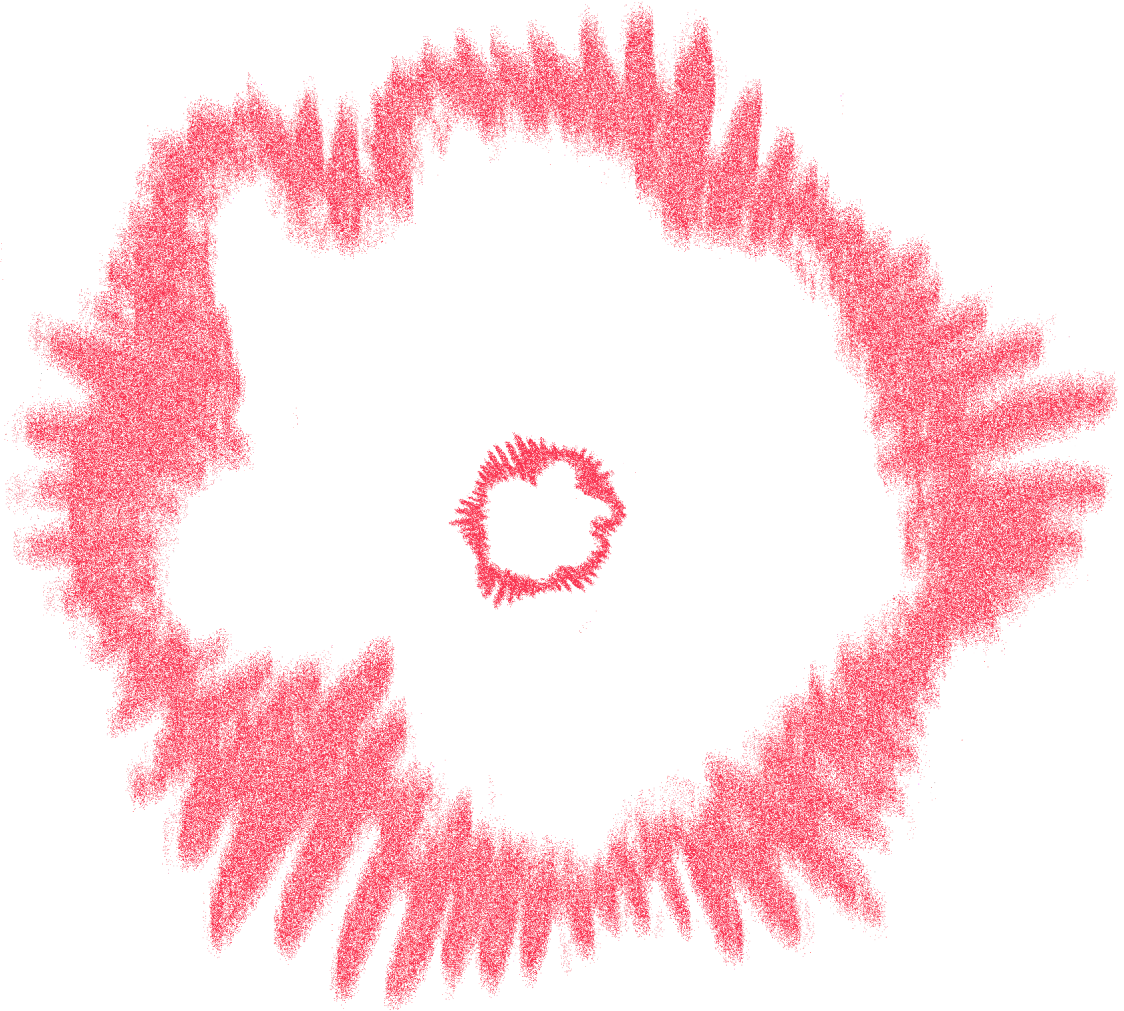


A.Y. 2022-2023



# HARMONY AND DISSONANCE OF TIME

Spatial Design for the human-nature  
temporal coexistence

Lucia Beatrice Abbiati  
Guia Rita Gloria Bottini

*A Peter, che in ogni momento  
ha saputo guidarci in questo percorso.*

*Alla nostra amicizia, che ci ha permesso  
di raggiungere insieme questo traguardo.*

POLITECNICO DI MILANO  
School of Design  
Master degree in Interior and Spatial Design  
A.Y. 2022-2023

HARMONY AND DISSONANCE OF TIME  
Spatial Design for the human-nature  
temporal coexistence

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# declaration of intents

an outline of the thesis objectives,  
describing the potentialities of  
the research area of the project

The thesis originates from a deep reflection on the concept and meaning of Time. Starting from a research on the relationship existing between nature and human beings, a contrast was outlined between the time experienced by humans, considered chaotic, imperfect, accidental and finite, and natural time, rhythmic, cyclic, infinite, harmonious. The thesis aims to respond to the possibility of temporal coexistence between human and nature by designing a space that allows both to simultaneously share the same temporal experience. The study relies on the methodology of 'time-based design', accompanied by qualitative and quantitative multidisciplinary research. This criteria is applied in different fields through in-depth research into human behaviour and nature, which play a crucial role in the development of the design idea. This thesis is a methodological attempt to theorise and imagine architectures starting from the formulation and representation of a particular concept of time.

*La tesi ha origine da una profonda riflessione sul concetto e il significato del Tempo. Partendo da una ricerca sulla relazione esistente tra la natura e l'essere umano, si è giunti a delineare un contrasto tra il tempo vissuto dall'Uomo, considerato caotico, imperfetto, accidentale e finito, e quello naturale, infinito, ciclico, armonioso e ritmico. L'obiettivo di questa tesi è rispondere alla possibilità di una coesistenza temporale tra l'uomo e la natura mediante la progettazione di uno spazio che consent ad entrambi di condividere simultaneamente la stessa esperienza temporale.*

*Lo studio si serve della metodologia del "time-based design", accompagnata da una ricerca multidisciplinare qualitativa e quantitativa. Tale approccio viene affrontato in diversi ambiti attraverso una ricerca approfondita sul comportamento umano e sulla natura, i quali svolgono un ruolo cruciale nello sviluppo dell'idea progettuale. Questa tesi rappresenta un tentativo metodologico di teorizzare e immaginare architetture partendo dalla formulazione e rappresentazione di un particolare concetto di tempo.*

what are we  
searching for?

harmony and dissonance of time

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# methods

description of the main tools  
and disciplines used for the thesis

The thesis will use a mixed-methods approach, combining qualitative and quantitative research methods. The research will include a review of literature and cinemas on the relationship between real time and man, as well as case studies of art and interior design projects that successfully incorporate elements of the main concept. The expected outcome of the thesis is to provide possible scenarios that can show both the chaos of human daily life both perfect moments of synchronicity, that connect people with the passage of time. How people perceive and interact with time in the built environment? The project aims to investigate this topic through the tools of time-based design.

what are the tools  
used for the study?

harmony and dissonance  
of humans in time

## 1.1 time-based design

In architectural projects the topic of time did not immediately become the cardinal focus of design. Just after the revolution of mobility first and the one of digital communication later time became a fundamental theme for the design process and outcome. Starting from the twentieth century, architecture responded to the need of considering time with new forms: ephemeral installations, re-functionalization of buildings or reinvention of them. But the output was just variables in technologies and materials for the design of spaces. In contemporary age instead qualities that previously would have never considered were successfully employed: time cycle

was accepted as a value, conceived in its variability. The aim of time-based design is in fact to create flexible architectures, considering spaces as living organisms, able to expand and retract according to users' desires and needs. This methodology brought new considerations about time reformulating completely the usual idea of design of spaces and bringing the concept of time to the centre of the design process.

*Cronos e Kairos, study for a time-based skyscraper, Biennale di Architettura di Venezia, 2010*

- formazione
- cura
- sacro
- commercio
- intrattenimento
- benessere
- ospitalità
- sicurezza

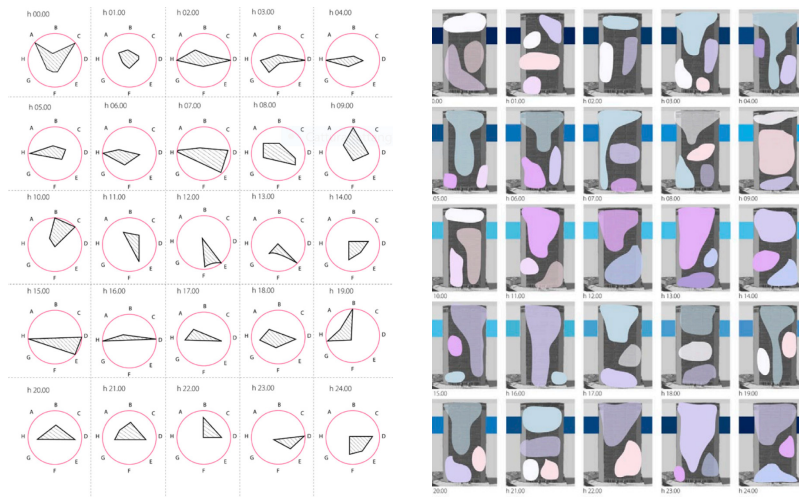


figure 1  
image taken  
from the article  
time based design  
per l'habitat del  
futuro prossimo',  
Anna Barbara

Legend:

- activity 1 (ex. working)
- activity 2 (ex. eating)
- activity 3 (ex. resting)

on the right, space is influenced by time changing its dimension following the hours of the day; on the left, the perception of time is manipulated by space that thanks to design tools can compress and expand time.

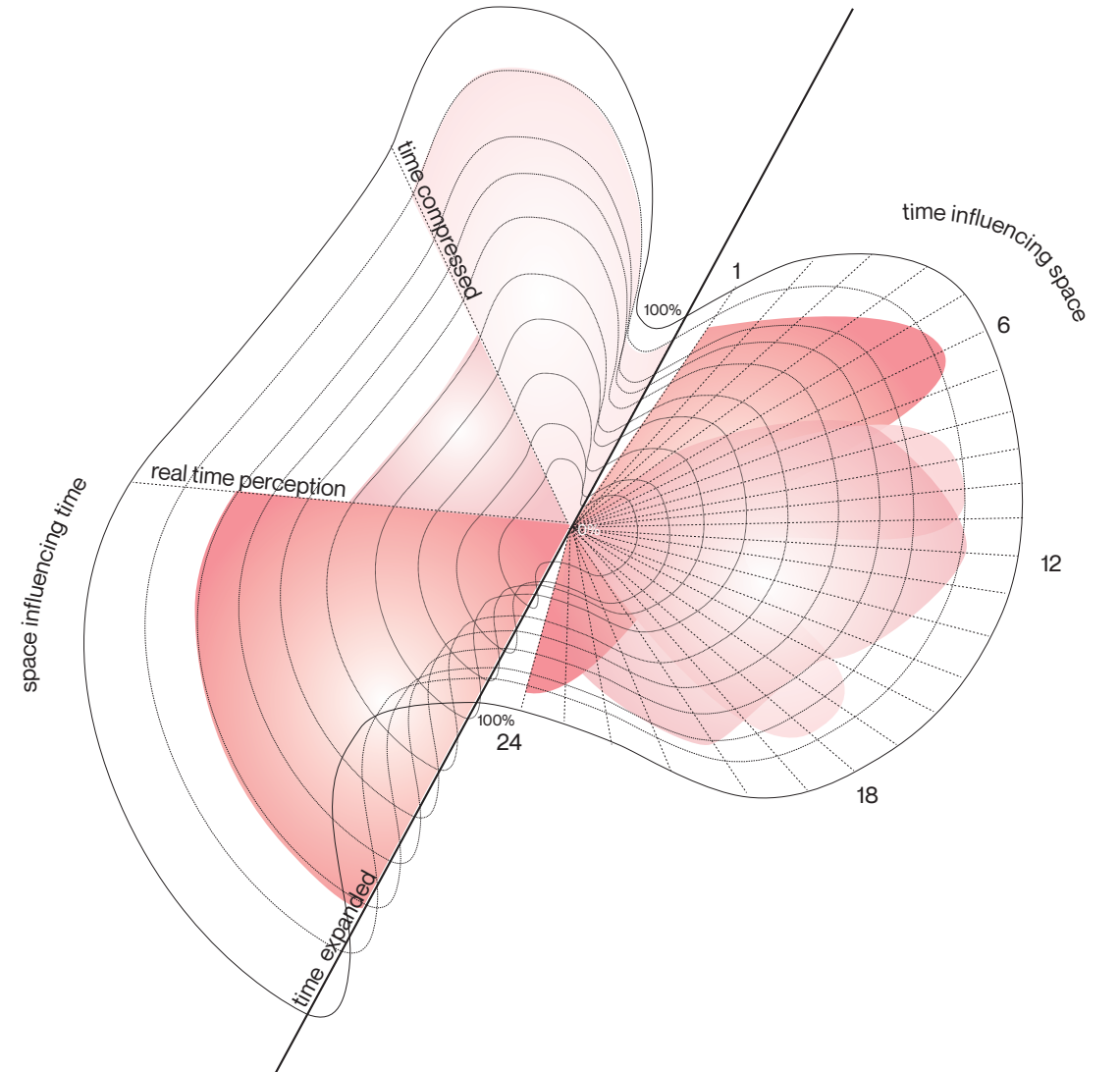


figure 2  
time-based  
design diagram

# harmony and dissonance of humans in time

description of the main topic of the thesis; research and explanation of the components of the concept

Since the project must have time as its focus, the research begins with a reflection on time, particularly in a comparison between 'real' time, that of nature, and time of man. The former is linked to the unfolding of changes, the endless succession of days, months, seasons and years, while the latter appears as a brief interval that is almost entirely accidental and chaotic except for a few moments of perfection, of pure 'light', in which human life seems to acquire meaning. The concept of time that the thesis aims to express through the project is therefore the alternation between moments of complete discordance between man and real time and those (rare) moments of complete harmony between the two. The relationship between man and nature, a theme more topical than ever, was immediately taken into consideration and regarded among the most interesting, especially when seen through a new perspective: that of time.

what is the thesis?



