GAP+

an Architecture of Sound

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"Kulangsu Plan"
B.Arch Graduate Design
1st award of CAFA Graduate Design

Link:
https://vimeo.com/355918870
http://uvnlab.com/gap-en/

Briefin

This project explores the mixing mechanism of soundscape.

*By abstracting **personal experience** in GAPs on Kulangsu and extracting GAP as an prototype, **the hierarchy and mechanism of soundscape** on Kulangsu is deconstructed and re-composed.*

*Finally, with digital method and the structure of "**Scene**" in **Live Set** (Electronic Music), I transformed it into an architecture of sound, to generate two parts of work - GAP+ and GAP-.Thus, **a transformed perceptive experience is produced**.*

*This mechanism is diversified and comprehensive, it can be an **architecture(GAP+)**, or an **installation(GAP-)**.*

Personally, architecture is such a complex system and a process of producing .They both are, wandering apart from the ontology of Kulangsu.

*By interacting, audience and urban space are emotionally bridged - GAP is mixing spaces inside itself, as well as between "**HERE**" and "**THERE**"*

Catalogue

#1 GAP   **The prototype**

#2 Scene   **Hierarchy**

#3 GAP +   **Architecture of Sound**

#4 GAP -   **Installation of Sound**

What is Kulangsu?

Kulangsu(Gulangyu) - a colonized island - former by European during World War, and now by tourism, internet and commerce, is announced as World Cultural Heritage in recent years. It was called "island of music" or " island of piano" - which was imported in the last century - but now, the piano culture is disappearing.

What is Kulangsu? Basing on the history of colonization, the island itself is an immersive collage of "elsewhere"s - the identity of Kulangsu is unregonized and undefined.

What can present Kulangsu? Those pianoes exhibited as dead things? Pictures on social media? Or those rapid changing stores?

What can represent the "now" of Kulangsu - the Kulangsu we experience?

Architecture - Music

Take a look back in history, the researches on topic of music/sound and architecture has never come to an end – many pioneering musicians or architect like Bach, Brian Eno and Stan Allen, who did advanced researches and design years ago, focused on the rythm, the sequence or the notation of musiccal space.

Now, This project presents a completely new perspective on similar topics for the first time. It constructed a system of soundscape, responding to the contemporary urban space dominated by media, and produced "architecture" in a "real-time" manner.

It well integrated the music concept of "live set"(real-time structure of sound performance) and the mechanism of sound mixing, produced a new form of aural space, to give a critical vision on the preservation of "historical" urban space.

It is an experiment on aural architecture, a new type of museum/ community.

#1 GAP - The prototype

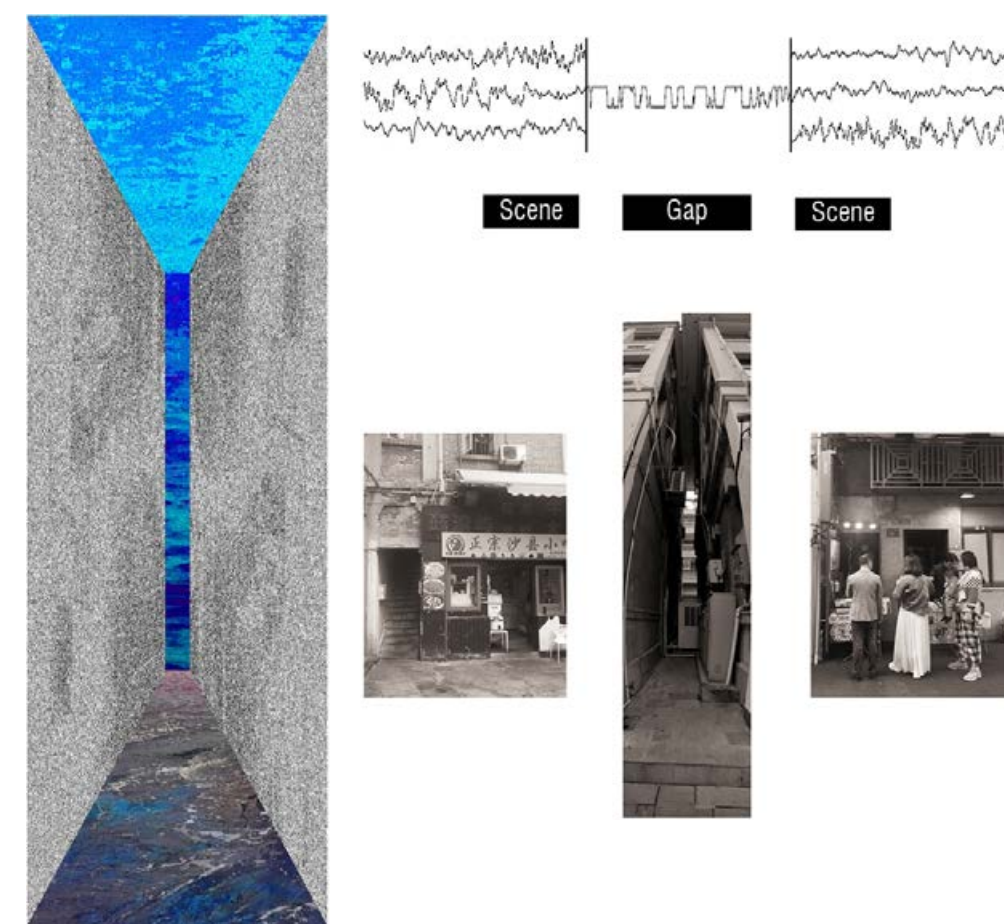## Kulangsu, an island of labyrinthine GAPs.

The GAPs - where only one person could pass

connected spaces - a room, a street, or the sea.

In twisted GAPs, the visual space is weakened
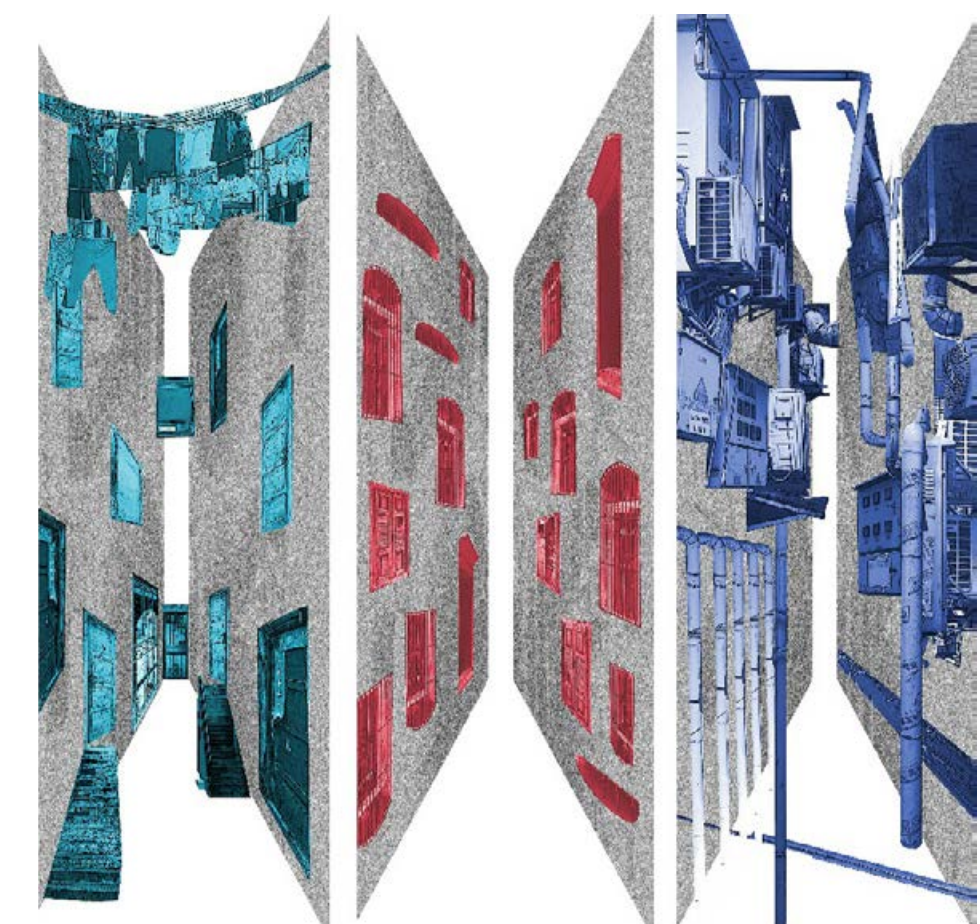
What we can see is only the sky above.

