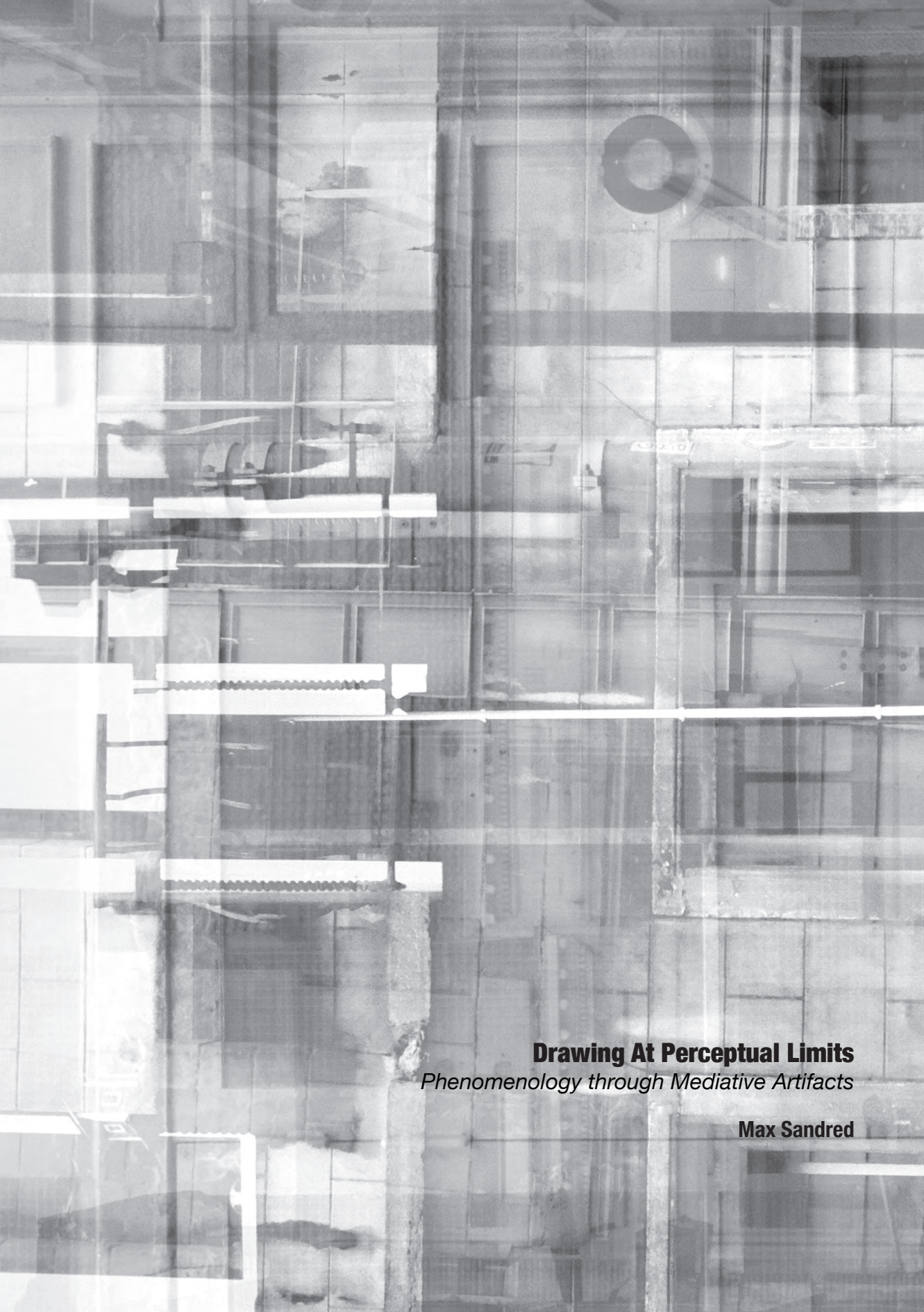


Drawing At Perceptual Limits

Phenomenology through Mediative Artifacts

Max Sandred

Drawing At Perceptual Limits

Phenomenology through Mediative Artifacts

Max Sandred

KU Leuven - June 20, 2024
Thesis Advisor: Riet Eeckhout
Studio: *Drawing Architecture: Aesthetics beyond Representational Imperatives*

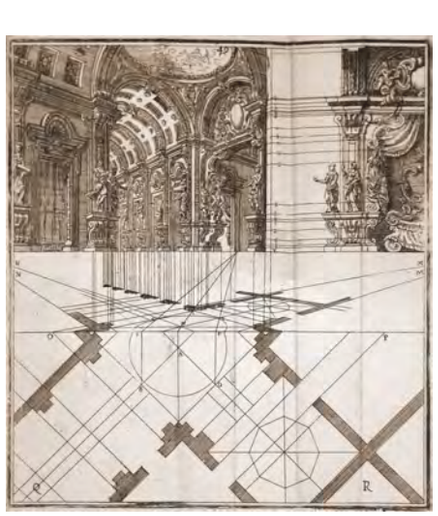


Fig. 1: 18th century drawing by Ferdinando Galli Bibiena showing a perspective constructed from a plan

ABSTRACT

abstract
Since the beginning of modernism, architects have often overlooked the mysterious and profound emotive influence space has on us. In the 18th and 19th centuries, scientific methods of drawing and simulating architecture were mathematically perfected. An example is that a perspective drawing could be precisely constructed using the measurements of a plan drawing. In effect, these technological innovations reduced space to a measurable emptiness. When the mysterious gap between our visual experience of space and its physical presence could be mathematically calculated, our conceptualization of space lost its premodern mysticism.[1]

In this thesis I use contemporary tools derived from these 18th and 19th century innovations to reveal that space is not a mathematical emptiness. Rather than considering space an empty void, I seek to rediscover its profound phenomenological effect.

My drawings, models, digital spaces, artifacts etc., are derived from the perception of digital cameras and sensors. I investigate how these machines perceive space from specific vantage points, and how they can be used to produce objects of thought. My work explores the limits of the data (textural, spatial, etc.) I can extract from them. This is done by translating this data into representational artifacts (drawings, models, digital spaces etc.) that hold onto qualities beyond description.

In this process I reach a point where I am confronted by something utterly unfathomable, or where the initial qualities I am attempting to materialize are lost in translation. Ultimately, the phenomenological effect of space is difficult to fully grasp. This work manages to come into contact with perceptual qualities of various spaces from different angles, but never uncovers their mystery.

1. Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge, MA: The MIT Press, 2000), 5.

overview of this book
The introduction explains the term phenomenology in relation to my project and introduces the role of drawing in my work.

The glossary introduces a list of key terms relevant throughout the book that developed in response to what my drawings uncovered.

Part 1 and Part 2 introduce the initial work of the thesis where my method developed and began to uncover aspects of spatial phenomenology. These parts led to the development of the terms seen in the glossary.

Part 3 delves into a specific site; the Église Notre Dame de Laeken, where I applied my method to specifically explore its phenomenology through the *surface of perception* and *shadow of occlusion.*

Parts 1-3 weave between my process of making that drives this thesis, and certain theoretical reflections that follow this process.

INTRODUCTION

phenomenology
Phenomenology refers to a study of the discrepancies between reality and perception.

"phenomenology is the study of "phenomena":
appearances of things,
or things as they appear in our experience,
or the ways we experience things" [1]

This thesis is focused on developing an understanding of phenomenology as it relates to architecture through the production of representational artifacts.

Architectural experience and spatial consciousness are inherently phenomenological. We perceive space with our body and senses. This is at odds with how architects draw space. The invention of mathematically precise descriptive geometry in the 18th and 19th centuries (the basis of modern drafting and CAD programs) have demystified space, allowing architects to fully reduce it to a measurable emptiness rather than considering its phenomenological meaning and emotional affect.[2]

Fig. 2: 17th c. diagram by Robert Fludd showing the study of phenomenology

1. David Woodruff Smith, "Phenomenology," Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, last modified November 16, 2003, accessed June 11, 2024, https://plato.stanford.edu/entries/phenomenology/.
2. Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge, MA: The MIT Press, 2000), 5.

the role of the drawing : ***representational artifacts as mediators***
The complexity of physical reality is beyond our direct experience and understanding. As architects, we have a unique ability to study topics through representational artifacts. Drawings, models and other representational artifacts physically embody their subject, and therefore, can hold onto complexities that we cannot describe or fully understand.

The power of the representational artifact lies in how it mediates reality into another state of being. Rather than describing an object, the architectural drawing registers qualities of the object into a medium.

In this light, this thesis explores how architectural practice can exist beyond its conventional confines. As mediative, representational artifacts, architectural drawings have the potential to serve as tools that further our understanding of reality.

In a time when the tools of representation have been revolutionized through digital technologies, our level of thinking has in many ways diminished through them. The Cartesian spaces that CAD softwares provide generally disconnect us from physical reality. Nonetheless, the wide range of representational tools that are available to us today hold immense, often unacknowledged potential.

Aristotle's term *mimesis* theorized the mediative potential of representation in relation to the ancient Greek arts.[3] Mimesis refers to the act of representation that mediates between experience and reality beyond our perception. In ancient Greece the heavenly cosmos were considered impossible to fully access, and therefore representations (mathematics, theatre, sculpture...) of the realm beyond perception were considered important methods of coming closer to the real.[4]

Today, many architects overlook or ignore the mimetic aspect of their work. The negative effects of this are not explicit, but rather, latent in the phenomenology of many contemporary buildings.

3. Michael Young, *Reality Modeled After Images: Architecture and Aesthetics after the Digital Image* (New York: Routledge, 2021), 4.
4. Alberto Pérez-Gómez, *Attunement: Architectural Meaning after the Crisis of Modern Science* (Cambridge, MA: The MIT Press, 2016), 60.

GLOSSARY

The following concepts are relevant throughout the project

synesthesia

> *a subjective sensation or image of a sense (as of color) other than the one (as of sound) being stimulated* [1]

synesthesia refers to multi-sensory experience. It is where multiple senses (ex: touch, vision, sound) blend to form a new sensation.

synesthetic condition

a *synesthetic condition* can be understood as a condition formed by synesthesia. It is the state of tension and ambiguity that exists when the perceived qualities of things blend. In the context of this thesis, the synesthetic condition is of more interest than synesthesia itself.

relationality

> *relationality refers to connectedness, a view of the world that underlines how no person or thing exists in isolation, because existence necessarily means being 'in relationship'* [2]

Space creates latent, phenomenological relationships between physical objects. When two objects are placed in a room the space between them is not an empty void, rather, it has a latent potentiality and atmosphere that affects our perception. *Relationality* refers to this condition between objects in space.

atmosphere

> *the character, feeling, or mood of a place or situation* [3]

Atmosphere is the perceptual quality of a space. This term is inherently indescribable in words, but can be understood as a condition formed by both relationships and synesthetic qualities that exist in a space.

1. "Synesthesia," in Merriam-Webster.com Dictionary, accessed June 11, 2024, https://www.merriam-webster.com/dictionary/synesthesia.
2. Vanessa Wijngaarden, "Relationality," in *Showing Theory to Know Theory,* eCampusOntario, last modified January 13, 2022, accessed June 11, 2024, https://ecampusontario.pressbooks.pub/showingtheory/chapter/relationality/.
3. "Atmosphere," in Cambridge Dictionary, accessed June 11, 2024, https://dictionary.cambridge.org/dictionary/english/atmosphere.

vantage point

The *vantage point* is the position of the subject who experiences space.

shadow of occlusion

> *blind zones can also be described as shadows, skiagraphias, invisible to data collection, dark pockets looming on the other side of the scan* [4]

The *shadow of occlusion* refers to what exists beyond our perception from the vantage point.

From any vantage point, there are spaces and elements that are beyond our senses. While we may intellectually or intuitively acknowledge the existence of the shadow of occlusion, we cannot experience it from the vantage point.

In relation to 3d scanning, the shadow of occlusion refers to certain spaces, such as the inside of an object, that are inaccessible to the scanner.

surface of perception

> *Schiller defines the term Umwelt as self-world or phenomenal world `around an animal as the animal sees it, the subjective world as contrasted to the environment'* [5]

The *surface of perception* refers to what exists within our perceptual field from the vantage point. In this way, the surface of perception is the perceptual edge (or surface) enclosing the shadow of occlusion. This "surface" is the interface between our perception and our environment.

In relation to 3d scanning, the surface of perception could be understood as the visible, tangible surface of an object that is accessible to the scanner.

4. Michael Young, *Reality Modeled After Images*, 50.
5. Urmas Sutrop, "Umwelt - Word and Concept: Two Hundred Years of Semantic Change," *Semiotica 2001* (2001), https://doi.org/10.1515/semi.2001.040, 447.

CONTENTS

Theoretical texts
broader reflections branching from content in the book

PART 1

THE SYNESTHETIC CONDITION

SYNESTHESIA AND ATMOSPHERE

ATMOSPHERE AND THE SYNESTHETIC CONDITION *(part I)*

Any space we experience has a certain perceptual condition that is impossible to define in words. This perceptual condition is inherently relational and synesthetic, and often colloquially called its *atmosphere.* However we define this condition, in order to understand it one must avoid reducing it to descriptions. The following collages are aimed at materializing synesthetic, relational aspects of places through photocollage.

The collages collapse many photos of a single situation into one image. When an environment is oversaturated by itself, we stop reading it as a space - it becomes a spatially ambiguous textural surface that has an indescribable character. The striking, complex and indefinable quality of these images bring us closer to seeing a synesthetic condition.

left: City2 Mall, Brussels *digital photocollage*

Parc Josaphat, Brussels
digital photocollage

Gare Du Nord underpass, Brussels
digital photocollage

Object-Oriented Ontology, *allure* and *confrontation*

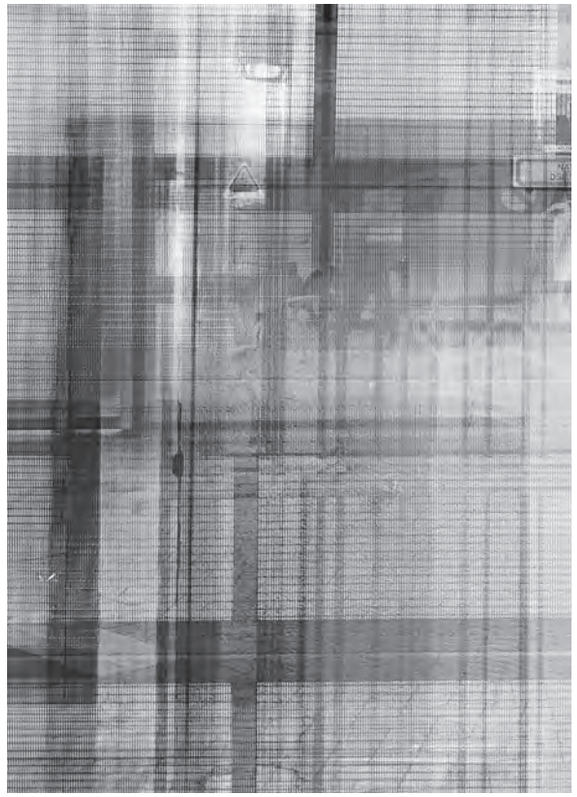
Object-Oriented Ontology is a contemporary philosophical movement introduced by Graham Harman that attempts to expand the study of philosophy beyond anthropocentrism.[1] This is generally done by considering that non human entities have their own agency and intentionality beyond what we as humans project onto them. *Allure* and *confrontation* are two concepts from Object-Oriented Ontology that discuss interactions between objects and their phenomena.

Allure refers to when the expected qualities of an object and the object itself are questioned and shifted.[2] An simple example that illustrates this could be a cup made of fur.

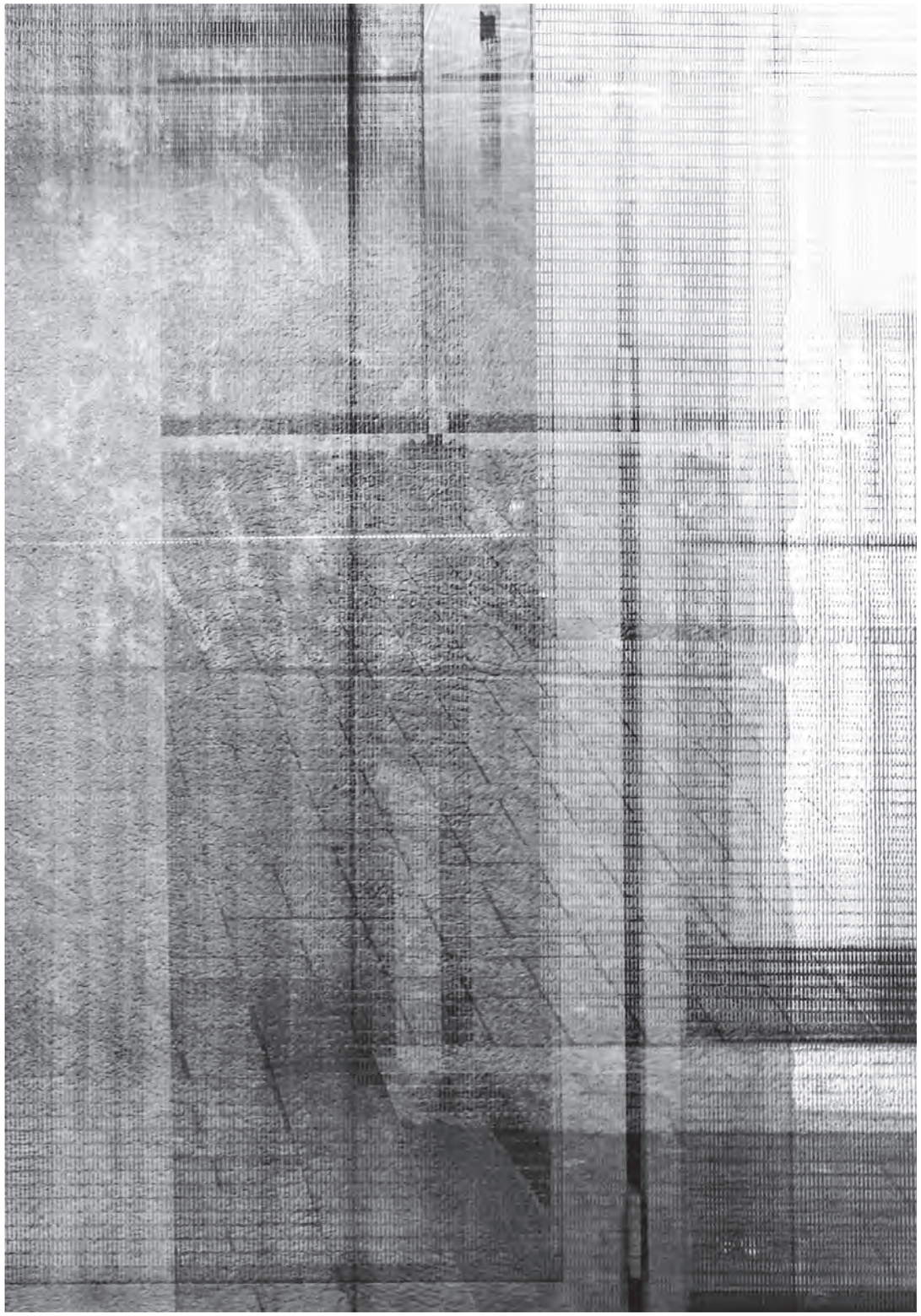
Confrontation refers to a moment where an object is oversaturated by itself - its qualities are somehow exaggerated.[3] An example in art would be a cubist painting of a guitar from many angles.

These concepts allude to synesthesia, and highlight tensions that exist between objects in space. When items are placed next to each other in space, they have a perceptual effect that is at the core of architecture's impact on society.

1. Graham Harman, "Object-Oriented Ontology," *Oxford Research Encyclopedia of Literature*, last modified September 24, 2019, accessed June 12, 2024, https://doi.org/10.1093/acrefore/9780190201098.013.997.
2. Graham Harman, *The Quadruple Object* (Winchester, UK: Zero Books, 2011), 193.
3. Ibid.



Instances of allure and confrontation seen in fragments from different collages. These moments are synesthetic conditions where space, texture, light... blend in ways that are impossible to define.



Qualities are freed from their hosts and put in dialogue with one another. Spatial relations between things are explored in the surface of the image


NEW COLLECTION
BROSSE A VAISSELLE
1.98
PETITE BROSSE
3.
1.
6.
3.

synesthesia and relationality as atmosphere
Qualitatively speaking, atmospheres are in many ways the relational and synesthetic condition of a place. Still, atmosphere is perhaps a broader term that also includes personal and social connections to place.

Mark Dorrian describes atmospheres as the perceptual aura emanating from physical matter, and as such describes them as the

"fundamental and ineluctable terrestrial medium, that within which emissions of objects are born and through which they must pass." [1]

As opposed to physical matter, atmospheres are inherently momentary, and as such constantly changing. As Peter Zumthor famously notes,

"I enter a building, see a room, and – in the fraction of a second – have this feeling about it" [2]

1 Mark Dorrian, "Atmosphere and Distance," Journal of Architectural Education 67, no. 2 (2013): 283–84, doi:10.1080/10464883.2013.817176, 283.
2 Christian Borch, Architectural Atmospheres: On the Experience and Politics of Architecture (Berlin: Jovis, 2014), 7.

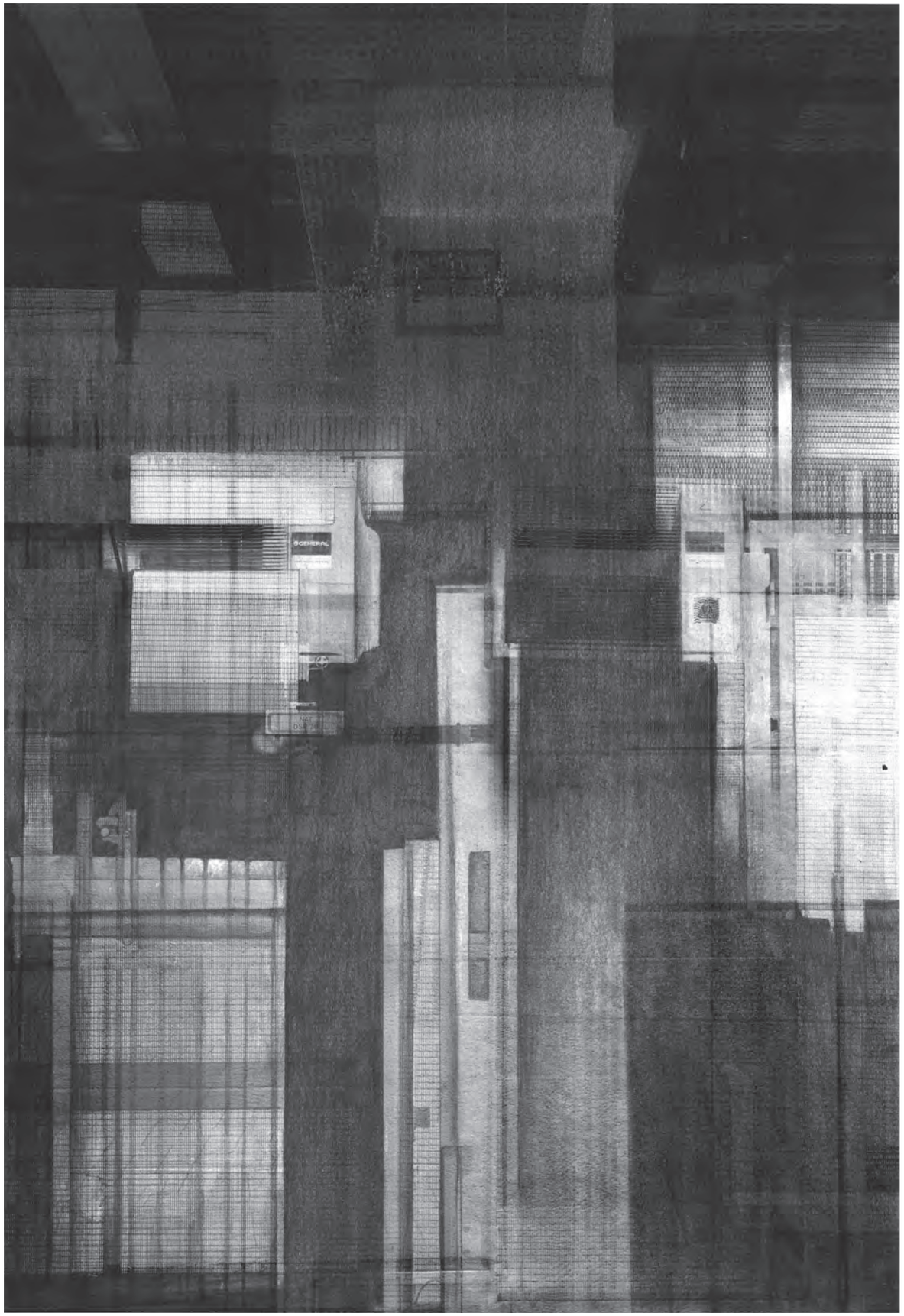
IN PURSUIT OF THE ATMOSPHERIC OBJECT

The collages are striking in their flattening of spatial phenomena, opening up a new context. This spurred an initial method of working in this thesis; trying to understand an atmosphere, or synesthetic condition by translating its qualities into an object.

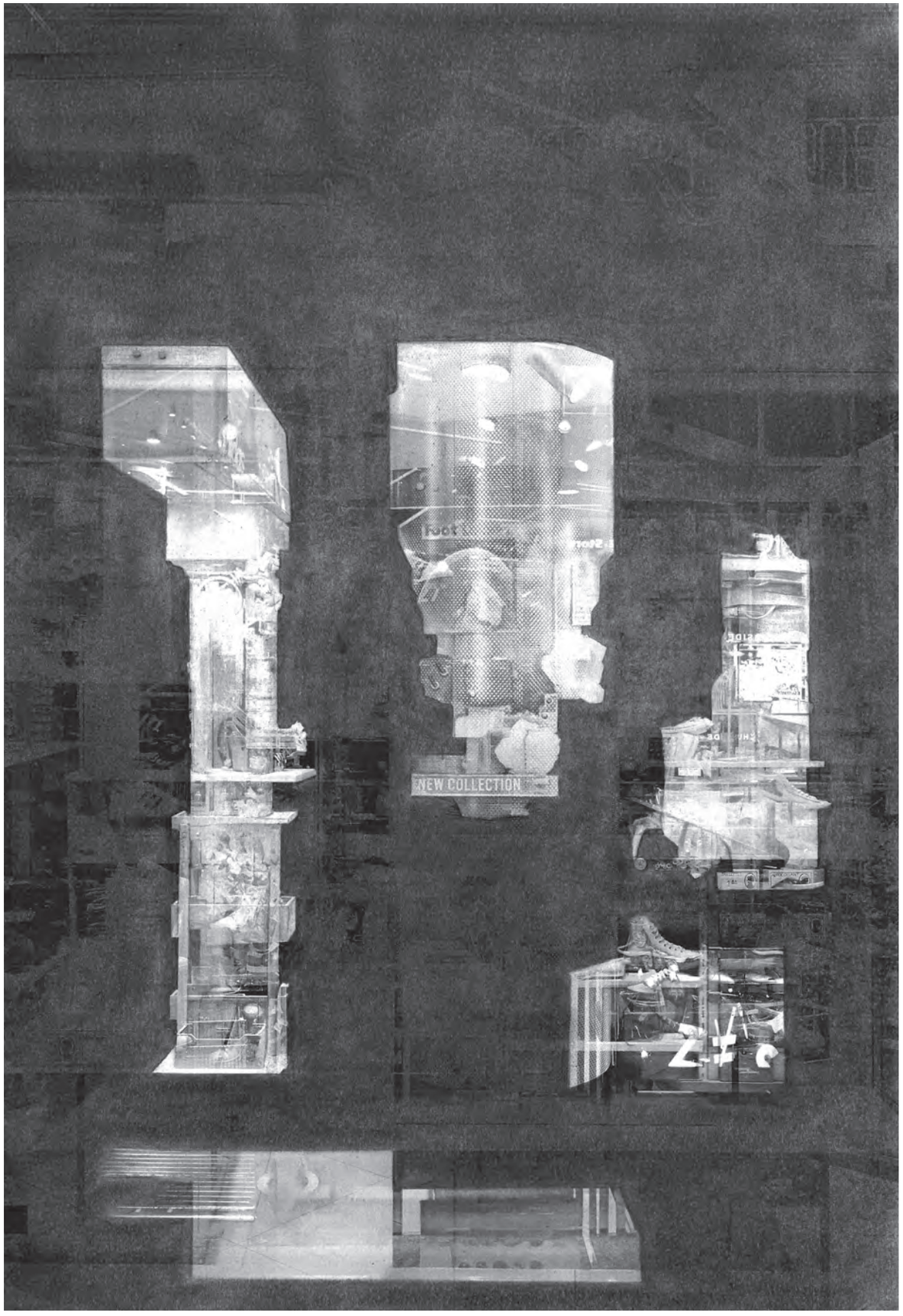
While an atmosphere can of course never become an object (since it is the quality borne from relations between objects), the process of trying to get closer to what this object might be is revelatory. The challenge is that atmosphere - what lies between objects - disappears when it becomes an object. I refer to the objects that are created in this process as *atmospheric objects*.