*Il tempo della vita non coincide con il tempo reale di avvenimento delle cose [...]*

*Non siamo mai puntuali, non abbiamo mai la percezione di noi per come siamo [...]*

*Non riusciamo mai a vivere nell'istante [...]*

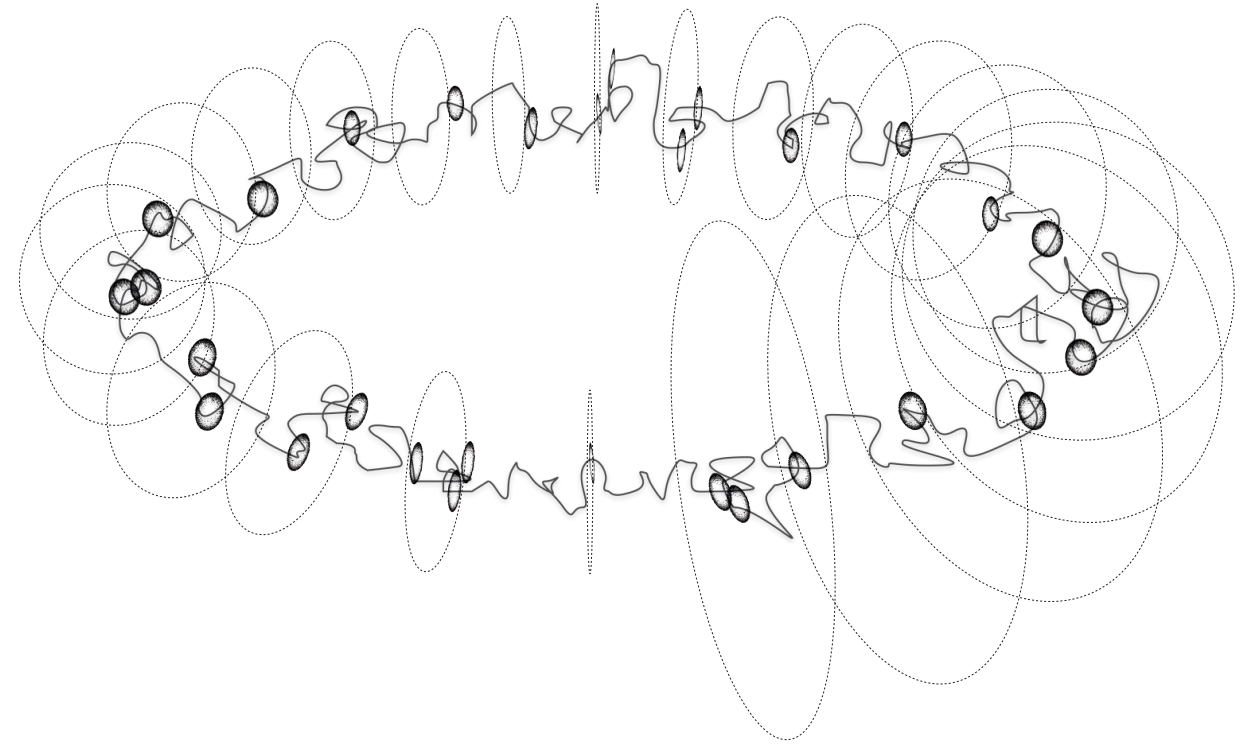
*La cosa più difficile è stare nel tempo.*

*from the lecture Sul Tempo, by Alessandro Baricco*

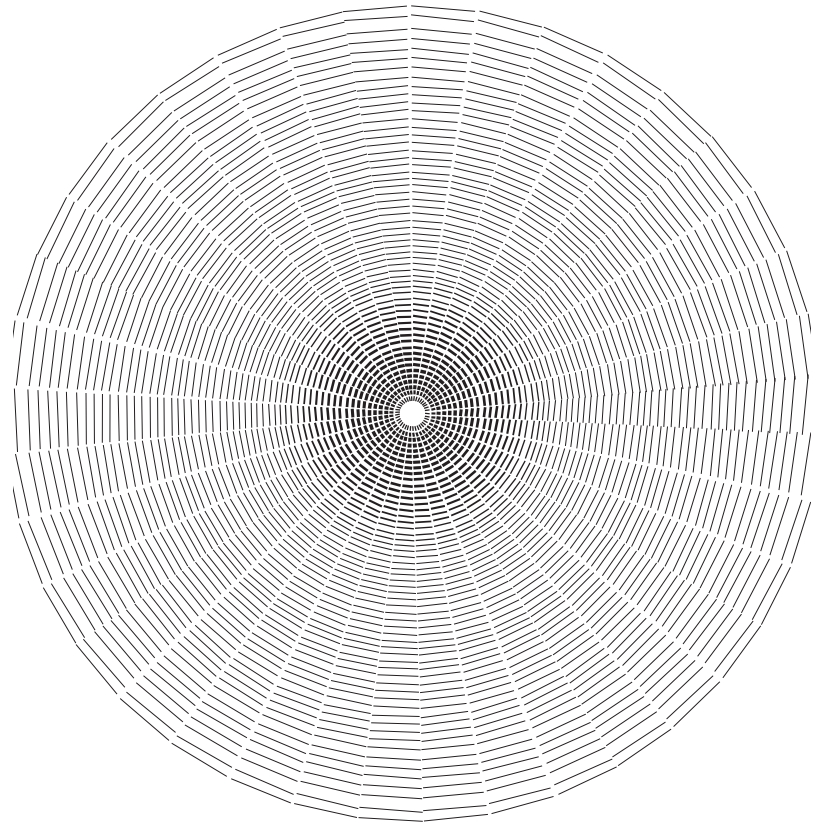


*figure 3  
Alessandro  
Baricco in his  
lecture Sul Tempo*

*the big circles enlarging their size represent the endless cyclic natural time; the curved line stands for the human life, marking an accidental path through time; the black little circles represent the intersection between human life and real time: they are the only moments of perfect synchronicity.*



*figure 4  
illustration  
of the thesis'  
time concept*

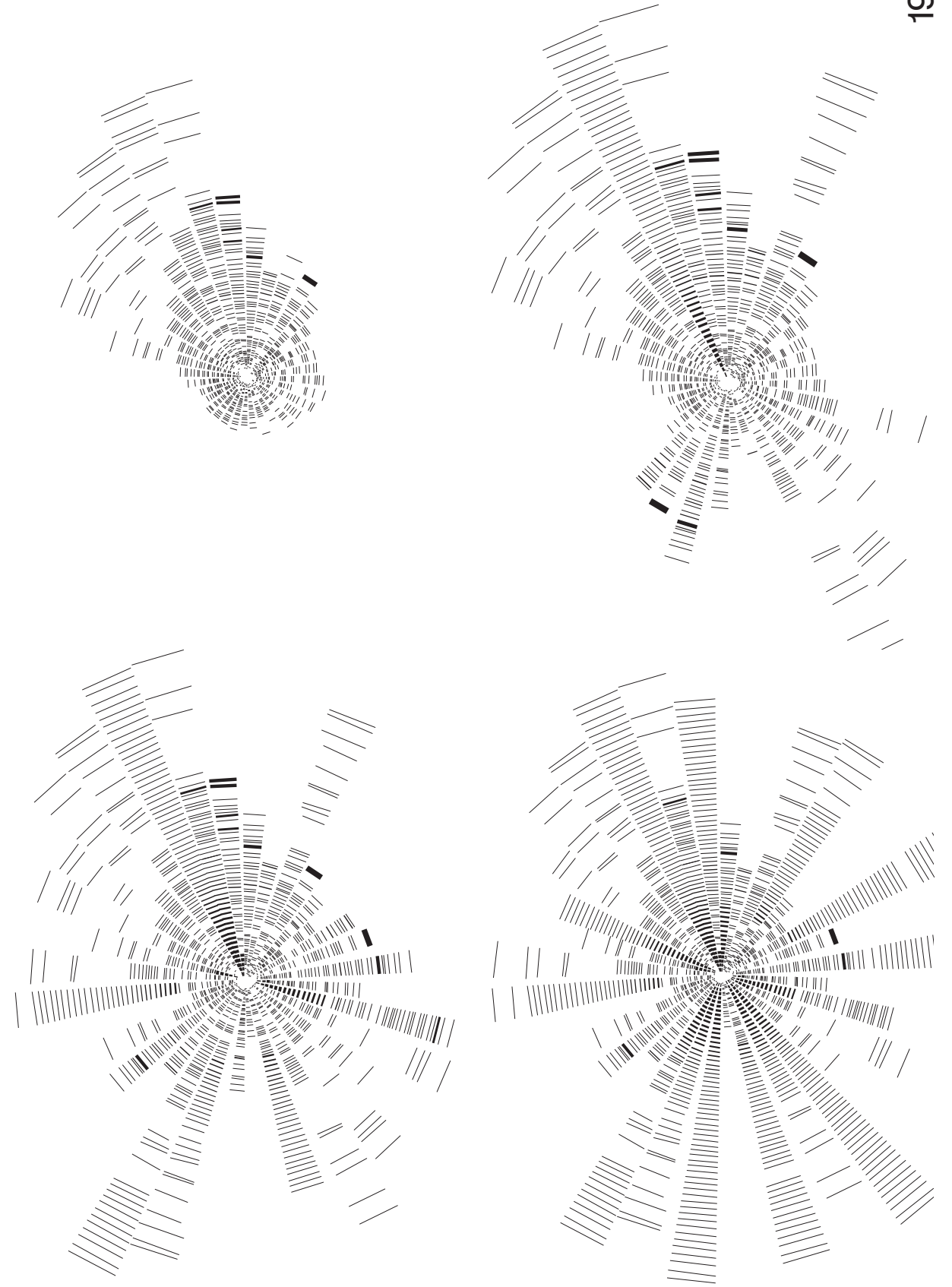


## 2.1 synchronicity

Synchronicity represents a special event in human life. Man acts and lives out of time, always early or late, constantly seeking to bridge the distance that either separates him from living in the present, from

being in the moment. But what happens when he manages to sewing up timer? What happens when he finally lives in the moment, in the present time? Man is in perfect tune with the world. A wonderful event, a moment of exactness and perfection in which there is no more delay or anticipation of time, but only cohesion with it. We define this condition synchronicity.

*figures 5-6-7-8-9  
synchronicity  
illustration, from  
discordance  
to harmony*



### 2.1.1 collimation

Trying to understand the characteristics to best describe the condition of synchronicity, the first key word is definitely 'collimation'. In order to live in the present moment, the time of human life must coincide with the real time, the rhythm of man must be 'in phase' with that of nature. The term 'collimation' means just that: the cancellation of the distance between human time and real time. Angelo Mangiarotti's project,

Vera laica, made in 2000, is juxtaposed here with the concept of synchronicity. The jewel is in fact composed of two parts that are joined through a dovetail joint, so that once worn the ring can no longer be disjoined unless it is slipped off. This joint, a theme very dear to the designer, is here reported as a representation of the union between man and nature. Another project also perfectly embodies the idea of synchronicity and the characteristic of collimation: it is the Concert for

figure 10  
Vera Laica,  
Angelo  
Mangiarotti, 2000  
drawing: the joint

figure 11:  
Vera Laica,  
Angelo  
Mangiarotti, 2000  
photo of the  
finished jewel

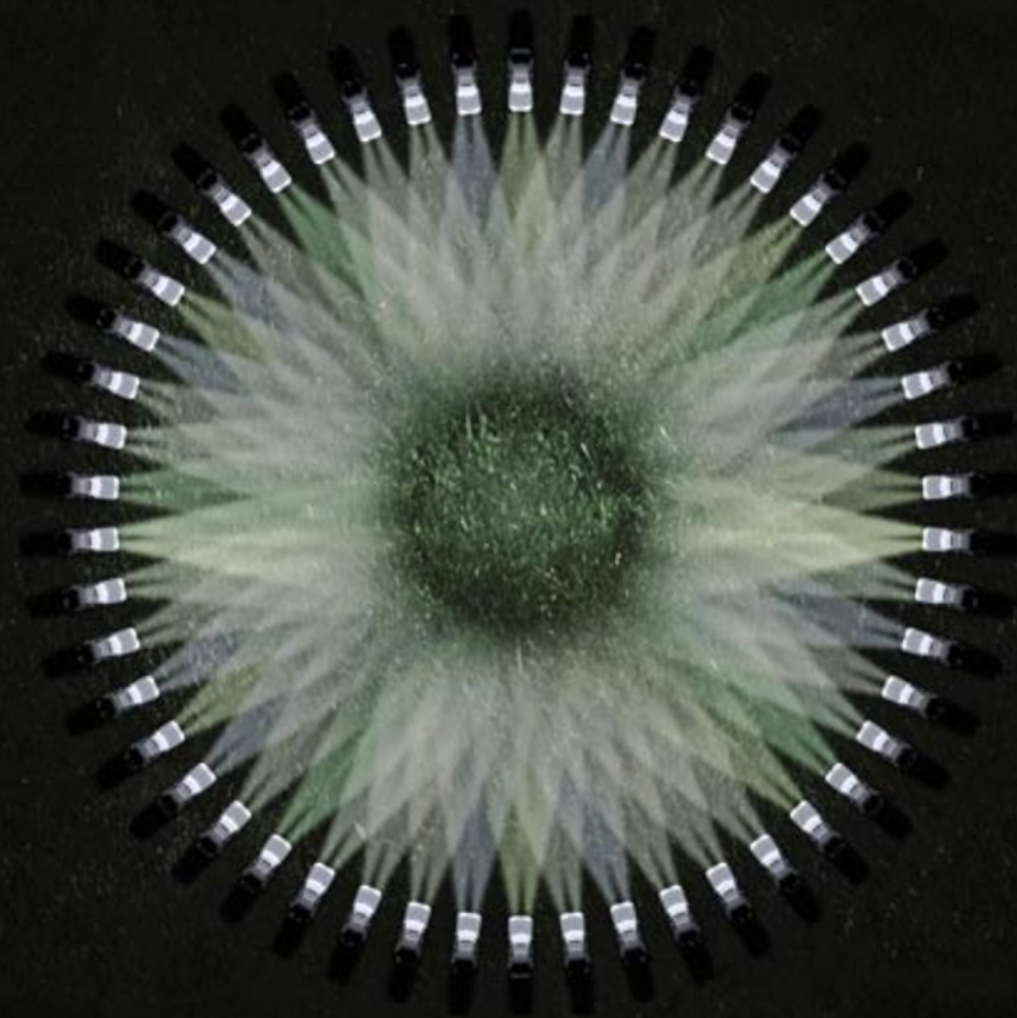
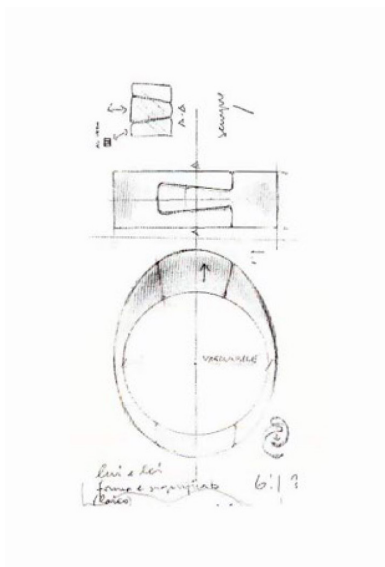


figure 12  
Concerto per  
LuciSole,  
Marco Ferreri,  
2014



LuciSole, an artistic performance by Marco Ferreri, realized in the Canoe Field of the city of Mantua, in 2014. The performance consists of the gathering of about 50 cars in a square. These, arranged in a circular fashion, remain with their lights off until signaled by the artist, in the center of the square who, like a conductor begins a concert of lights. There is a clear association with the concept of synchronicity, a moment when all parts seem to coordinate and coincide to create a unique, more meaningful event. The research continues with a case study no longer inherent in the field of contemporary art or design, but in cinema. The film *Everything, everywhere all at once* directed by directors Daniel Kwan and Daniel Scheinert in 2022 is a complex reflection on the concept of time and human life. The reality depicted becomes a kaleidoscope of different narrative, dreamlike, physical and existential universes, where the protagonists are called upon to confront

their own choices and opinions. Although almost to the end of the film a view prevails in which human life seems to be a combination of random events and existence itself seems to have no meaning or logic, the opposite view prevails. Man is destined for death, failure, and chaos, but the presence of joy, reason, and kindness make human existence worthwhile, that the few moments of perfection and beauty are worth the trouble. The film's conclusion coincides with the project thesis: man must peacefully accept his condition, valuing life for what it is: an alternation of harmony and dissonance.

*figures 13-14-15-16  
some frames  
of the film  
Everything,  
everywhere  
all at once*

*“Here, all we have are a few fragments of time when it all really makes sense.”  
- Jobu Tupaki*

*“Then I will take care of these few fragments of time.”  
- Evelyn*

*from Everything everywhere all at once*



figure 17  
*Nimbus, Berndnaut Smilde, 2017.*  
 In this series of works the artist plays  
 with different interior spaces and scenarios  
 that become unique and 'surreal' just for  
 a short moment, until the cloud is dissolved.

## 2.1.2 suspension

Another aspect that characterizes moments of synchronicity is the feeling of suspension. In the perfect union between man and nature, man experiences the present by abstracting himself from everything around him and intent on experiencing the uniqueness of the moment.