As you walk through the GAP, sounds fade in, and out
Spaces are connected ambiguously.

GAP - outside

The GAP is a filter, compressor and mixer of soundscape.
It is the intersection of different scenes, a devisualized aural structure.

GAP - inside

The space inside GAP, which holds piles of infrastructures, machines and data streams, is the most sophisticated element inside the gigantic sound machine of commercial Kulangsu.

Instruments

Sound

Loop Clips **Live performance**

SCENES

As a medium of sound mixing
can GAP generate new aural space?

GAP - Binary Space

Protyotype | 0D | 1D | 2D | 3D? k -D?

?

1 DTM_DrumLp_1	2 DTM_GlitchLp_1	3 DTM_BassLp_12	4 DTM_SeqLp_13	5 DTM_LeadLp_13	Master
▶ DTM_DrumLp_1	▶ DTM_GlitchLp_1	▶ DTM_BassLp_12	▶ DTM_SeqLp_13	▶ DTM_LeadLp_13	▶ 1
DTM_DrumLp_1	DTM_GlitchLp_1	▶ DTM_BassLp_12	DTM_SeqLp_12		▶ 2
DTM_DrumLp_1	▶ DTM_GlitchLp_1		▶ DTM_SeqLp_12	DTM_LeadLp_13	▶ 3
▶ DTM_DrumLp_1		▶ DTM_BassLp_12		DTM_LeadLp_12	▶ 4
▶ DTM_DrumLp_1		▶ DTM_BassLp_12			▶ 5
▶ DTM_DrumLp_1		▶ DTM_BassLp_12	▶ DTM_SeqLp_12		▶ 6
					▶ 7
					▶ 8

Scene 1
Scene 2
Scene 3
Scene 4
Scene 5
Scene 6
Scene 7
Scene 8

(-1.72)	(-1.72)	(-1.72)	(-1.72)	(-5.72)	2.89
1	2	3	4	5	Solo
S	S	S	S	S	

Track 1   *Track 2*   *Track 3*   *Track 4*   *Track 5*

In this context, what soundscape
is connected and divided by GAPs?   - - - - - - - - - - - - - - **Scene - Live Set**

*Scene refers to the composition of
similar ambience and sound clips in
the performance of Live Set.*

*Just like the composing structure of
music, the Scene is a constructive logic
of sound - a **collage of sound**.*

#2 Scene - Hierarchy

As a structure of Live Set, can SCENE produce an "on-going" space?
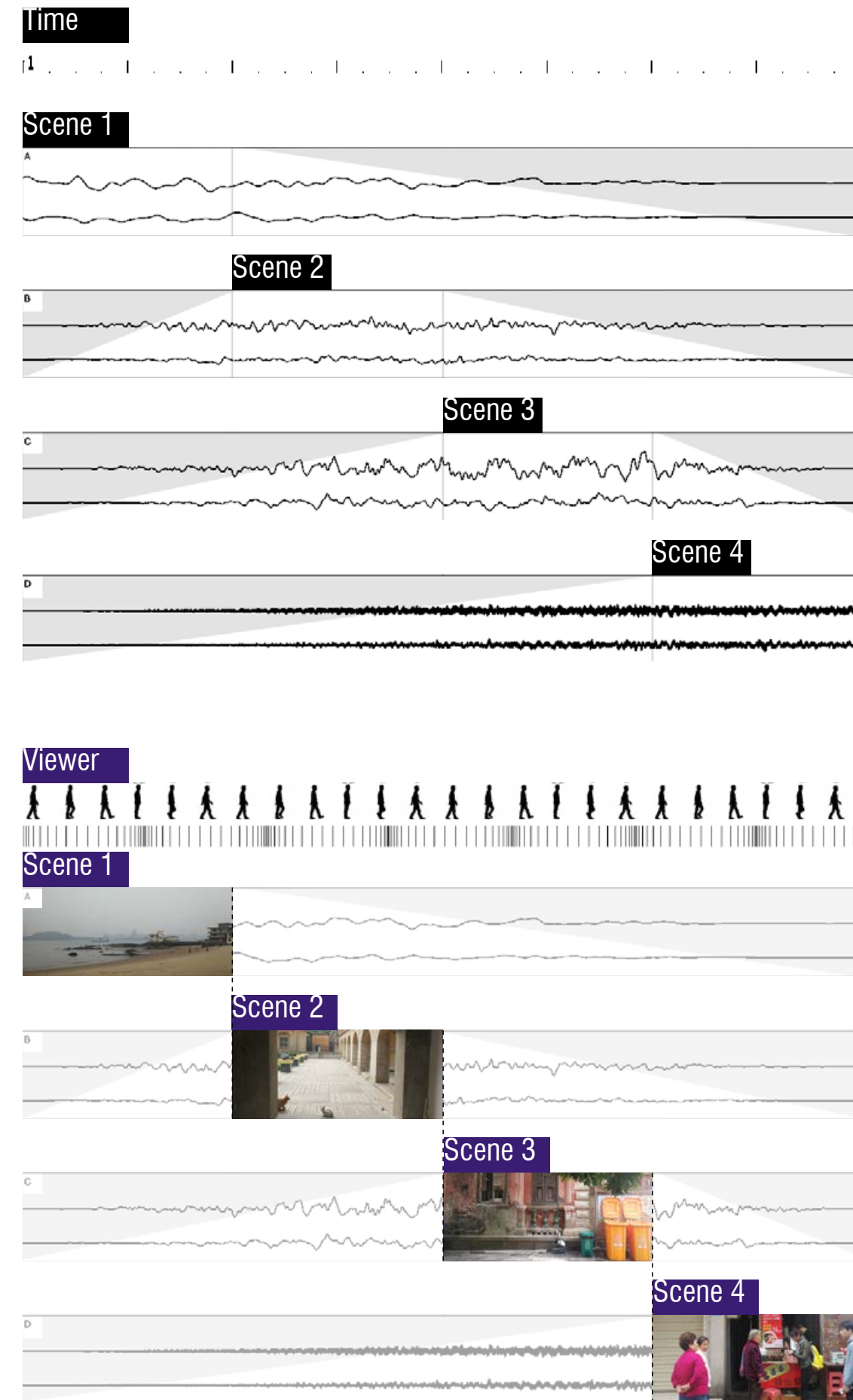
Scene - Live Set

Real-time and cyclical - by going through looping scenes of clips, the ambient of live-set is rendered to move forward.