In this process, I allowed synesthetic and relational moments created by the collages to generate fixed and resolved things. My first drawings are done by printing out the initial collages and blacking out information with graphite pencils to reveal fixed objects.

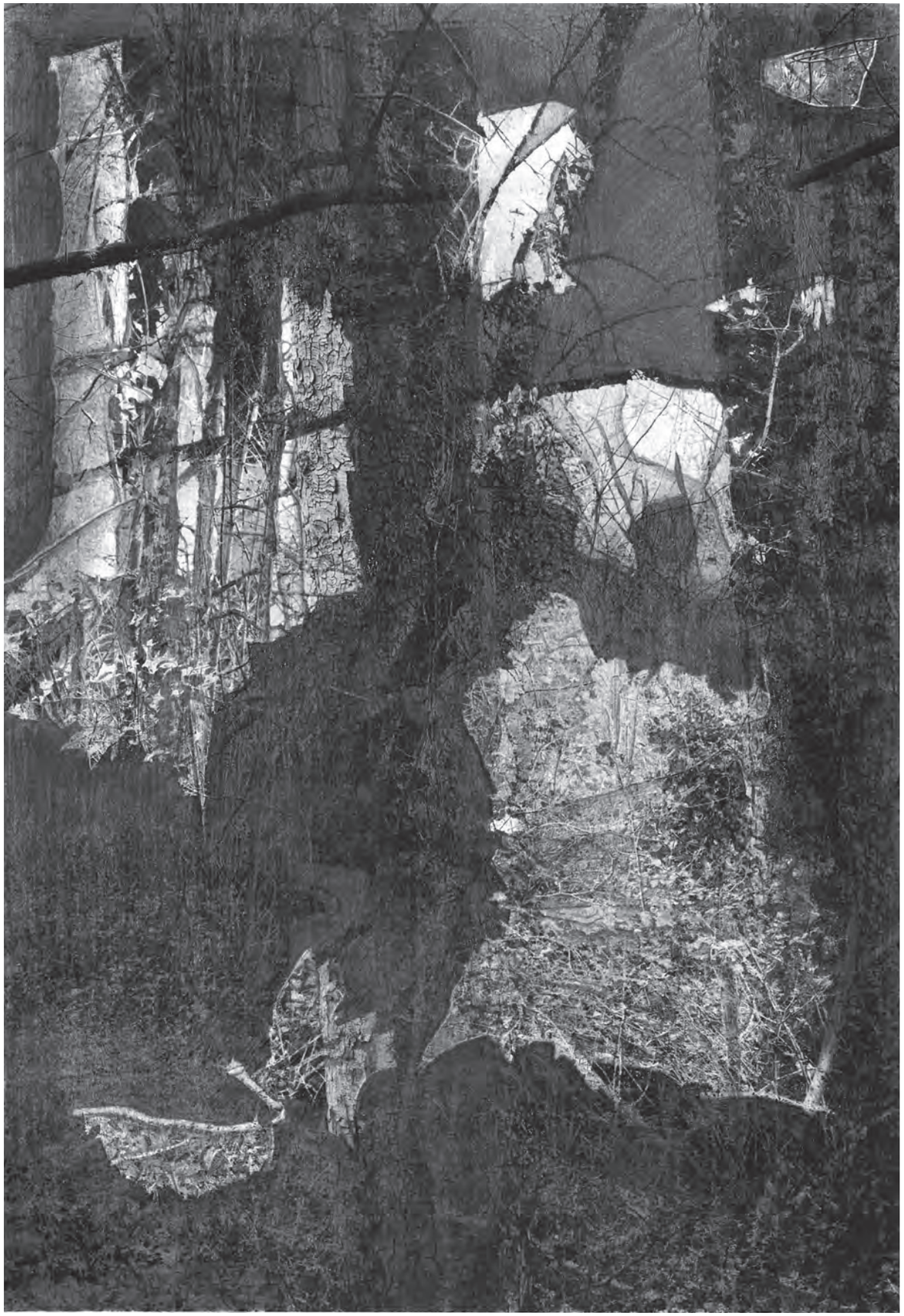
(right) object revealed in the Street in Schaerbeek collage
graphite on printed photo-collage



Atmospheric objects revealed in the Gare du Nord collage
graphite on printed photo-collage

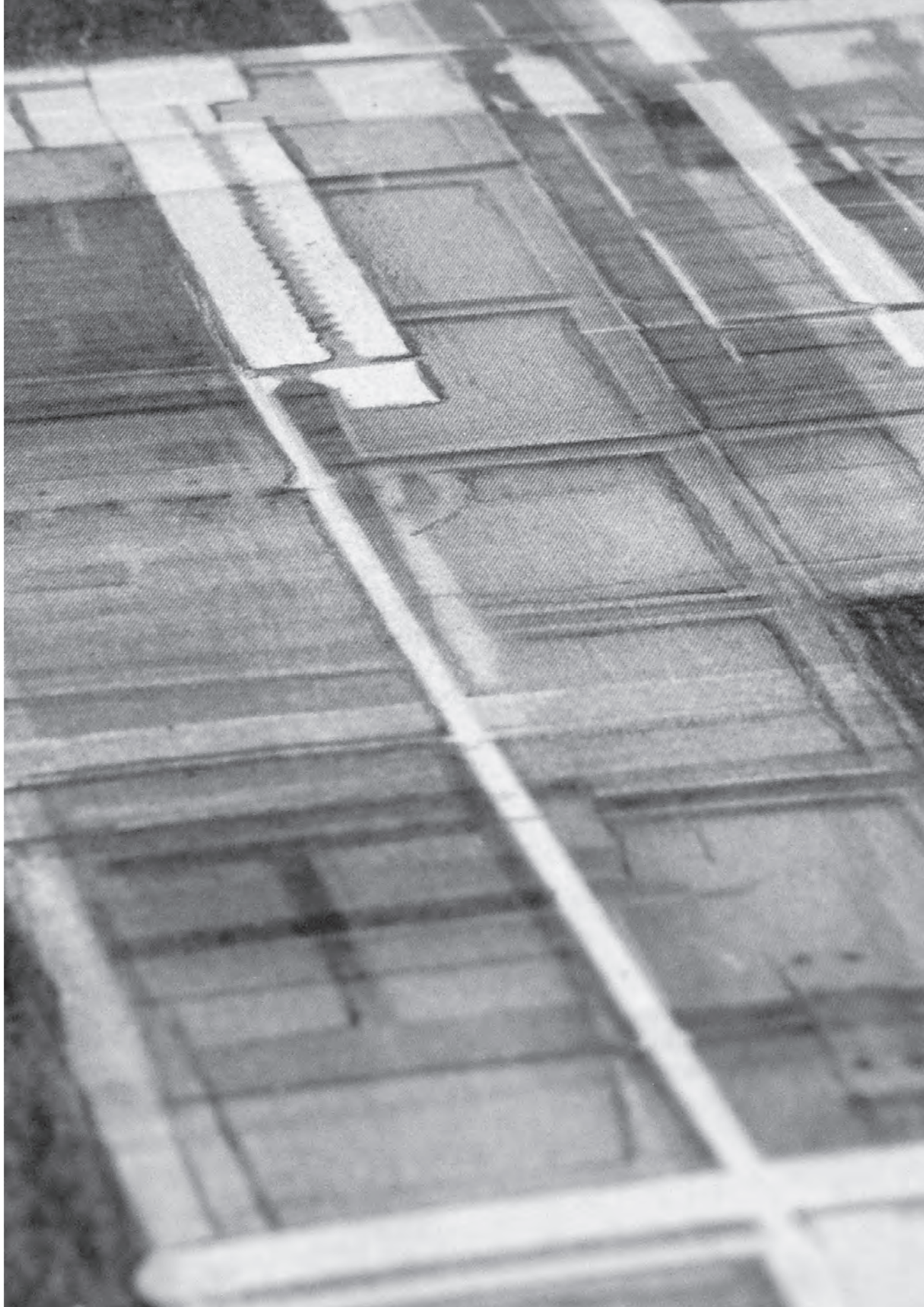


Atmospheric objects revealed in the City2 Mall collage
graphite on printed photo-collage



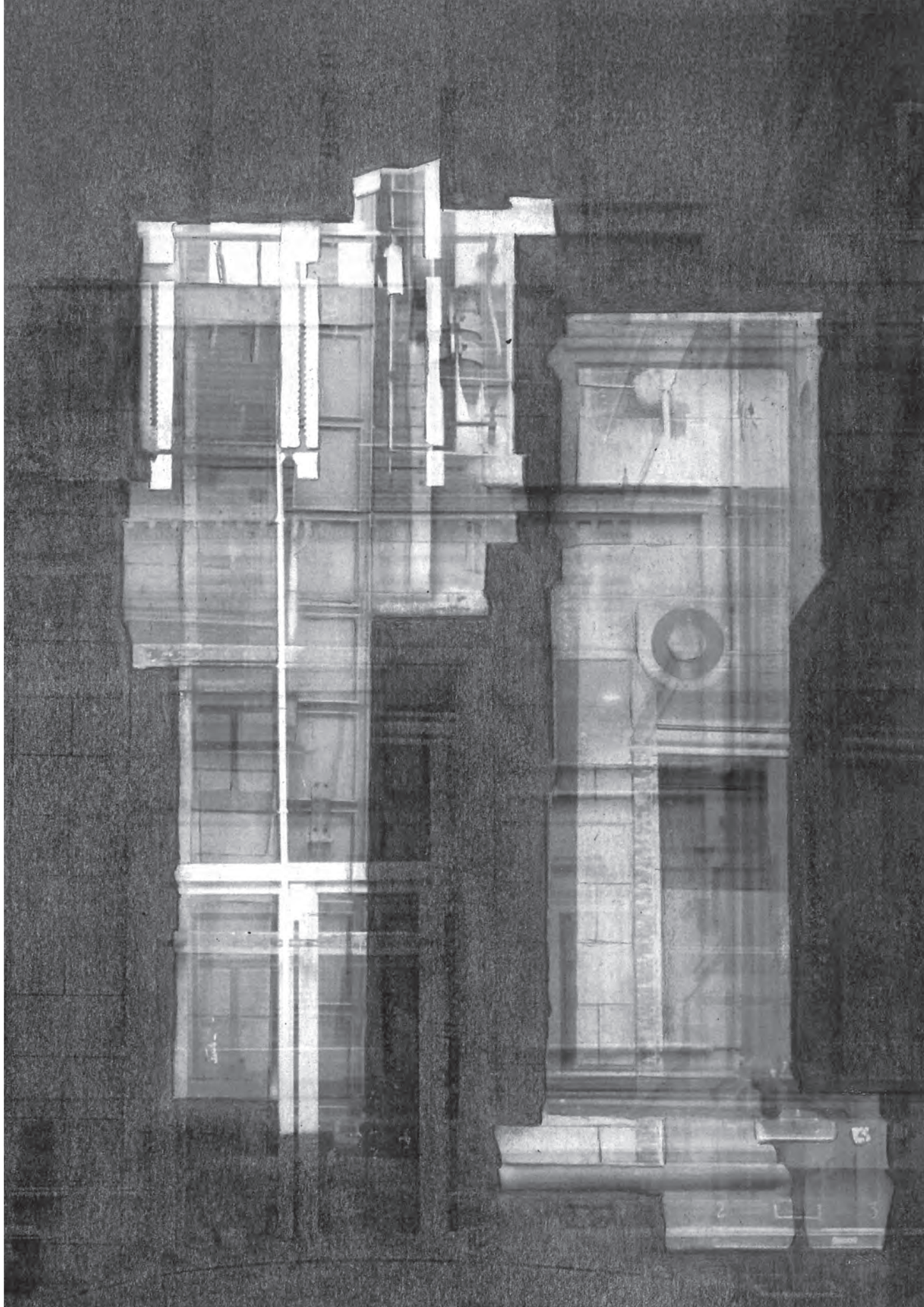
Atmospheric objects revealed in the Parc Josaphat collage
graphite on printed photo-collage

Photograph of an atmospheric object revealed
using graphite on the Street in Schaerbeek collage



Photograph of an atmospheric object revealed
using graphite on the City2 Mall collage

Objects revealed in the Street in Schaerbeek collage
graphite on printed photo-collage

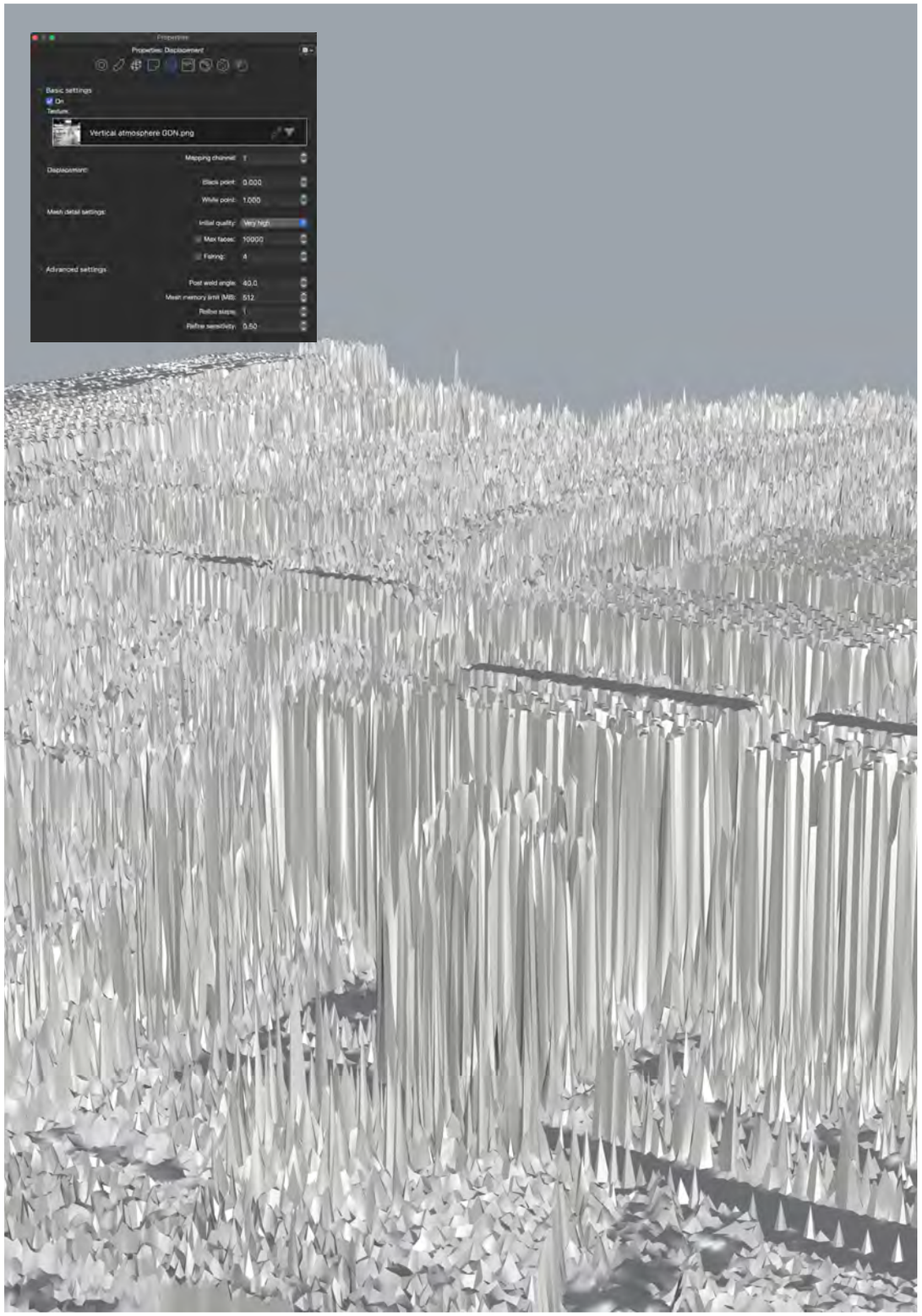


Video projection on wooden board

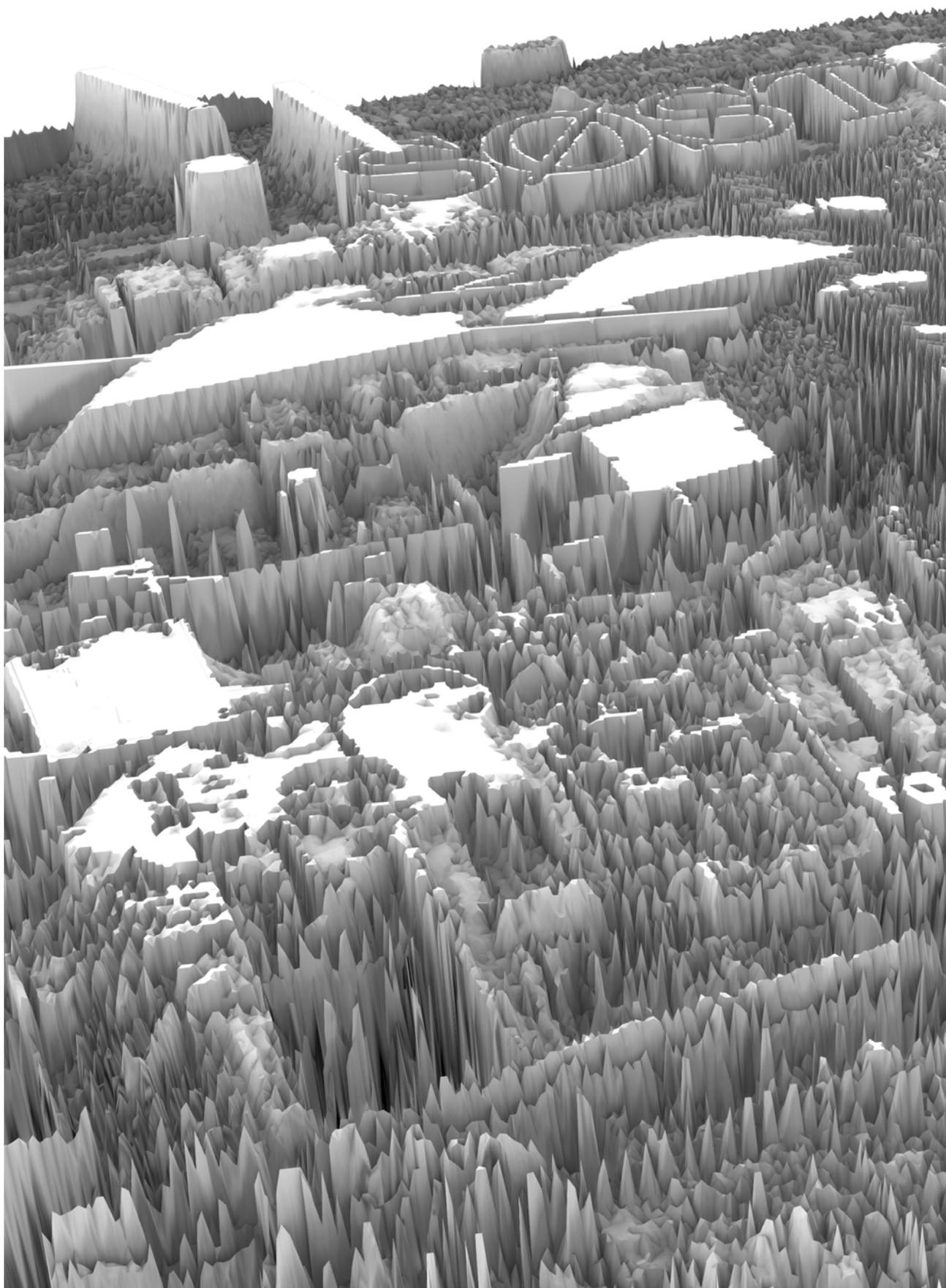
I attempted an alternate method of getting closer to an atmospheric object by working with videos. Here I projected a video collage from Parc Josaphat onto a wooden board. Unlike the overdrawn collages, this atmospheric object incorporated minute movements from its original site (swaying branches, water in a stream etc.).

In the process of photographing my drawings and projecting, I realized that I wanted to physically access the materiality of the atmospheric object. To access this materiality beyond the illusion created by the graphite and photograph, I developed a method of digitally casting the original collages.

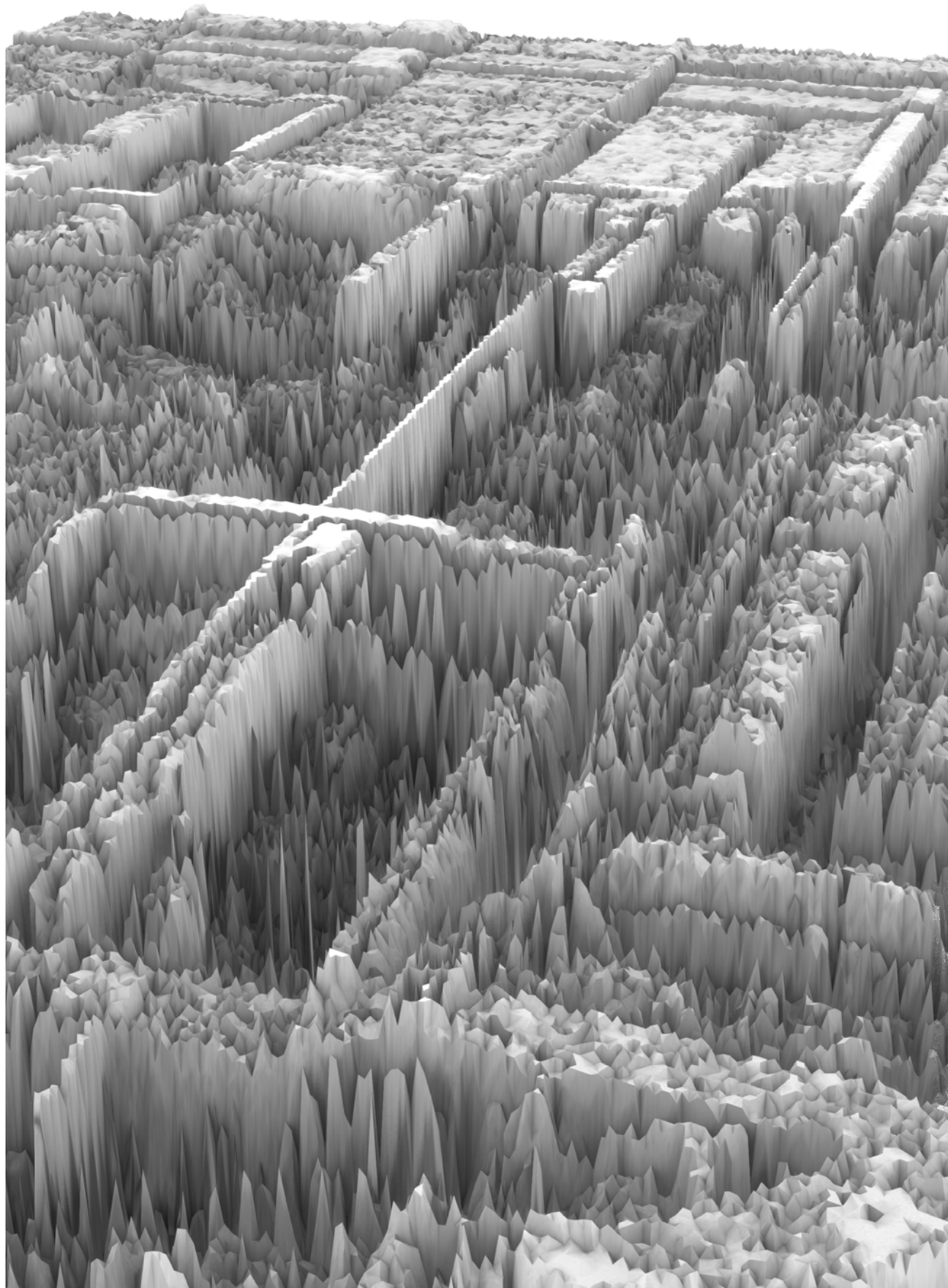
In this process, their spatially ambiguous condition became objective, 3 dimensional, and material. I made my computer software read textural data from a collage and construct surfaces from it. The results are artificial topographies that are intricate and scaleless, and can be experienced as landscapes in digital space. These textures are a translation of the spatial ambiguity in the collage into a textural surface.



