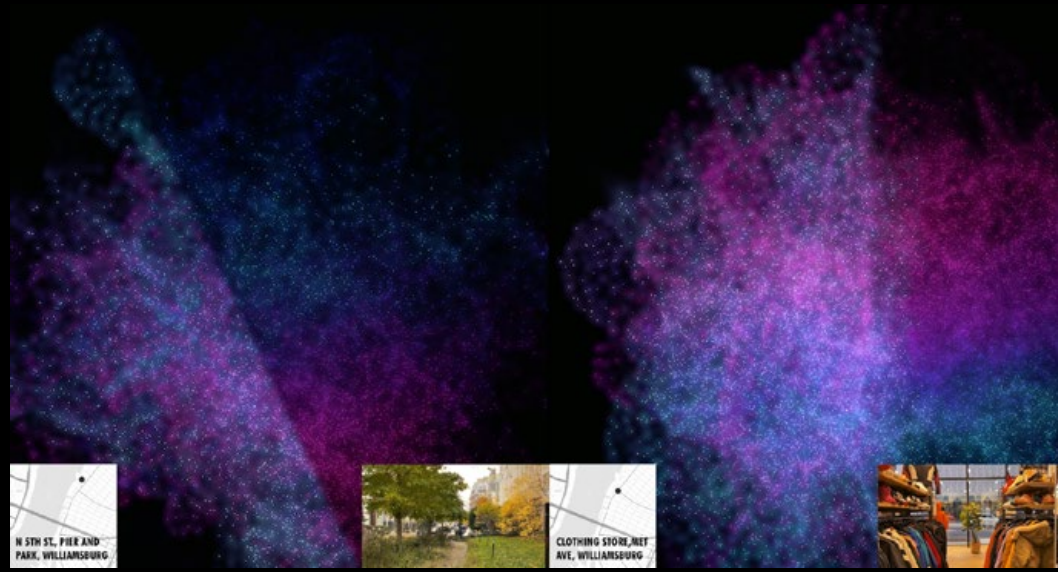


algorithm developed to visualise space through sound

scan to watch exhibit video



exhibit

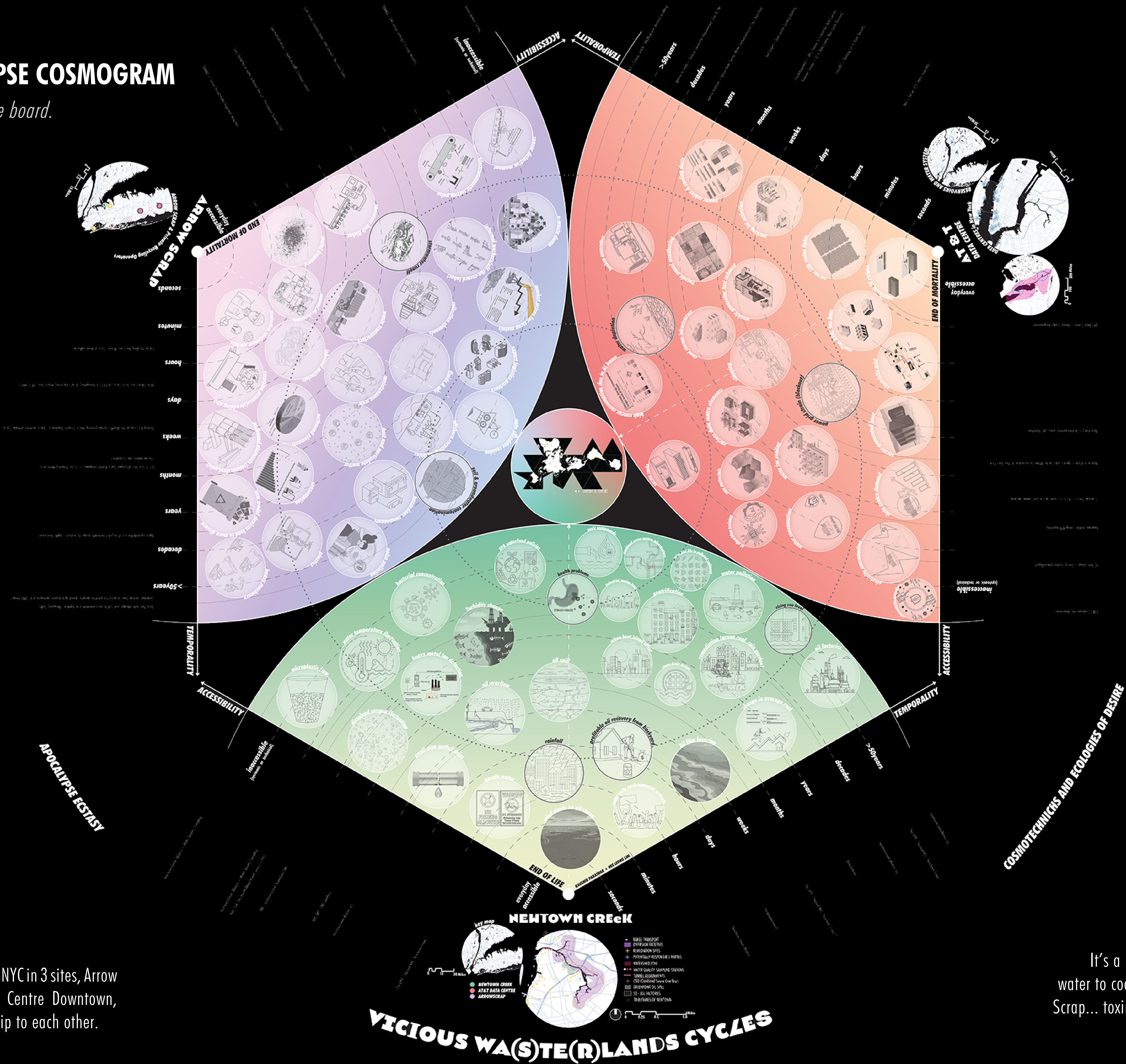


To design a symbiote is to design its decay. Its material properties, and therefore its acoustic performance, shift over time as it weathers the urban environment.

Sound is not the city's only invisible exhaust. We must shift our scale of intervention from the frequencies that pollute our air to the toxic e-waste that poisons our soil. Both are a slow apocalypse. Both require an architecture of digestion.

THE SLOW APOCALYPSE COSMOGRAM

bringing all the actants on the board.