Scene - Kulangsu Set

When we walk through GAPs, we walk through **on-going scenes and ambiences.**

The GAP is the key part of mixing.

Our experience replaced time, becoming the live set storyline of Kulangsu
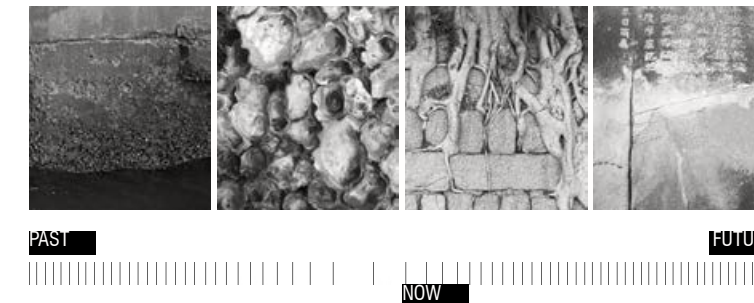
Kulangsu of Past

Whatever the past or future is, whatever lived and died on this island. History has past, the space just goes on, as a non-stop show.

Kulangsu of Happening

It is the enormous "now" composed Kulangsu.
They are **Real-time and cyclical**
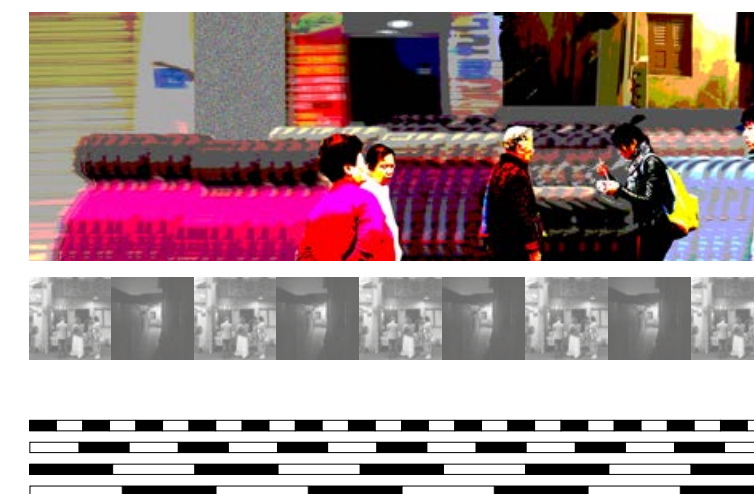
Museum of Past?

Exhibited
Piano that nobody plays

Museum of Happening?

Performed
Kulangsu that everybody plays!

#3 GAP + Architecture of Sound

Urban space - Binary Pattern - Algorithm
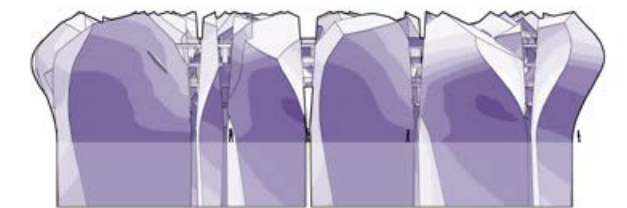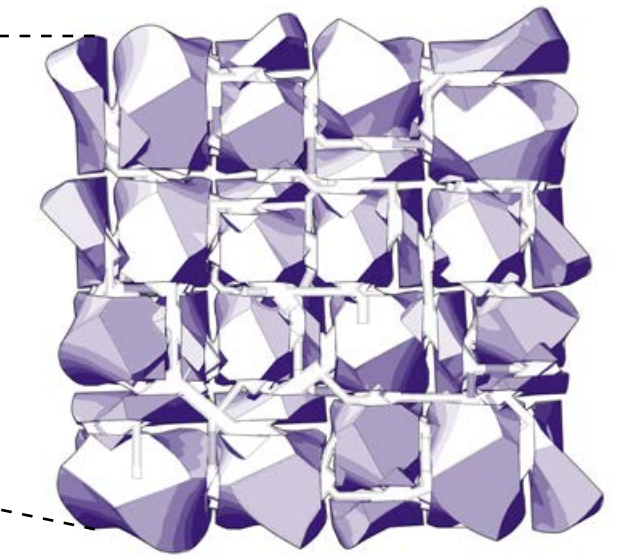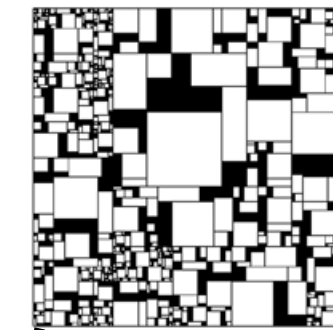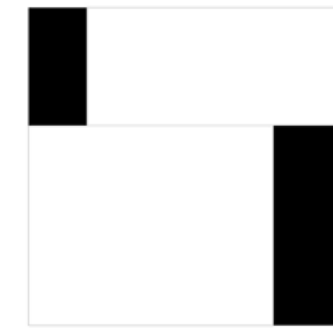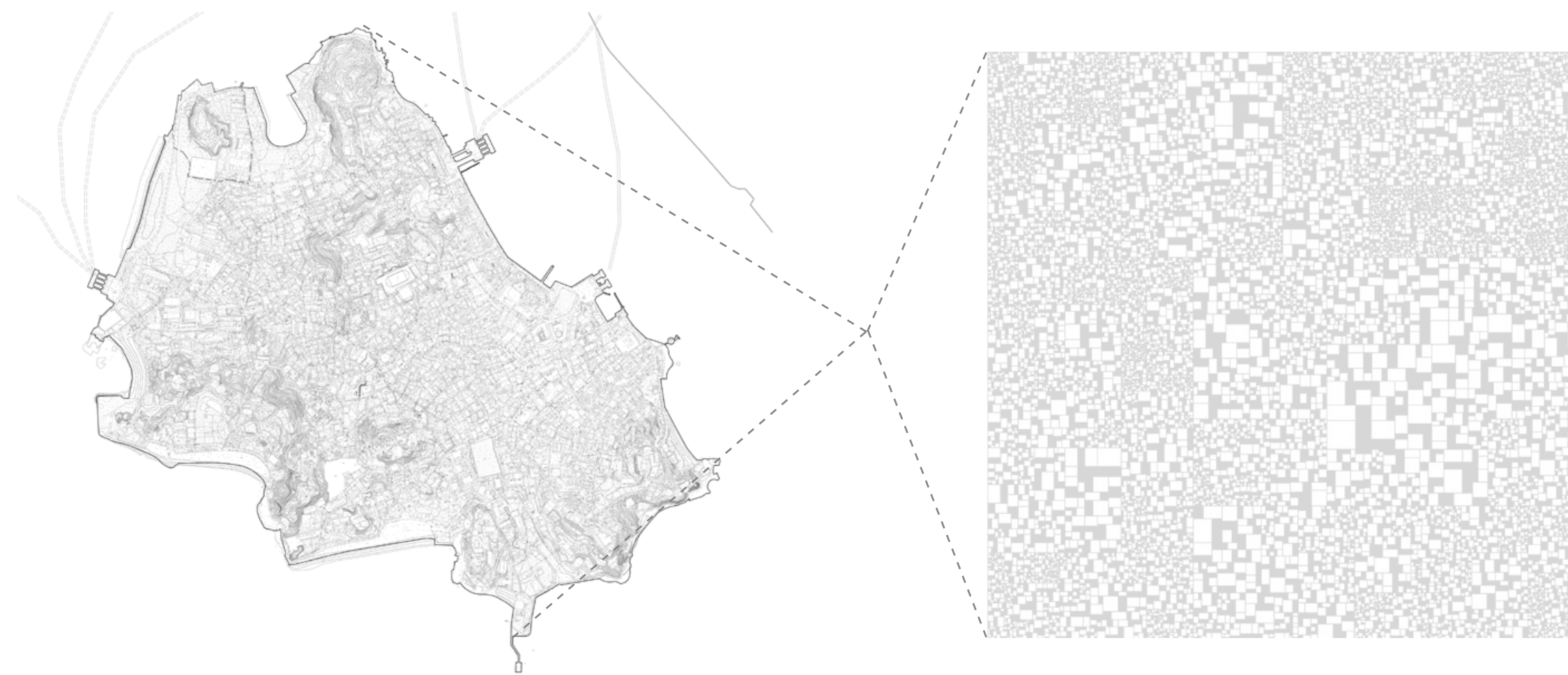
*The K-D Tree, a type of Binary system, is used for generating binary space system of diversified and controlled hierarchy - a space consists of GAPs - and that, is exactly what makes Kulangsu.*