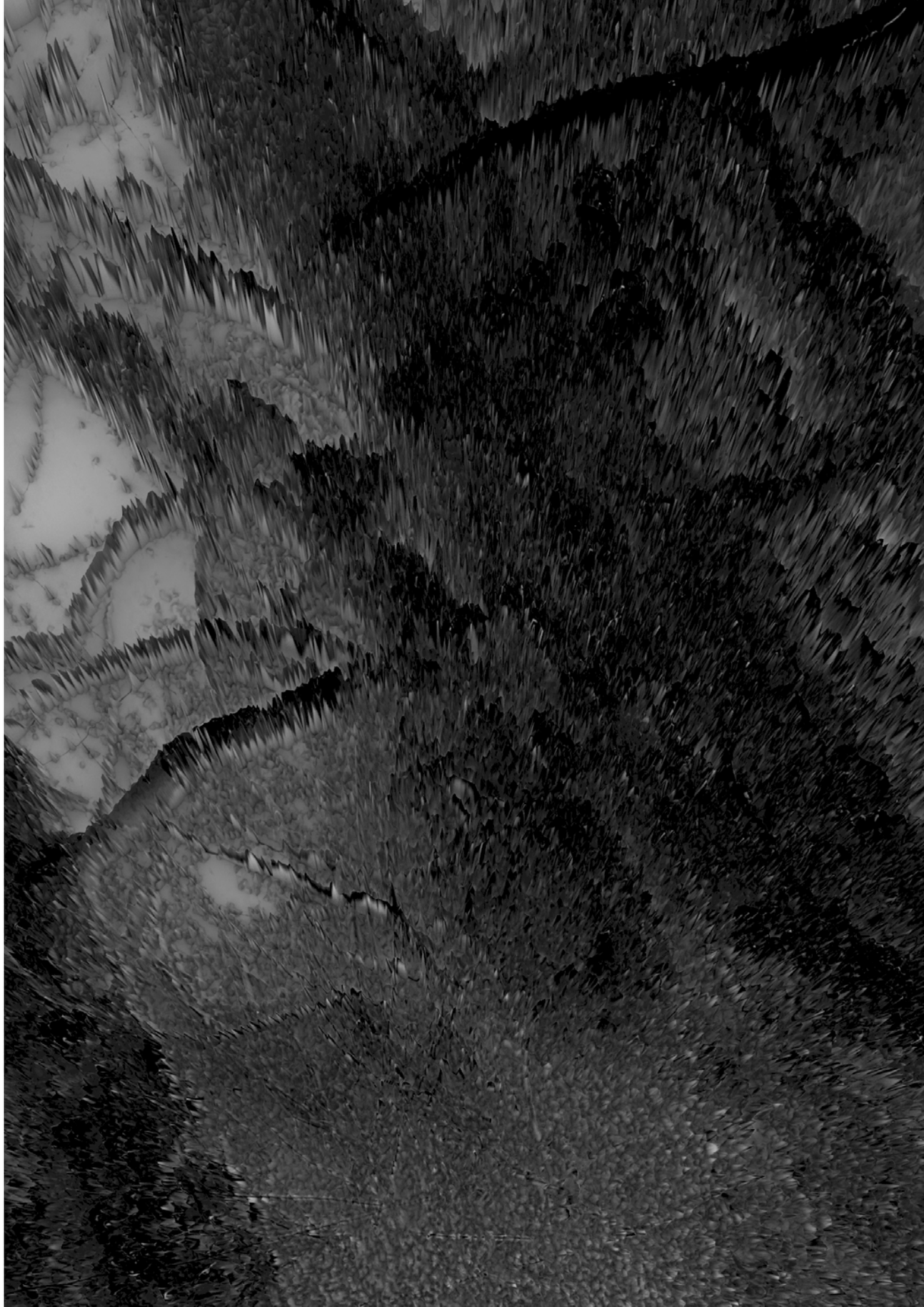
Digital casting of the City2 Mall collage



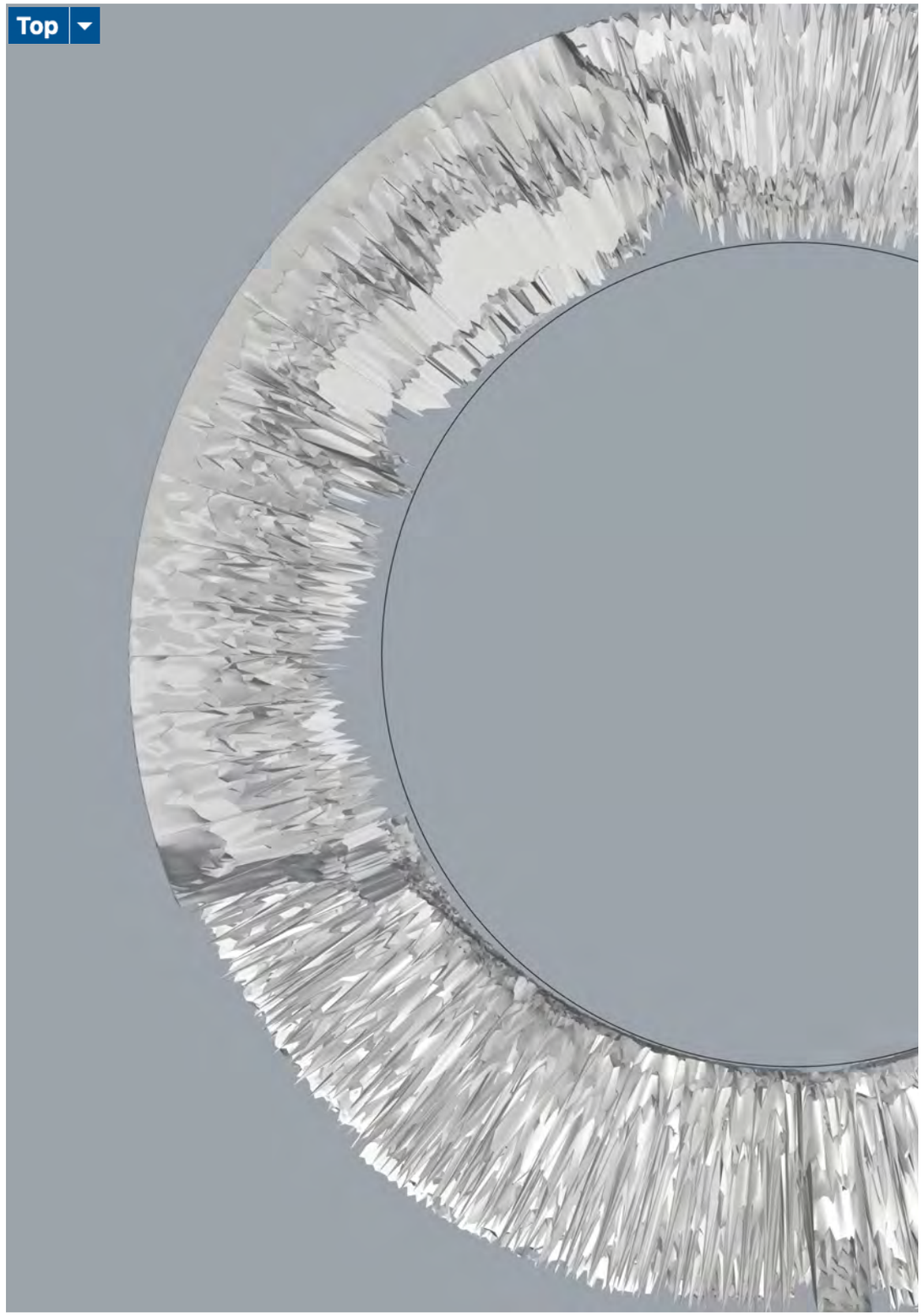
Digital casting of the Street in Schaerbeek collage

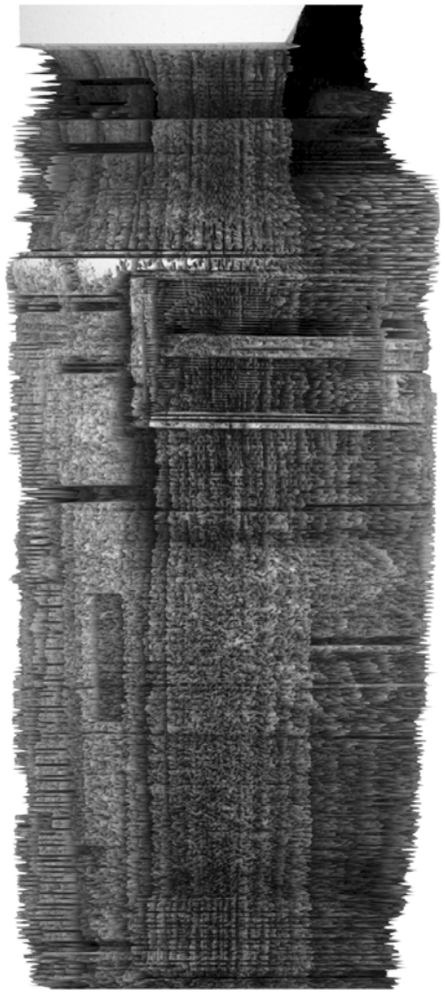


Digital casting of the Parc Josaphat collage

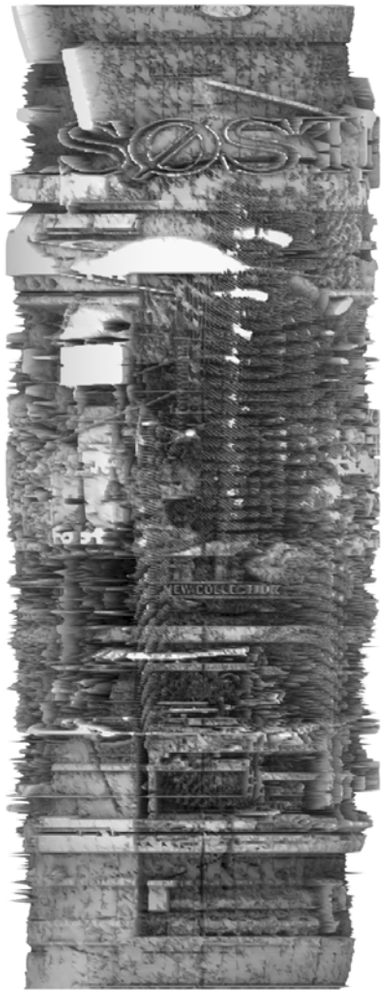


In order to come closer to a material object, I intuitively wrapped these surfaces into cylinders. In this way the texture is mapped onto a closed object without adding creases unrelated to the source data. These surfaces become absurd column-like things that are indisputably read as objects.

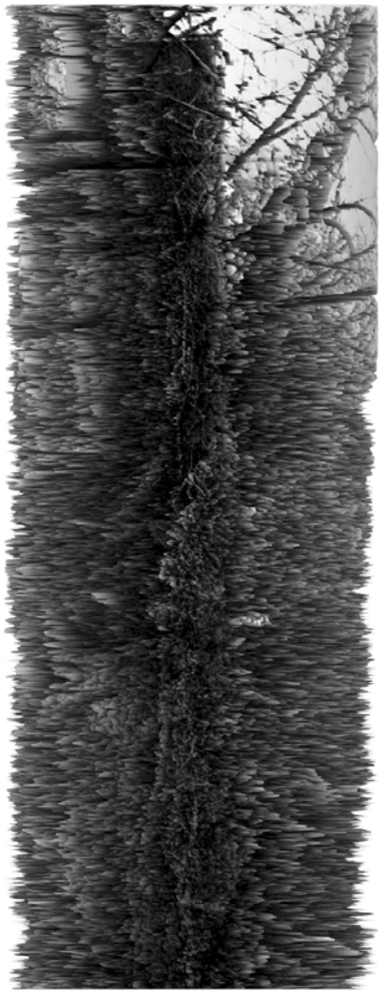




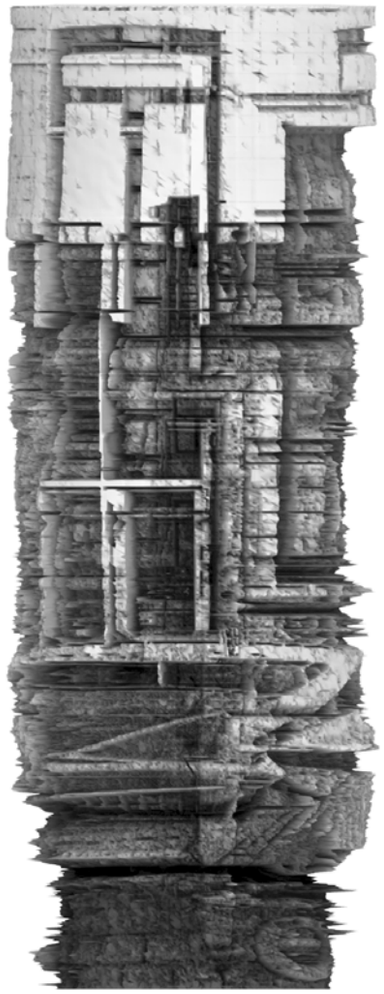
Gare du Nord column



City2 Mall column



Parc Josaphat column



Street in Schaerbeek column

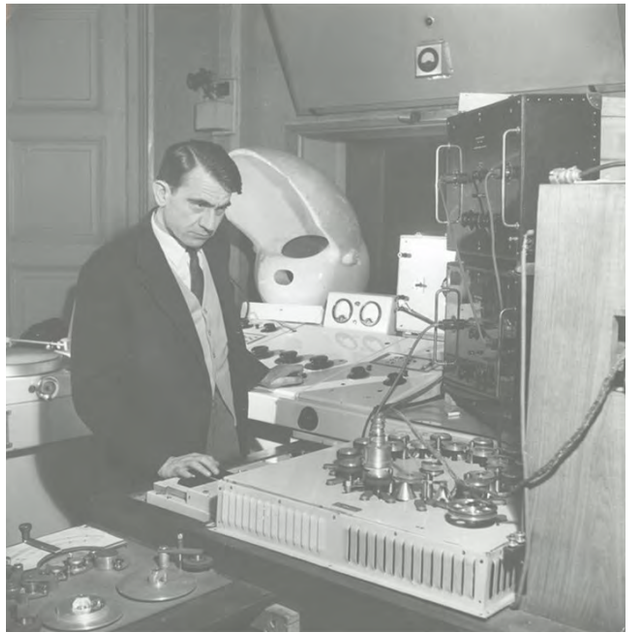


Fig. 3: Pierre Schaeffer in his studio

Pierre Schaeffer and the *sound object*

In the 1960s composer and musicologist Pierre Schaeffer published the seminal book *Traité des objets musicaux* (Treatise on Musical Objects). This book investigates the experience of sound by exploring its intrinsic qualities. Rather than focusing on the source material of a sound (for example: that it comes from a guitar string), Schaeffer deals with the sound itself. This led him to define the *sonic object* that is separated from the source that generates it. In order to explore the intrinsics of sound, Schaeffer developed completely novel, objective methods of describing and classifying sounds that are productive for his investigations.

”To avoid its being confused with its physical cause or a “stimulus,” we seem to have based the sound object on our own subjectivity. But... it does not... change either with the variations in individual listening or the incessant fluctuations of our attention and our sensibility.”[1]

The immaterial and embodied nature of spatial experience is very similar to the dynamic nature of music. Both musical and spatial experience work subconsciously, and ultimately cannot be grasped in their entirety. The representational work of this thesis is related to Schaeffer’s work in its interest in the intrinsics of perception. Rather than for instance being interested in the City2Mall as a mall, this work is concerned with the intrinsic spatial quality formed by what is physically there.

This thesis is also similarly concerned with developing ways of discussing spatial perception and experience that is unencumbered by unnecessary subjectivity (for example: describing a spatial experience in relation to one’s emotions). In this work, architectural representation plays the role of preserving elements of phenomenological conditions without needing to describe them explicitly. Similar to Schaeffer’s experiments with sound, my artifacts necessitate the introduction of new terms, and a constant reevaluation of terms used to describe spatial perception.

1 Pierre Schaeffer, Treatise on Musical Objects (Editions du Seuil, 1968; English translation, University of California Press, 2017), 68.

3d printed object with supports generated in the process of fabrication

By 3d printing in resin, I brought a fragment of one of the columns out of the digital realm into physical reality.

Front
3d print in resin

Back
3d print in resin

City2 Mall Column
3d print in resin

As a physical plastic object, this column has its own identity removed from its origin. Nonetheless, it still holds onto something from its subject that is impossible to describe.

Most importantly, it holds onto the process of becoming itself. In this sense, it is an object of thought; the physical manifestation of a spatial, phenomenological investigation.

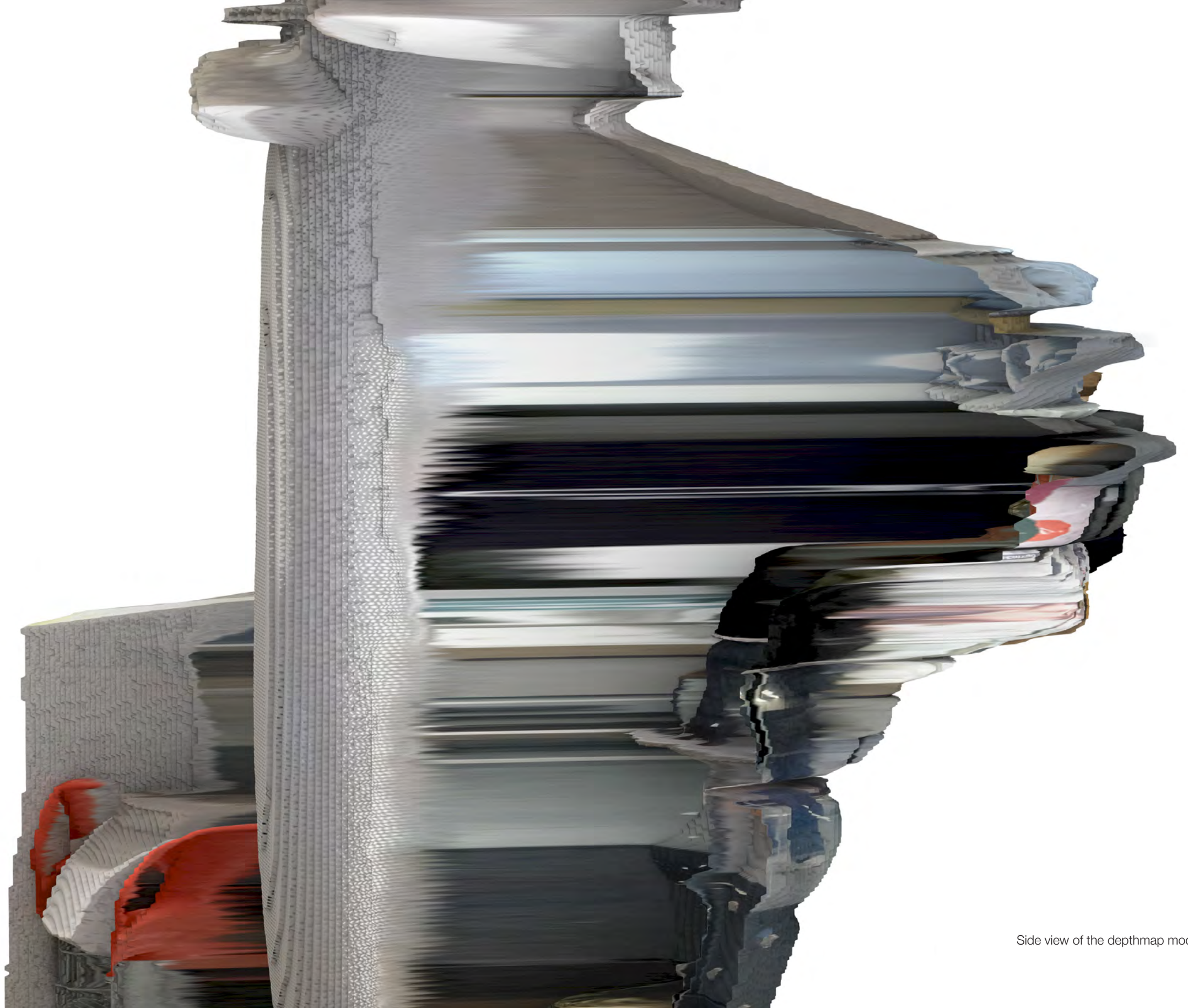
(*right*) column placed in its source location: the City2 Mall

ATMOSPHERE AND THE SYNESTHETIC CONDITION *(part II)*

The second route of building on my initial Collages was by translating them into a spatial context. I was interested in exploring synesthesia and relationality in space rather than on a surface.

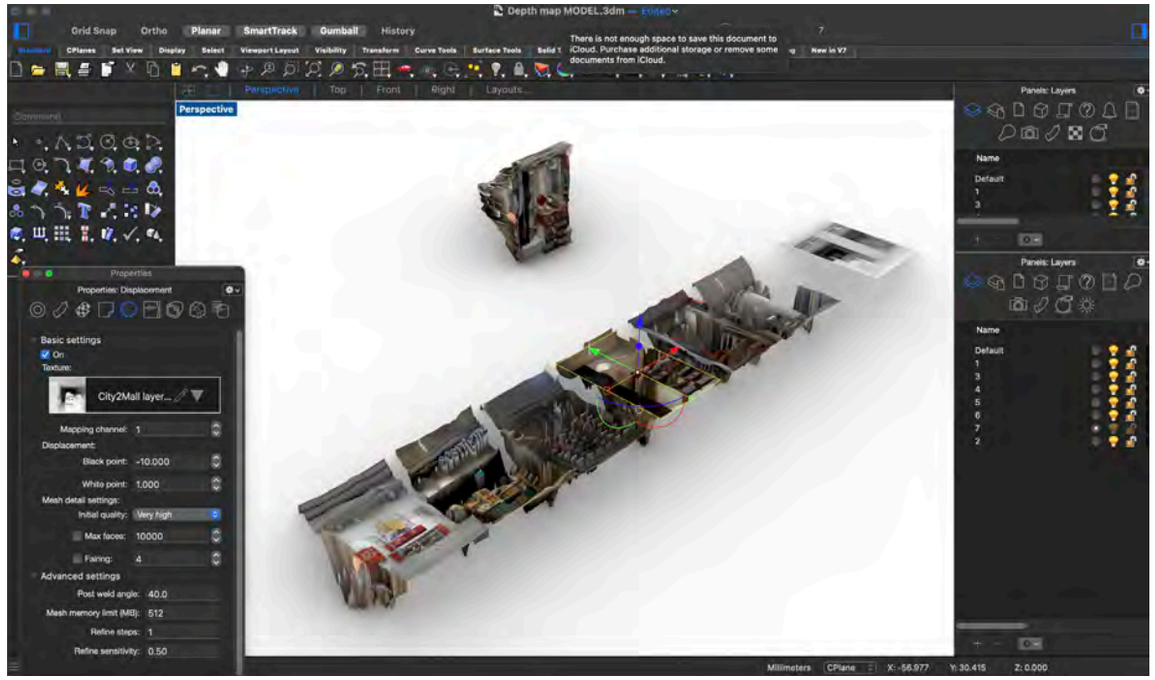
I discovered a process called depthmap estimation - a computer algorithm analyzes an image and identifies which objects are placed closer, and which are further. Using this information, I can generate 3d geometry that is not spatially accurate, but rather, a geometry derived from the camera's directional perception. This space is more like the space of perspective, who's dimensions are equally about a viewers position as the actual size of objects.

(left) an image and a depthmap generated from it
(right) depthmap model generated from the information on the left



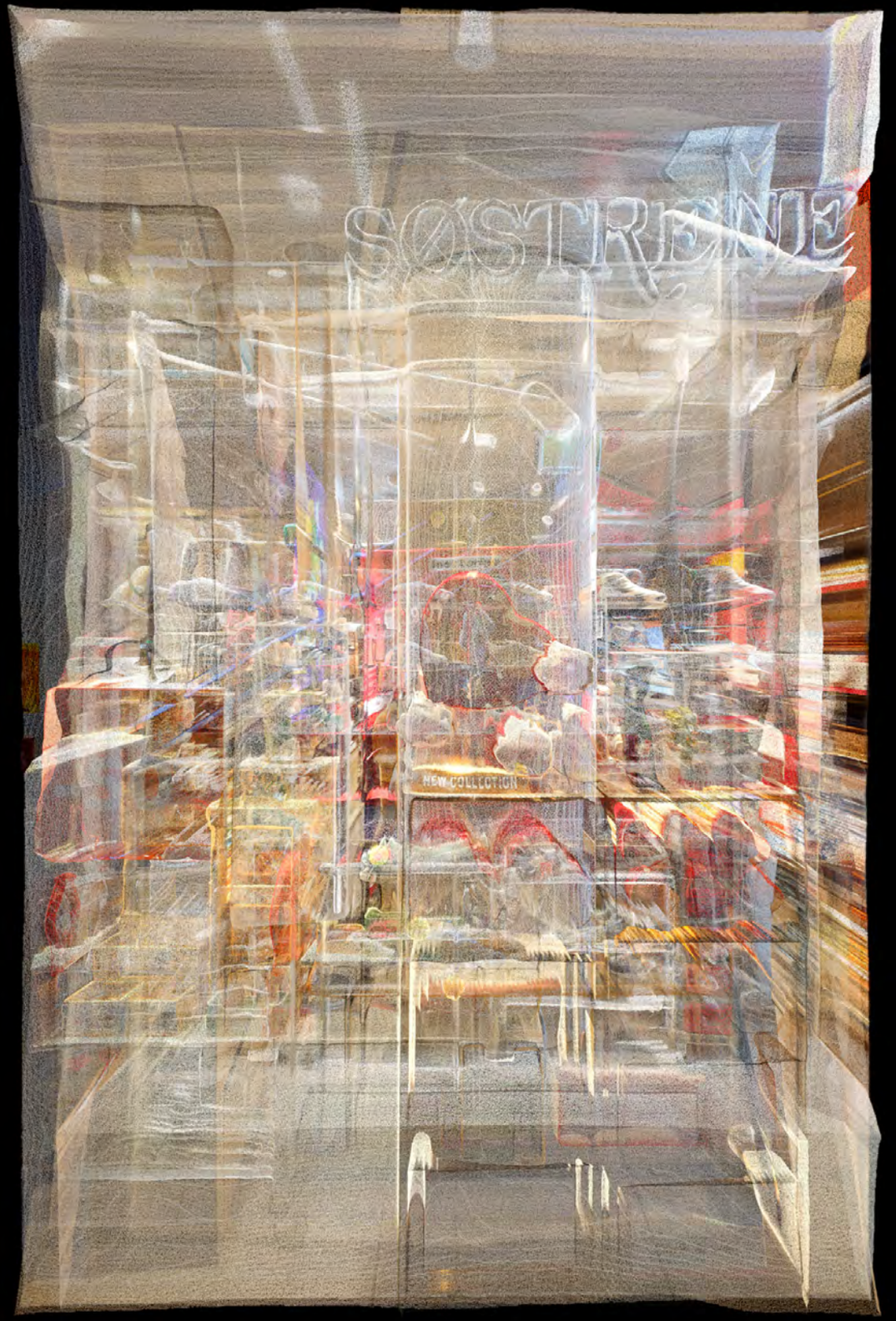
Side view of the depthmap model

When re-constructing my collage using this technique, the “objects” that previously were seen on a surface suddenly have a depth and 3-dimensionality. A spatial context is created that allows me to spatially see a synesthetic condition.

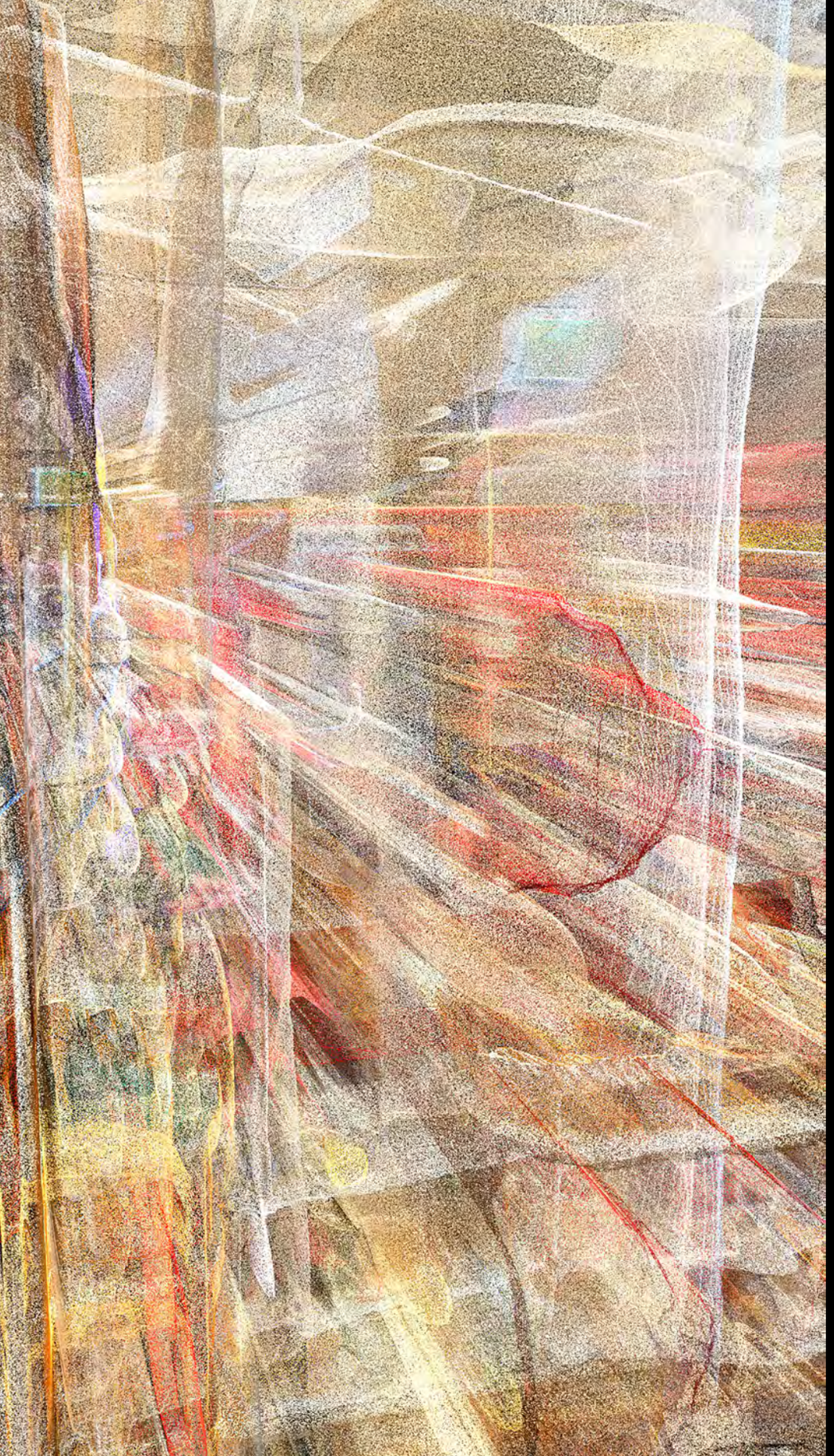


Process of constructing the depthmap collage seen on the following pages

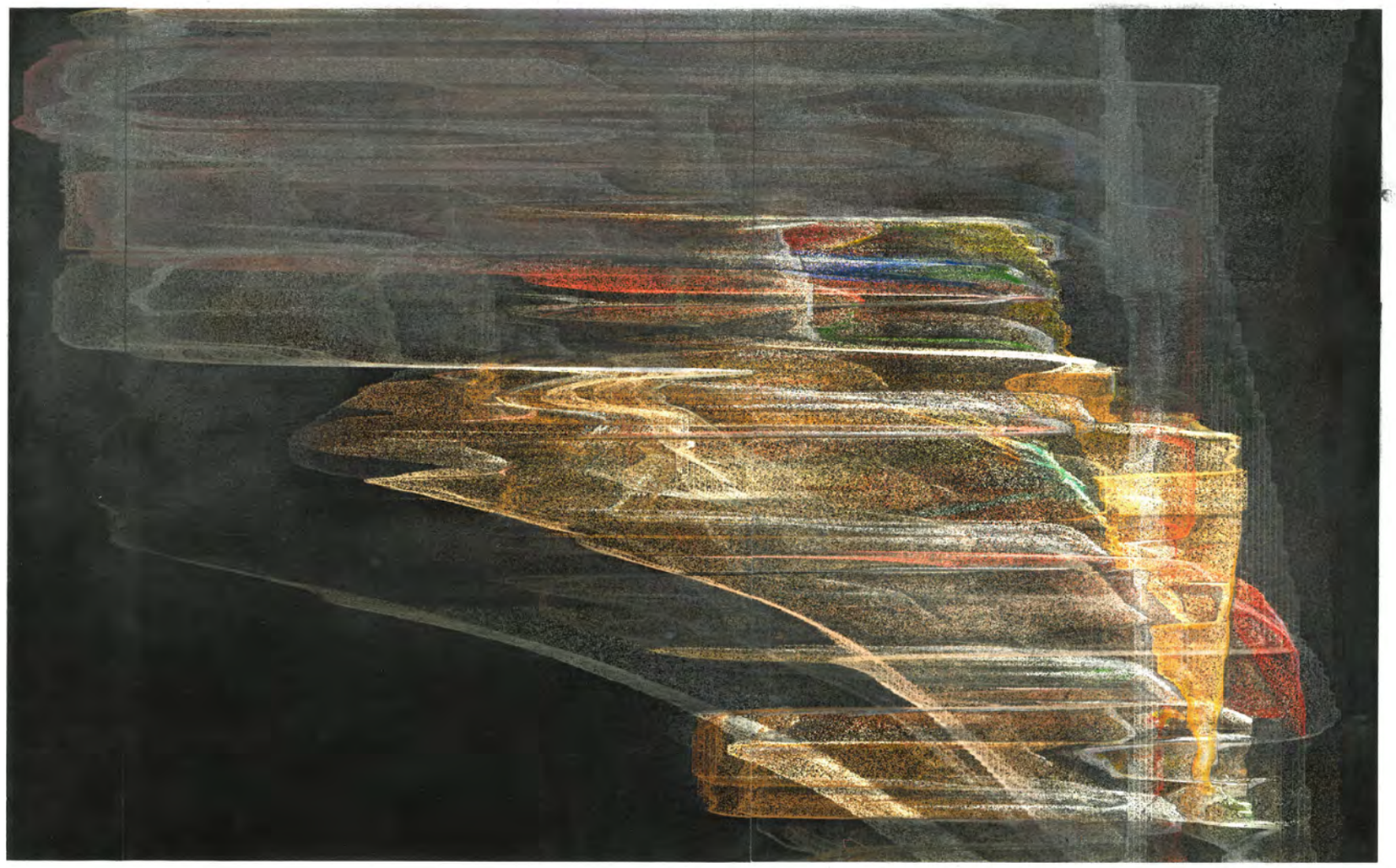
City2 Mall side elevation



City2 Mall front elevation



As opposed to the photo-collages
this context has an actual depth



This context can be flattened into elevations and objectified using graphite like I did in the earlier overdrawn collages. Although here I reveal and fix certain objects, I still loose the spatiality of the 3d collage

PART 2

FATHOMING THE RELATIONSHIP IN THE GLITCH

RELATIONALITY AND FIRST ENCOUNTERS WITH THE SURFACE OF PERCEPTION AND SHADOW OF OCCLUSION

THE MISSING RELATIONSHIP IN THE SHADOW OF OCCLUSION

The depthmaps physically connect objects that are in reality physically separate. The depth-map algorithm reconstructs a space from a single vantage point, and therefore has limited information about the space. This leads the algorithm to speculate a surface that compensates for the lacking data. This surface is ultimately a glitch resulting from this process.