The research unfolds through three case studies, inherent in the artistic sphere. Berndnaut Smilde's studies are il-

luminating in their description of synchronicity. Indeed, the artist focuses on the creation of 'sculptural clouds', created through the use of a nebulizer and a special machine that dispenses smoke (the aerogel). These products create a delicate balance between environment, humidity and temperature, which is maintained for a few moments of pure perfection and wonder: the sky seems to enter a room. Also the case of Gino De Dominicis is very interesting and clear:

figure 18  
*Tentativo di volo,*  
 Gino De  
 Dominicis, 1970



through the artwork *Tentativo di Volo* he expresses the pure beauty of a moment of perfection through the representation of a single instant. The photographs tell the viewers of a moment of perfection for the artist who seems to fly in the air. With the same expressive force Rebecca Horn makes a video depicting her challenging the wind through white wings. The sensory machine makes her constructed allows her to investigate her own individuality, trying to overcome the limits



figure 19  
*White Body Fan*,  
Rebecca Horn,  
1972  
expanding phase

of human nature, trying to control external agents. The wings move along with the artist's body opposing or meeting the wind, thus creating moments of harmony and discordance with nature. All cases are accumulated by the strength of the human will to overcome one's condition of imperfection in order to seek unique and wonderful event even if only for a few moments.



figure 20  
*White Body Fan*,  
Rebecca Horn,  
1972  
retracting phase



figure 21  
*White Body Fan*,  
Rebecca Horn,  
1972  
balancing phase

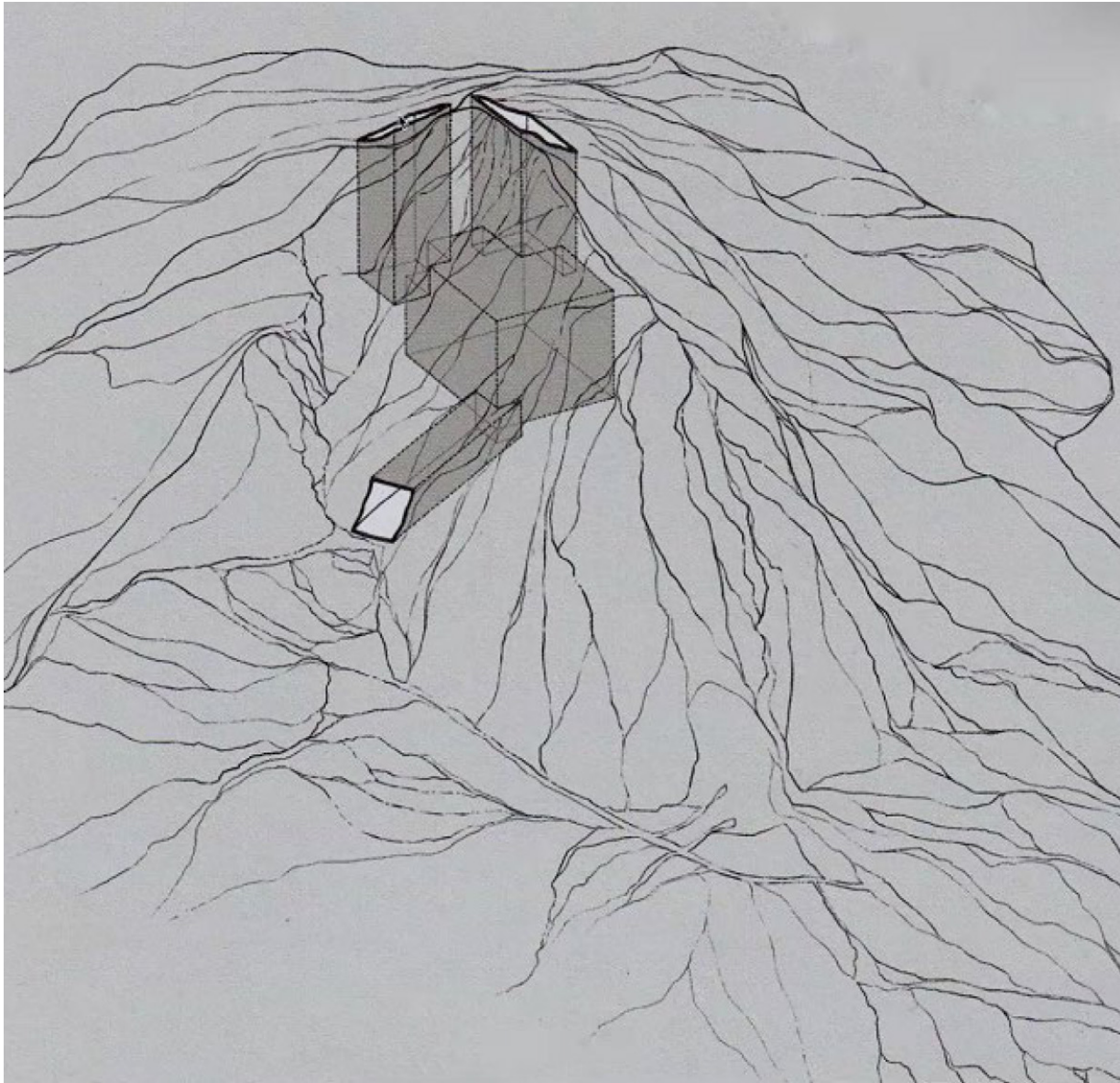


figure 22  
 Eduardo Chillida, Montana Tindaya,  
 Fuerteventura, 1993-96.  
 Although the project was never realized,  
 it is a beautiful example of a space of  
 introspection and wonder, which seeks to  
 unite, even violently, with its surroundings.

### 2.1.3 silent introspection

Thinking about the best spatial transposition of the concept of synchronicity what became clear was that spaces related to silence and introspection were more capable than others of conveying strong feelings, making the user reflect on himself and his relationship with nature and time. Elements such as light, color, sound, and reflection become fundamental in the design of the space. This must be able to

overwhelm the user and immerse him or her in another dimension, moving him or her away from the chaos and noise of real life and closer to an almost dreamlike, surreal dimension, where time is marked by small changes in perception, where every sensation is important in order to understand oneself and the world. Apparently casually unrelated events are experienced together in a meaningful manner. There are many case studies in the world of architecture and art that refer to

figure 23  
 Montana Tindaya,  
 Eduardo Chillida,  
 1993-96  
 drawing showing  
 the daylight  
 atmosphere

figure 24  
 Montana Tindaya,  
 Eduardo Chillida,  
 1993-96  
 drawing showing  
 the night  
 atmosphere





figure 25  
PSAD Synthetic Desert III, Doug Wheeler,  
1971-2017

these conditions. This research mentions three in particular that are striking in their striking features that make them unique examples. The first is a project by Eduardo Chillida, which has never been realized. It is an intervention in Tindaya Mountain, Fuerteventura, where the artist, through multiple perforations in the rock, wants to obtain a hypogeal volume, right in the center of the mountain: a perfect space for contemplation. Fundamental is the zenithal light that creates an atmosphere of strong contrasts, which varies during the course of the day. In a different way, Doug Wheeler alters the structure and configuration of a museum room through the management and manipulation of light, sound, and color. Inspired by the desert scenery of northern Arizona, his home state, the artist creates an almost anechoic chamber that erases from perception any ambient sound, leaving the visitor immersed in a limitless space. The work, conceived in the early 1970s, is only realized

for the first time in 2017, at the Guggenheim Museum in New York City. Finally, Olafur Eliasson's work *I grew up in solitude and silence* asks the viewer to focus and reflect on his or her own dimension through a simple lit candle reflected in a circular disc. The candle transforms into the individual, alone in the center of the atmosphere and prompted to feel his surroundings and find in reflection his own connection to it.

figure 26  
*I grew up in  
solitude and  
silence*, Olafur  
Eliasson, 1991



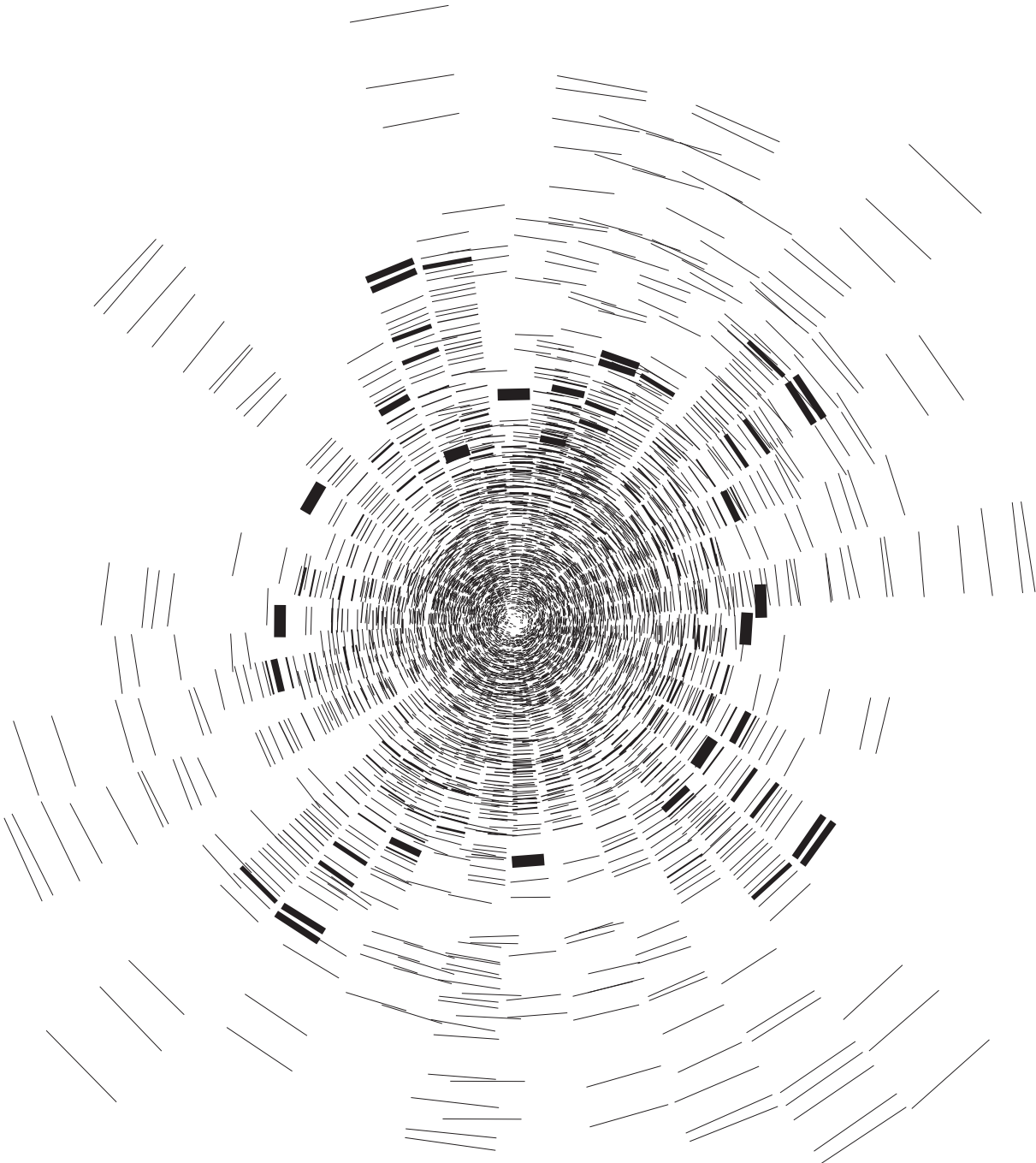


## 2.2 chaos

The concept behind the thesis sees human existence as a short interval of time, characterized by chaos. The dissonance represent the major part of human life. Man always lives out of time, trying to bridge the gap between his actions and real time. This represents both the drama of human conditioning and its wonder: it is painful to have to wait or to have to chase after the present, but this allows one to value the unique moments of synchronicity more. Life is like a tangled three-

ad trying to untangle itself and fit into the harmony of the world and its infinite and ever-changing cyclic rhythm. The time of human life unfolds differently from the time of nature: the former as a tangled line that does not follow a precise logic but folds back on itself and unfolds randomly; the latter as a series of perfect circles that continue to unfold eternally in a precise, harmonic rhythm. The chapter aims to describe the concept of chaos and dissonance through a varied research that ranges from the world of art to that of design, from that of literature to that of philosophy, trying to understand the characteristics, meanings and nuances that can best support the project and express the thesis chosen.

figure 27  
chaos illustration



### 2.2.1 tears in time

Two artists, in particular, have been able to express and represent the tearing of time that characterizes the human condition. Indeed, Alighiero Boetti attempts to construct a drawing of the outline of a battlements, using the envelopes of telegrams sent at predetermined times over the course of years. However, his attempt turns out to be unsuccessful. The work, which was supposed to consist of 14 telegrams, changes over

time: the envelopes change format, size and color, a telegram is sent on a wrong date, and the artist's death leads to the demise of the work itself. A work that makes one reflect on the unpredictability and randomness of events and man's attempts to staree 'in time'. Marion Baruch, on the other hand, creates sculptures with no real structure. A misplaced, torn fabric creates an irregular texture. The protagonist is the empty space that expands and retracts in the tangled web of time.



figure 28  
Into the fluid  
space, Marion  
Baruch, 2019

figure 29  
Serie di merli  
disposti ad  
intervalli regolari  
lungo gli spalti  
di una muraglia,  
Alighiero Boetti,  
1971-1993



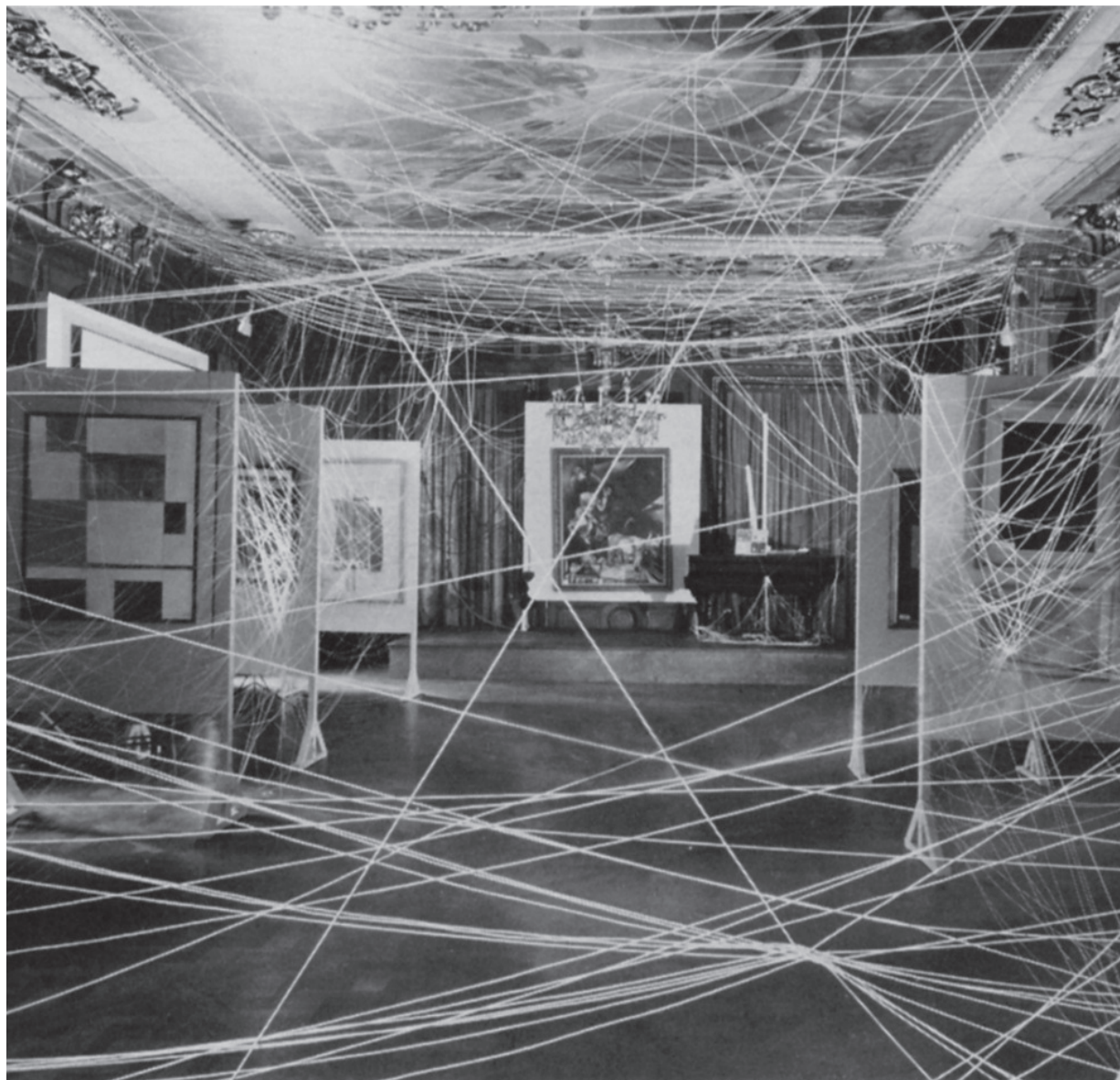


figure 30  
Miles of String, Marcel Duchamp, 1942

### 2.2.2 clutter

Who better to represent the term clutter than Duchamp? In Miles of string, the artist becomes both designer and curator of the exhibition. Duchamp creates an immersive and innovative exhibition through the motif of weaving: the string occupies the entire space, wrapping itself and creating knots at every possible attachment point, without any formal concern. The installation Spazio Elastico, by Gianni Colombo, also speaks about chaos. If at first it appears as rigid and regular, realised through taut threads, the presence of weave deformations belie this impression. The space is distorted, dilated and deformed by four intermittently operating electro-motors. The user can only adapt to the continuous changes, constantly seeking new points of orientation. But it is in one of the greatest authors of 20th century Italian literature, Gadda, that we can read the most important reflection on the

human condition. Gadda defines the chaos of human life as 'gnommero', gnaw in Roman dialect. Reality is not transparent, but 'dirty', irrational, contaminated and elusive to any intellectual examination. His style reflects his thinking: the variation with which he juxtaposes tones, styles, languages is a representation of the dizzying speed of change in human life. Everything only makes sense in rare moments of trueness where details are described: the maximum is reflected in the minimum: the order of Nature is revealed.