Generated Binary Space

By overlapping the twisted grid with the original grid, a complex system of holes and tunnels is generated.
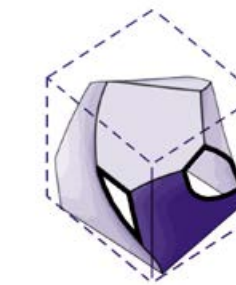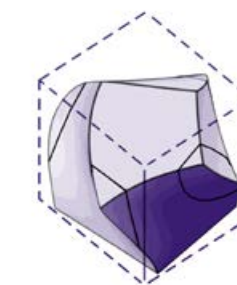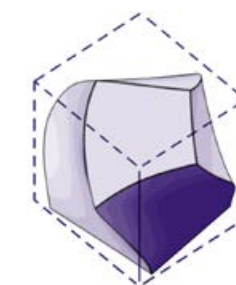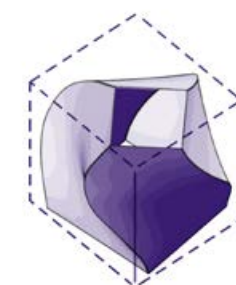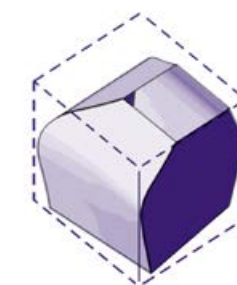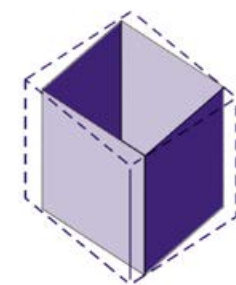
From bottom to the top, single spaces are gradually open and mixed together.
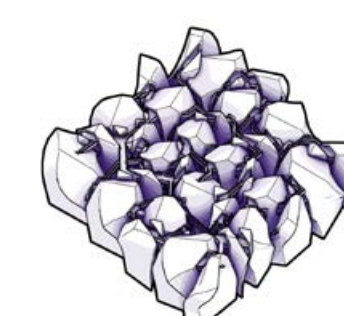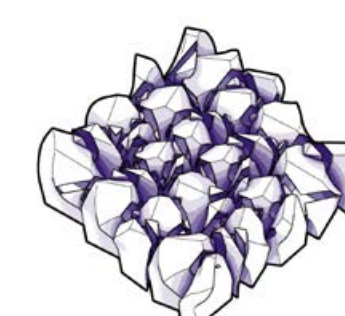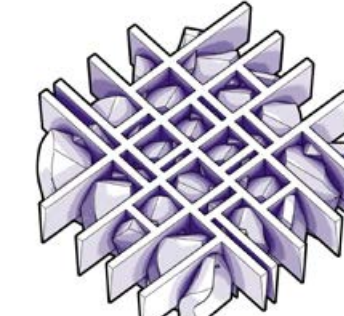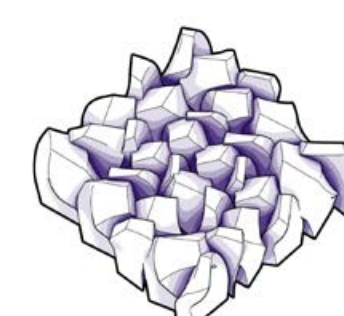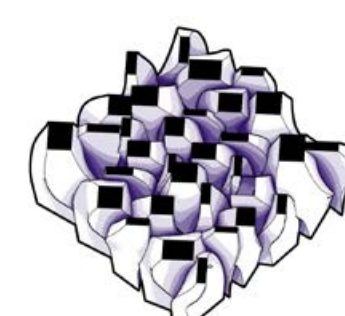