Knowing this, I questioned what the surface alluding to the gap can tell me about the relationship between two objects on either side of this surface.

right: A statue in Parc Josaphat is connected to trees and buildings behind it in a 3d model I generated using a depthmap

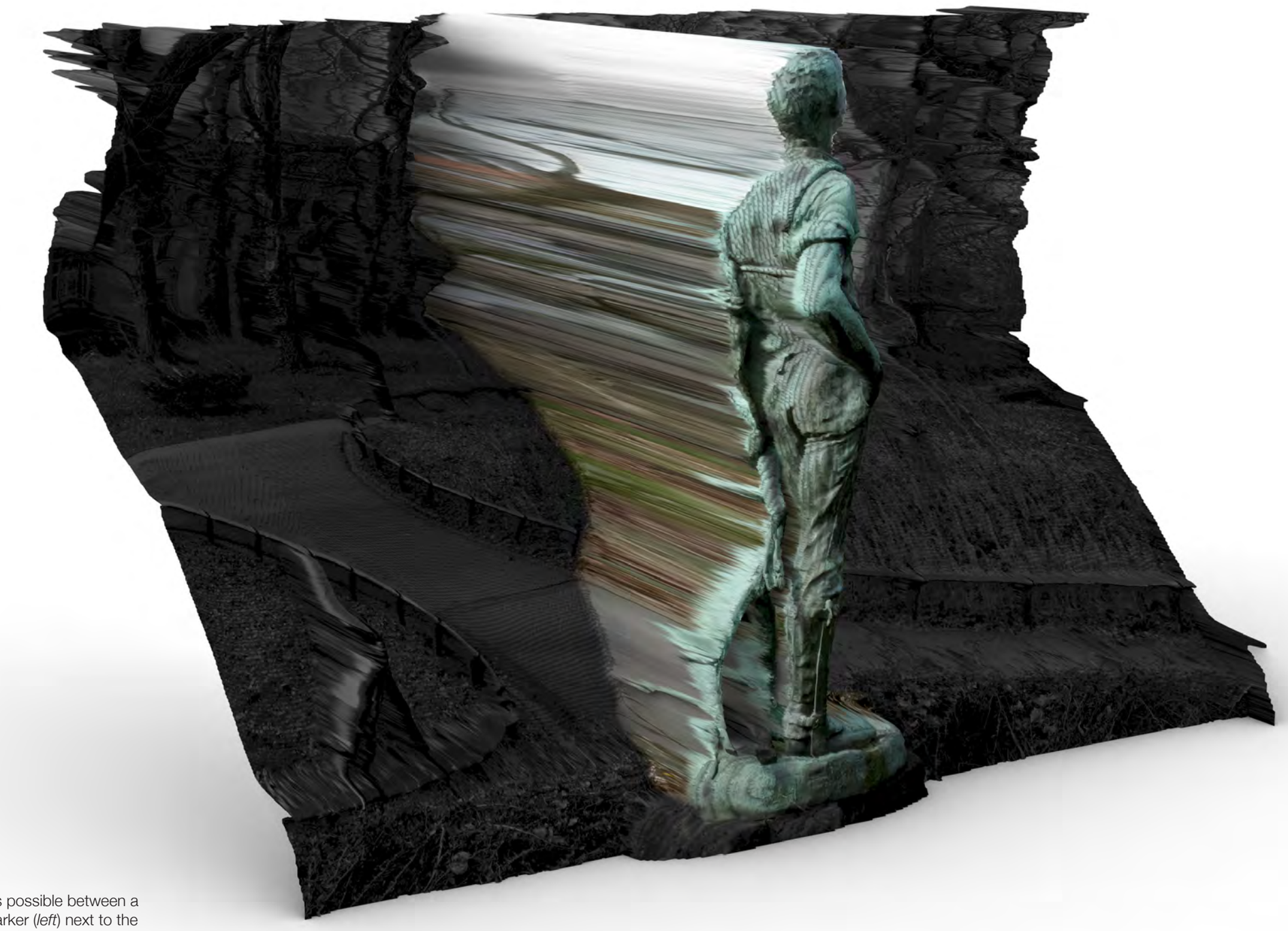
Wahkohtowin
As opposed to the modern practice of architecture, many Indigenous societies place immense value on the relations between material things rather than focusing on their static physical presence. In the Canadian prairies, the Cree word *Wahkohtowin* encapsulates a general understanding of a relationality as a fundamental part of reality. Indigenous researchers Matthew Wildcat and Daniel Voth describe this term as

"Based on the worldview that everything has spirit and because other elements of existence have spirit, they are related to each other"[1]

Respecting and being aware of Wahkohtowin was a central guiding ethical principle that grounded many pre-colonial prairie nations.[2] As opposed to ideas of ownership and delineation that are central in guiding ethical and legal standards in Western societies, Wahtohkowin is about respecting connectedness.

"Wahkohtowin meant honoring and respecting... relationships. They are reciprocal obligations to each other. Human to human, human to plants, human to animals, to the water and especially to the earth. And in turn all of creation had responsibilities and reciprocal obligations to us."[3]
- Maria Campbell, Métis Elder

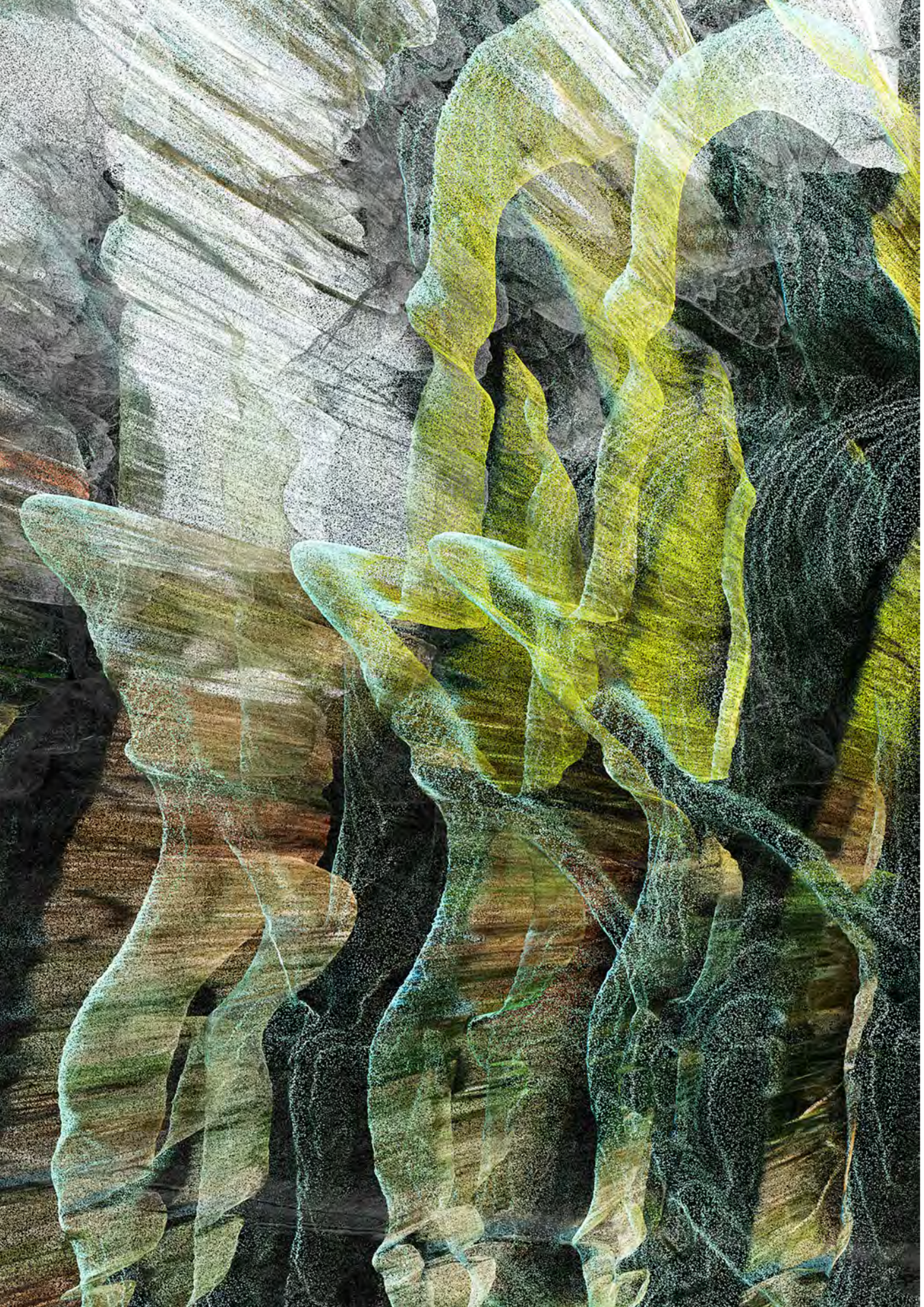
1. M. Wildcat and D. Voth, "Indigenous Relationality: Definitions and Methods," AlterNative: An International Journal of Indigenous Peoples 19, no. 2 (2023): 475-483, https://doi.org/10.1177/11771801231168380.
2. Dwayne Donald, "We Need a New Story: Walking and the wâhkôhtowin Imagination," Journal of the Canadian Association for Curriculum Studies 18, no. 2 (2021): 58, https://doi.org/10.25071/1916-4467.40492.
3. M. Wildcat and D. Voth, "Indigenous Relationality" https://doi.org/10.1177/11771801231168380.



I began by naively trying to capture as many relationships as possible between a statue in Parc Josaphat and its surroundings. I placed a marker (*left*) next to the statue and circled it. This way I could generate numerous depthmap models at the same scale (like the one seen *right*) that each capture a unique relationship.

The marker stays in the same position while the statue revolves next to it.
(seen here as a photocollage)

In a depthmap model generated from this rotation we can isolate the relationships of interest



The renderings of this 3D model continue to suggest that a relationality between the statue and its surroundings exists, even if it does not provide an answer to what the relationship is.

Fig. 4: photograph of a black hole. The event horizon delineates a shadow of occlusion in the centre

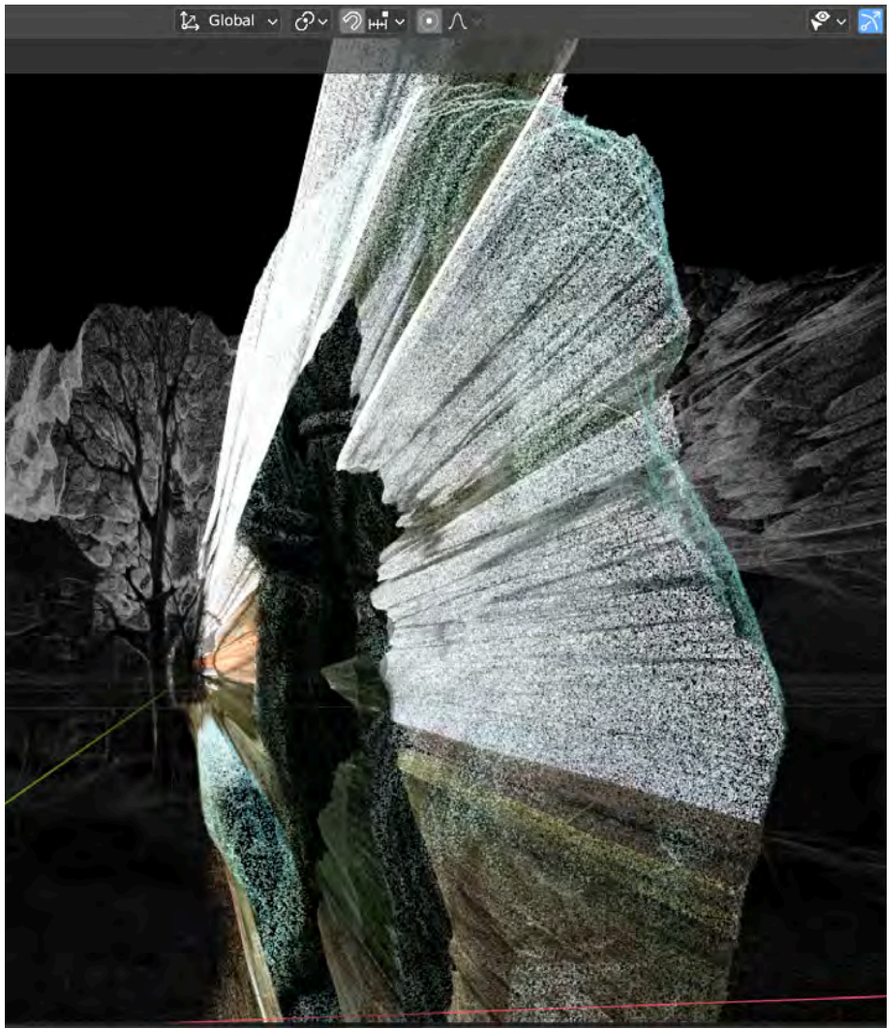
the *event horizon* and the shadow of occlusion

In astronomy, the *event horizon* refers to the limits marking the edge of a black hole. It is impossible to see beyond this limit since the gravitational pull past this edge prevents even light from escaping.[1] Therefore, when photographing a black hole, its existence can only be speculated by identifying what lies around it. Like the architectural drawing, such scientific photography is inherently mimetic; the unfathomable subject is presenced through a mediative artifact (in this case a photograph).

In relation to this thesis; the space beyond the event horizon can be considered to exist within a shadow of occlusion. The event horizon, and the light around it can be understood as the surface of perception

1. Encyclopaedia Britannica, "event horizon," Encyclopedia Britannica, June 1, 2024, accessed June 12, 2024, https://www.britannica.com/topic/event-horizon-black-hole.

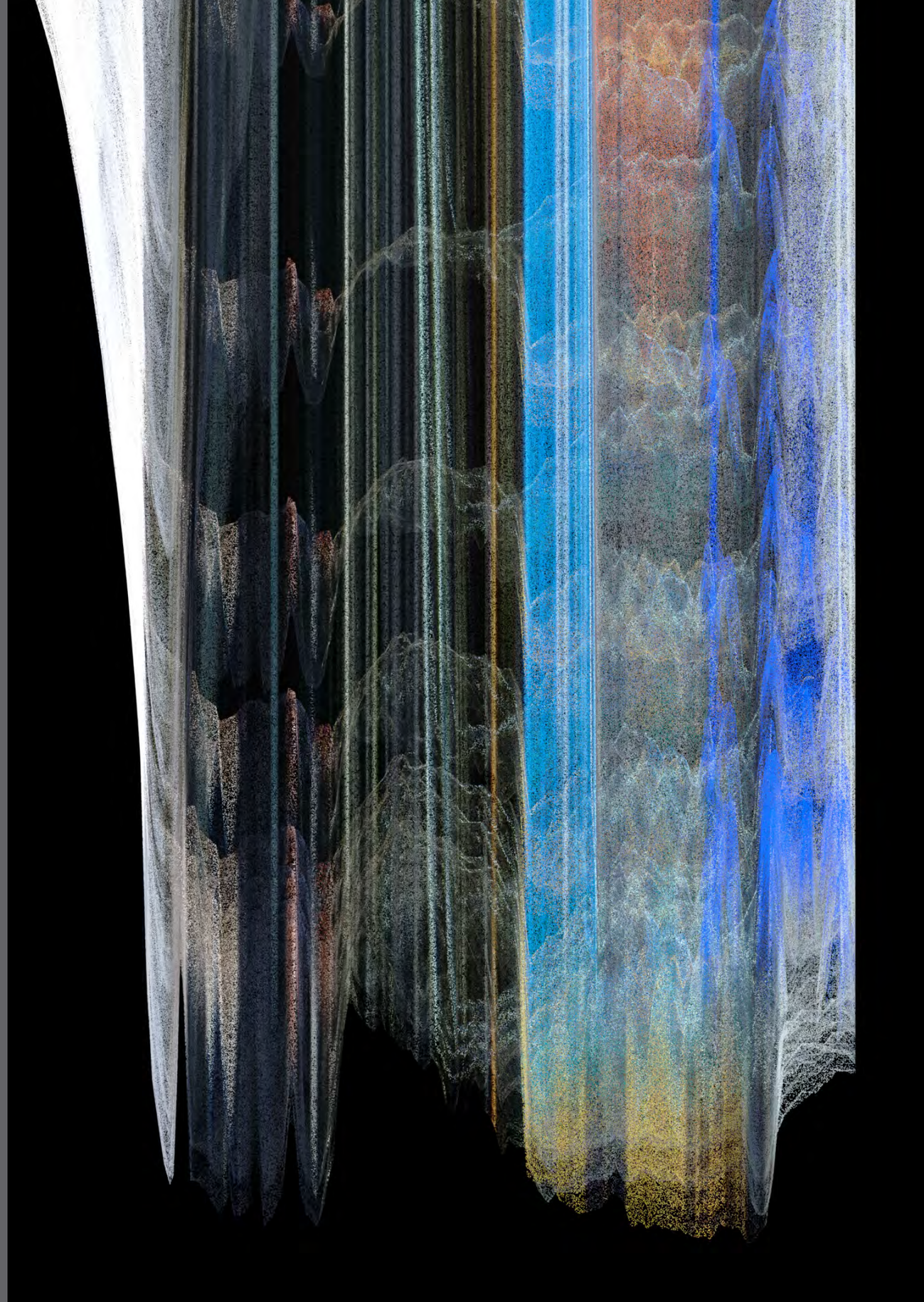
Similar to the photo of a black hole, I cannot see the relationship I am looking for in my investigations. Information about the relationship between the statue and its surroundings always remain in the shadow of occlusion. We can only fathom that this information exists beyond what we can capture by seeing a surface that encapsulates it.



The surface encapsulating the relationship between the statue and what lies behind it. We see the missing gap inside of it.

THE EDGE OF THE SURFACE OF PERCEPTION

Seeing that the actual relationship between objects is beyond the drawing's limits, I focused on exploring the "event horizon" in the drawing. Specifically, I focused on trying to understand the glitch surfaces that connect what exists within the surface of perception.



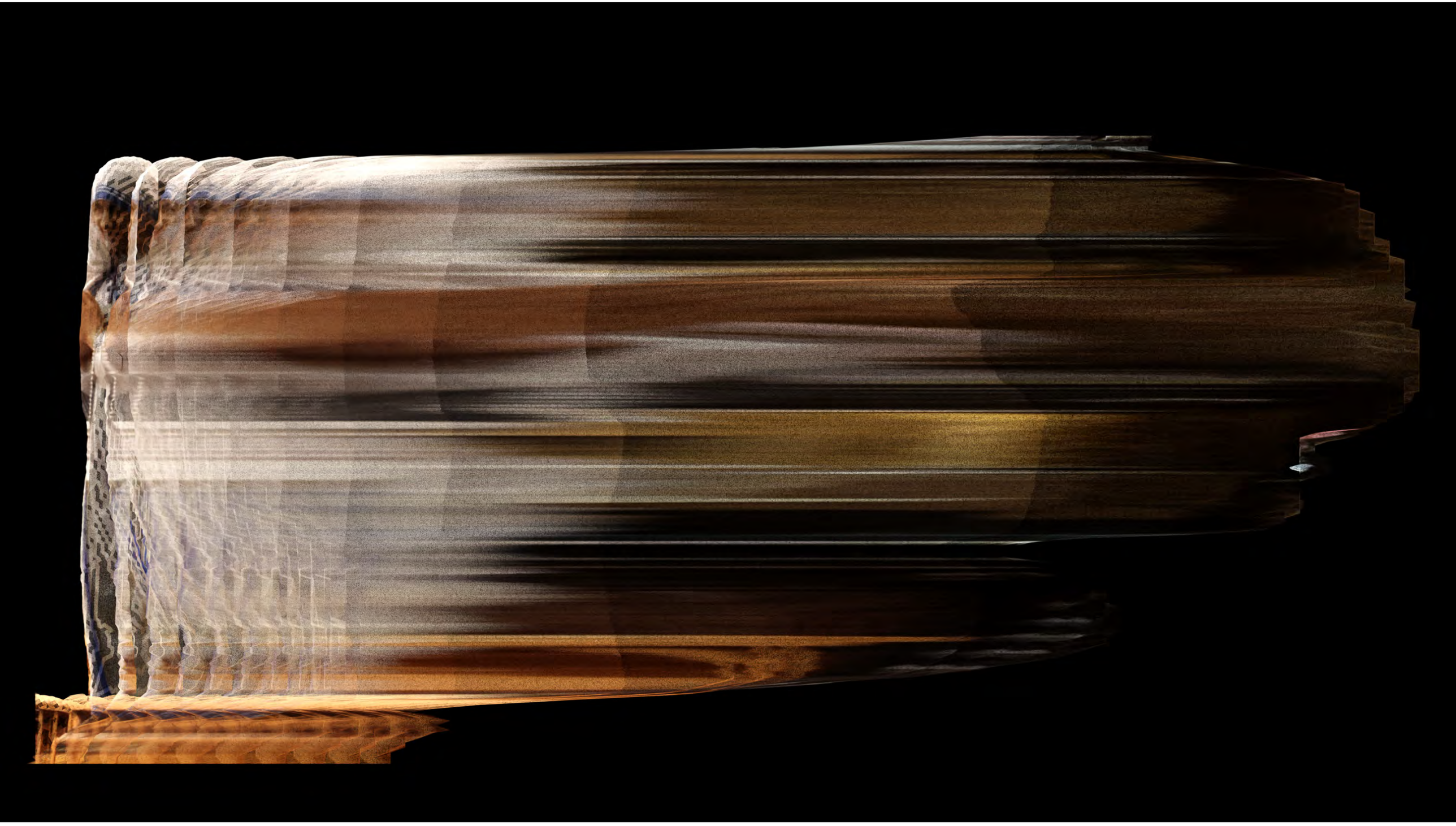
I began by exploring the depthmap generated surface of a particularly atmospheric moment in the Église Notre-Dame de Laeken

10°

(plan view)

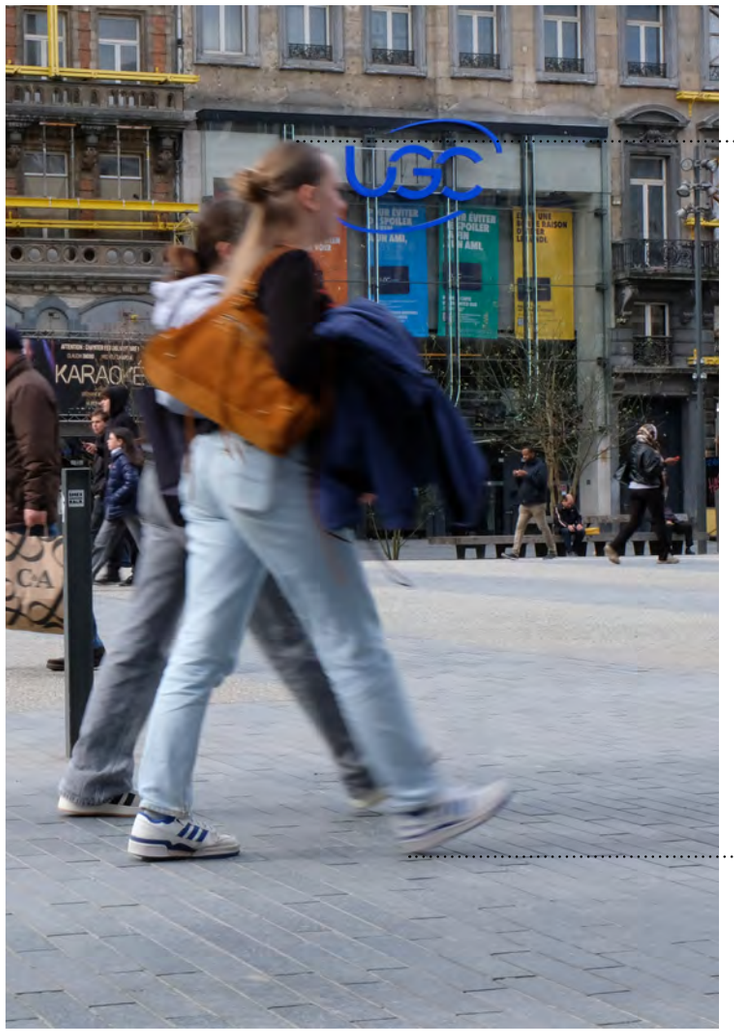
camera

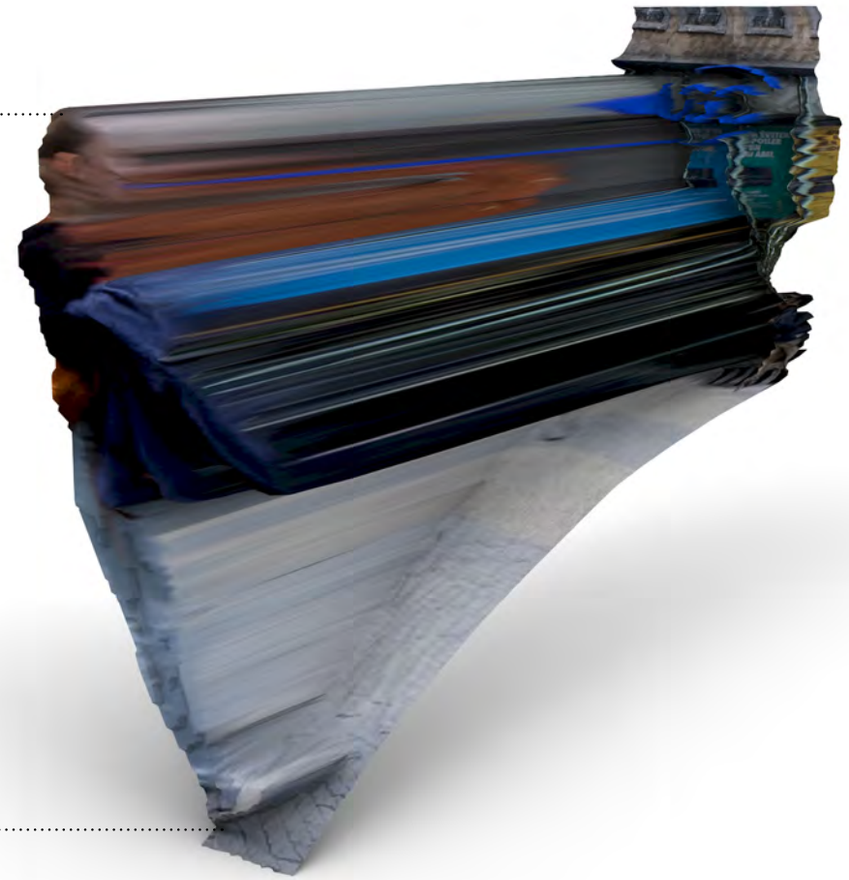
I focused my investigation on the surface generated between a statue of Mother Theresa and the objects behind it. By rotating this specific surface I aimed to unfold what this surface can tell me.