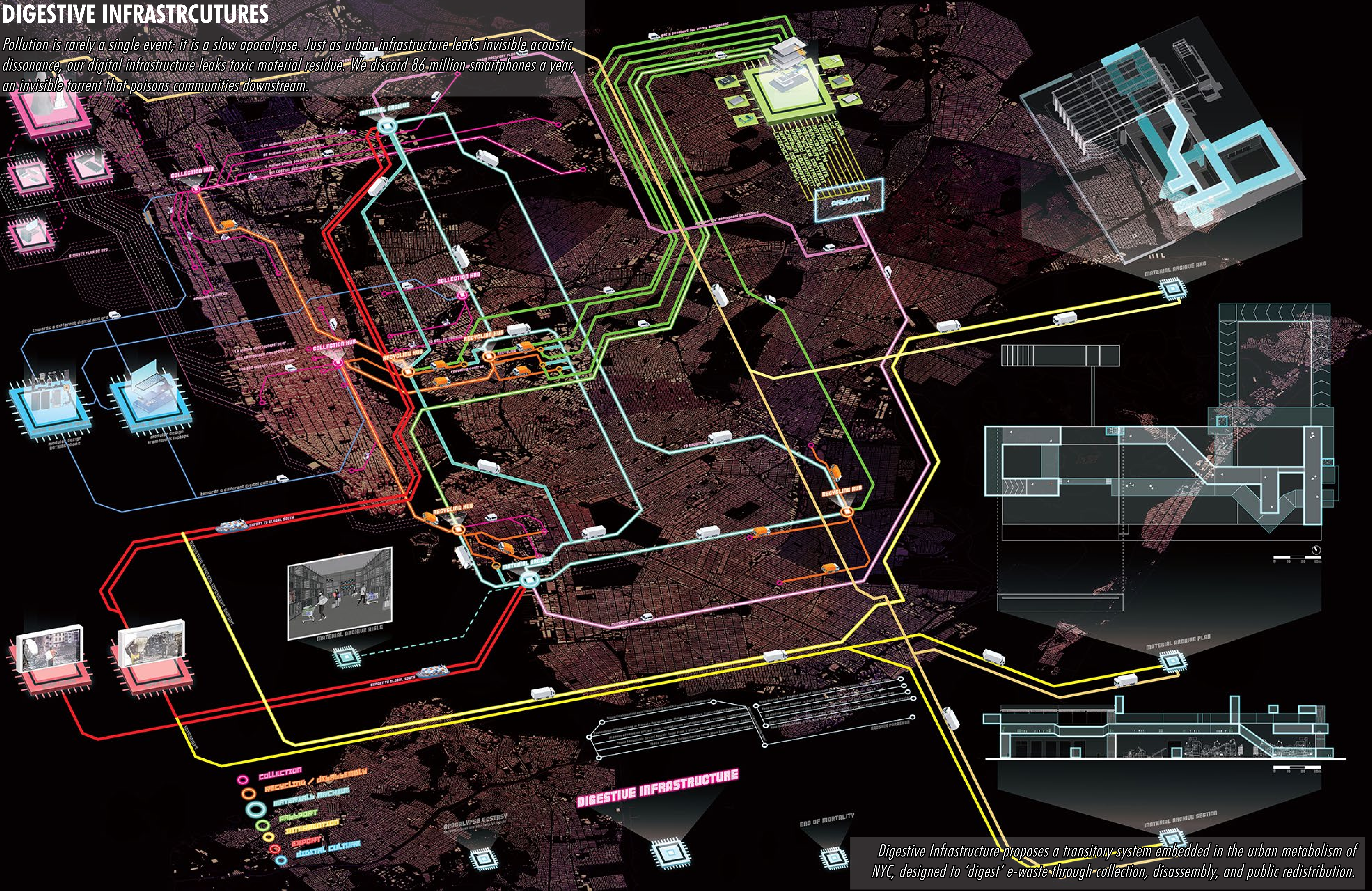


mapping the ongoing apocalypses in NYC in 3 sites, Arrow Scrap Metal Company, AT&T Data Centre Downtown, Newtown Creek and their relationship to each other.

It's a closed loop of extraction. AT&T draws water to cool its servers... e-waste goes to Arrow Scrap... toxins flow back into the poisoned Creek.

DIGESTIVE INFRASTRUCTURES

Pollution is rarely a single event; it is a slow apocalypse. Just as urban infrastructure leaks invisible acoustic dissonance, our digital infrastructure leaks toxic material residue. We discard 86-million smartphones a year, an invisible torrent that poisons communities downstream.



The question remains: What does it mean to feel architecture?
Perhaps the answer lies not in the walls we build, but in the
resonances we leave behind.

ACKNOWLEDGMENTS

Architecture is never a solitary endeavor; it is an assembly of actants, a complex negotiation between people, environments, and ideas. This portfolio is not just a culmination of my own work, but a record of the brilliant minds and generous spirits who shaped my time at Columbia GSAPP.

I owe a profound intellectual debt to the professors who provoked, dismantled, and expanded my understanding of the discipline. Thank you to Lydia Kallipoliti for teaching me how to finally listen, and to Andrés Jaque for revealing the transscalar power of the architectural apparatus. To Albená Yaneva, Joseph Zeal-Henry, and Amelyn Ng, thank you for guiding me through the messy, entangled realities of the cosmopolis and the invisible