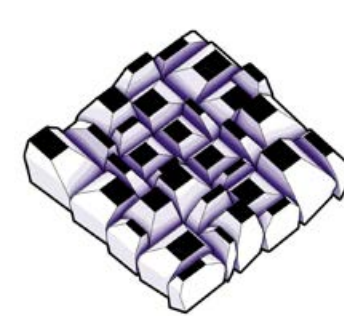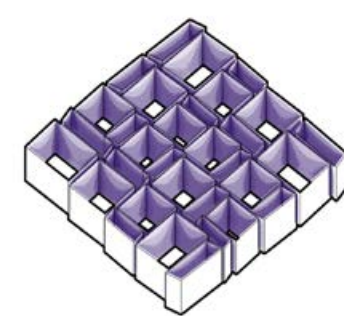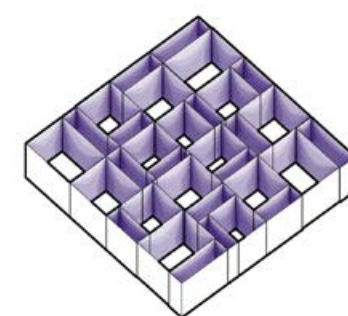
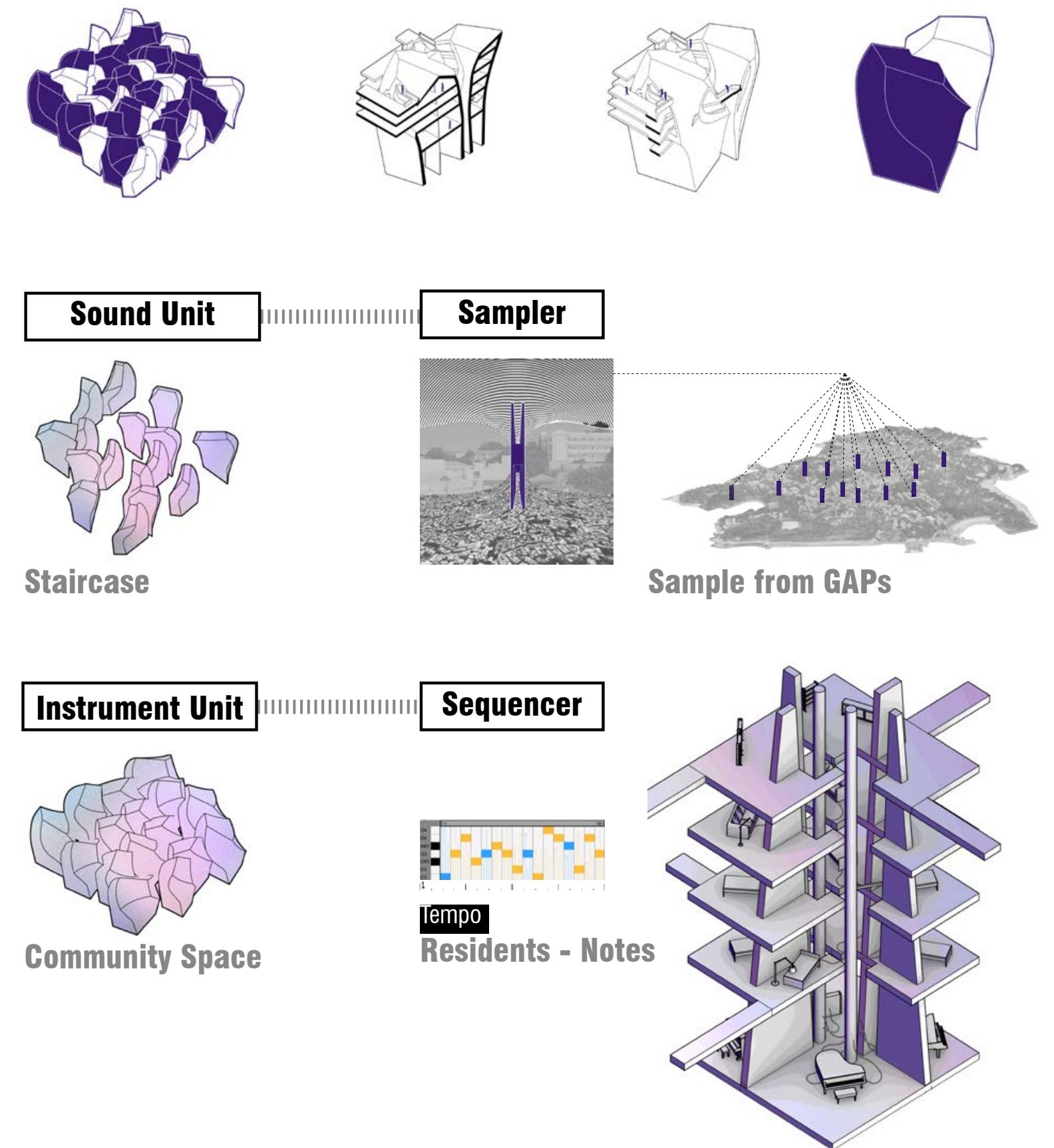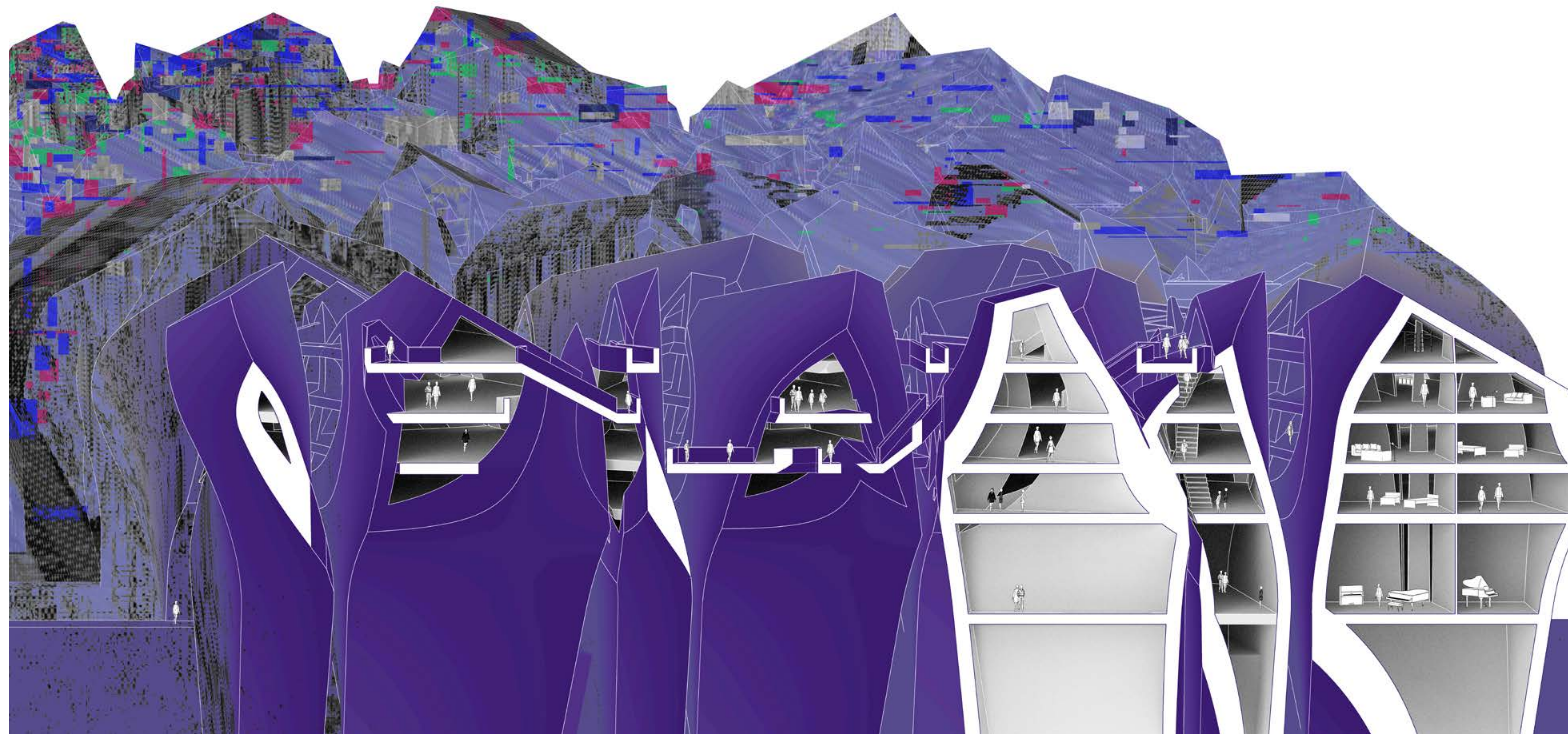| KD
Original Grid | DisPlace
Form the GAP | Shape
Vision Details | Rotate
Negative Intersection | Tilt
Roof Space | Overlap
with Original | Cut
by Original | Cut
by Original |

GAP +

a derivative wandering out of Kulangsu
a result of transformed mechanism

The GAP+ is a transition community space space before tourists enter the island of Kulangsu.
People can walk by, or take part into the sound behavior of the community.