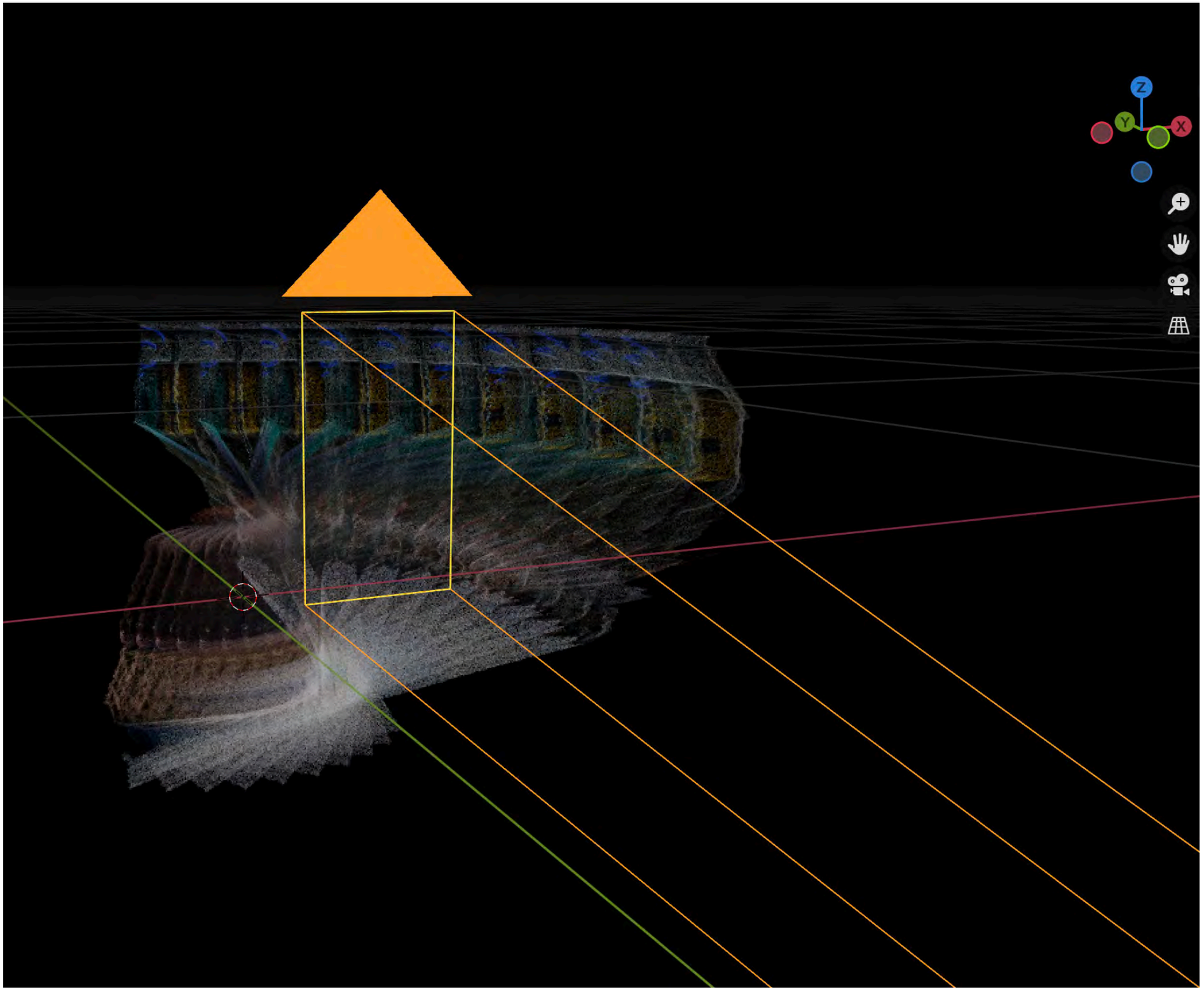
Rendering taken from the camera. Towards the left we see the statue as an object, while towards the right we it slowly transform into its connection with other objects.

An alternate rendering revealing the unfolding geometry

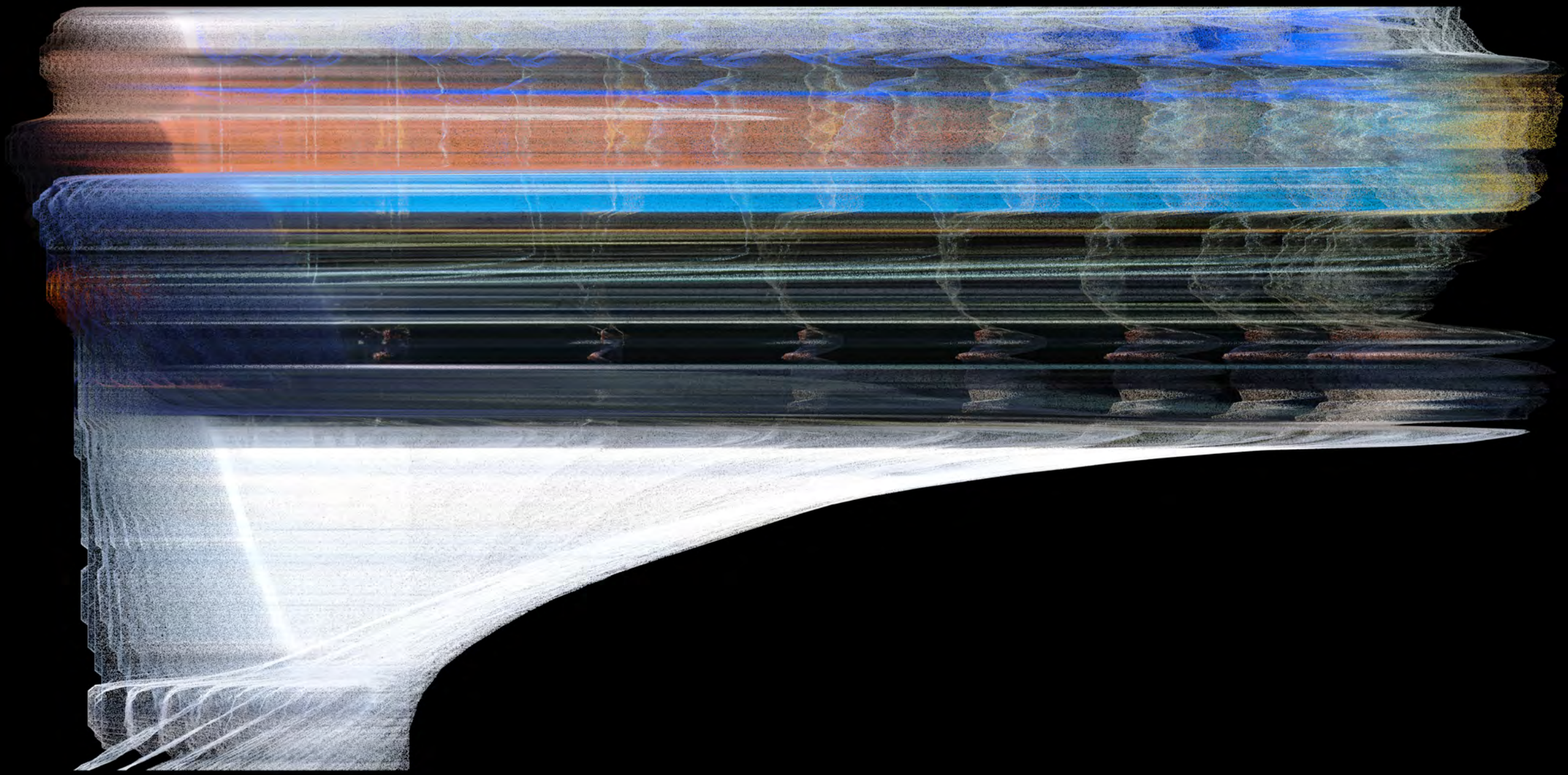




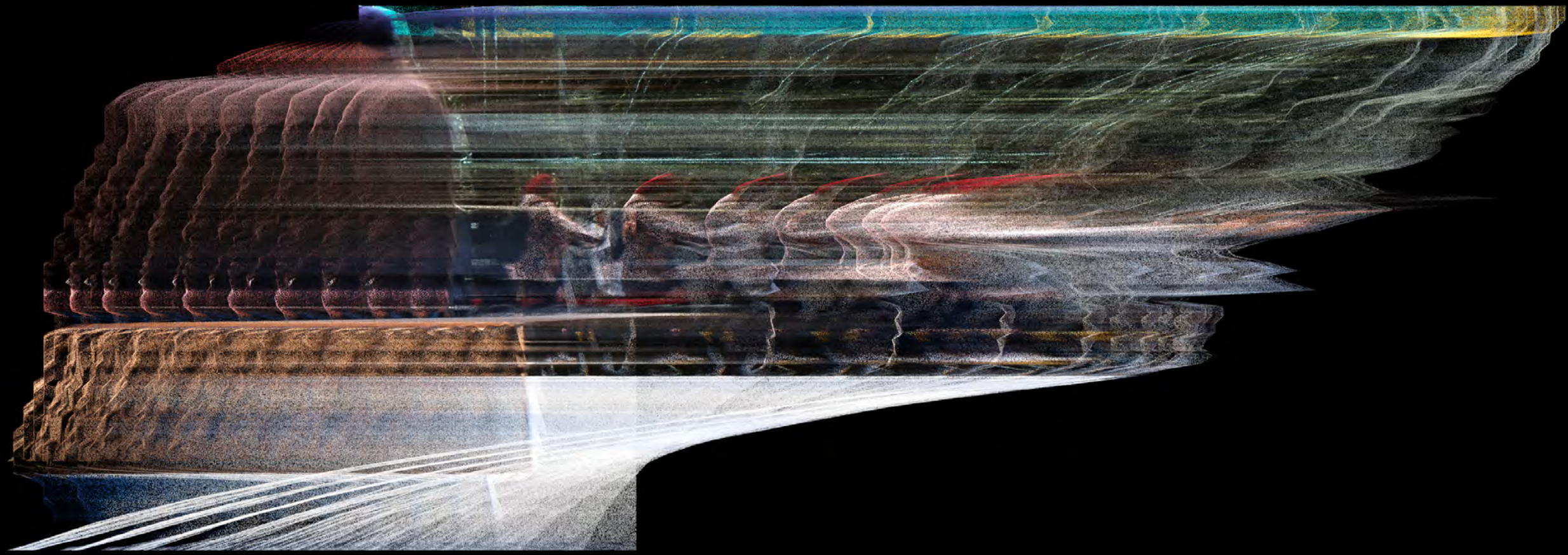
I tried looking at the relationship that exists for an instant between people and their surroundings (here, in place debroukere). Here there was a clearer intentionality to my investigation.



Camera (in yellow) seen in relation to the unfolding of the relationship



The unfolded relationship between the girl and the UGC Cinema facade



The unfolded relationship between a man and the UGC Cinema facade and woman taking her bike

Fig. 5: overdrawn photocollage by Mark West

what is meaning? and the unnecessary need for the answer
In relation to this thesis, it is imperative to not be fooled by the illusion that architectural media provides answers or absolute truths. Architect, builder and artist Mark West explains

"It is a common mistake, at least in academic circles, to believe that all meaning is produced and understood through symbols; that meaningful things are made in order to point to something else, something larger or deeper...

The semiotic basis of architectural meaning... is not our only means of communication or understanding. Music is a prime example of non-semiotic communication, in particular for the way that its meaning arrives, beyond words or symbols, by surprise, and with the conviction of an irrefutable argument (while being nearly impossible to say, in words, what that meaning is)" [1]

In the case of the depthmap generated models; the glitched surface does not hold a concrete answer about any relationship it suggests. The artifacts of this thesis, like any architectural drawing, provide a point of speculation beyond the symbolic nature of words. The representational artifacts are merely carefully constructed and designed collections of data. As stated in the introduction to this thesis, mimesis is a process of coming into contact with, and experiencing the real - it is not about logically understanding it. In this light the drawings in this thesis make it possible to fathom spatial phenomenology, but do not try to derive a concrete "meaning" from them.

1. Mark West, "Found as In Clouds," in *WWW: Drawing Architectural Drawing: From Pencil to Pixel*, ed. Janet Abrams (USA: ACTAR, 2020), 27.

PART 3

L’ÉGLISE NOTRE DAME DE LAEKEN

A STUDY IN SHADOWS OF OCCLUSION, SURFACES OF PERCEPTION

KEY PLAN

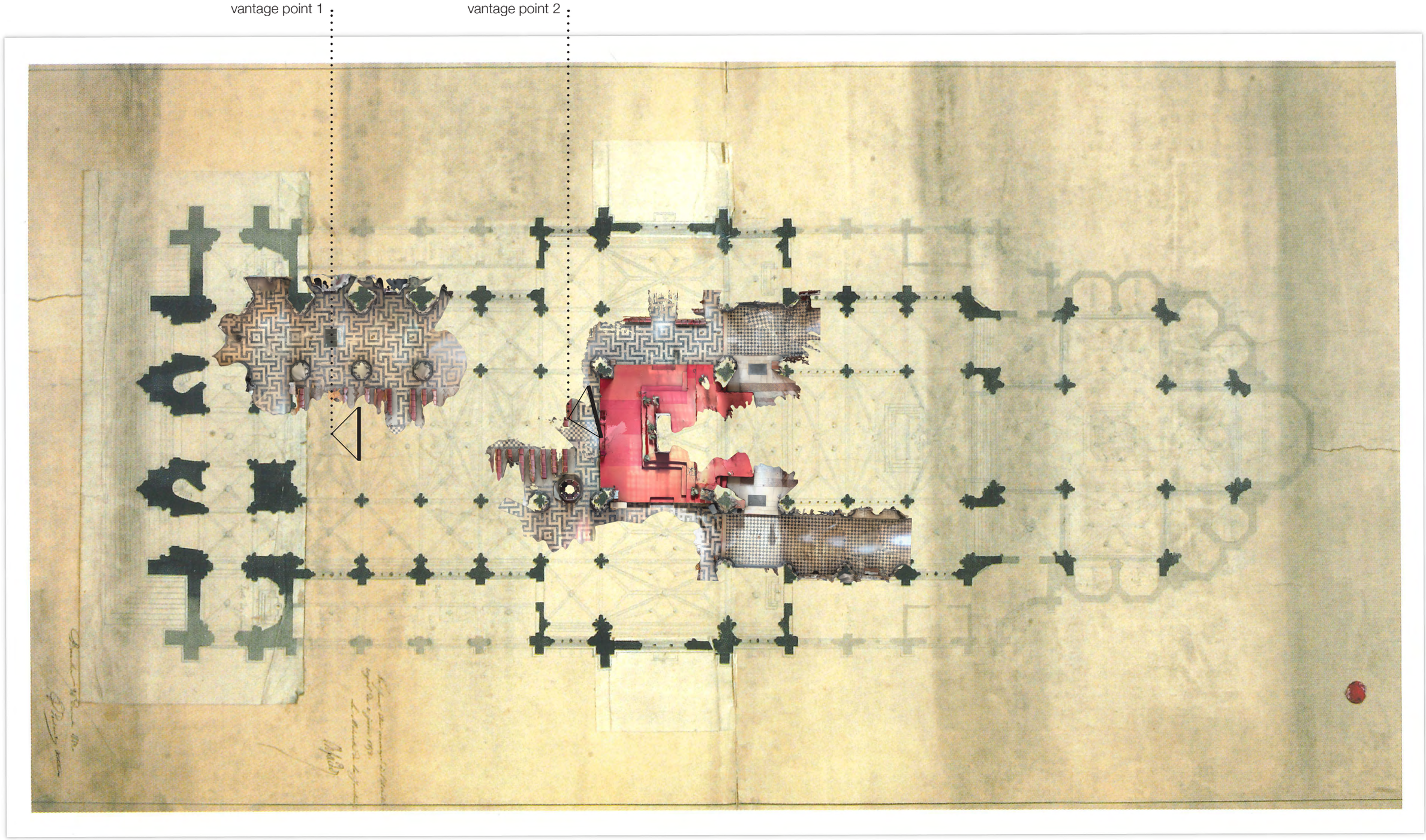


Fig 6: Key Plan of the Église Notre Dame du Laeken
(original drawing by Joseph Poelaert, overlaid with my 3d scans)

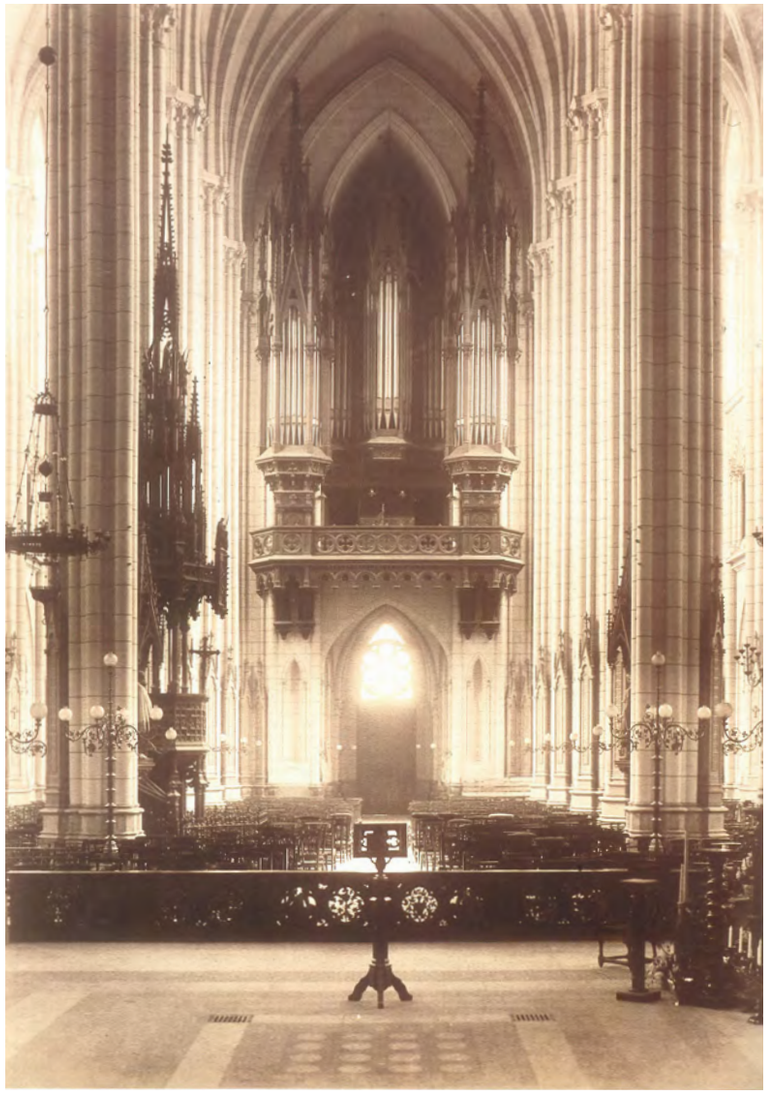


Fig. 7: photograph of the church in 1908

L'Église Notre Dame de Laeken
Construction on the Église Notre Dame de Laeken began in 1853.[1] This massive church in the north of Brussels is a monument built in honour of queen Louise-Marie d'Orléans (and implicitly as a monument to the Belgian royal family's imperial power).[2] This massive project designed by Joseph Poelaert was never completed, and the current church stands as an incomplete monument.

This thesis is ultimately about attempting to look at space beyond the limits of direct perception. Similarly, any church is designed to presence an awe of something greater and beyond oneself. The interplay between the surfaces of perception and shadows of occlusion one encounters in this building therefore have a particular meaning that is not found in other places.

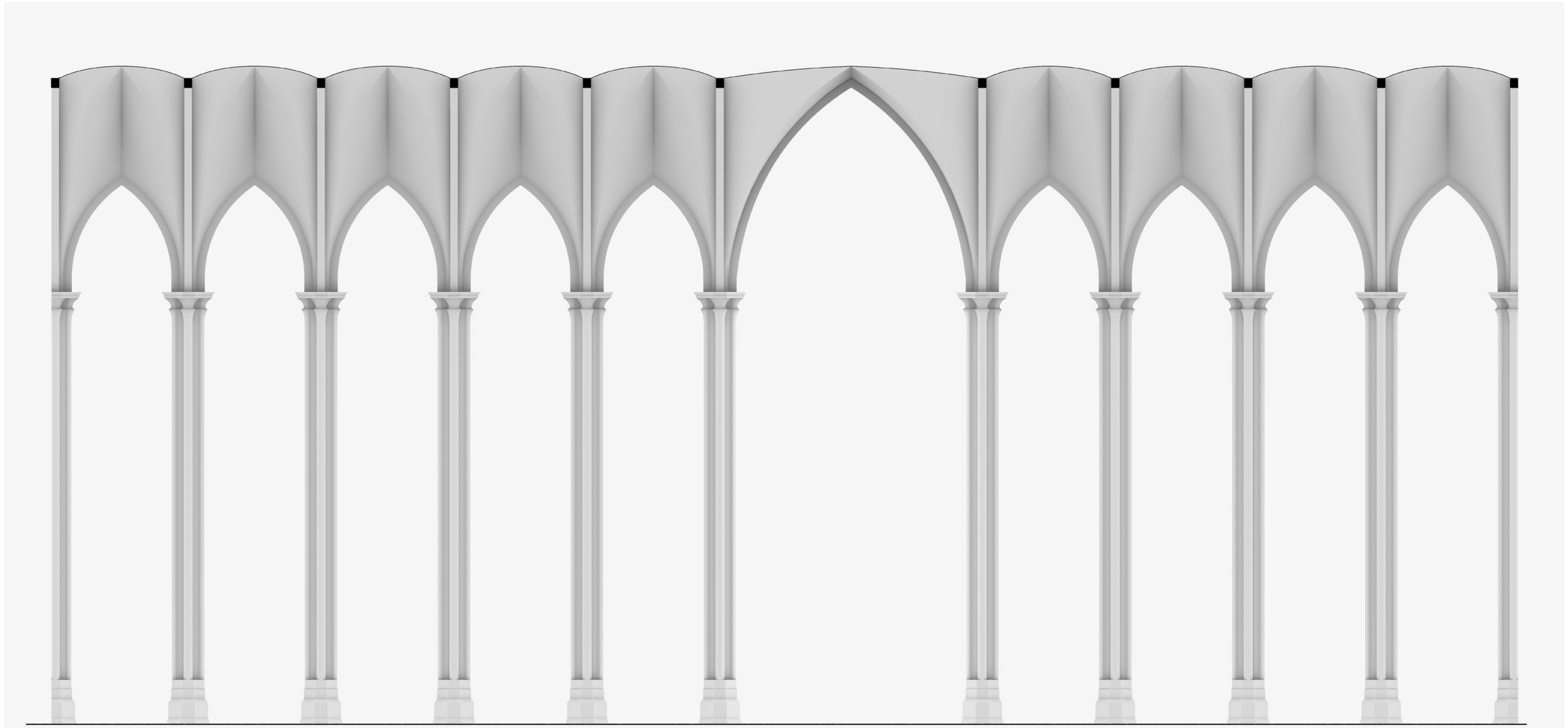
This makes the Église Notre Dame de Laeken a suitable context to explore spatial phenomenology.

1. Christian Spapens and Charles Gombert, *L'église Notre-Dame de Laeken : un mémorial inachevé* (Belgium: CIDEP, 2006), 5.
2. Ibid.

PERCEPTUAL IMPACT AND THE VANTAGE POINT - *VANTAGE POINT 1*

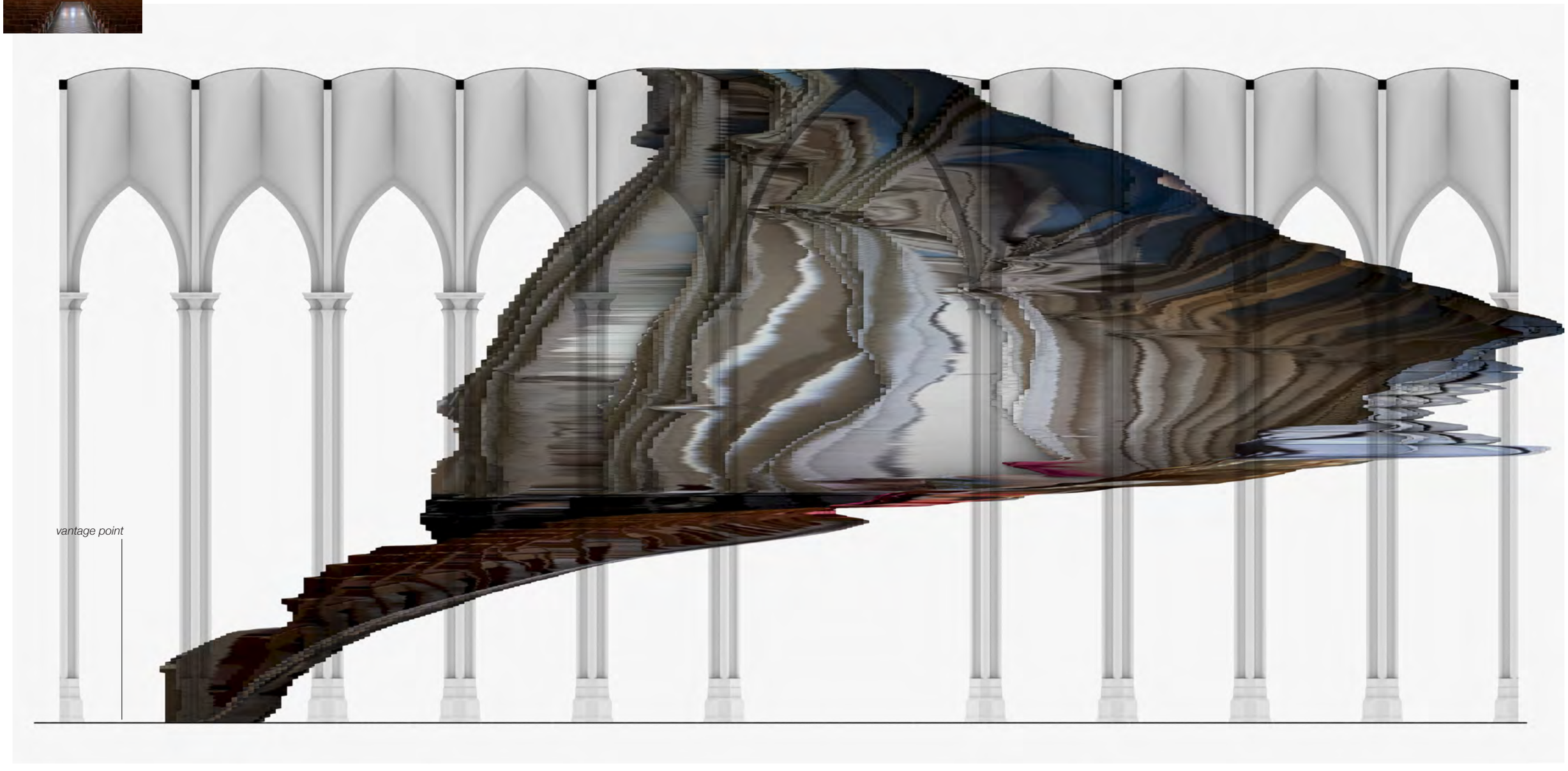
Rather than trying to find an answer to what I am investigating, my drawings of this church are about exploring discrepancies and critically observing what is beyond my understanding. This chapter observes how certain elements have a stronger perceptual impact than others in the surface of perception. This chapter works from vantage point 1 (see the key plan).