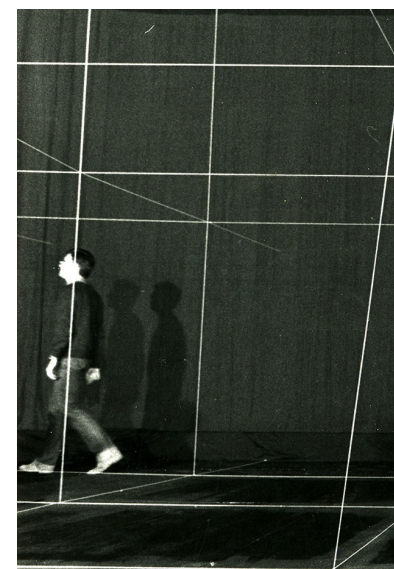


figure 31  
spazio elastico,  
Gianni Colombo,  
1966

figure 32  
cover of the first  
edition of Quer  
pasticciaccio  
brutto de Via  
Merulana, written  
by Carlo Emilio  
Gadda



### 2.2.3 advance

In the novel 'La coscienza di Zeno' by Italo Svevo, we deal with the anticipation approached in several ways. First, it is present in the love life of Zeno, who falls in love with his brother-in-law's wife even before he has met her. The anticipation is related to a sense of dissatisfaction and unhappiness for Zeno, who realizes that it can only lead to disappointment and frustration. The structure of the novel is based on the relativity of time: Zeno, protagonist and narrator, reflects on his own life and the nature of time, trying to understand whether time passes in a linear fashion or whether it is subject to discontinuities, jumping back and forth in time, recounting past and future events in a nonlinear way. This challenges the notion of an objective and linear time, and suggests that time is for mankind a subjective and relative construction. Not only in literature but also in the artistic and architecture fields we can find great examples dealing with

the theme of anticipation. The artwork *Meltin Man* deals with the theme of anticipation through the representation of perpetually passing and flowing time. This series of ice men, placed on the steps of historical monuments in major cities, slowly melt with the warmth of the sun, going to represent the anticipation of the passage of time and our future death. Finally, the design of Villa Ottolenghi by Carlo Scarpa is presented. In this case, it is the details of the paving that are striking: the horizontal surface, made of beaten grit, is decorated with gold and terracotta drops. The author anticipates the future, foreseeing future cracks and the inevitable fragmentation of the cladding.

figure 33  
*La Coscienza di Zeno*,  
Italo Svevo, 1923  
first edition  
by L. Cappelli,  
Editore Bologna



figure 34  
*Meltin Man*,  
Nele Azevedo,  
since 2005

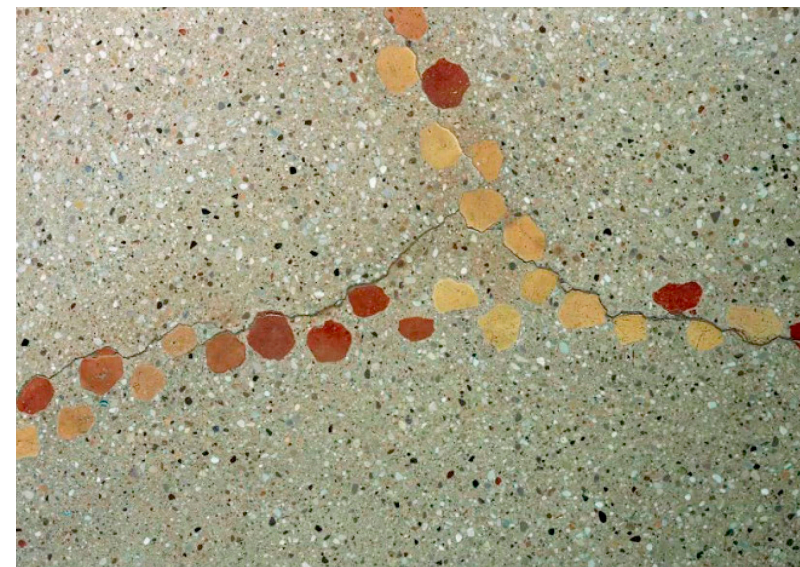
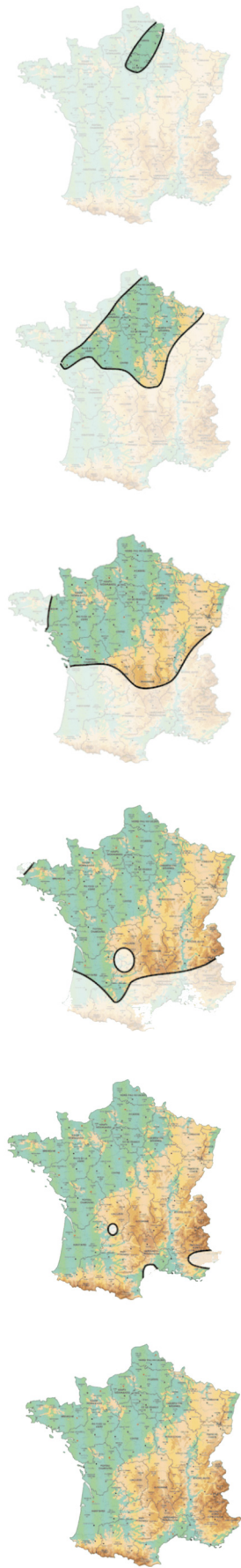


figure 35  
Villa Ottolenghi,  
Carlo Scarpa,  
Bardolino, 1974-78  
flooring detail



### 2.2.4 delay

Two reflections in particular were interesting on the concept of delay. The first is related to a map, illustrating a historical event: the flight of the King of France, Louis XVI, to Belgium, before the French revolution. The map, or rather the series of maps, describes the arrival of the news within the country. The news spread with a 6-day delay, an enormity, since the day after the escape the King had already been stopped and taken back to the French capital. The chaos of information becomes a graphic representation of the temporal mismatch between reality and man's perception of it. Similarly, Leonardo da Vinci's Last Supper is not only a sacred representation, but also a study on the motions of the human soul, on the propagation of sound in time. It all begins in the centre of the painting: Jesus' words spread to both sides of the scene, cascading into the reactions of the apostles: those who have now understood, those who in turn repeat Jesus' words, those who are astonished, those who are confused, those who still know nothing. Again, the painting is a representation of human delay in time.

figures 36-37-38-39-40-41  
series of maps  
of the spread  
of the news of  
the escape  
of King of France  
Louis XVI

From top to bottom, the maps show  
the spread of the news from 20 June  
1791 to 26 June 1791.



figure 42  
Leonardo da Vinci,  
Cenacolo, 1498



*the human life is just a part  
of the infinite circle of time*

## 2.3 life time vs real time

The thesis divides the concept of time in human life time from real time, two entities that rarely manage to intersect and fit together. Even in ancient Greece, the definition of time was distinguished into Chronos and Kairos, where the former was understood as man's perception of time, and the latter as the measurement of time in space. Man's need to give time a definition or to represent it thus begins as far back as antiquity. But the concept of time appears very difficult to represent or describe due to its intrinsic characteristics. Time is ephemeral, intangible, yet constantly perceived by man as he ages and measured by him in the passage of days, months and years. As Immanuel Kant claimed, time is perceived by man as an internal

intuition and can only be explained through a metaphor. For us, real time exists, even outside mankind. Real time is that given by nature, by the passing of the days. The motion of our planet and its changes indicate a time even without the presence of man. The alternation of day and night, as well as that of the seasons, draws a cyclical time that repeats itself and is infinite. Representing the relationship between the time of nature and the limited and chaotic time of man is undoubtedly the most interesting part and the ultimate aim of the project.

*figure 43  
time illustration*

*“abbiamo interrotto  
l'avvicinarsi del giorno  
e della notte”  
[...]*

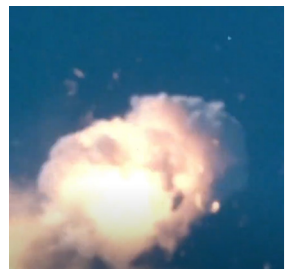
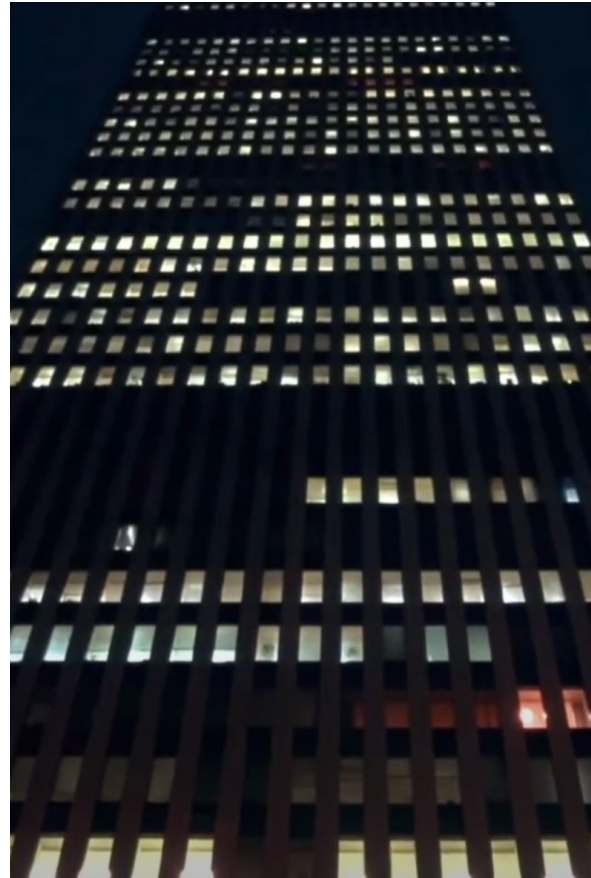
*“milioni di persone vivono in  
questa realtà e tendono  
a dimenticare il legame  
con il tempo della natura”*

*from Earth un giorno straordinario\_Skynature*

The film *Koyaanisqatsi*, directed by Godfrey Reggio in 1982, is a clear reference to the complex relationship between man and nature. The docufilm is divided into four main chapters that plan to explain the word Hobi chosen for the title meaning 'life without balance'. In the film there is in fact a clear and constant contrast between nature and man. From the first shots, which with a slow amusic describe uninhabited landscapes and ancient peoples and rituals, we move on to an increasingly frenetic rhythm.

The frequency of the sound intensifies as does that of the frames depicting the chaotic life of the city, the traffic and the presence of technology. Nature disappears in an ascending climax, overwhelming the viewer. The conclusion of the film, entitled 'prophecy', has a reflective, slow character: shots are taken from above, or through close-ups. Man is captured in his individual relationship with nature and technology. Everyone is different, yet everyone is part of the same Time, destined for the same end.

figure 44  
composition  
of frames taken  
from the film



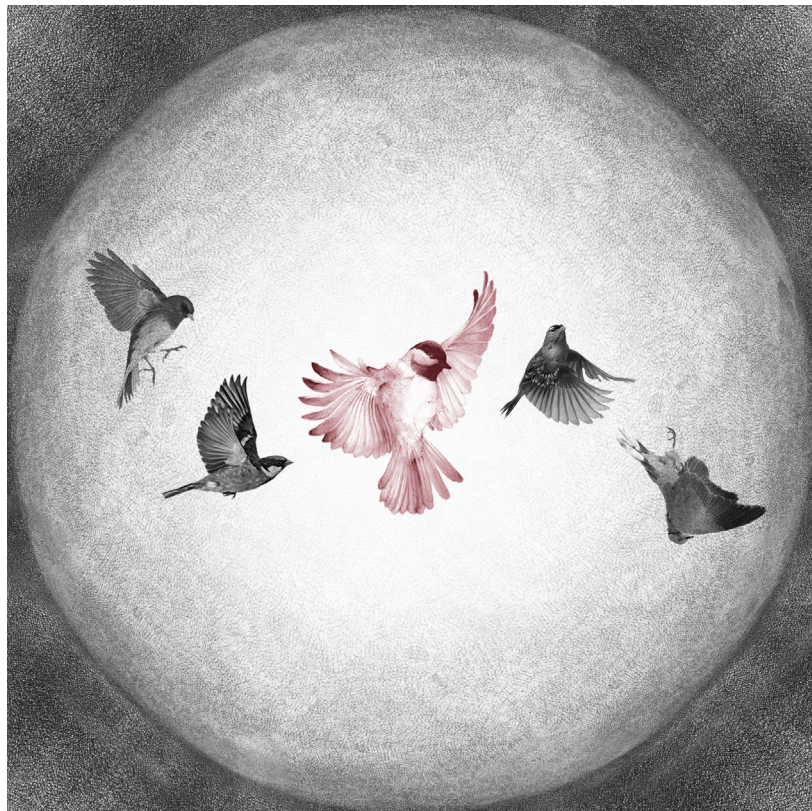


figure 45  
illustration inspired  
by the narration  
of Marguerite  
Yourcenar

*Si potrebbe andare anche più lontano  
e vedere nella stretta sala d'assedio  
dalla neve e dal vento, illuminata?  
Per un momento?  
Nel cuore del grigiore triste dell'inverno,  
un altro simbolo altrettanto pungente.*