Group of Scene

Texture - aural attributes
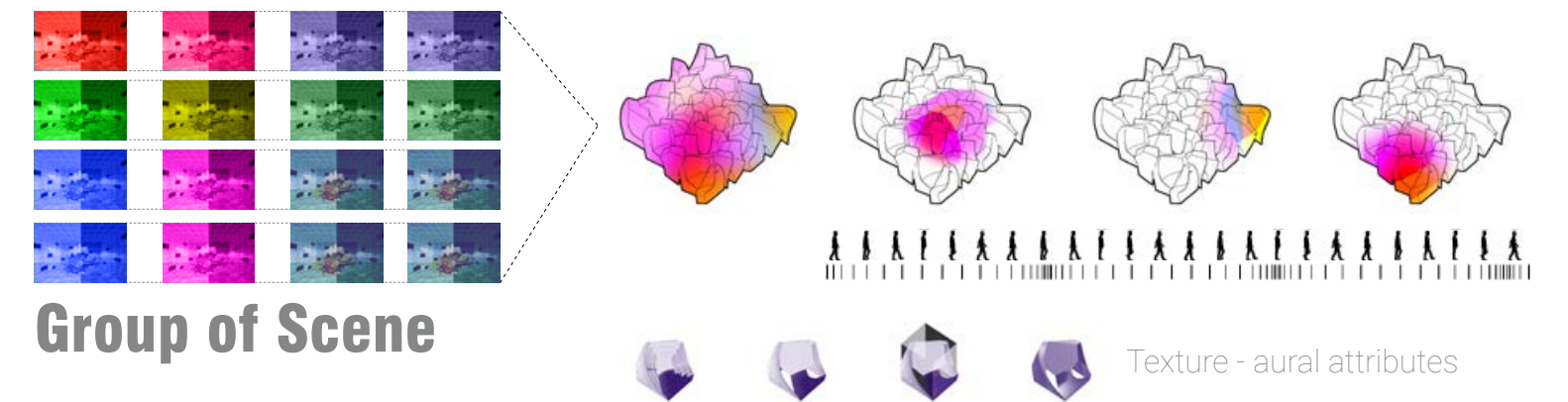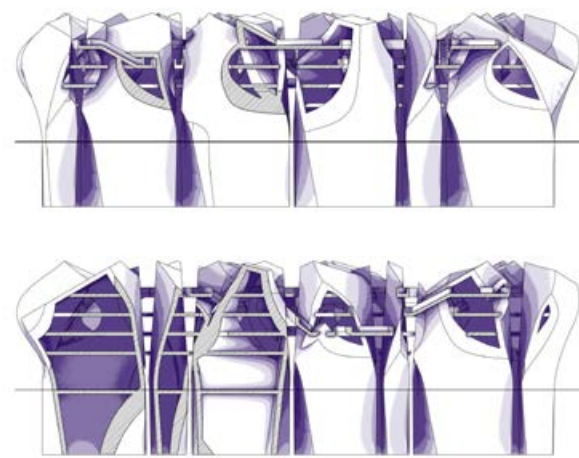
Just like a LiveSet, 16 groups of unit are distributed by ambience, including 16 Instrument Units and 16 Sample Units. By walking through, a real-time show is performed by user.

Sound Unit ········· **Sampler**

Staircase

Sample from GAPs

Instrument Unit ········· **Sequencer**

Community Space
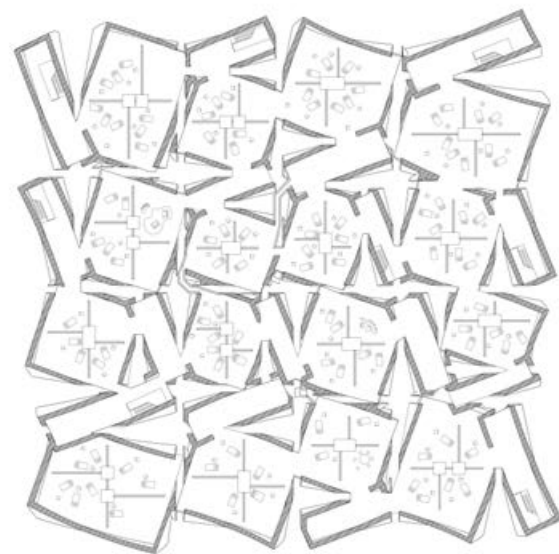
Tempo

Residents - Notes

Inside GAP

Attracting
Crossing the GAP

Enter

Through holes on GAP
user step into interior
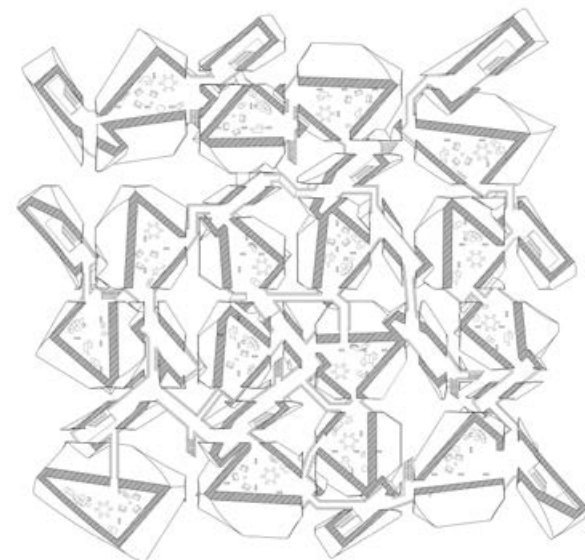
Rise