(left) View looking down the nave of the church from the entrance. This image is the basis of the drawings in this chapter.



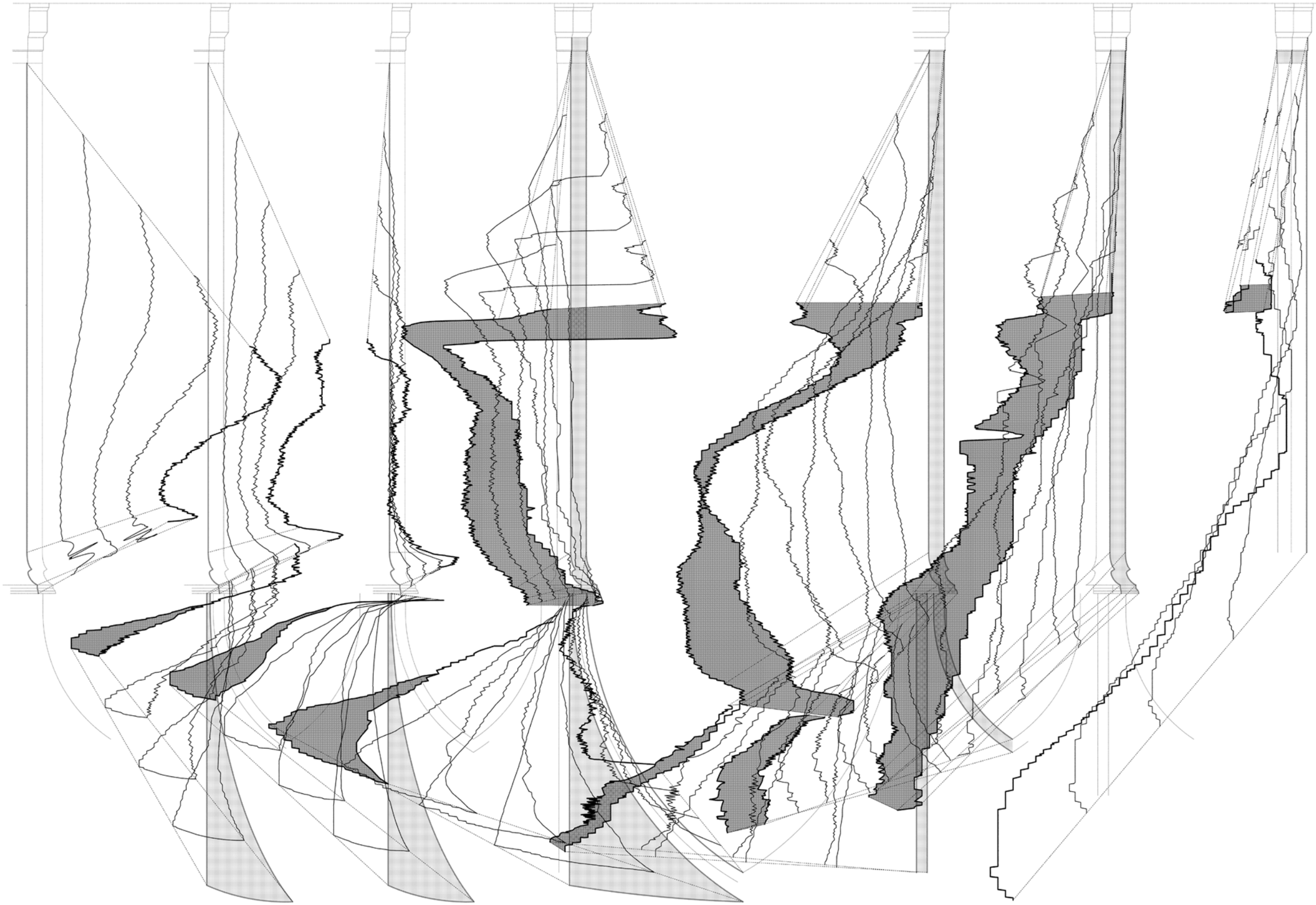
In an orthogonal view, this church is a repetitive space. This is the way that Joseph Poelaert would have looked at it in his architectural drawings. Nonetheless, It must be noted that this is an extreme abstraction of spatial experience.

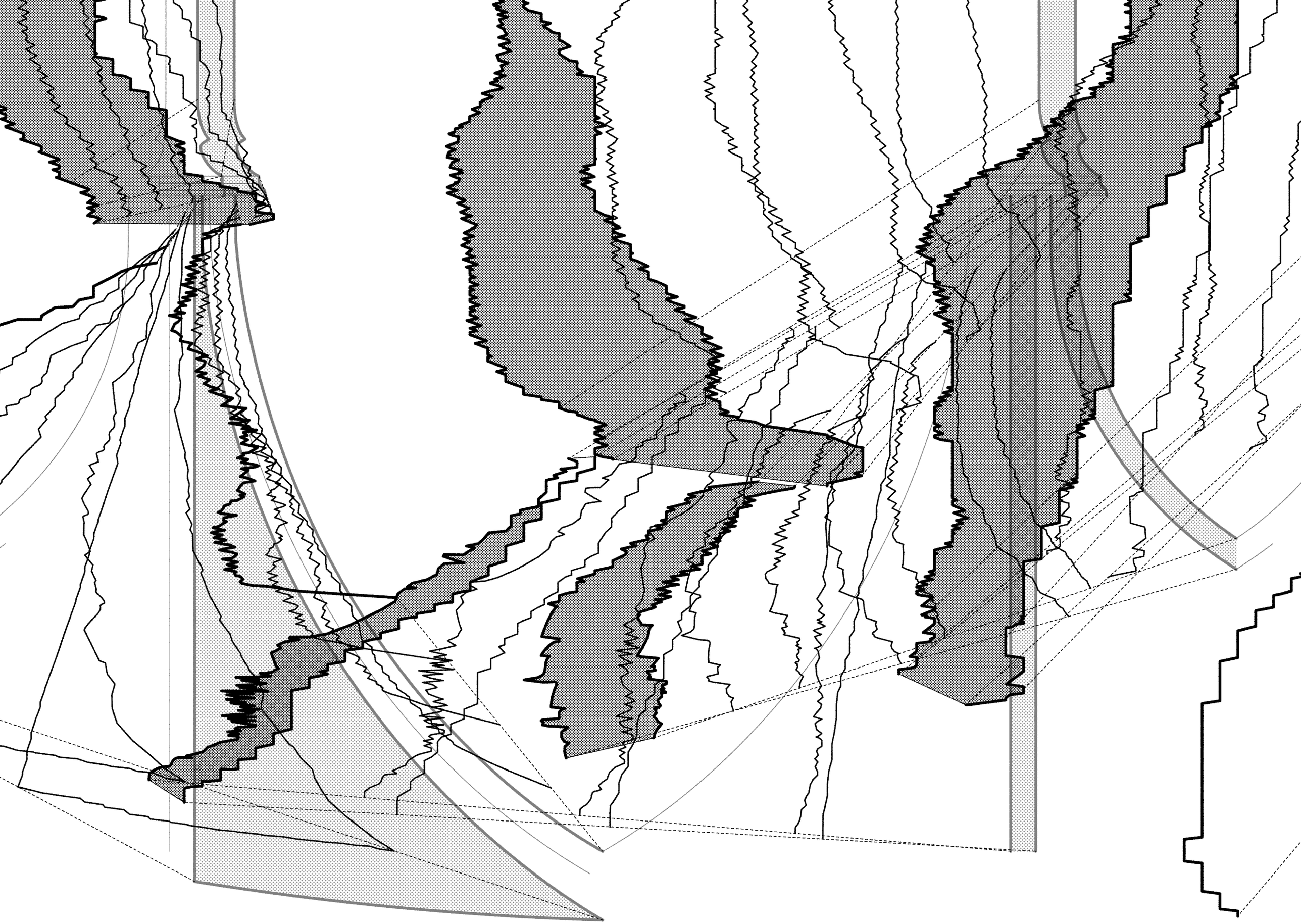
(image from the vantage point)



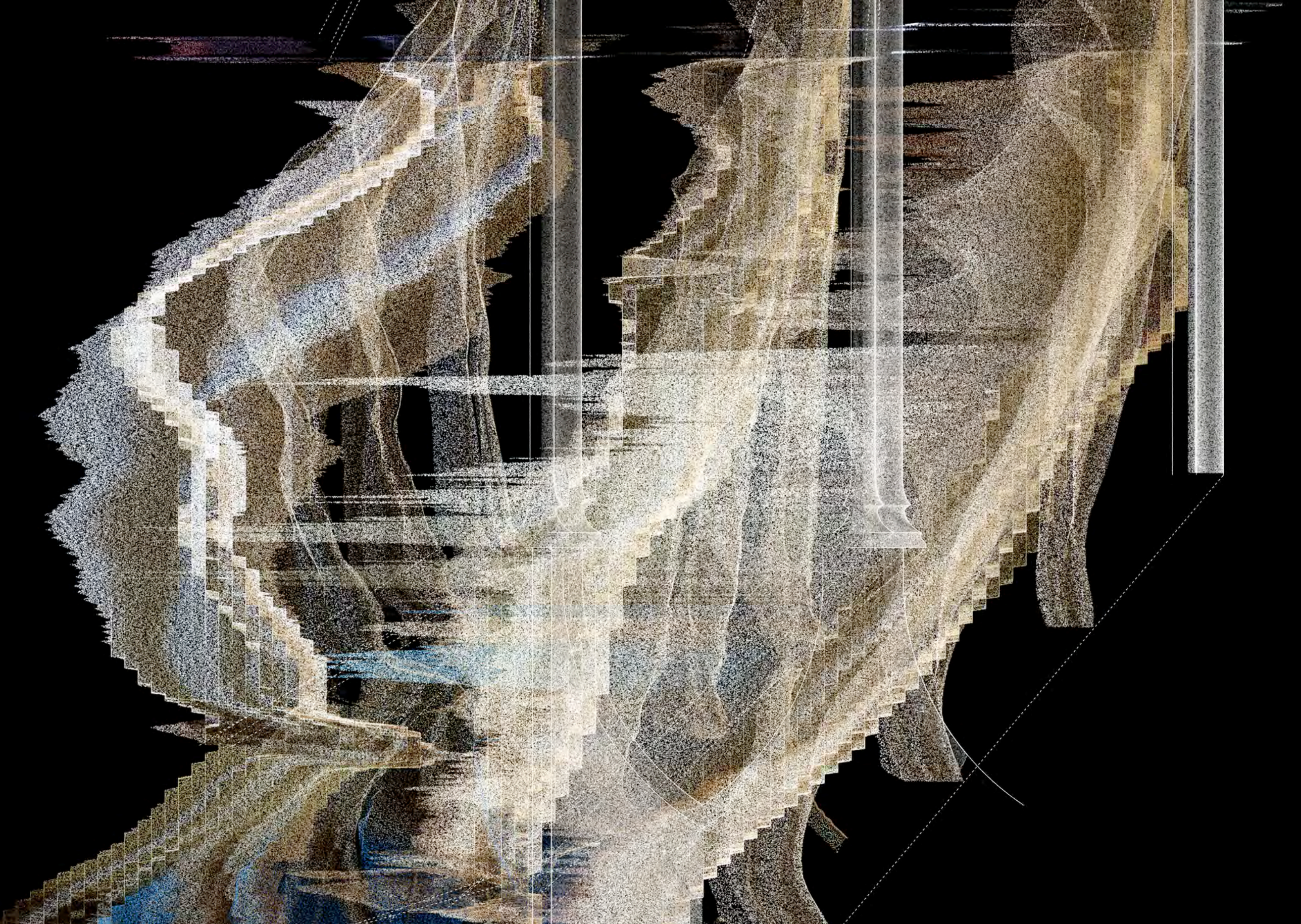
Looking at the existing space as a depthmap model generated from vantage point 1 reveals a radically different spatiality. As we move further away from the vantage point there is a foreshortening of space. The discrepancies between the depthmap model and measured model are explored in the following drawings.

In order to understand the discrepancies between the two ways of seeing this space, the following drawings interpolate between them. I am specifically looking at the columns and examining how the same column differs in each state (measured vs. seen from the vantage point)





Alternate drawing of the first 3 columns from the left in the section



This 3d model interpolates the 3d geometry of the column closest to the vantage point (furthest to the left in the previous drawing).

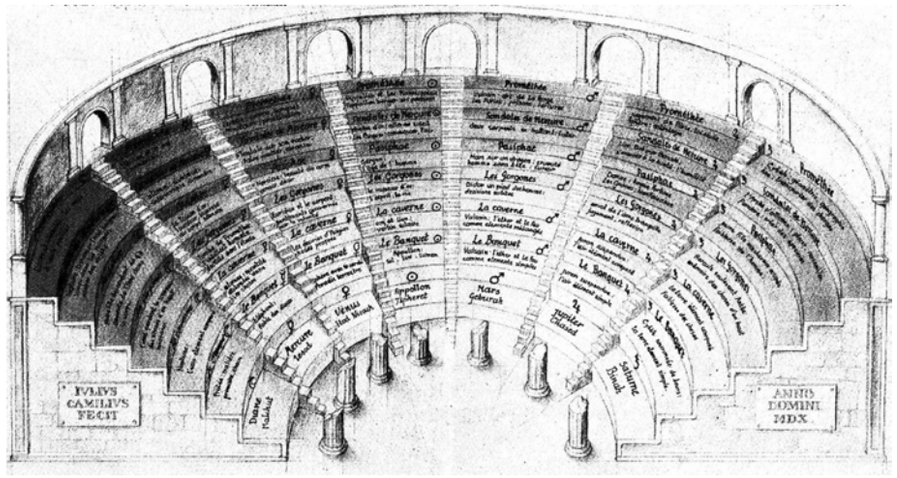


Fig. 8: drawing of Giulio Camillo's memory theatre by an unknown artist

vantage points and perceptual impact
The concept of the vantage point is central to understanding spatial phenomenology. The depthmap models render the impact of the vantage point visible; the items placed closer to the viewer are much larger than those further away regardless of their true size.

This implies that from a vantage point, the arrangement of space enables certain things to have a greater perceptual impact than others. The surface of perception is therefore clearly not a neutral "scanning" of an environment, it is a realm in which space has a discursive power.

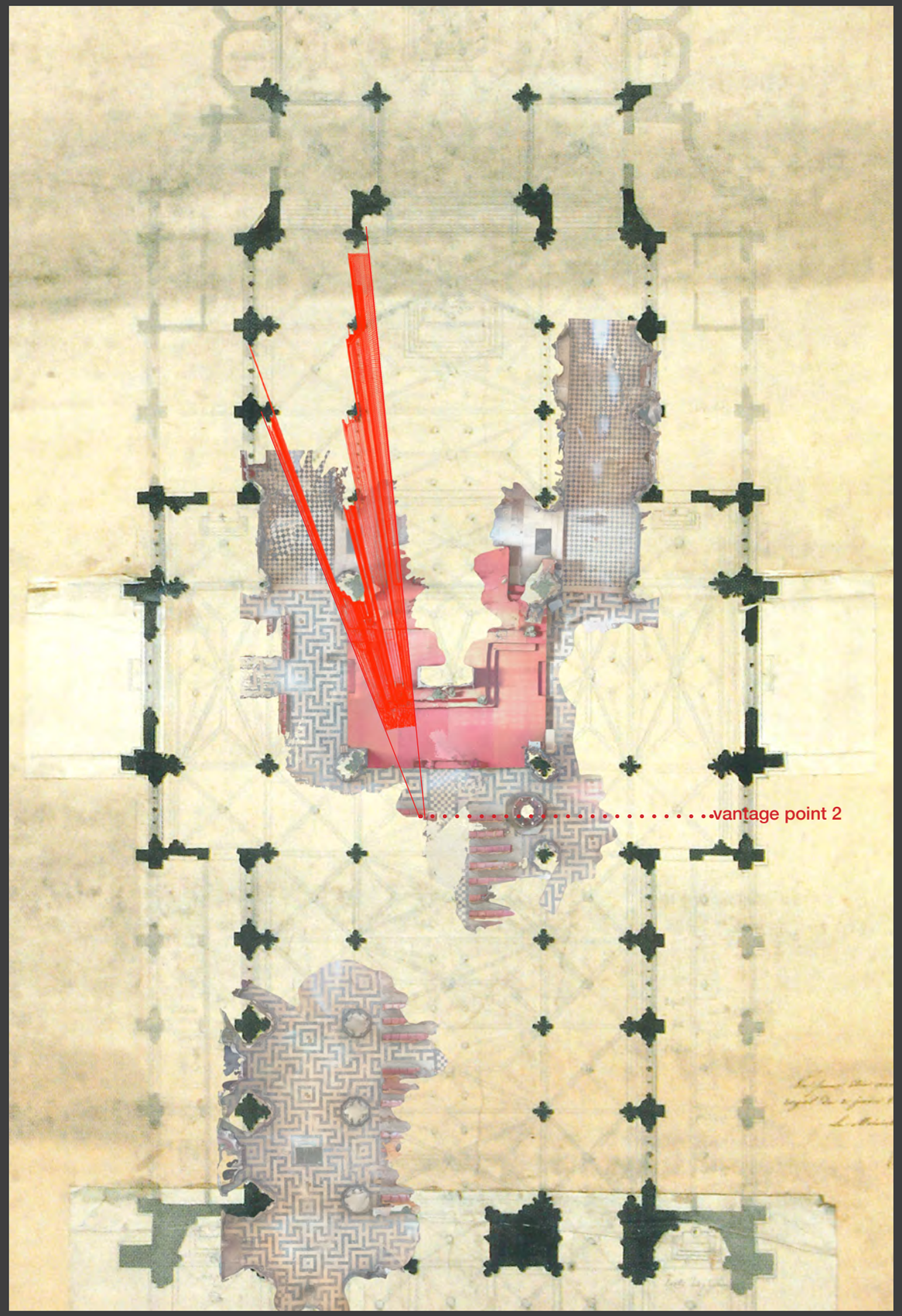
memory theatre
16th century philosopher Giulio Camillo's design of the *Memory Theatre* exemplifies the discursive power in the concepts of vantage point and surface of perception. This architecture is described in the following passage:

"Camillo described an imaginary theater of memory with a theoretical audience of one, in which the structure of the stage and the audience of a traditional theater were reversed. A structure analogous to the rising tiers of seats in a traditional theater became the stage, and the audience of one would be located in the place of the traditional stage. Camillo's Theater of Memory consisted an imaginary semi-circular stage with seven tiers, divided by seven isles and fronted by seven columns. His memory theater was then divided into forty-nine areas, each associated with a symbolic figure from mythology. All knowledge would be archived on different levels of the semi-circular memory theater, to be retrieved through mental associations with images and symbols." [1]

This architecture is ultimately a tool for extending one's memory through spatiality. The spatial arrangement of information in relation to the perceptual impact at a single vantage point makes this possible. Marco Frascari describes the effect of this as a

"corporeal time machine where the past, the present, and the future were architecturally related through memory" [2]

1. Jeremy Norman, "Guilio Camillo Describes the Memory Theatre," *Historyofinformation.com*, accessed June 12, 2024, https://www.historyofinformation.com/detail.php?id=5056.
2. Marco Frascari, "A Heroic and Admirable Machine: The Theater of the Architecture of Carlo Scarpa, Architetto Veneto," Poetics Today 10, no. 1 (Spring, 1989): 108, accessed January 21, 2019, https://www.jstor.org/stable/1772557.



THE FINAL VANTAGE POINT - *VANTAGE POINT 2*

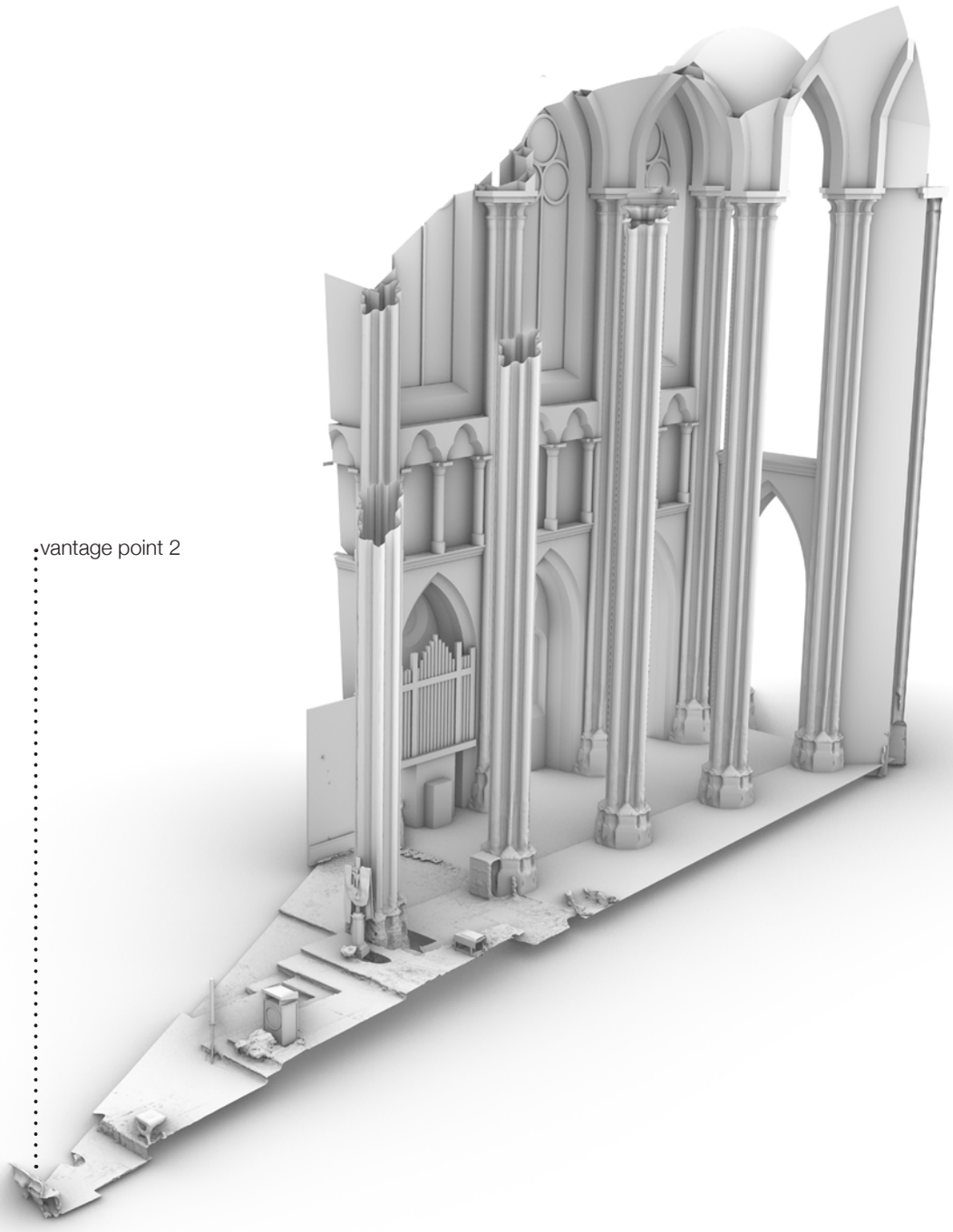
This thesis ends its trajectory at this point in the church. The following investigations deal with this specific view. This view is a photograph (seen on the following page) taken from the front row of benches. I am looking towards a candle, a cross, and a podium placed in front of me.

(left) location of vantage point 2, with the field of vision shown in red.

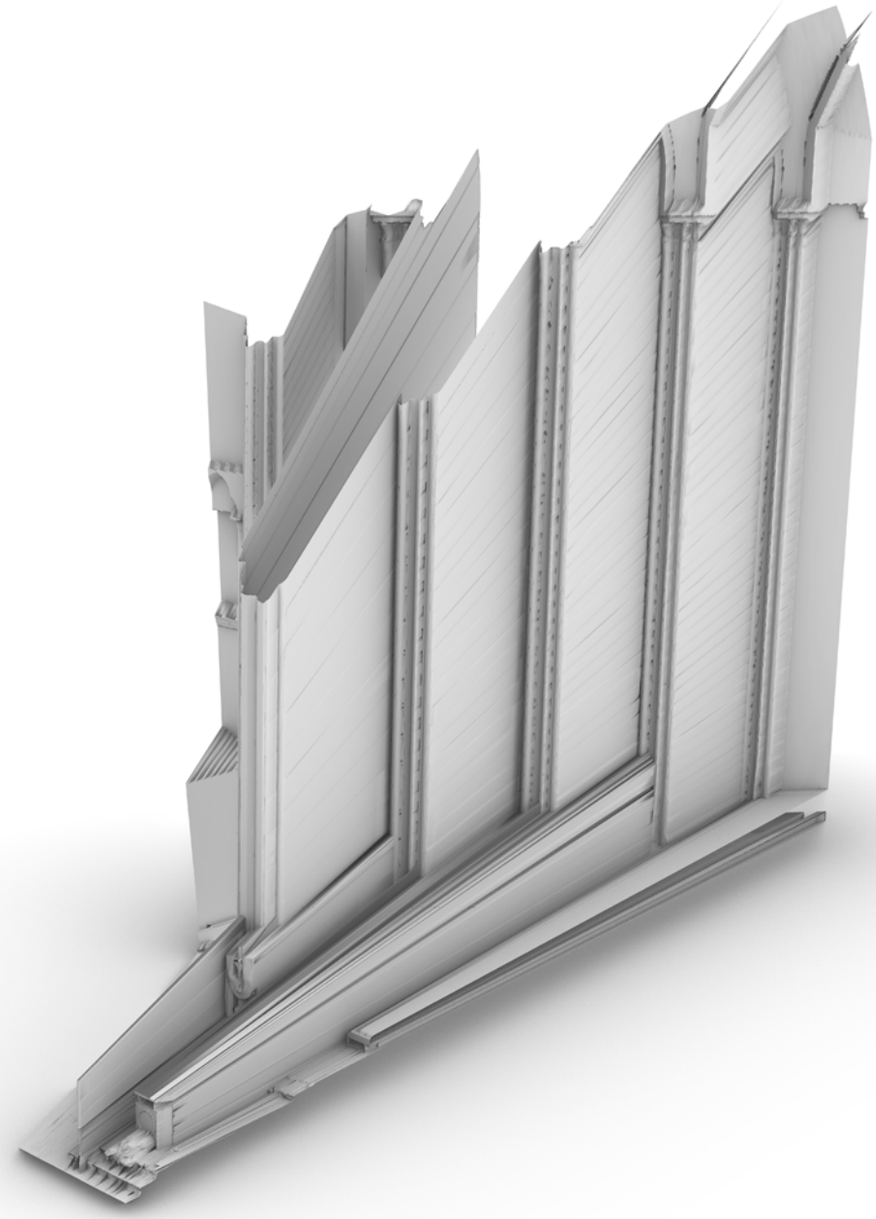
THE SURFACE OF PERCEPTION AND THE SHADOW OF OCCLUSION

This moment and vantage point provides a context to properly explore the interplay of the surface of perception and shadow of occlusion. I do this by exploring the limits of the surface of perception, exploring what it touches and what it occludes.