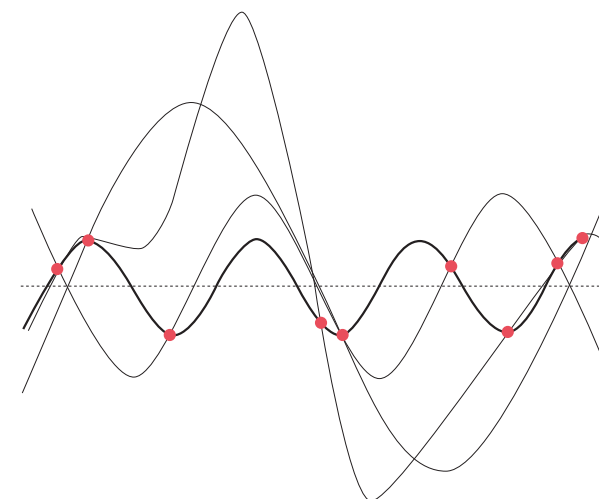
*from the book Il Tempo, Grande Scultore by Marguerite Yourcenar*

### 2.3.1 paranthesis of light

The relationship between human life and real time is complex: human life appears mostly unsynchronised and brief compared to the flow of time that permeates nature. In the first chapter of the book 'Time, Great Sculptor', Marguerite Yourcenar refers to an ancient tale, reported in the lines below: that of Bede the Venerable, a Christian monk and Anglo-Saxon historian who lived in Jarrow, Northumberland between 673 and 735. Bede the Venerable describes human life thus: "The life of men on earth, o king, compared with the vast spaces of time of which we know nothing, seems to me to resemble the flight of a sparrow entering through a splay of the hall which a good fire, burning in the center, warms, and where you take your meals with your counselors and your laypeople, while outside rage and the rains and snows of winter. And the bird swiftly

crosses the hall and comes out on the opposite side, and, after this brief respite, coming from the winter, re-enters the winter and misses his sight. Thus the ephemeral life of men, of which we know neither what precedes it nor what must follow it..." Human life is described as pure chaos, which fits, almost by accident, into the cyclical rhythm of natural time. Human life is only a brief parenthesis, embedded in an infinite time. Even more interesting is the continuation of the text, where

figure 46  
human life time vs  
real time: diagram.  
The thickest line  
represents the  
rhythm of nature;  
the pink dots,  
the moments of  
synchronicity





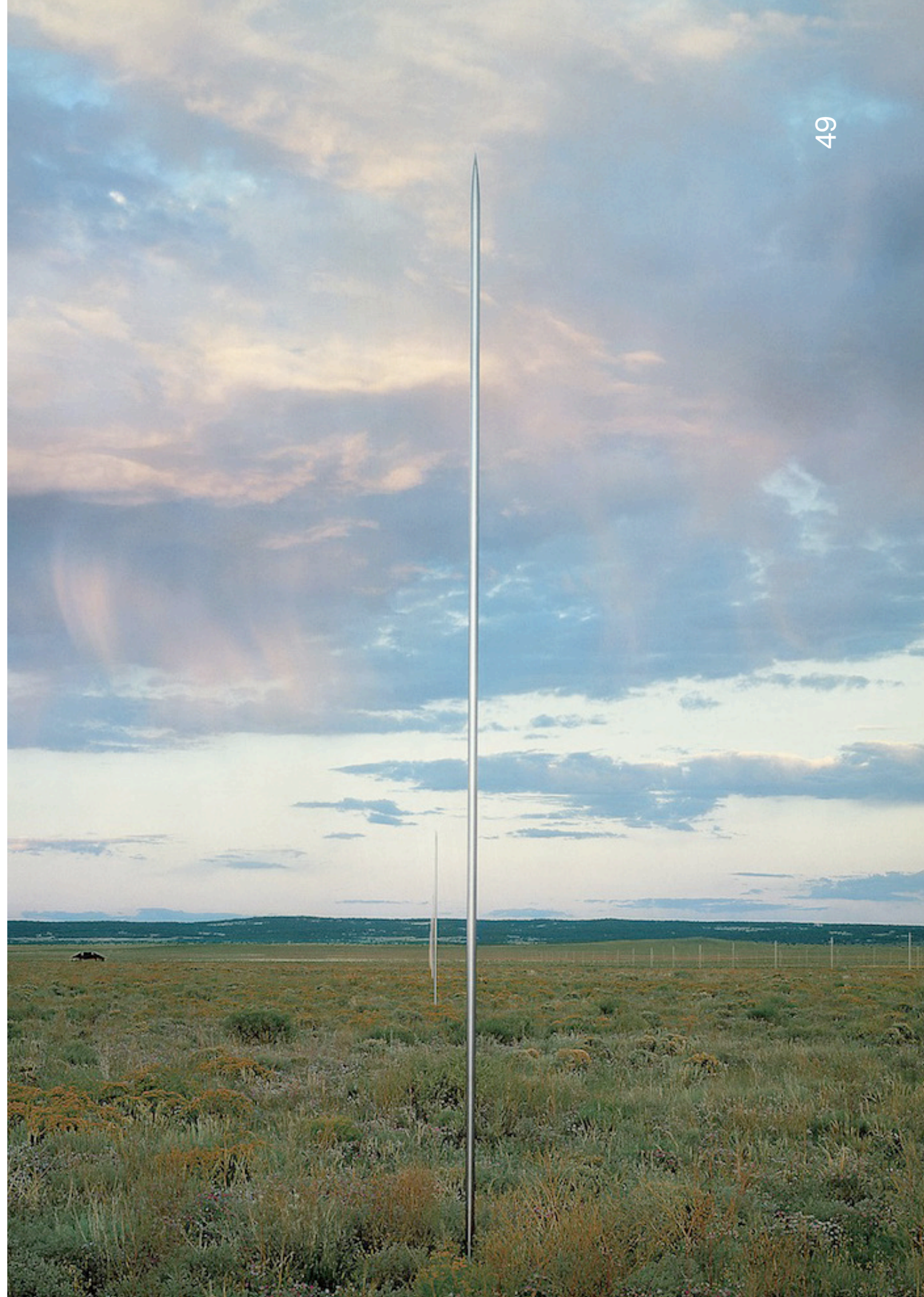
the author gives a positive reading to the sad metaphor of the monk. Human life is not only dissonance, not only confusion, but also, for brief moments, perfection, light, warmth. It is the same perfection that Giuseppe Penone brings to light through his numerous studies, revealing the profiles of trees at precise intervals of time. From an almost infinite series of circles, symbolising the natural flow of time, the artist manages to remove the superfluous layers of the mighty trunk to rediscover an image of the past, linked to precise events, experiences of the living trunk. Penone's works depict life as a series of concentric circles with an imperfect shape that are repeated equally in the swelling of the trunk and at the same time each refer to different moments, to imperceptible but unrepeatable mutations. Every moment is different from another, every experience is unique if you are able to live 'in time'. Walter De Maria, with his work *Lighting Field*, also seems to tell us this, in his monumental installation



figure 48  
Giuseppe Penone,  
*Albero porta  
cedro*, 2012

placed in a remote corner of New Mexico desert. With this intervention, the artist explores the relationship between the relative and the absolute, man and nature. Visitors must travel to this remote location, without the security of being able to be part of a magnificent event concerning light: a thunder storm. The presence of 'synchronicity' is not programmed: it is nature, with its rhythm, that creates moments of stalemate or incredible beauty.

figure 47  
Walter De Maria,  
*The Lighting Field*,  
New Mexico, 1977



# thesis map

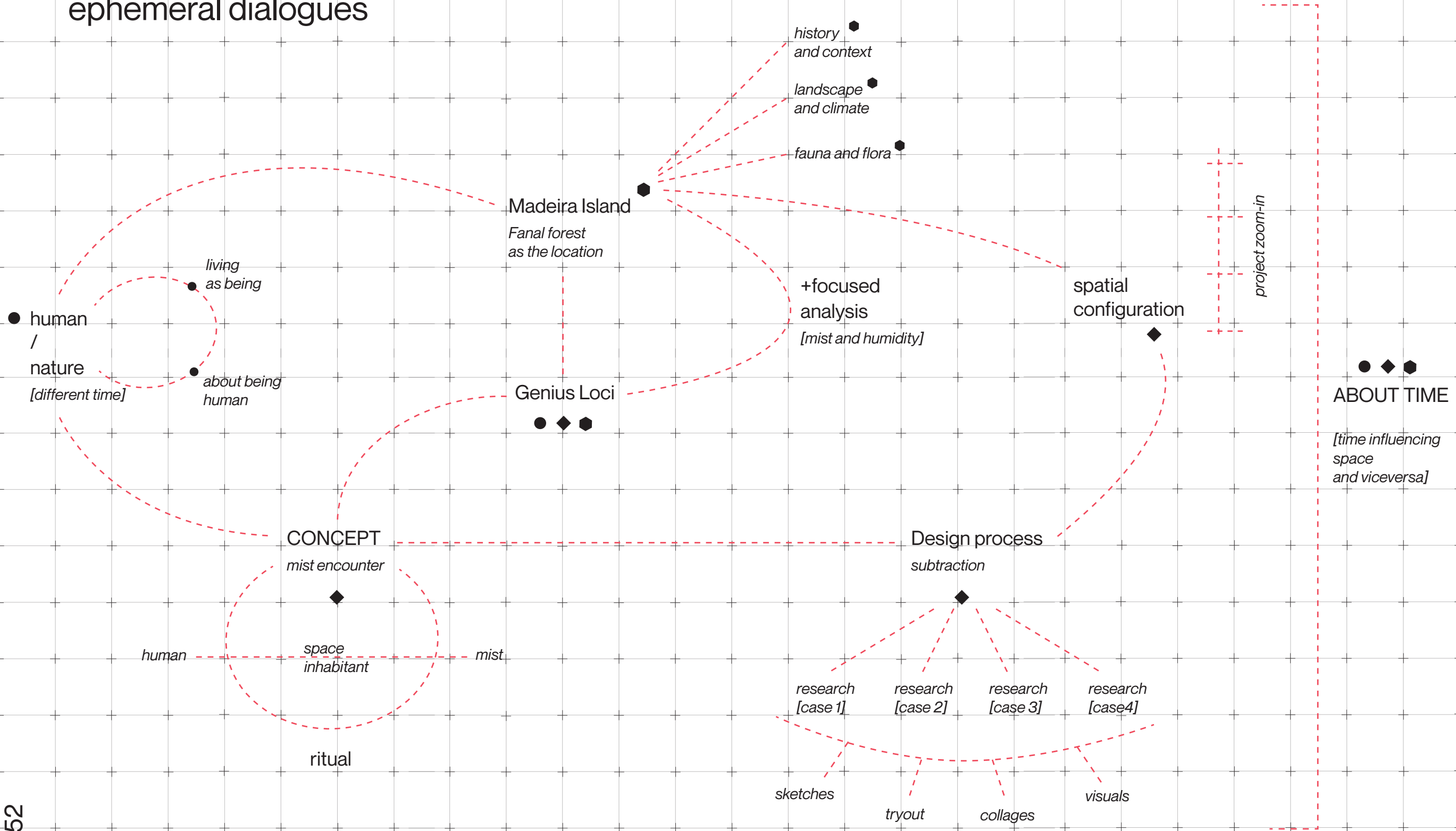
brief description of the common points between the two projects and the development of each one

The research presented is the common starting point for two separate spatial design projects. Two unusual and totally different locations form the backdrop for the architectures imagined in them. The first is a hundred-year-old laurel forest on the island of Madeira, Portugal; the second is the salt desert Salar de Uyuni, Bolivia, in the central area of South America. The in-depth study of the territory and the fascinating landscape that characterises these locations leads to the recognition of the Genius Loci in both projects. This element, in relation to the thesis, is the main focus of the design projects realised. The importance of the research and analysis phase is evident in the maps on the following pages. These show the two design processes, which are evidently united by the same methodology, but equally carried out independently and with different results. In fact, the outputs show how the topic can be approached and developed through two different perspectives.

How the thesis  
is developed  
through two  
different projects?

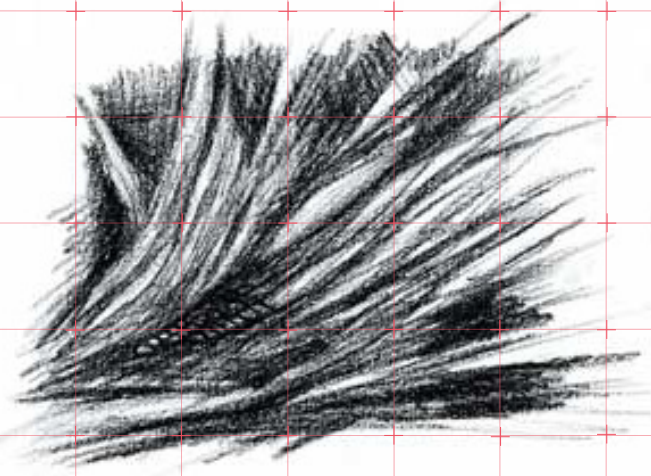
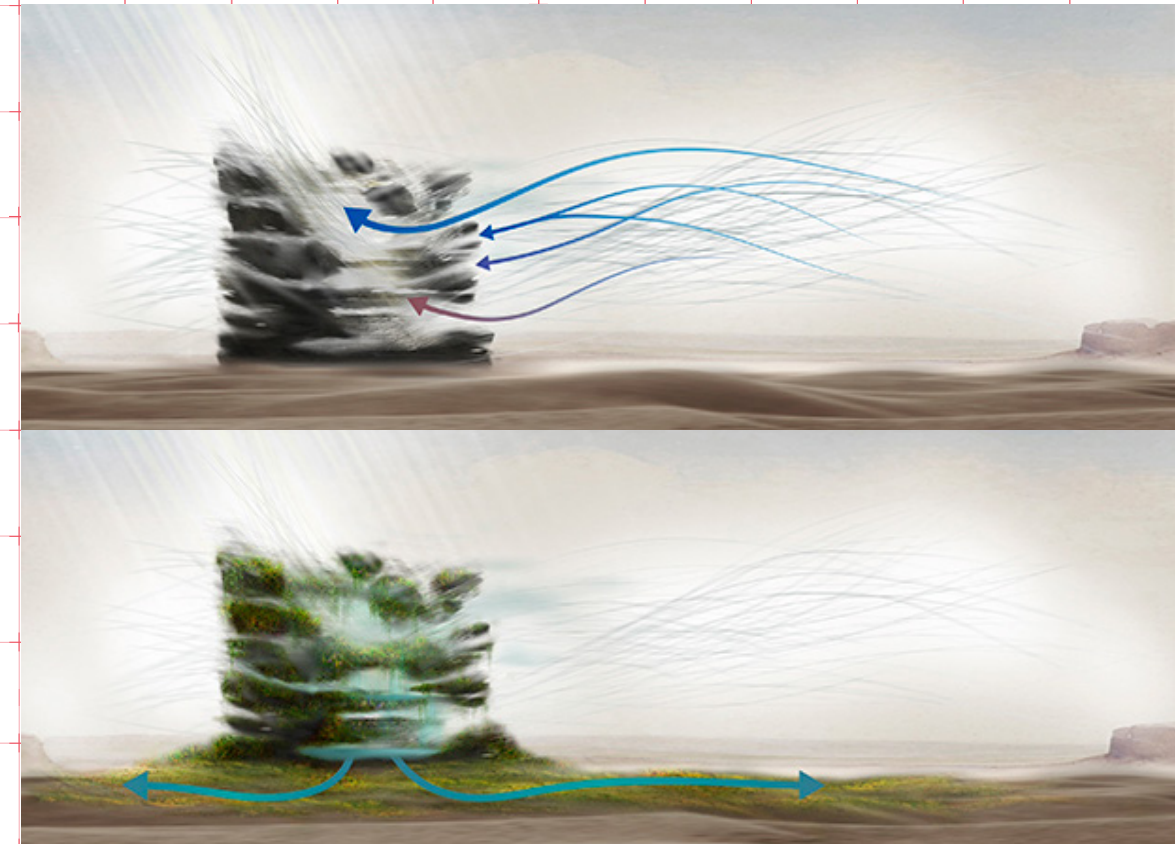
# 3.1 ephemeral dialogues

- *topic and theory*
- *context and location*
- ◆ *space and design*



# Hatching *Fernando Menis*

The project is an example of how architecture can be part of a landscape and at the same time transform its climatic and geographic conditions in order to create an environment that encourages and supports life inside of it. The shape of a cube (1Km) is used to create a favorable microclimate into the inhospitable Sahara's desert. The unique characteristic of the place such as the abundance of sun and the winds serve as the main energy sources. The porous structure lets the fresh and humid winds to enter, so that clouds, vegetation and water can be formed and stored into the space. The project evolves naturally and is shaped by nature. An artificial timeless environment defined by natural rules, functioning like a nest where life can originate.