As you rise, up to rooftop
The space opens gradually
Sound becomes

Join

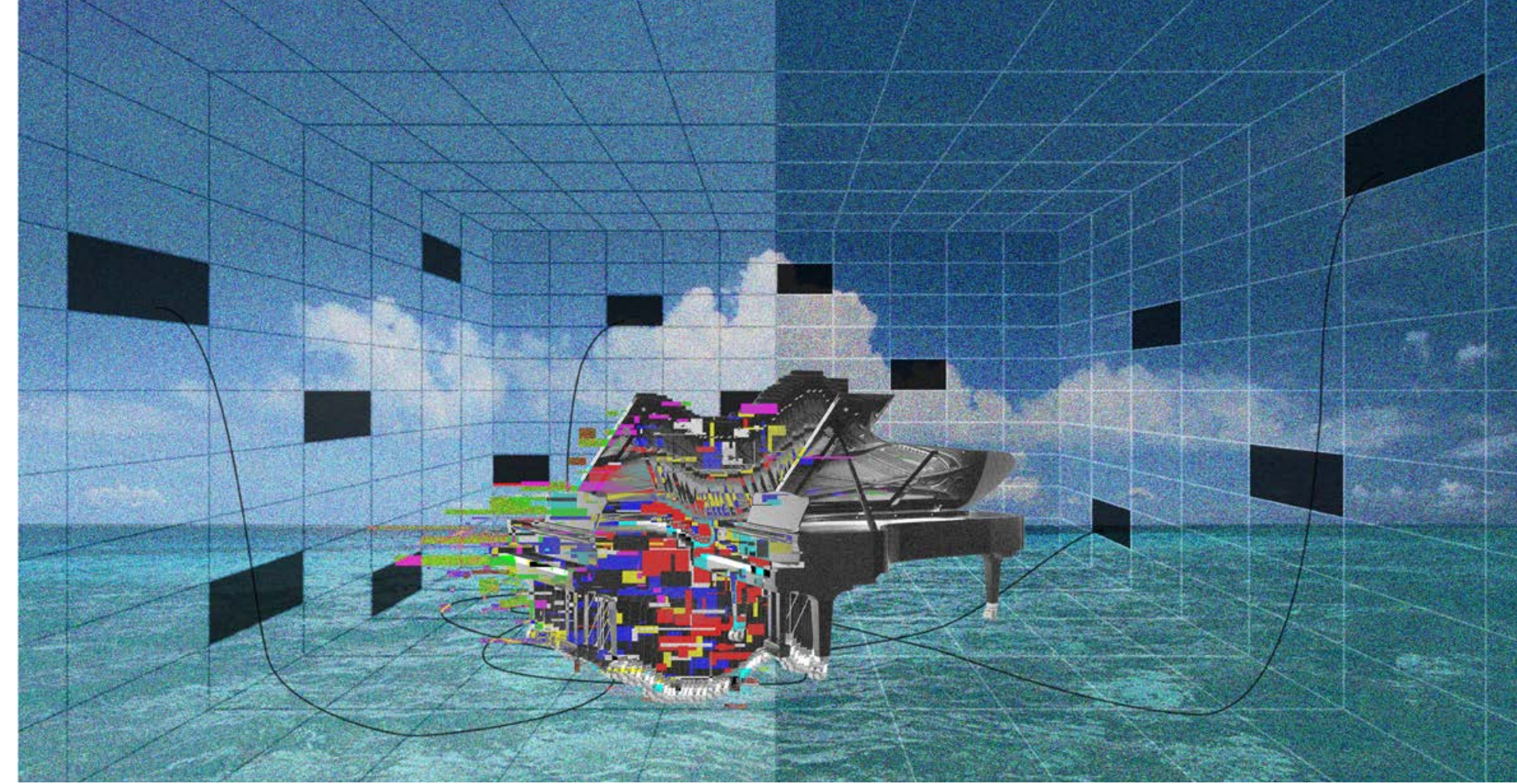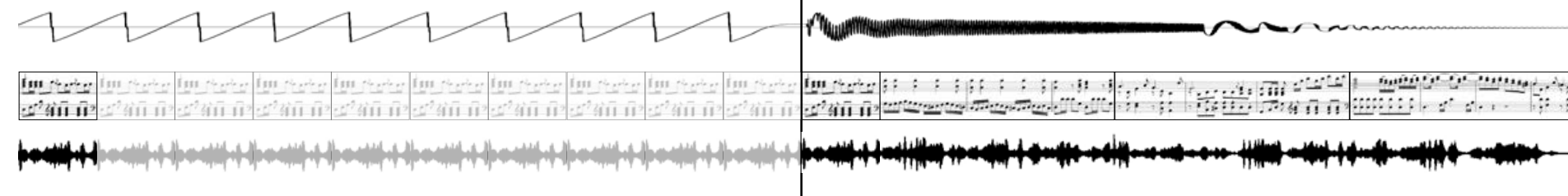Unit Space is awaiting
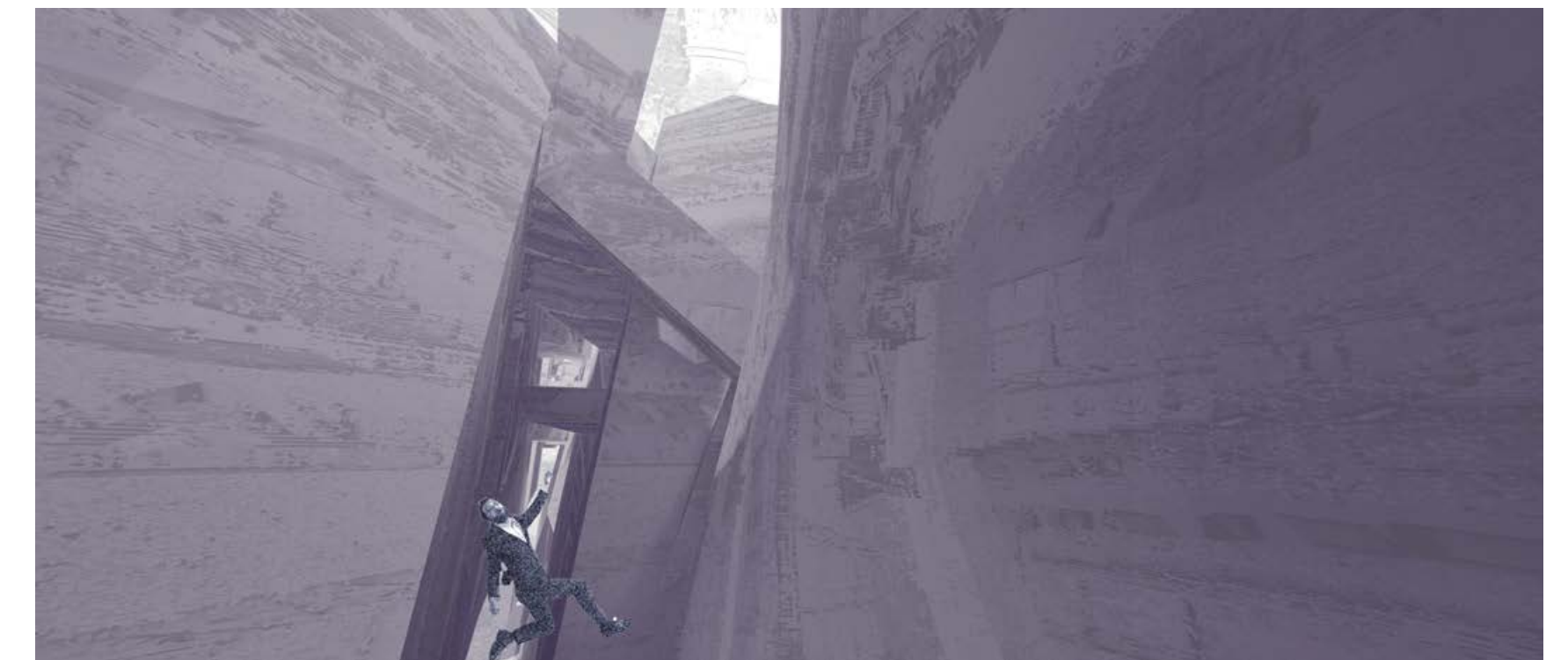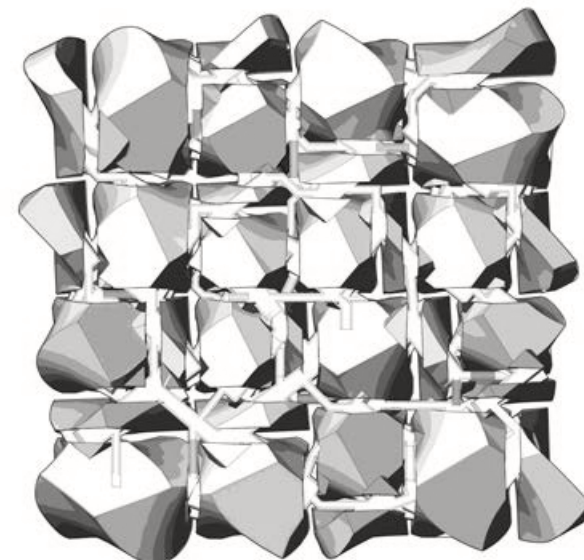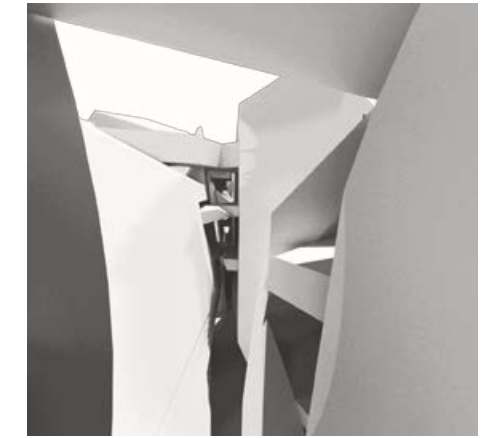
Trigger

New residents can automatically take
part in the performance.