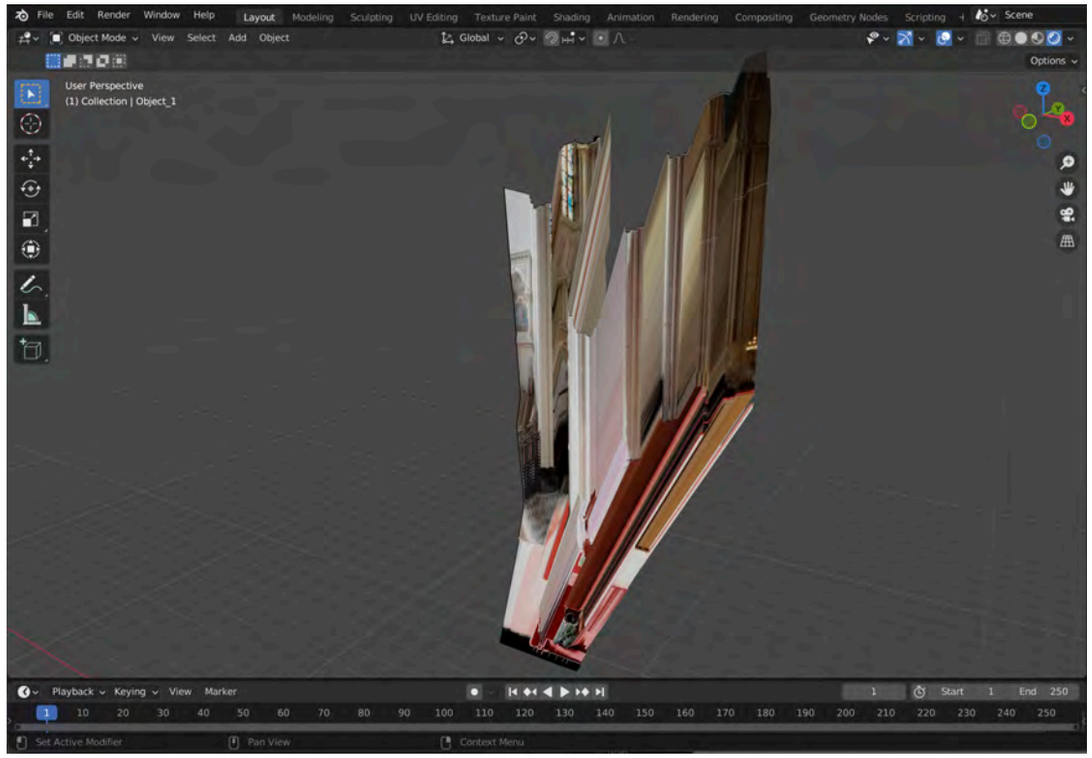
(left) photograph at vantage point 2



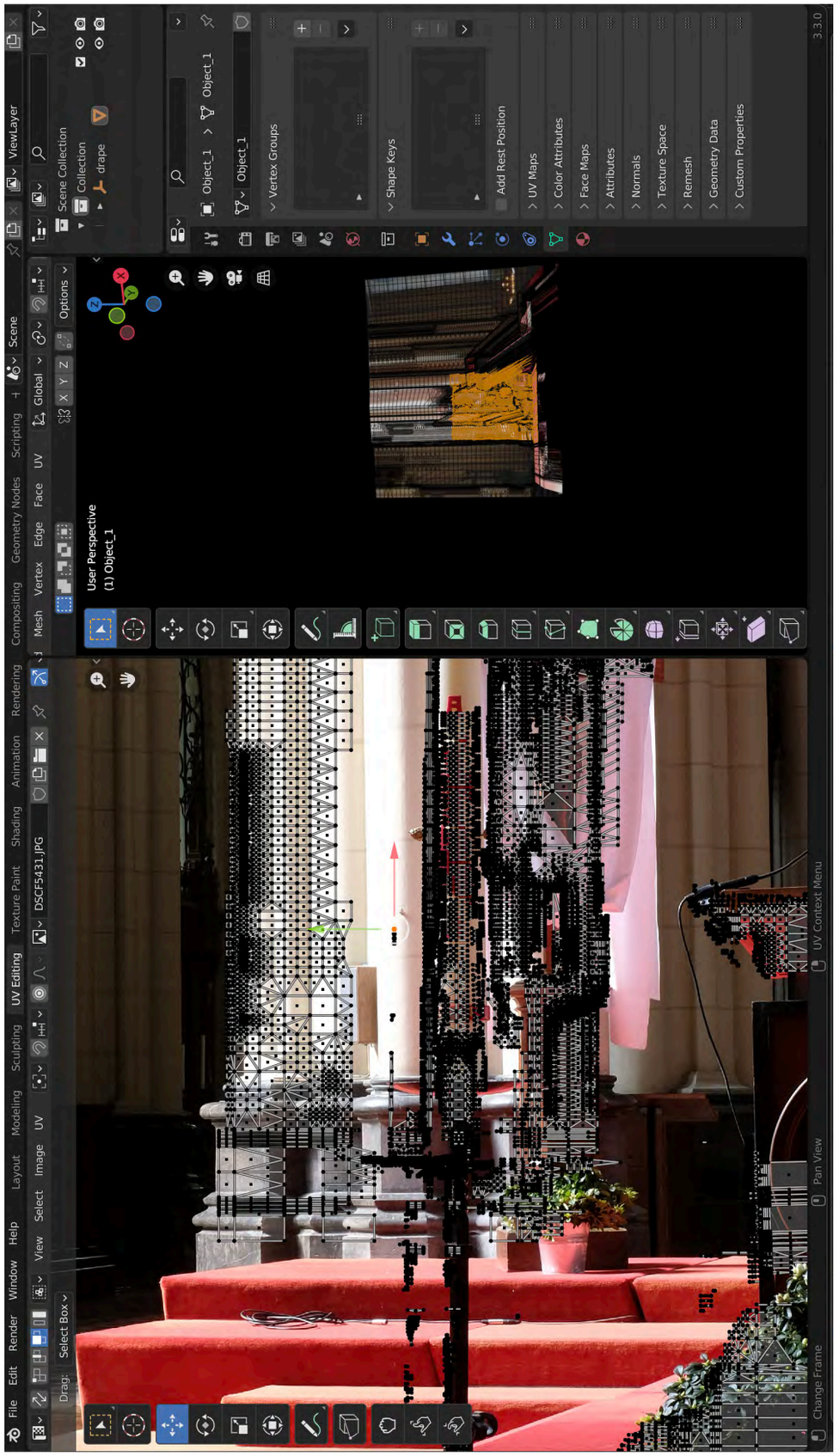
I modelled the entire space of the church's interior from the vantage point of the photograph



From this model, I projected the surface of the camera's perception from the vantage point.



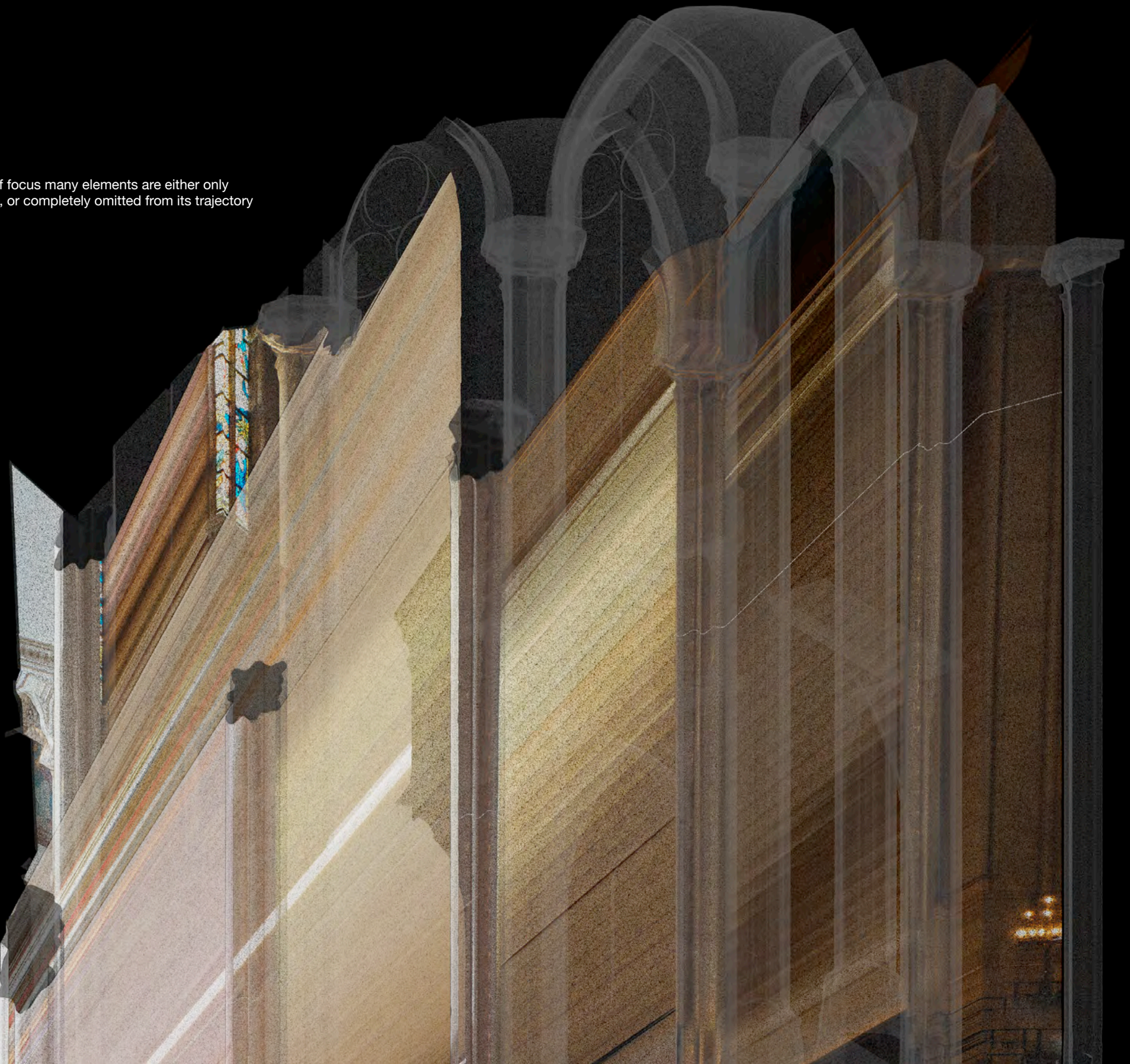
I proceeded to map the colour and intricate textures of the photograph onto the scaled surface generated from the model.



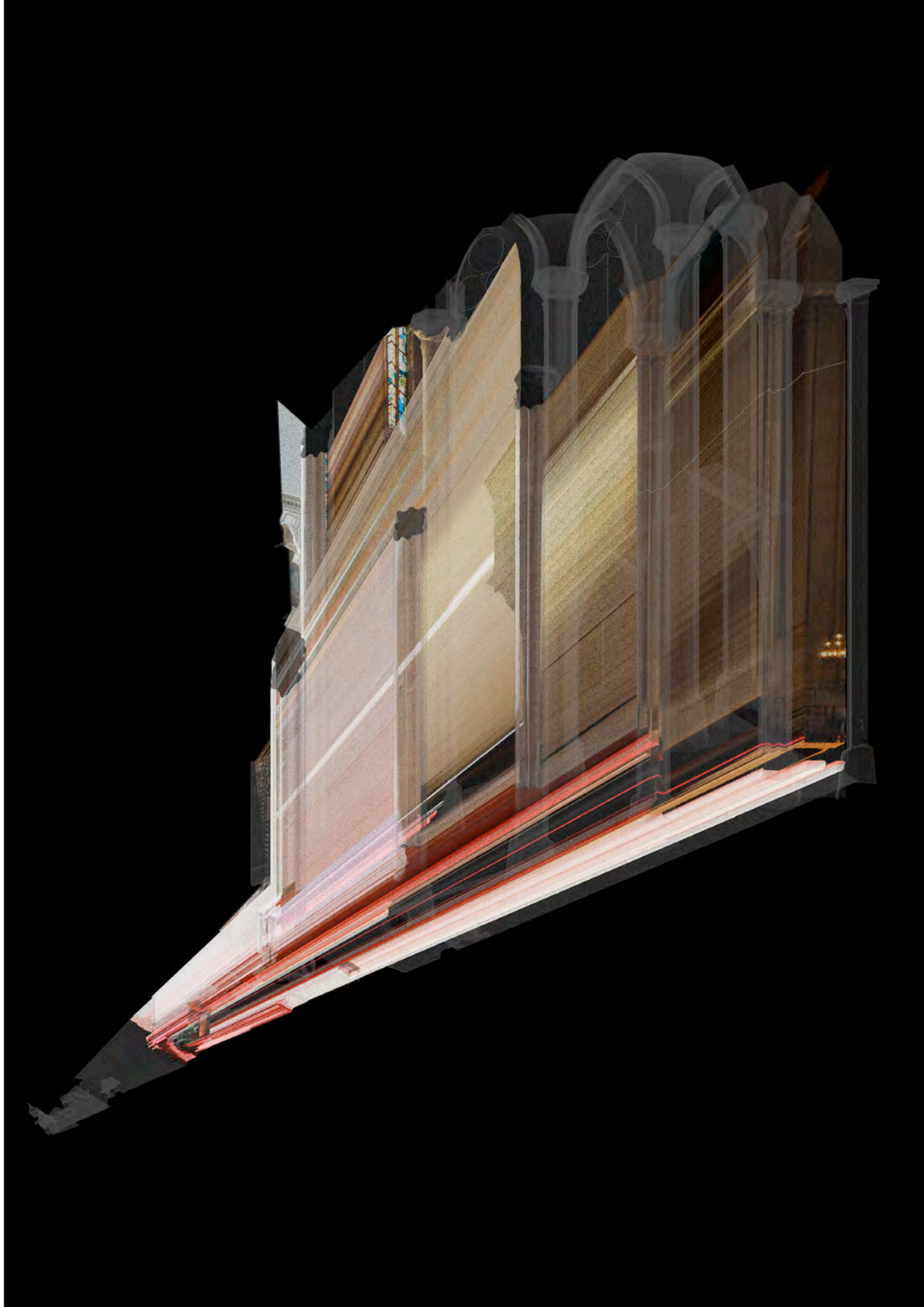
When the original digital model meets the projected surface of the camera’s vision, we begin to see the edge between the shadow of occlusion and the surface of perception.

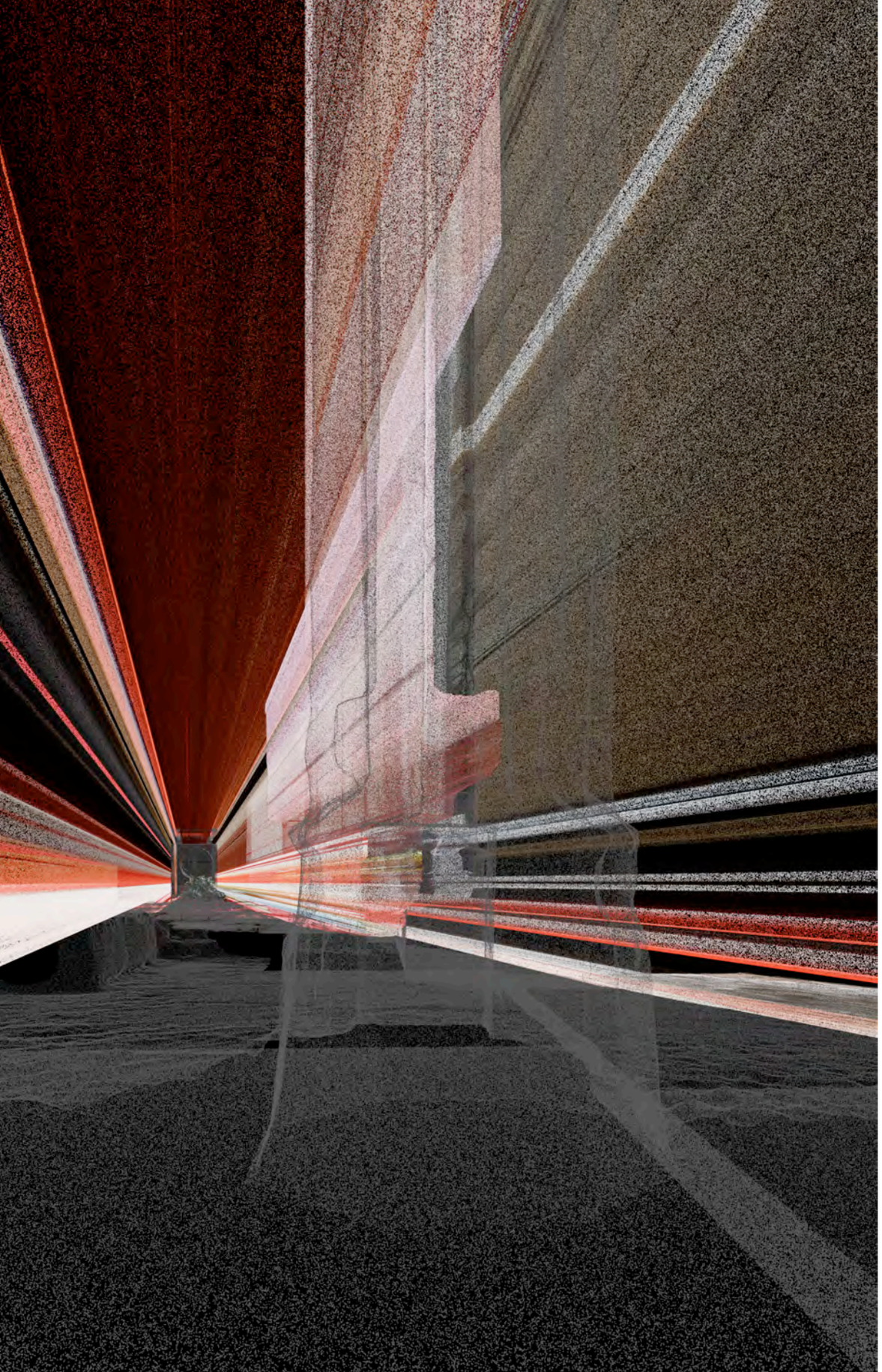
The elements I am intentionally looking with the camera from vantage point 2
(the candle, cross and podium) are clearly illuminated by this surface

Further away from this area of focus many elements are either only slightly grazed by the surface, or completely omitted from its trajectory



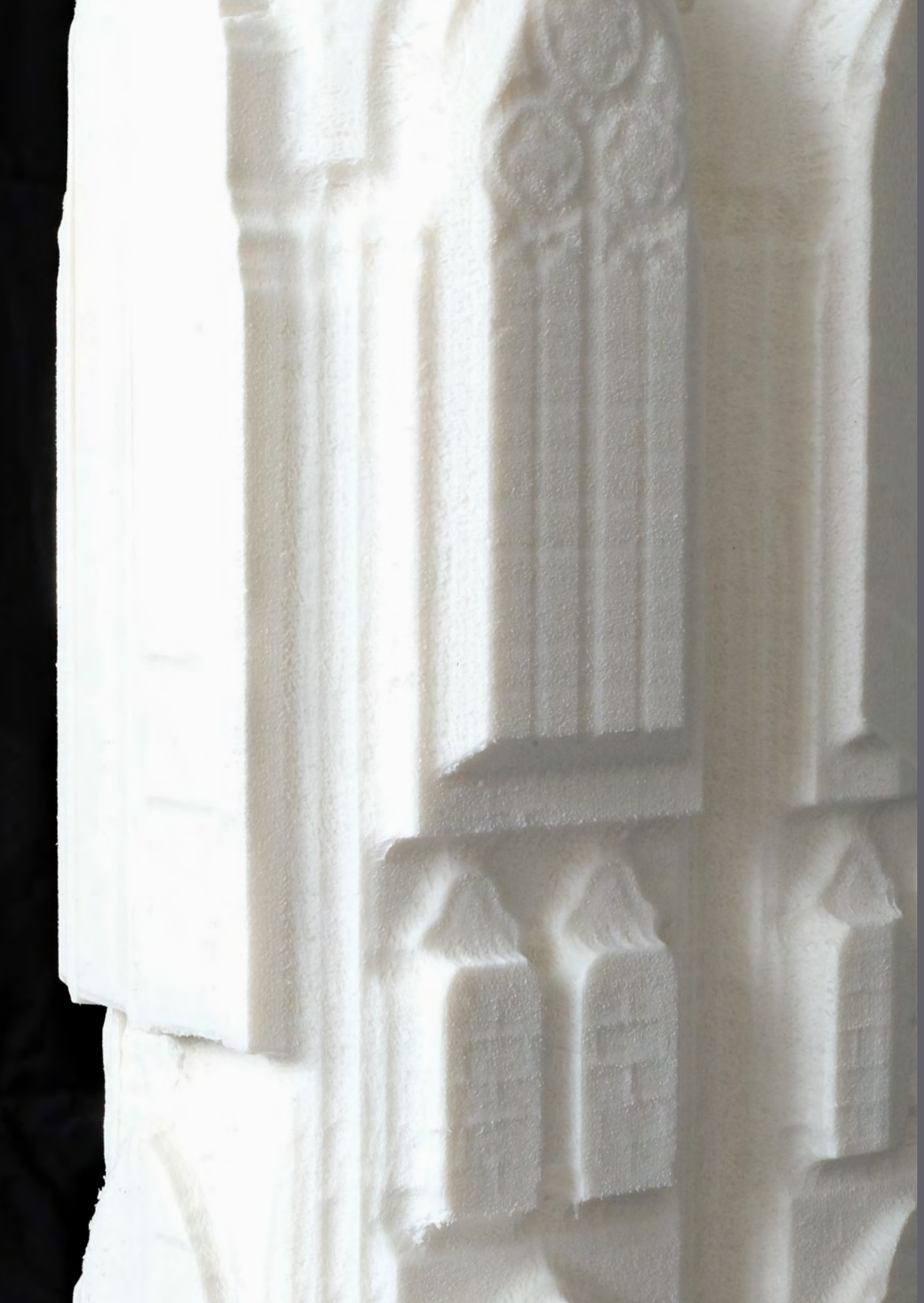
Full axonometric drawing





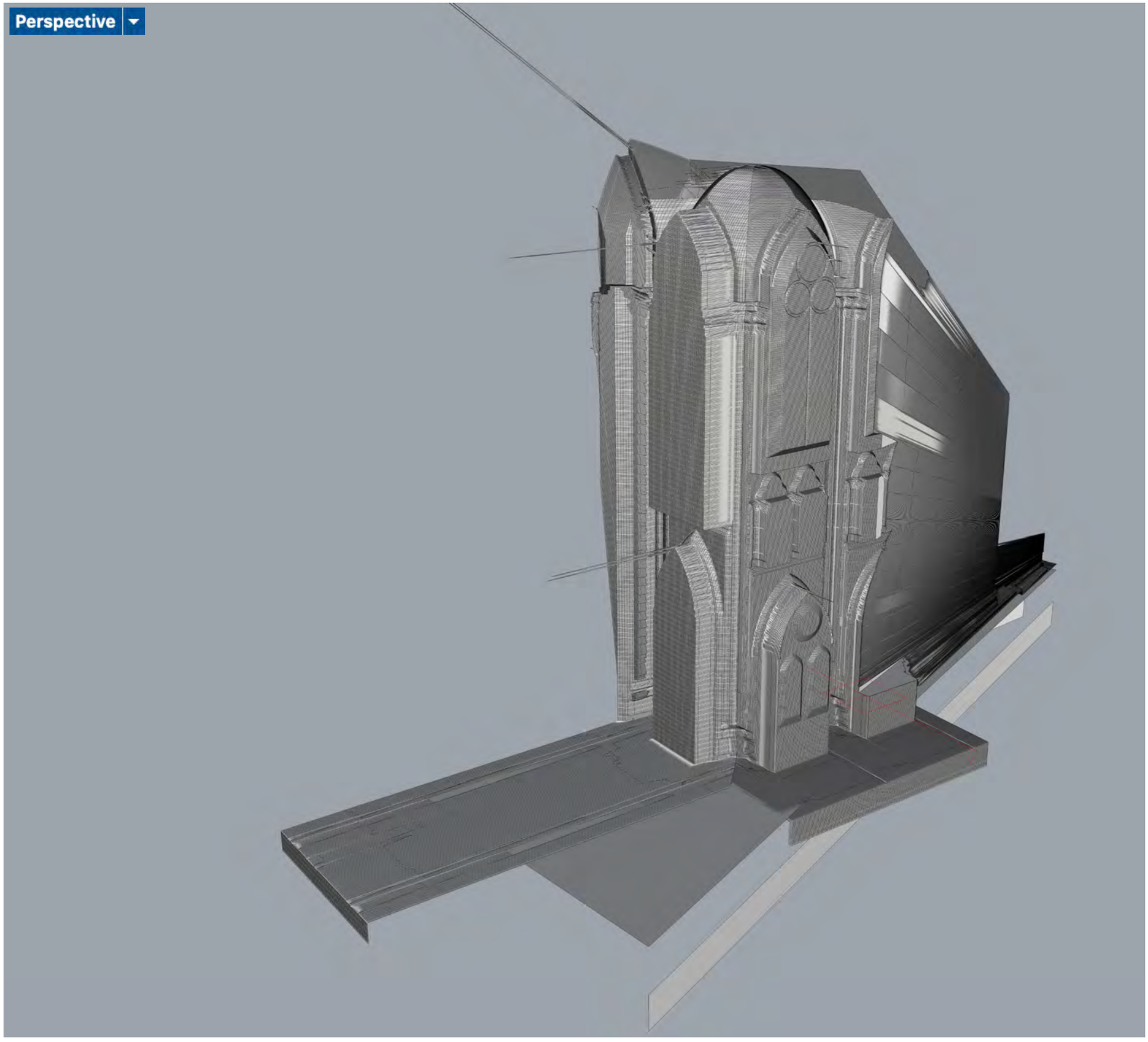
The surface of perception encapsulates and defines an inaccessible realm only inhabitable through representation.

(left) looking towards the vantage point from within the shadow of occlusion



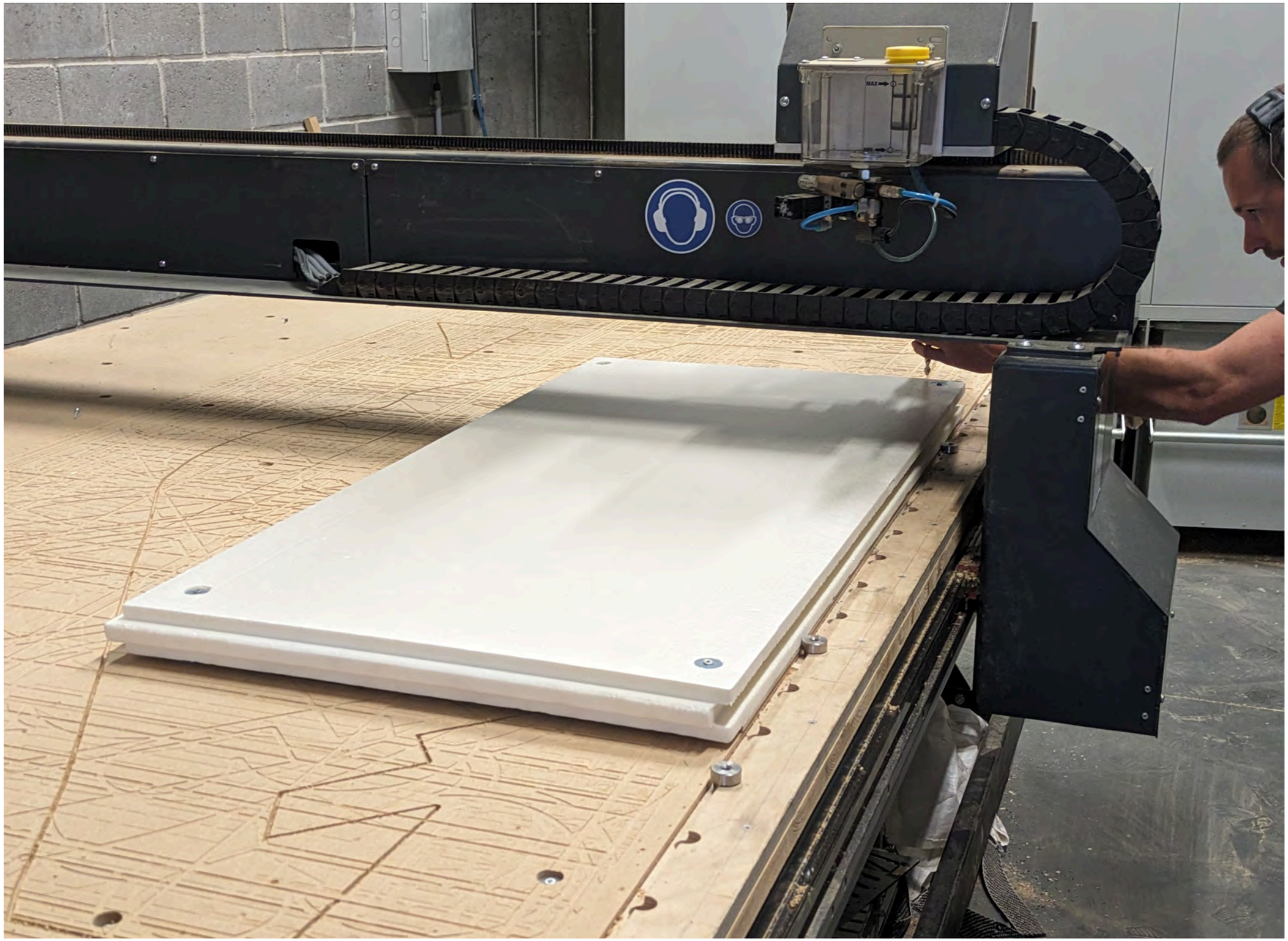
THE SHADOW OBJECT

This inaccessible volume of space beyond the surface of perception contained within the church's interior can be fathomed by understanding its encapsulation. If we draw out every edge and surface of this volume, we are left with an object who's inside is only understood by looking at its surfaces. This chapter attempts to materialize this volume as a "shadow object".



In order to obtain the shadow object I define its surfaces. These are;

- the surface of perception generated from the photograph at vantage point 2
- the walls of the church's interior.