Morocco Pavilion  
or Venice Biennale  
Sahara desert  
2014  
conceptual architecture

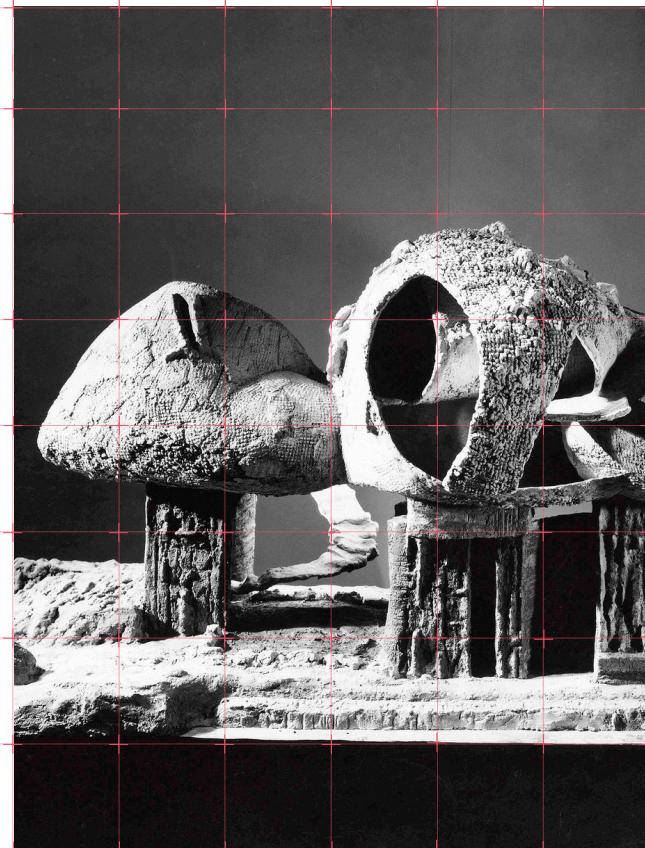
Using the forces of nature as the design tools to originate the space, the project looks at architecture from a completely different perspective. Both outdoor and indoor spaces are extremely connected to nature and its rhythms, although they are designed to accommodate humans and their needs

-case 1-

# Endless House Friedrick Kiesler

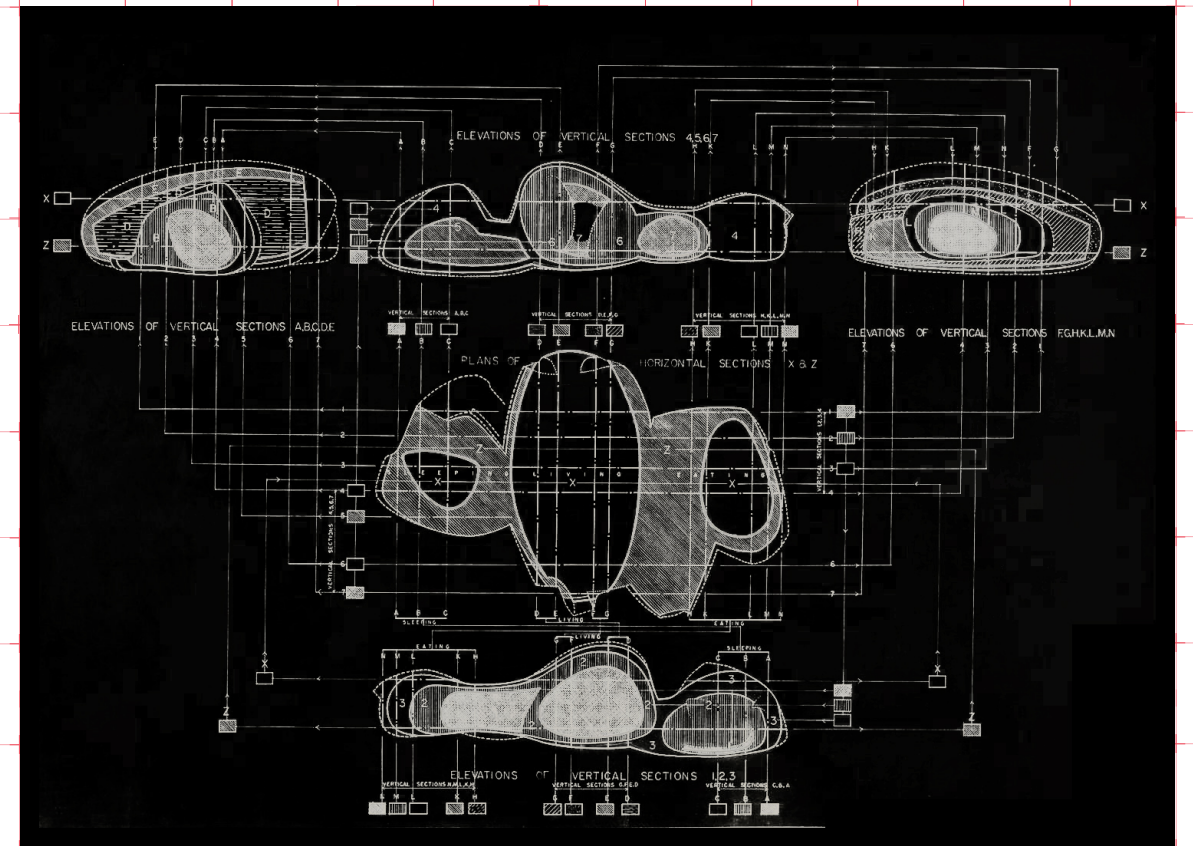
*"All ends meet in the "Endless" as they meet in life. They touch one another with the kiss of time. They shake hands, stay, say goodbye, return through the same or other doors, come and go through multi-links, secretive or obvious, or through the whims of memory."*

The initial shape of the house was a flattened spheroid. This was chosen to create a continuous lighting system, allowing light to reach every corner of the rooms without being broken up by corners or walls of a conventional architecture. Sample models and sketches show flowing transitions through spaces, with internal stairs, interiority and exteriority. The structure, made of reinforced concrete on a wire mesh, creates continuous surfaces with irregular openings.



*Nowhere  
1950  
conceptual work*

-case 2-

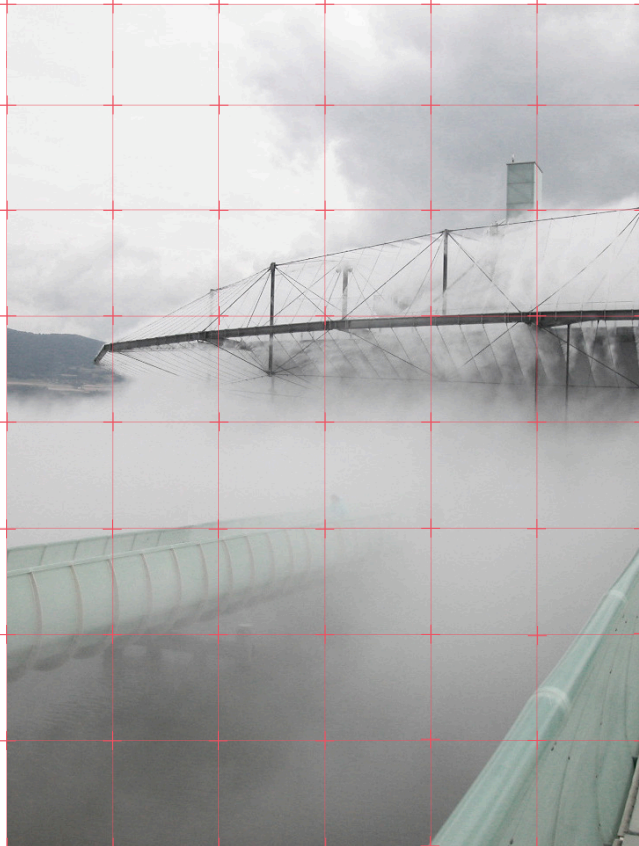


This case study allowed me to discover a new idea of architecture, never studied before, based on the concept of continuity. The uniqueness of space is in fact given by the fluid succession of different environments and their natural transformation given by light, seasons and weather changes in time. The shape of the architecture appear curved and irregularly variable, ready to accommodate unpredictable metamorphosis.

# The Blur Building

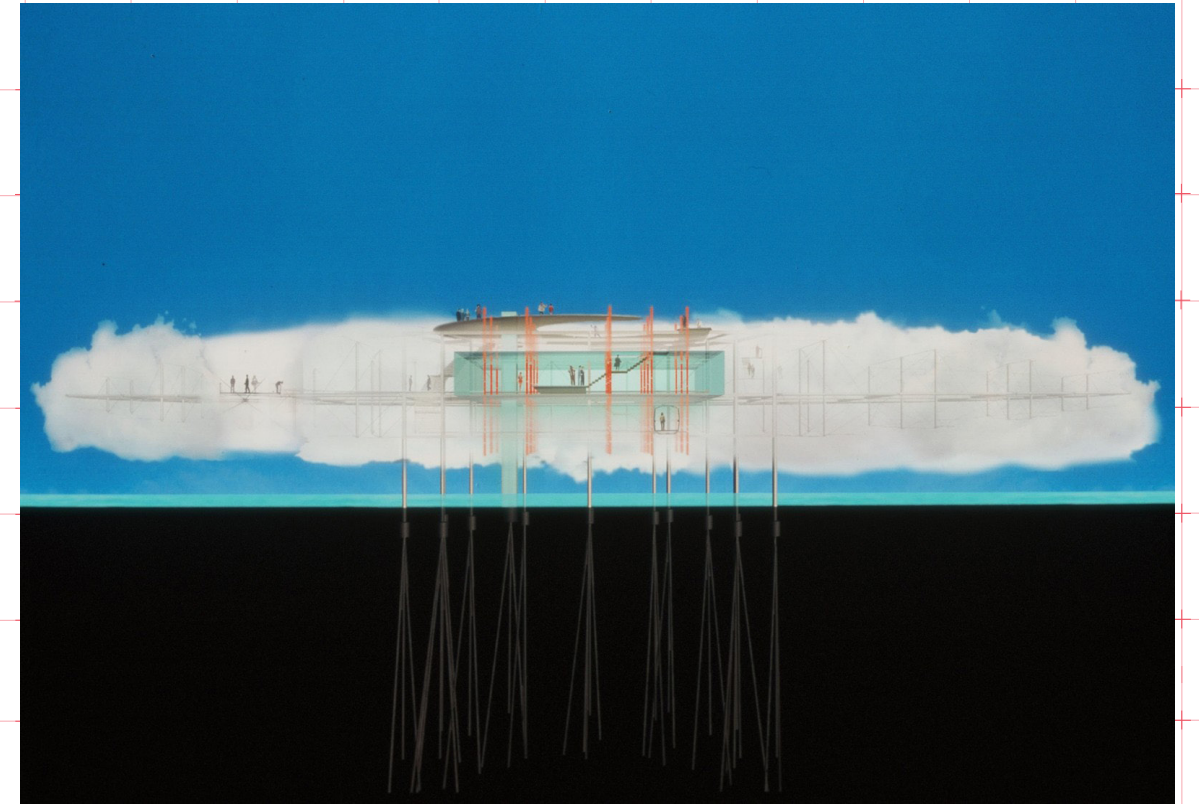
*Diller and Scofidio*

The Blur Building is an architecture of atmosphere, a fog mass resulting from natural and man-made forces. The project is located on Lake Neuchâtel, the source used to pump water, filter it and shot it as a fine mist through 35,000 high-pressure nozzles. The entire process is regulated by a smart weather system able to read the shifting climatic conditions of temperature, humidity, wind speed and direction. The space assumes no visual or acoustic references, refusing visual fidelity in high-definition. With its steel structure, the Blur Building becomes an immersive pavilion in which there is nothing to see but human dependence on vision itself.



Yverdon-les-Bains  
Switzerland  
2002  
temporary architecture

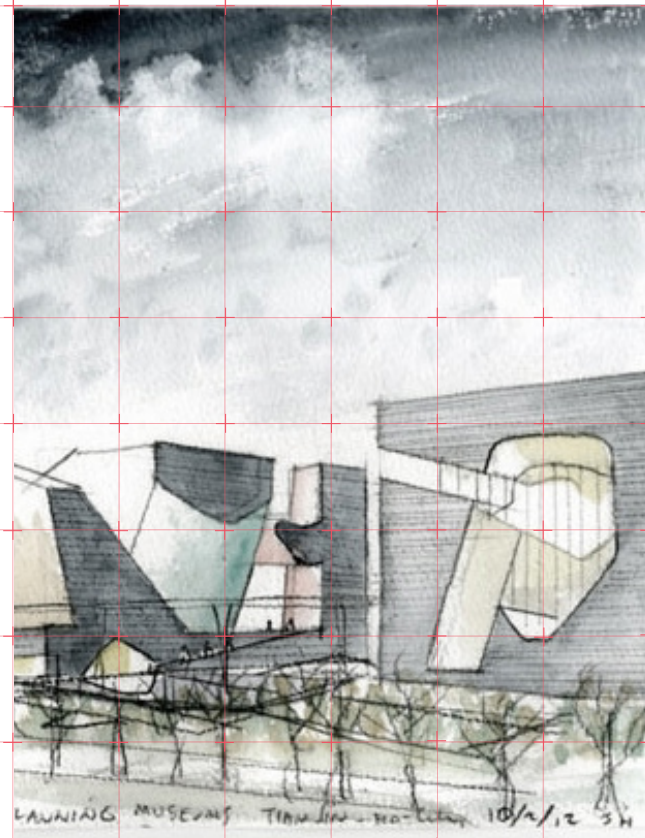
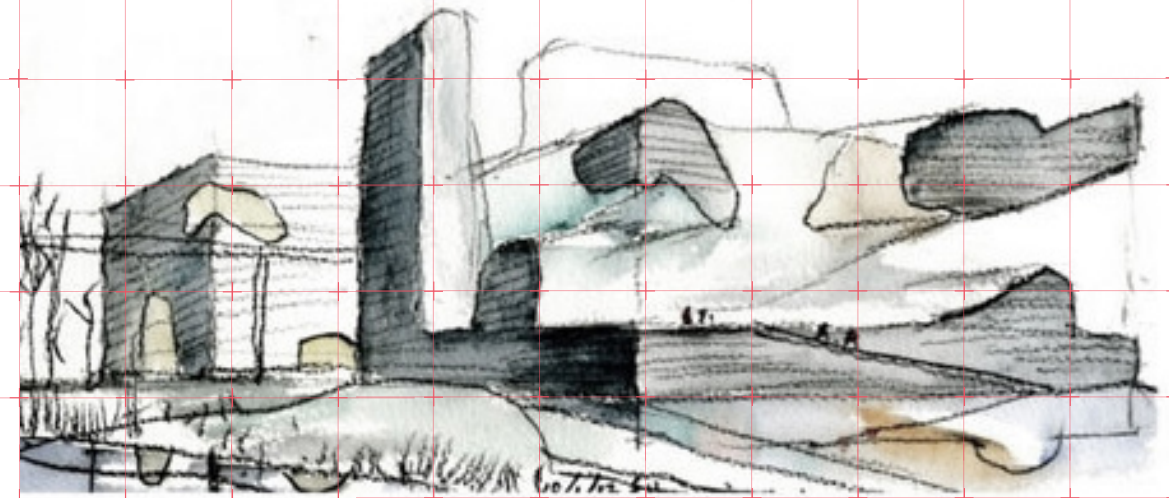
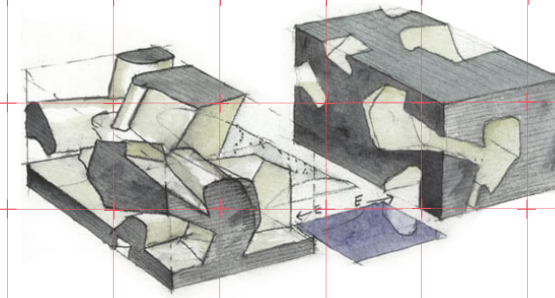
-case 3-



The project is particularly interesting because of the connection between the location and the design of the space. It is the location that literally creates the space by characterizing its atmosphere. The mist is the real protagonist of the pavilion, which has a very simple structure.