The museum is a live space triggerred
by people. The live set of Kulangsu never
stop, as there is still tourist.
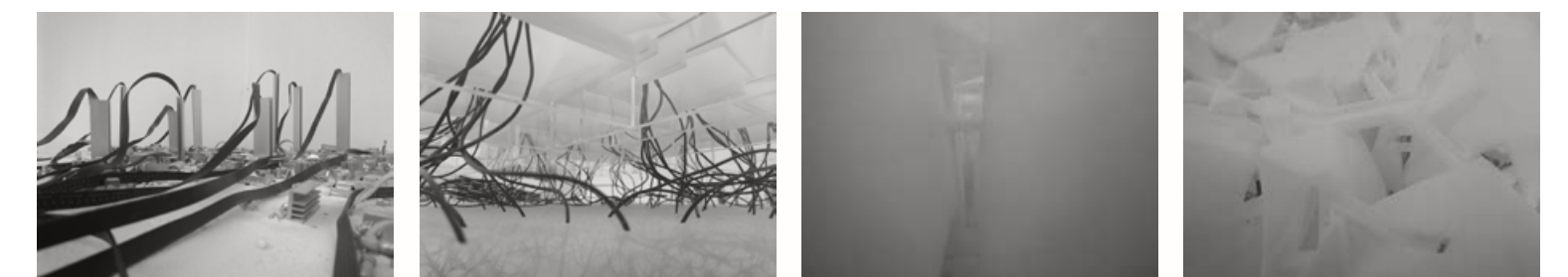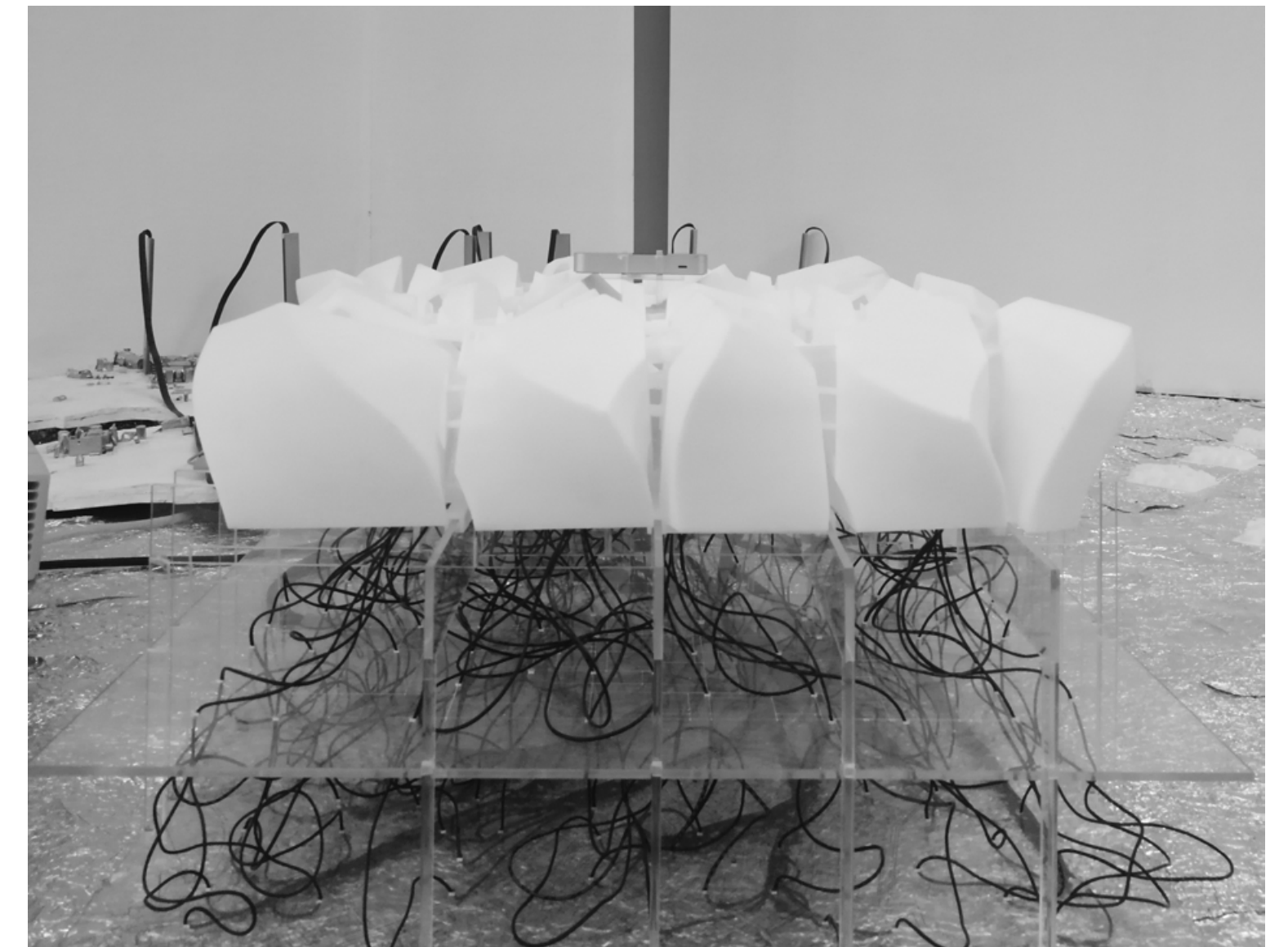

Back to Loop

Loop   Start   End

Bottom-Plan Mix: Low

Mid-Plan Mix: Mid

Top-Plan Mix: High

Top - Open Roof

#4 GAP- Installation of Sound

GAP -
another derivative wandering out of Kulangsu
an installation of sound in exhibition.

With sensors, it transforms space information to generate visual and sound. By collecting sound in Kulangsu, what we play on GAP- HERE, is connected to THEREs on Kulangsu.

By waving our palm, gigantic mixed sound from Kulangsu evolves from the gap behind. People experience Kulangsu from distant.
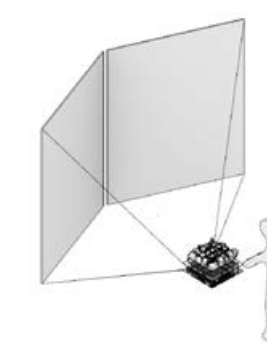
**Wave
to start LiveSet!**

**Horizontal swipe
to switch sound**

**Vertical move
to compress/reverb/fx**

In the coordinate of "GAP-", areas are distributed with specific ambience. As user moves, the composition is uniformed.

Music - midi controllers

| SOUND | Generate | SPACE |

Sound installation - GAP-

| SPACE | Generate | SOUND |

The GAP- controls the sound in an explicit-implicit way, rather than the implicit-explicit way of sound art/live set.