networks of the city. To Felicity Scott, thank you for sharpening my historical and bureaucratic critique. And to Uriel Fogué and Jia Weng, thank you for challenging my early biases and teaching me to design for the full sensory and metabolic capacity of the built environment.

I am also incredibly grateful to the Teaching Assistants who provided unwavering on-the-ground support, patience, and guidance across my semesters: Sungjun Baek, Khloe Swanson, and DJ Fan. A special thanks as well to Xiaoxi Chen, whose constant guidance and support kept me on track and made navigating the realities of GSAPP remarkably smooth.

But the academic rigor of this institution is only half the story. The relationships I have built here are more important to me than anyone outside of it could ever fully understand.

To Mahum, Nicolas, Valeria, Shannon, George, Vasiliki, Chris, Krish and Hee Leong you were the true infrastructure of my time at GSAPP. Thank you for the late nights in the studio, the shared exhaustion, the relentless humor, and for anchoring me. You made this journey what it is, and the spaces we inhabited together will always be the most resonant architecture I take with me. And to the countless others who have been part of this assembly: thank you. I cannot list you all here, lest this portfolio becomes nothing more than a directory of names, but your impact is deeply felt and woven into these pages.

Finally, to my family. Thank you for your unconditional support, your patience, and for being the foundation upon which everything else is built.