# Ecology and Planning Museum Steven Holl

The project is composed by two opposite buildings: the Planning Museum is a large cuboidal building with a series of blob-shaped voids piercing its volume, while the neighbouring Ecology Museum has a non-linear form that copies the shape of these openings. Like the Chinese "Bau Gua" or "Yin Yang," these forms are in reverse relations, which symbolises the natural balance of the universe. The Planning Museum is a 'subtractive' space, while the Ecology Museum is an 'additive' complement.



Tianjin Eco City  
China  
2008-?  
unrealized project

-case 4-

The structures appear incredible because of their design process. Addition and subtraction are alternated and contrasted to create irregular, large-scale forms where man seems to get lost. The architecture, while being extremely massive, seems to be built more through voids than solids and is thus airy and perfectly balanced.

# Guggenheim Museum

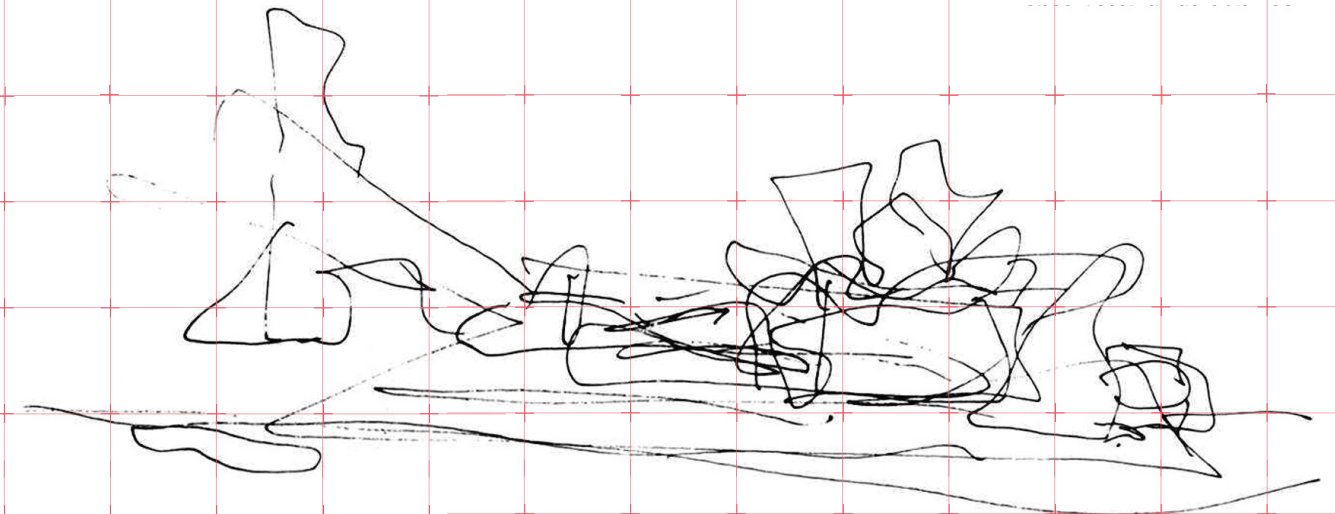
## Frank Gehry

The Guggenheim Museum represents a magnificent example of the most groundbreaking 20th-century architecture. The space is constructed through a complex geometry and plays with different volumes and perspectives. The highest part of the museum is crowned by a large skylight in the shape of a metal flower covering the atrium, one of the building's most characteristic features. Each indoor space is unique and do not let visitor's feel overwhelmed, but embraced into this stunning architecture. From outside, it is possible to walk all the way around admiring different configurations from each perspective.



Bilbao  
Spain  
1997  
existing museum

-case 5-



The case study is particularly interesting because of the use of the drawing, fresh and clean, which manages to represent complex sections with fluid, intricate lines. The structure is very complex and although the design process used is not that of subtraction, the space is perceived as such, especially inside.



# The peak leisure club

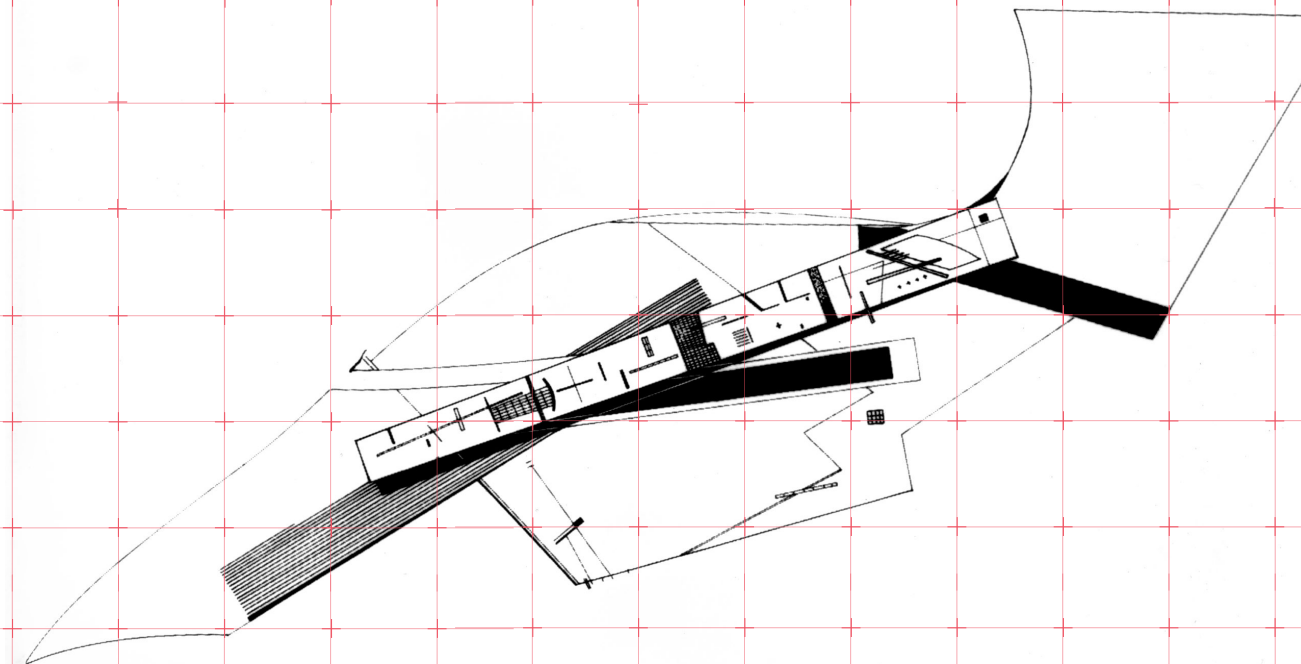
## Zaha Hadid

Through these amazing and large-format painting projections, Zaha Hadid won her first competition in 1982. The project consisted in a proposal for an architectural landmark, a leisure club on Victoria Peak overlooking the Hong Kong Harbor. In these works, she reimagined the mountaintop, using its natural topography as an integral part of the design. The space is created to stand apart above the congestion and intensity of the city with the creation of a 'man-made polished granite mountain'. A library, swimming pools and diving boards all appear to hover above the site in a mix between excavated suterranean spaces, distinctive horizontal layers and floating voids house. Within a unique 'geology', the cliff is transformed into a new building.



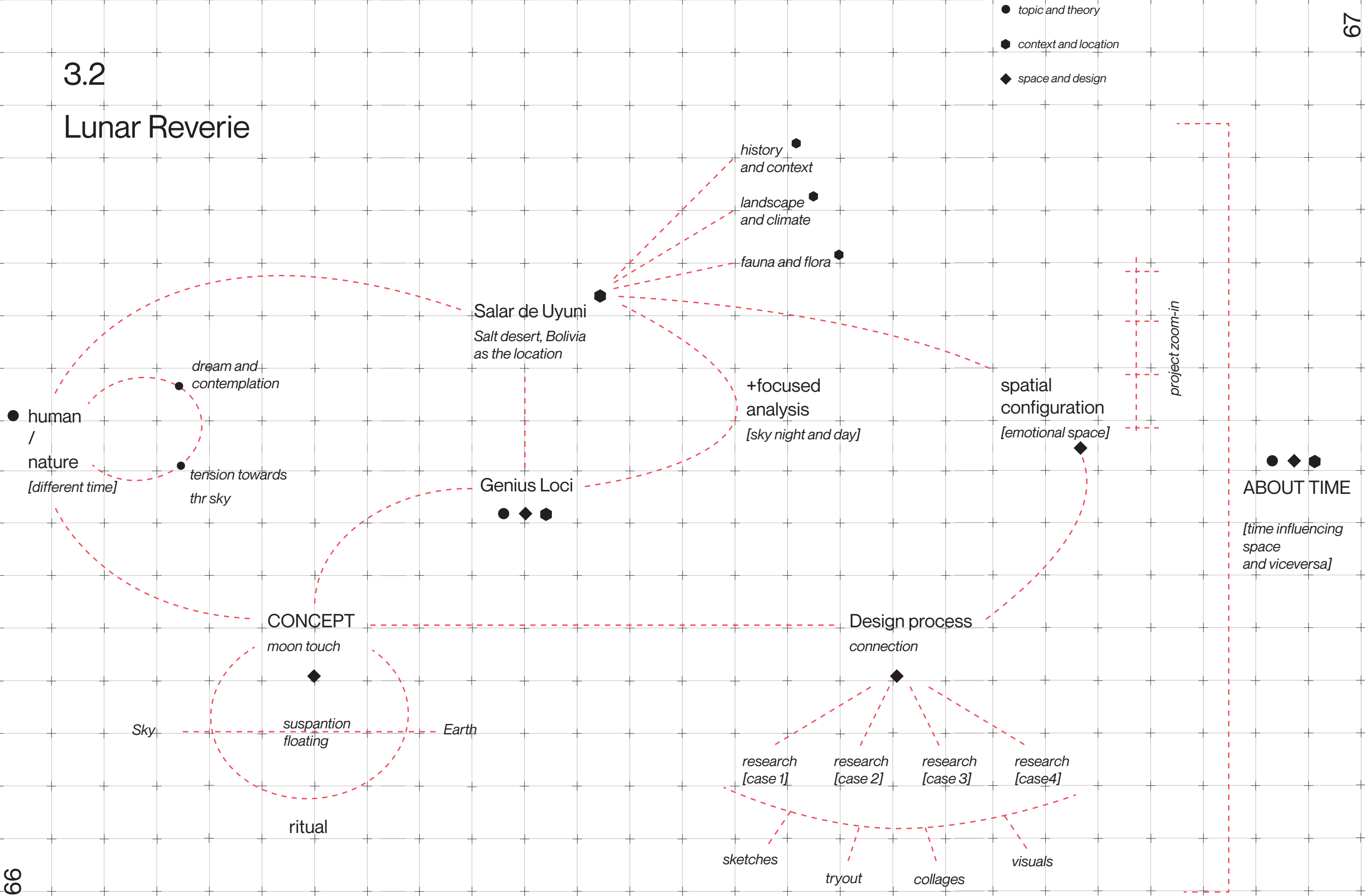
Hong Kong  
China  
1982-83  
competition/research

-case 6-



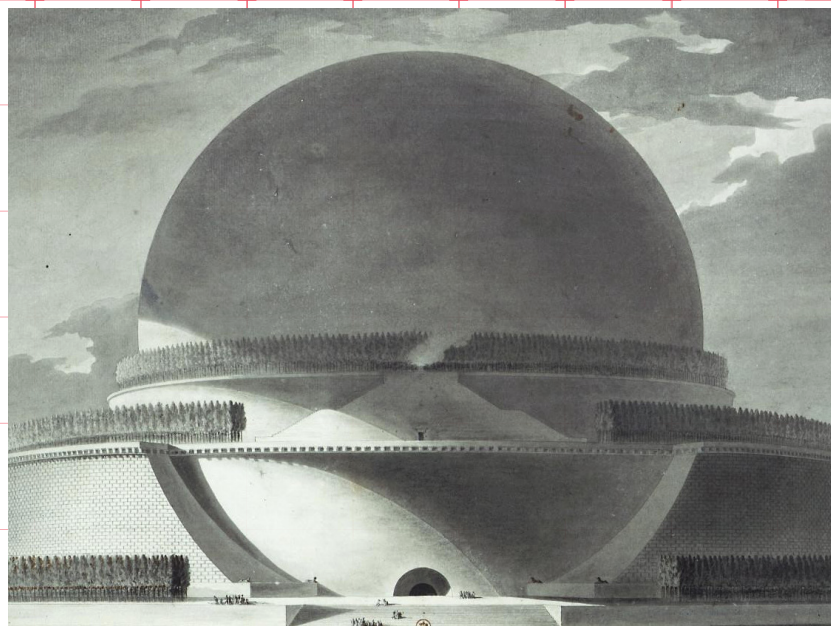
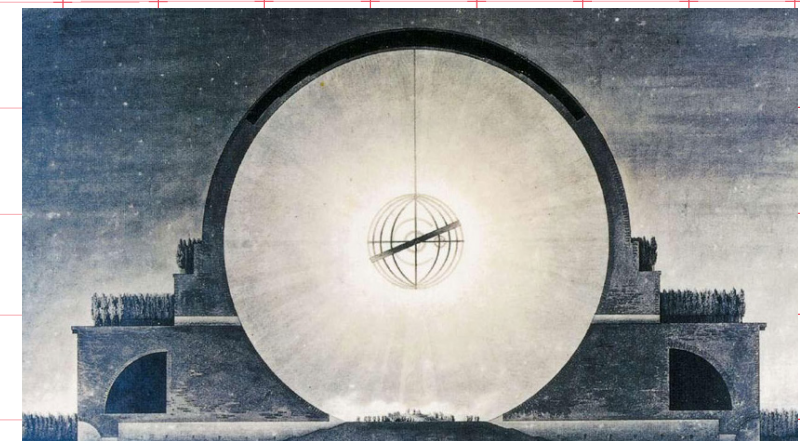
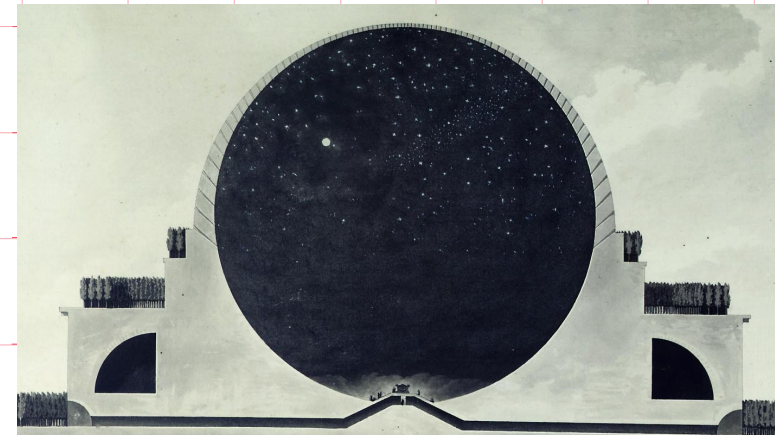
This very special project by Zaha Hadid is extremely relevant within the research process. The architect has managed to transform the natural landscape into a real building that seems to hover above the cliff. The quality of the designs, which have their own style and character, fully represent the quality of the project, in an endless search for form, colour and balance.