Using a 3-axis CNC machine, I carved the faces
of this object into polystyrene (rigid foam).

The pieces of this volume carved by the CNC are refined and assembled by hand using an exacto knife, sand-paper and glue

The following pages show images of the assembled shadow object. This model is built at 1:100 scale.

backside of the model where the volume of the shadow of occlusion meets the interior walls of the church

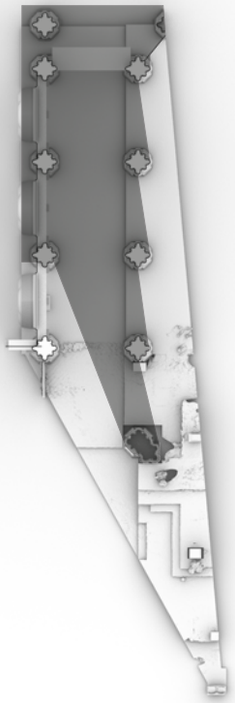
(left) front side of the model, formed by the surface of perception from the image at vantage point 2

SPATIALITY IN THE SURFACE

As we have seen in previous parts of this book, the surface of perception is not a neutral scanning of our surroundings. The depthmap models I create capture how perceived space is radically different from measured space. In this chapter I use a depthmap model generated from vantage point 2 to explore the ambiguous spatiality of the surface of perception. This ambiguity lies in how our senses (and equally, the camera's sensors) perceive and make sense of space with limitations.

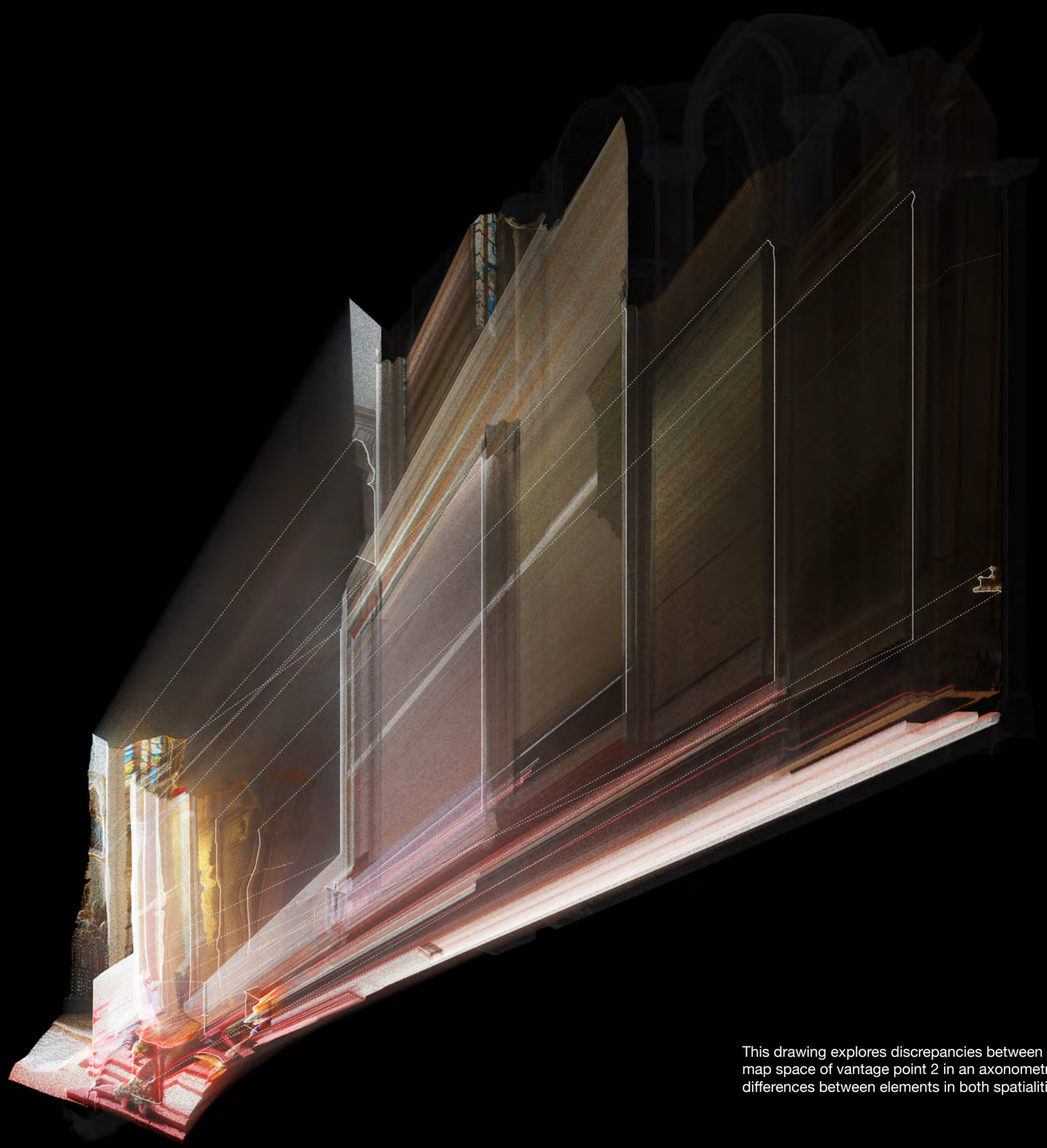
(right) depthmap model of vantage point 2

CNCed polystyrene model (same process as the shadow object) that materializes the space of the depthmap model on the previous page.

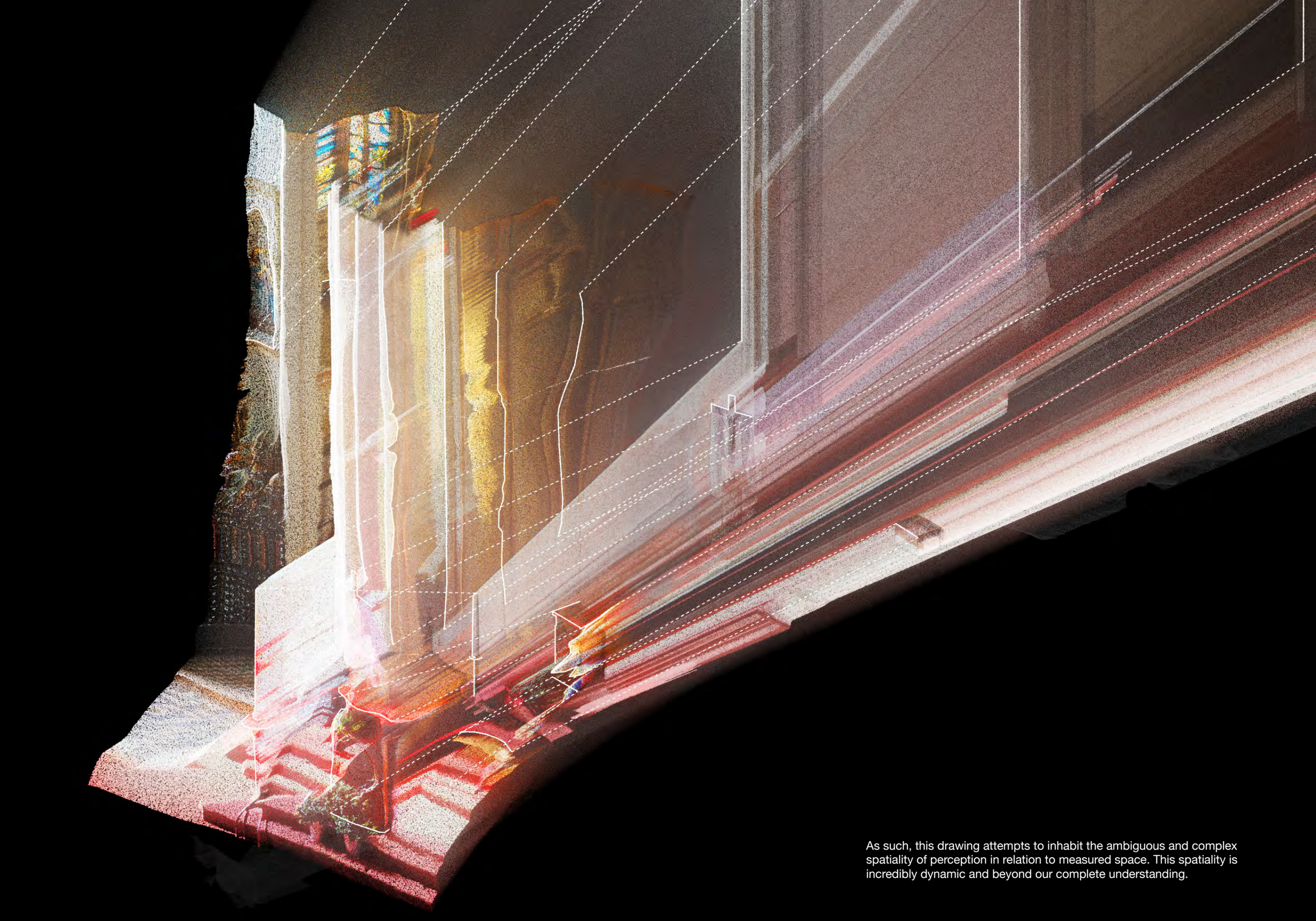


(left) plan view of the surface at a measured scale

(right) The candle, podium and cross close to the viewer are large and have a clearly defined space. As we get further away from them, the space of the church gradually flattens as columns, walls etc. begin to mesh together.



This drawing explores discrepancies between the measured and the depth map space of vantage point 2 in an axonometric view from above. The differences between elements in both spatialities are mapped.



As such, this drawing attempts to inhabit the ambiguous and complex spatiality of perception in relation to measured space. This spatiality is incredibly dynamic and beyond our complete understanding.

hidden truths at perceptual limits

From any vantage point, there is always a relationality between the surface of perception and the shadow of occlusion. The surface of perception is to a certain extent what 19th century biologist Jakob von Uexkül defined as the *Umwelt;* an organism's perceptual environment (as opposed to it's actual environment).[1] Every organism lives a different Umwelt based on how it senses and rationalizes the world; a bee experiences the same park completely differently than a human.

In the context of this thesis, the Umwelt, or surface of perception, is ultimately where we are confronted with the perceptual agency of space. As seen through concepts such perceptual impact, synesthesia, relationality etc., the surface of perception is not a literal reading of space, it is where space itself has a communicative agency.

This communicative aspect of the surface of perception is in some ways derived from its incompleteness. The surface of perception always occludes certain things. This incompleteness enables us to fathom the shadow of occlusion. The actual quality of the shadow of occlusion is ultimately unknown, but its presence defines our experience of the world in ways beyond our understanding.

Hugh of St. Victor, a 12th century Christian theologian reflected on this during the European Middle Ages:

"Our mind cannot ascend to the truth of invisible things, unless instructed by the consideration of visible things, that is, so that it will recognize visible forms as notions of invisible beauty... There is, however, a certain similarity between visible and invisible beauty by the virtue of the emulation set up between them by the invisible creator... Because of this, the human mind, properly aroused, ascends from visible to invisible beauty.

For in visible things, there is form and shape, which gladdens the eye, sweetness of smell, which refreshes the nostrils, goodness of taste, which whets appetite, and smoothness of body, which excites and attracts the touch. But in invisible things, the form is virtue, the shape justice, the sweetness charity, the fragrance longing, and the song joy and exultation." [2]

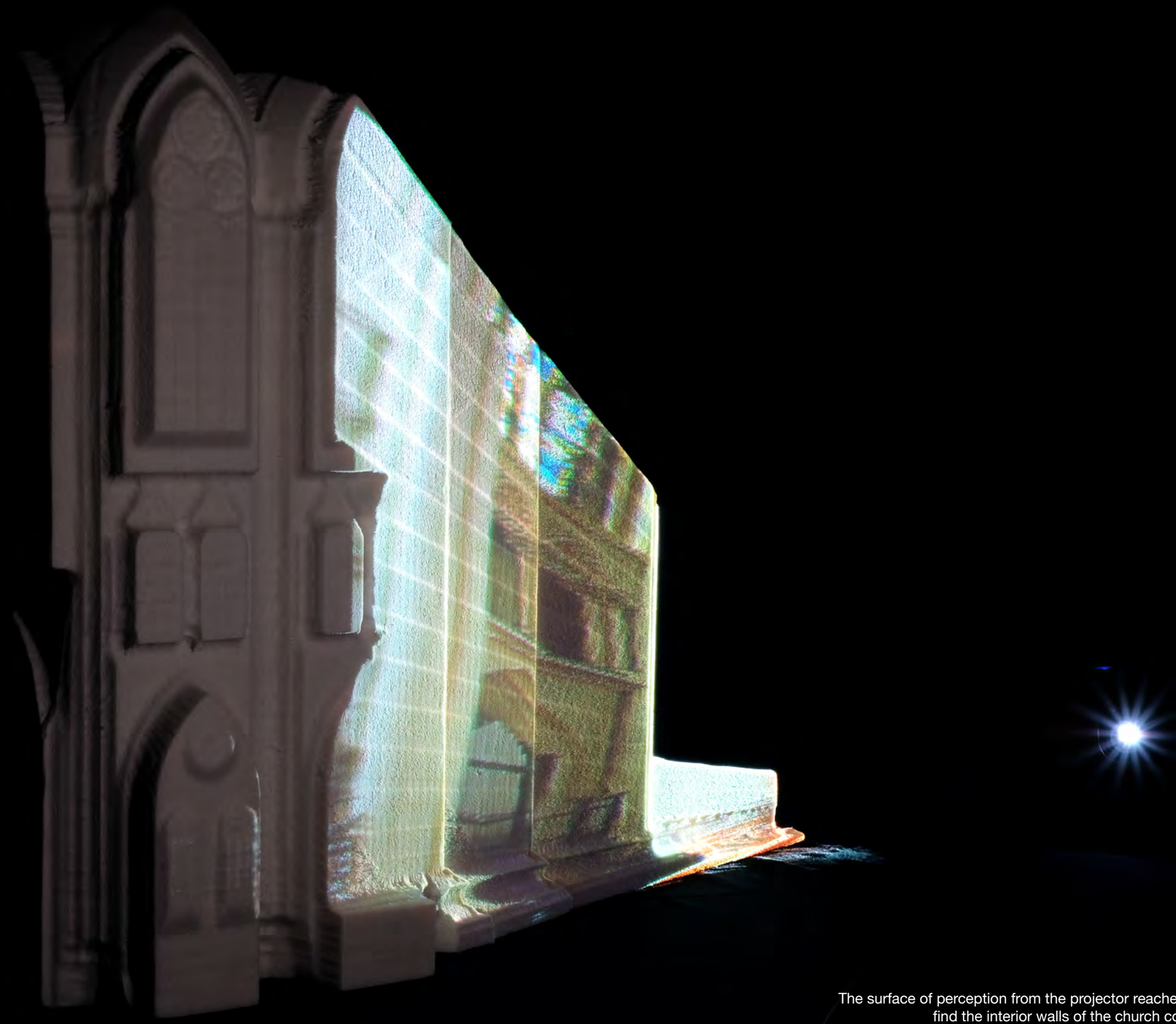
1. Urmas Sutrop, "Umwelt - Word and Concept: Two Hundred Years of Semantic Change," Semiotica 2001 (2001), https://doi.org/10.1515/semi.2001.040, 447.

2. Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge, MA: The MIT Press, 2000), 89

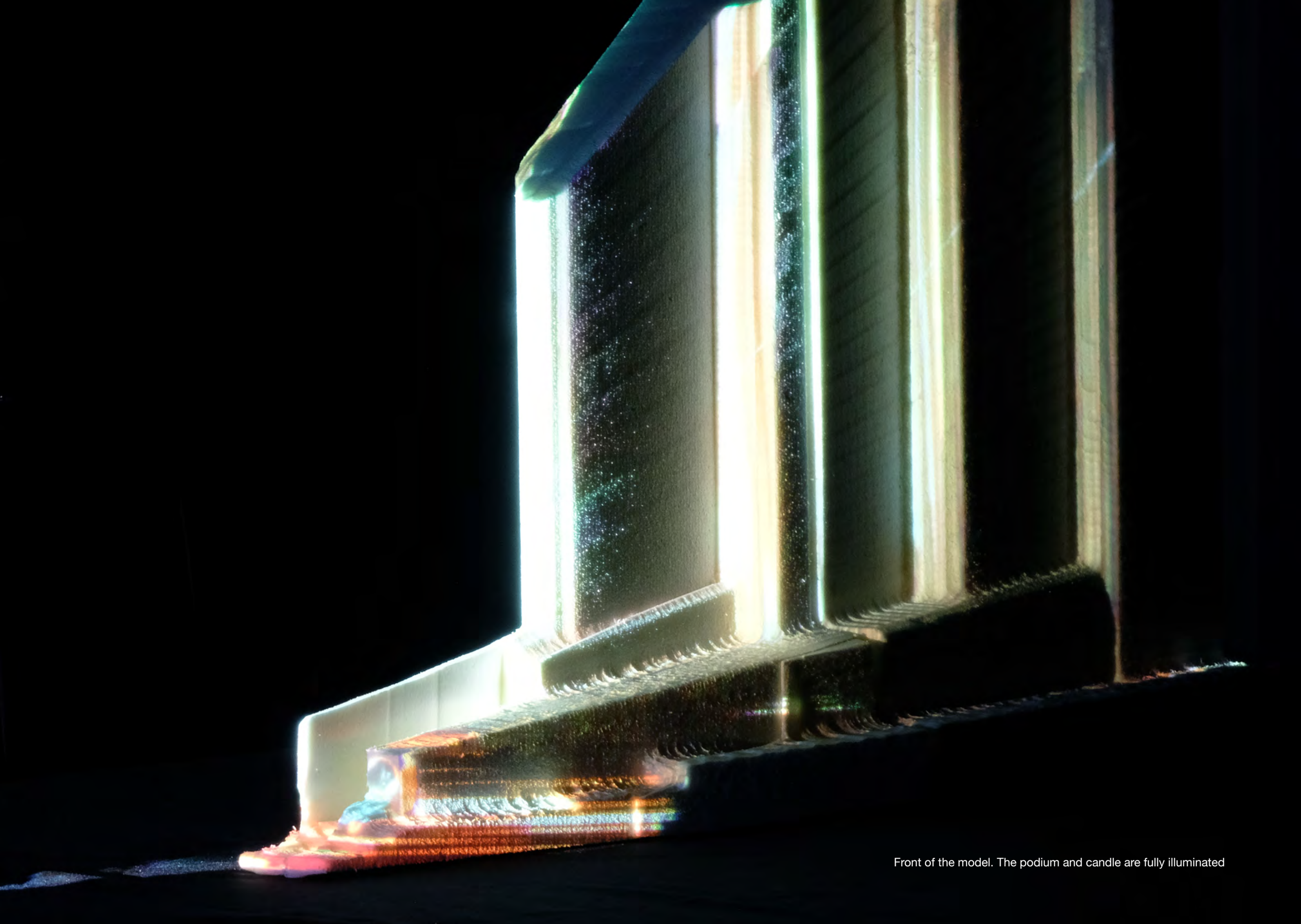
PERCEPTUAL LIMITS

This brief, final chapter of the book fathoms the perceptual limit that the previous chapters have straddled. The edge between the complex and ambiguous realm of the perceivable, and the mysterious realm beyond perception are explored using a projector and the shadow object.

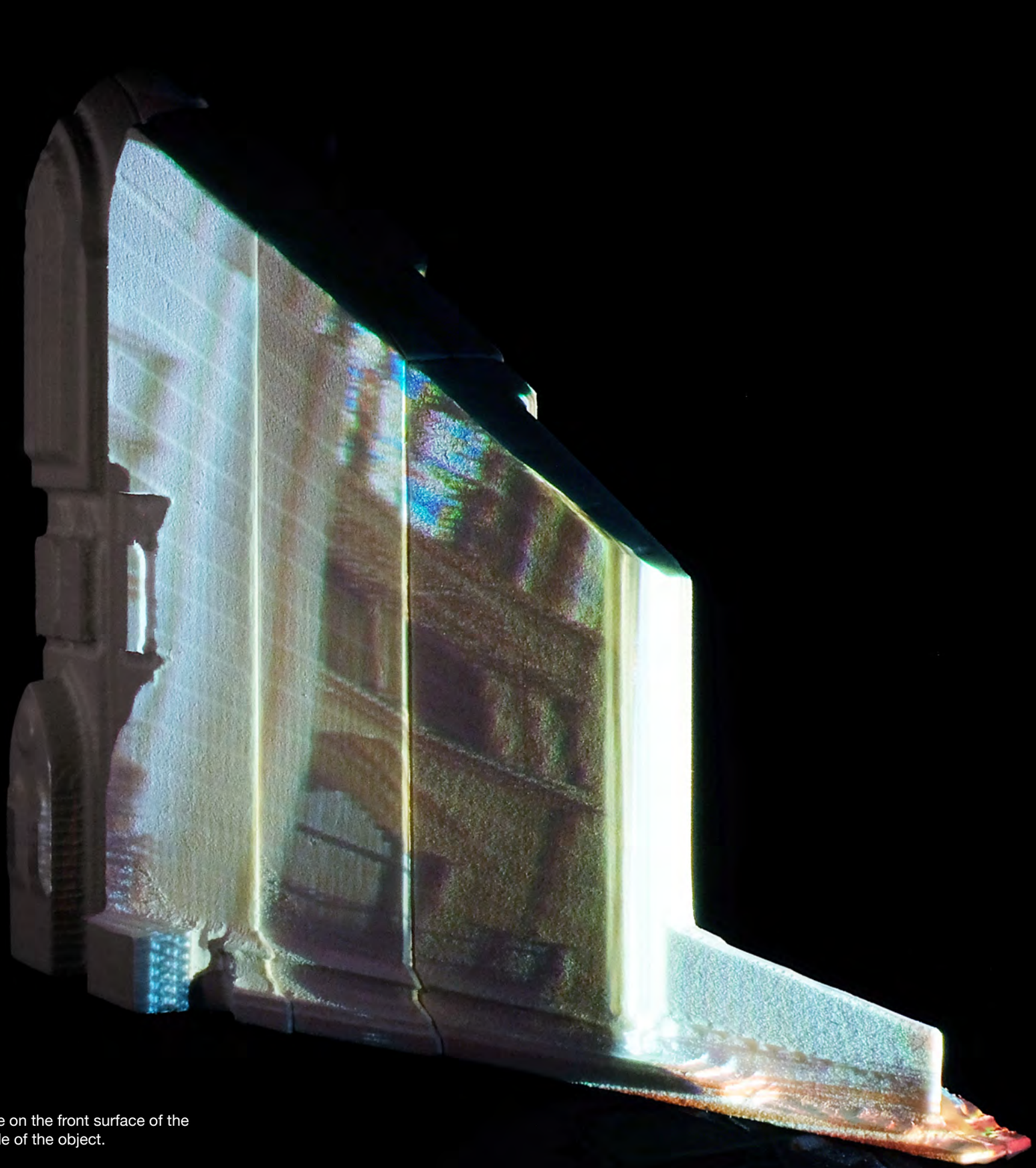
In order to understand how the surface of perception relates to the volume of the shadow object, I projected a projection-mapped image from vantage point 2 onto its surface using a projector.



The surface of perception from the projector reaches an edge where we find the interior walls of the church containing the volume



Front of the model. The podium and candle are fully illuminated



The surface of perception intricately takes its place on the front surface of the model, but is unable to reveal the mass or backside of the object.

final remarks

This thesis has aimed to deepen my understanding of phenomenology in relation to architecture through representational artifacts. Contemporary approaches to architectural practice have often overlooked the profound perceptual agency of space, typically reducing it to a measurable emptiness through representational tools. This thesis has challenged this, demonstrating that space is a dynamic realm of tensions with a significant communicative power.

In this process I seeked to rediscover the latent phenomenological agency of space through contemporary drawing tools available to me. Instead of looking at space as a calculable void, this thesis has explored its phenomenological effects. Through the agency of representational artifacts—such as drawings, models, and digital spaces—I have engaged with spatial qualities beyond my immediate understanding (a notable example being the shadow of occlusion). My artifacts served as mediators, translating the complex, spatial qualities of interest into tangible matter.

This thesis reveals that architectural representations can serve as investigative tools that transcend the limits of personal perception and the symbolic constraints of language. However, it also highlights that architectural media is always an illusion, and should not be considered a source of absolute truths. The architectural drawing should rather be considered a mediator that provides a point of speculation.

This thesis does not romanticize premodern ways of understanding space. Instead, it harnesses often overlooked potentials in contemporary digital tools to explore and come into contact with spatial phenomenology. In our increasingly digital societies, we are continuing to insist that what is of value must be measurable. It is crucial to be skeptical of this notion that reduced our conceptualization of space in previous centuries. This thesis does not aim to provide an alternative way of conceptualizing space. My explorations are open to being built on in future work.

BIBLIOGRAPHY

- "Atmosphere." *Cambridge Dictionary*. Accessed June 11, 2024. https://dictionary.cambridge.org/dictionary/english/atmosphere.

- Borch, Christian. *Architectural Atmospheres: On the Experience and Politics of Architecture*. Berlin: Jovis, 2014.

- Britannica, T. Editors of Encyclopaedia. "event horizon." *Encyclopedia Britannica*. June 1, 2024. Accessed June 12, 2024. https://www.britannica.com/topic/event-horizon-black-hole.

- Donald, Dwayne. "We Need a New Story: Walking and the wâhkôhtowin Imagination." *Journal of the Canadian Association for Curriculum Studies* 18, no. 2 (2021): 53-63. https://doi.org/10.25071/1916-4467.40492.

- Dorrian, Mark. "Atmosphere and Distance." *Journal of Architectural Education* 67, no. 2 (2013): 283–84. https://doi.org/10.1080/10464883.2013.817176.

- Frascari, Marco. "A Heroic and Admirable Machine: The Theater of the Architecture of Carlo Scarpa, Architetto Veneto." *Poetics Today* 10, no. 1 (Spring, 1989): 103-126. Accessed January 21, 2019. https://www.jstor.org/stable/1772557.

- Harman, Graham. "Object-Oriented Ontology." *Oxford Research Encyclopedia of Literature*. Last modified September 24, 2019. Accessed June 12, 2024. https://doi.org/10.1093/acrefore/9780190201098.013.997.

- Harman, Graham. *The Quadruple Object*. Zero books. Winchester, UK: Zero Books, 2011.

- Norman, Jeremy. "Guilio Camillo Describes the Memory Theatre." *Historyofinformation.com*. Accessed June 12, 2024. https://www.historyofinformation.com/detail.php?id=5056.

- Pérez-Gómez, Alberto. *Attunement: Architectural Meaning after the Crisis of Modern Science*. Cambridge, MA: The MIT Press, 2016.

- Schaeffer, Pierre. *Treatise on Musical Objects*. Editions du Seuil, 1968. English translation. University of California Press, 2017.

- Smith, David Woodruff. "Phenomenology." *Stanford Encyclopedia of Philosophy (Summer 2018 Edition)*. Edward N. Zalta (ed.). Published November 16, 2003. https://plato.stanford.edu/entries/phenomenology/. Accessed June 11, 2024.

- Spapens, Christian, and Charles Gombert. *L'église Notre-Dame de Laeken : un mémorial inachevé*. Belgium: CIDEP, 2006.

- Sutrop, Urmas. "Umwelt - Word and Concept: Two Hundred Years of Semantic Change." *Semiotica* 2001 (2001). https://doi.org/10.1515/semi.2001.040.

- "Synesthesia." *Merriam-Webster.com Dictionary*. Accessed June 11, 2024. https://www.merriam-webster.com/dictionary/synesthesia.

- West, Mark. "Found as In Clouds." In *WWW: Drawing Architectural Drawing: From Pencil to Pixel*. Janet Abrams (ed.), 27-37. USA: ACTAR, 2020.

- Wijngaarden, Vanessa. "Relationality." In *Showing Theory to Know Theory*. eCampusOntario. Last modified January 13, 2022. Accessed June 11, 2024. https://ecampusontario.pressbooks.pub/showingtheory/chapter/relationality/.

- Wildcat, M., and D. Voth. "Indigenous Relationality: Definitions and Methods." *AlterNative: An International Journal of Indigenous Peoples* 19, no. 2 (2023): 475-483. https://doi.org/10.1177/11771801231168380.

- Young, Michael. *Reality Modeled After Images: Architecture and Aesthetics after the Digital Image*. New York: Routledge, 2021.

LIST OF FIGURES

acknowledgments

I thank,

Riet Eeckhout for her precise and thoughtful feedback throughout the entire project.

The professors I learned from throughout my studies both in Mediating Tactics at KU Leuven and my bachelor's degree in Canada.

My parents for their support and insights.

My friends and fellow students at KU Leuven who I ultimately learned the most from throughout my Master's degree.