# 3.2 Lunar Reverie



# Cenotaph of Newton *Etienne-Louis Boullée*

Minuscule clusters of visitors ascend a monumental stairway at the base of a spherical monument rising higher than the Great Pyramid of Giza. An arc of waning sunlight catches a small portion of the sphere, leaving the excavated entry portal and much of the mass in deep shadow. Bringing together the emotional affects of romanticism, the severe rationality of neoclassicism and grandeur of antiquity, Etienne-Louis Boullée's sublime vision for a cenotaph honoring Sir Isaac Newton is both emblematic of the particular historical precipice and an artistic feat that foreshadowed the modern conception of architectural design. Rendered through a series of ink and wash drawings, the memorial was one of numerous provocative designs he created at the end of the eighteenth century and included in his treatise, *Architecture, essai sur l'art*. The cenotaph is a poetic homage to scientist Sir Isaac Newton who 150 years after his death had become a revered symbol of Enlightenment ideals.



*Nowhere*  
1784  
paper project

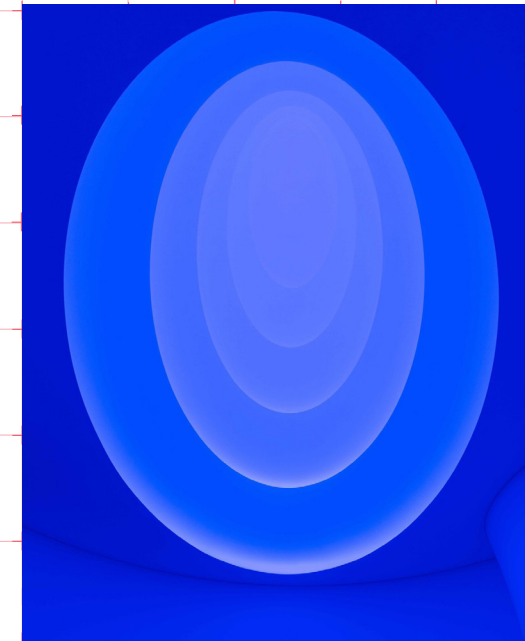
-case 1-

Boullée creates an interior world that inverts exterior lighting conditions. At night, light radiates from an oversized luminaire suspended at the center point of the sphere. Vaguely celestial in form, its light spills through the long the entry tunnels. During the day, a black starlit night blankets the interior. Points of light penetrate the thick shell through narrow punctures whose arrangement corresponds with locations of planets and constellations. A seemingly inaccessible corridor with a quarter-circle section rings the perimeter. The sections begin to suggest a negotiation of forces, as the dome appears to attenuate or hollow out at the top and thicken towards the supports. The bare walls and lack of ornament create a sombre impression. Changes in tone and fog-like elements bolster the sense of mystery.

# The Color Inside

## James Turrell

The Color Inside is Turrell's eighty-fourth Skyspace. Like many others, it is a destination, located on the rooftop of the William C. Powers, Jr. Student Activity Center. Though Turrell's architectural spaces are reduced to the most essential elements, they retain a simple elegance that makes them particularly enticing. The Color Inside is distinctive for its intimate proportions, elegant palette, lyrical lines, and brilliant washes of color that can be experienced during specialized light sequences at sunrise and sunset, causing the sky to appear in unimaginable hues. Also available for observation during the day, the Skyspace offers a quiet, contemplative space for the campus community and visitors.



University of Texas  
Austins, US  
2013  
immersive space

-case 2-

Turrell began to experiment with light projections and a variety of installations in which light from the outside penetrated inside, enabling viewers to perceive color within darkened interiors. In some, he cut away parts of the walls to reveal the sky. These cuts evolved into Skyspaces, rooms with sharp-edged apertures in the ceiling that seem to bring the sky down through the opening, almost within reach. In naming *The Color Inside*, Turrell said, "I was thinking about what you see inside, and inside the sky, and what the sky holds within it that we don't see the possibility of in our regular life." The space he created encourages the kind of quiet reflection that cultivates attention. Turrell reminds us that not only does light reveal what is around us but it also makes known that which is within us.

# River of Life

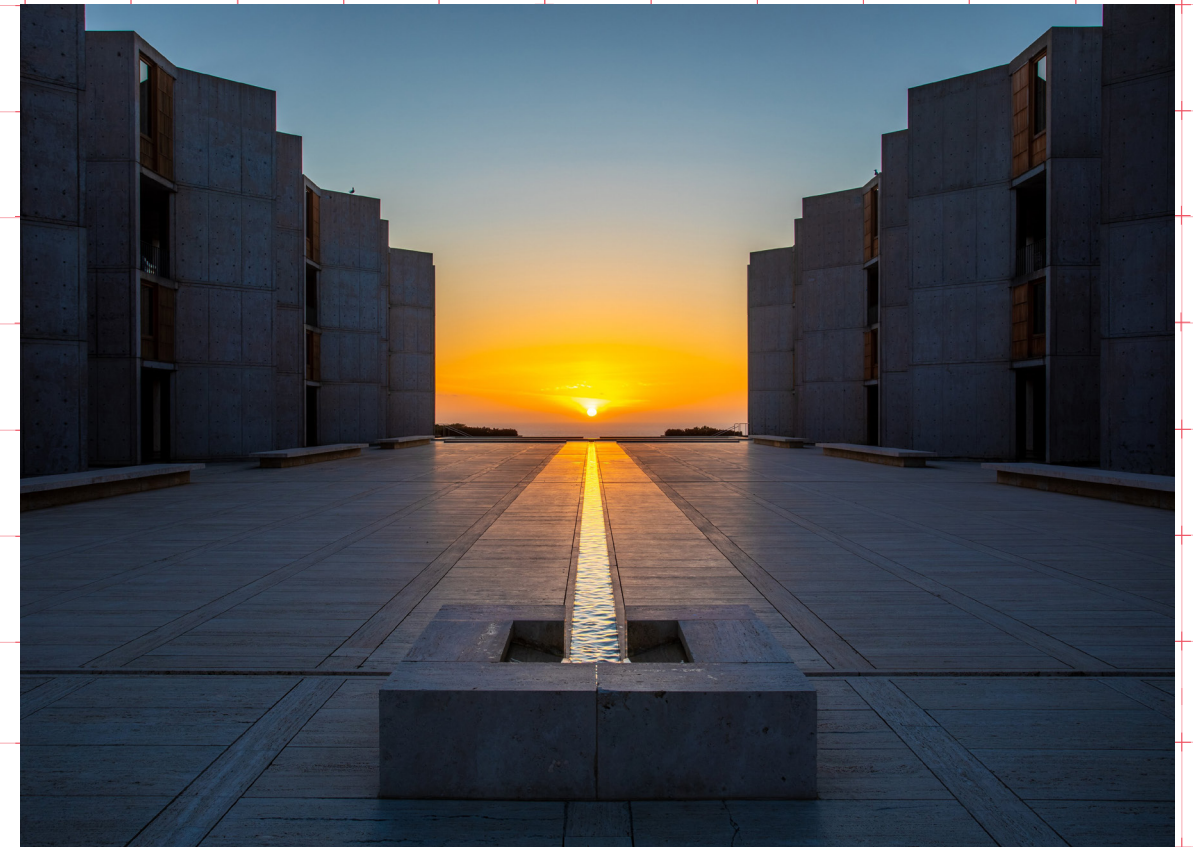
## Louis Kahn

Kahn's masterwork consists of two mirror-image structures—each six stories tall—that flank a grand travertine courtyard. Three floors house laboratories and the three levels above them provide access to utilities. Towers jutting into the courtyard provide study space for senior faculty. The impact of Kahn's architecture can be particularly felt in the travertine courtyard. Important to note are Kahn's imaginative use of space and high regard for natural light. In response to Salk's request that the Institute be a welcoming, inspiring environment for scientific research, Kahn flooded the laboratories with daylight.



*Salk Institute*  
*San Diego, California*  
 1959  
*symbol and landmark*

-case 3-



The "River of Life" water feature represents the constant trickle of discoveries spilling into the greater body of knowledge, symbolized by the Pacific Ocean beyond. The sun sets along the axis of the "River of Life" twice a year: the spring and fall equinoxes.

# Stonehenge

## *Unknown*

Stonehenge, prehistoric stone circle monument, cemetery, and archaeological site located on Salisbury Plain, about 8 miles (13 km) north of Salisbury, Wiltshire, England. Though there is no definite evidence as to the intended purpose of Stonehenge, it was presumably a religious site and an expression of the power and wealth of the chieftains, aristocrats, and priests who had it built—many of whom were buried in the numerous barrows close by. It was aligned on the Sun and possibly used for observing the Sun and Moon and working out the farming calendar. Or perhaps the site was dedicated to the world of the ancestors, separated from the world of the living, or was a healing centre. Whether it was used by the Druids (Celtic priests) is doubtful, but present-day Druids gather there every year to hail the midsummer sunrise. Looking toward the sunrise, the entrance in the northeast points over a big pillar, now leaning at an angle, called the Heel Stone. Looking the other way, it points to the midwinter sunset. The summer solstice is also celebrated there by huge crowds of visitors.



In 1963 American astronomer Gerald Hawkins proposed that Stonehenge had been constructed as a “computer” to predict lunar and solar eclipses; other scientists also attributed astronomical capabilities to the monument. Most of these speculations, too, have been rejected by experts. In 1973 English archaeologist Colin Renfrew hypothesized that Stonehenge was the centre of a confederation of Bronze Age chiefdoms. Other archaeologists, however, have since come to view this part of Salisbury Plain as a point of intersection between adjacent prehistoric territories, serving as a seasonal gathering place during the 4th and 3rd millennia BCE for groups living in the lowlands to the east and west.



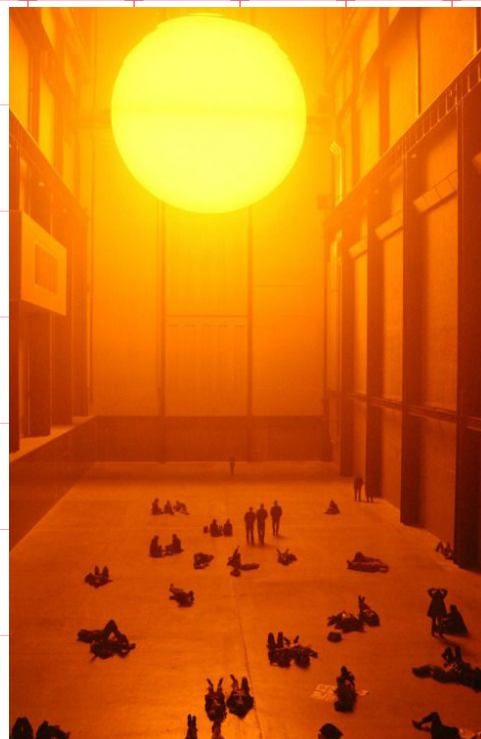
*Amesbury  
England  
landmark*

-case 4-

# The weather project

## *Olafur Eliasson*

Created for the Turbine Hall of Tate Modern, London, this site-specific installation employed a semi-circular screen, a ceiling of mirrors, and artificial mist to create the illusion of a sun. Aluminium frames lined with mirror foil were suspended from the ceiling to create a giant mirror that visually doubled the volume of the hall – along with the semi-circular screen mounted on the far wall, its long edge abutting the mirror ceiling. Backlit by approximately 200 mono-frequency lights, the semi-circle and its reflection created the image of a massive, indoor sunset seen through the artificial mist emitted into the room. By walking to the far end of the hall, visitors could see how the sun was constructed, and the reverse of the mirror structure was visible from the top floor of the museum.



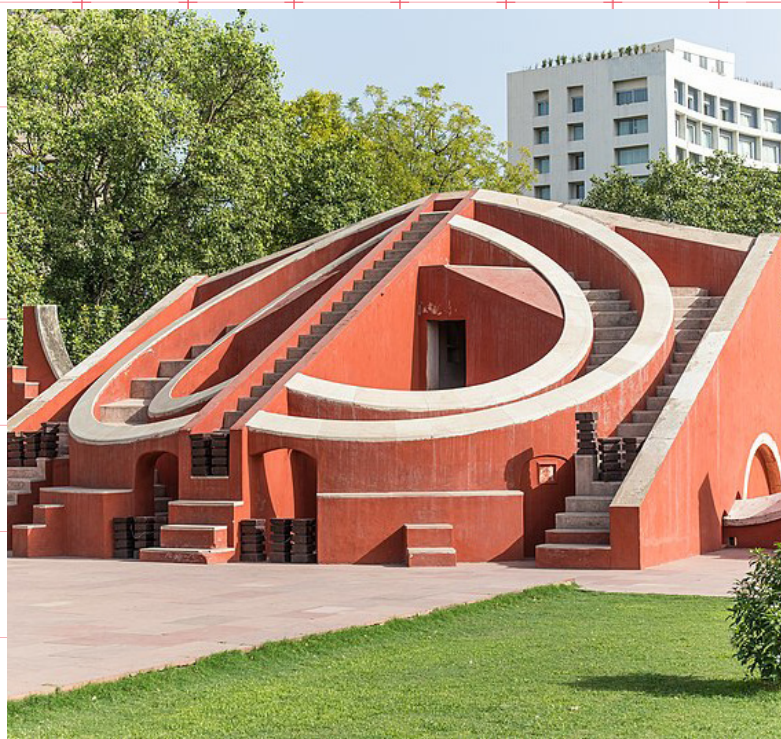
*Turbine Hall of the Tate Modern,  
London, UK.  
immersive experience*

-case 5-

The subject of the weather has long shaped the content of everyday conversation. The eighteenth-century writer Samuel Johnson famously remarked 'It is commonly observed, that when two Englishmen meet, their first talk is of the weather; they are in haste to tell each other, what each must already know, that it is hot or cold, bright or cloudy, windy or calm.' In The Weather Project, the fourth in the annual Unilever Series of commissions for the Turbine Hall, Olafur Eliasson takes this ubiquitous subject in his installation as the basis for exploring ideas about experience, mediation and representation.

# Jantar Mantar Sawai Jai Singh II

Built in 1724 by Maharaja Jai Singh II of Jaipur, Jantar Mantar is one of the five astronomical observatories built by the king in Northern India. Its striking combinations of geometric forms have caught the attention of architects, artists and art historians from around the world. It was designed for the observation of astronomical positions with the naked eye. It is a part of the tradition of the Ptolemaic positional astronomy, which was common in a lot of civilisations.



*connaught place,  
New Delhi  
landmark*

-case 6-

What is striking when visiting the complex, built in 1724, is the harmony with which the demands of precision measurements are blended with astronomical laws and elegant construction. For its forms, Sawai Jai Singh II, who would later build four more observatories, was inspired by traditional Indian architecture but also accepted Islamic and Greek influences. Prominent among the observatory's instruments is the Samrat Yantra, a large sundial designed by Jai Singh himself, on which one can read not only Jaipur solar time (Indian Standard Time) with the accuracy of half a second, but also the celestial coordinates of the Sun at that time. Other instruments make it possible to measure the position of the Moon and planets, determine the date of the longest and shortest days of the year, the diameter of the Sun and Moon



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POLITECNICO DI MILANO

School of Design

Master degree in Interior and Spatial Design

Thesis Advisor  
Prof. Peter Arthur di Sabatino

