

**SITANAN
BHENGBHUN**



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IGNITION



Design and Build Penafiel, Portugal



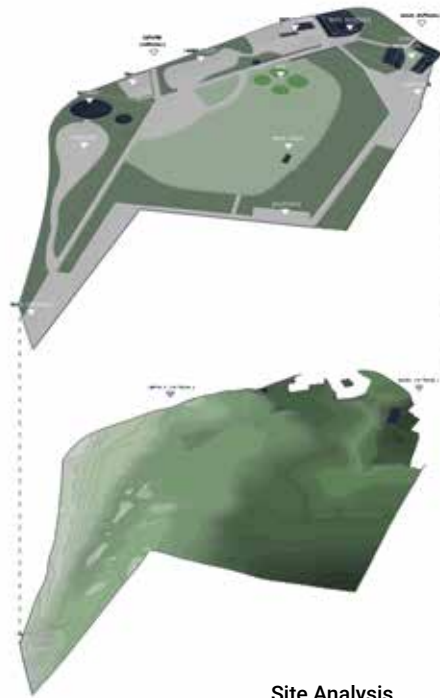
This piece of architecture combines a strong concept between music and architecture, giving emphasis to the festival soul and spirit. The design of the pop-up stage uses only simple structures to represent an invisible box and give emphasis on the performance happening inside. The structure of the pop-up stage is easily divided, thus making it possible for transportation and assemble on site. The use of wood as the main material gives a protuding color, orange, to catch the eye both day and night. The structure can be arranged differently depending on the size of the box, which would suit different bands.



IGNITION

The concept is to create a box-like structure that acts as a stage boundary for the musicians. The structure is transportable, and can be expanded according to band size and usage. The arrangement is designed to be as easy and portable as possible, for transportation and time limits when preparing to perform.

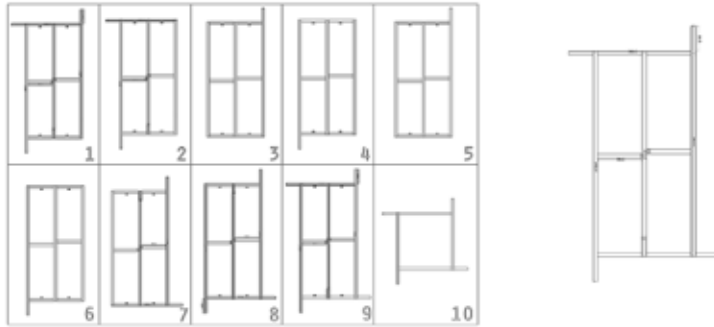
It is called a 'pop-up stage' because when the stage is moving, participants can recognize it from faraway due to its catchy color and structure. Once it reaches a destination, the stage is assembled and ready to operate. It could be placed anywhere, making it a portable stage for musicians to use in music festivals and events.



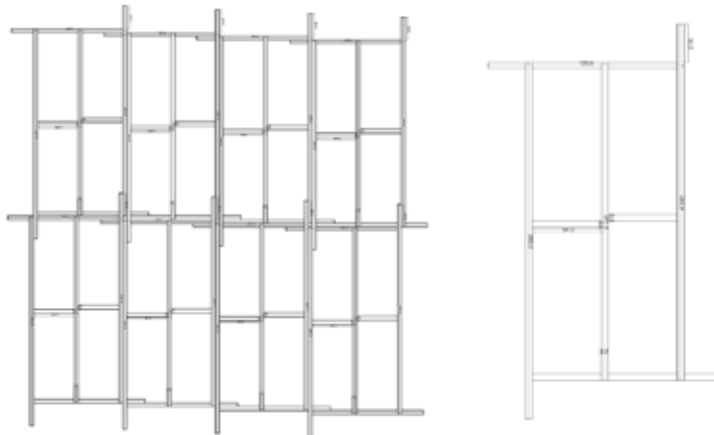
Site Analysis



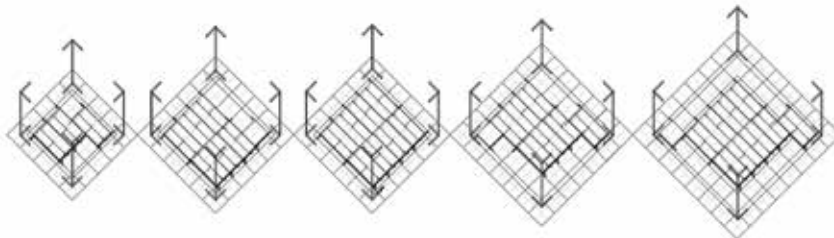
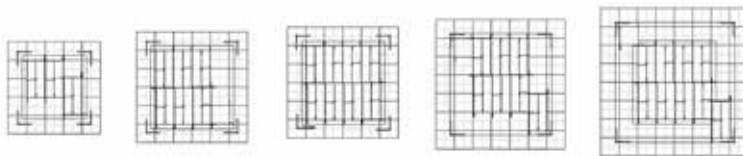
DESIGN AND BUILD



Different Structures

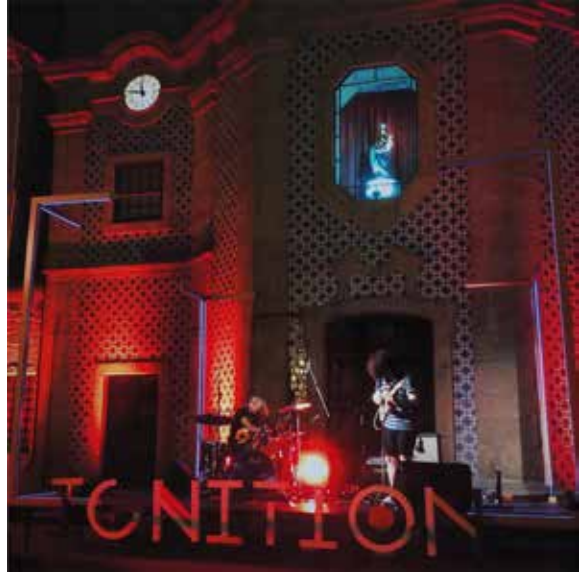


Assembled Structures



Expandable Structures

IGNITION



DESIGN AND BUILD



VIBES



Arch. Dsgn. III

Bangkrajao, Bkk



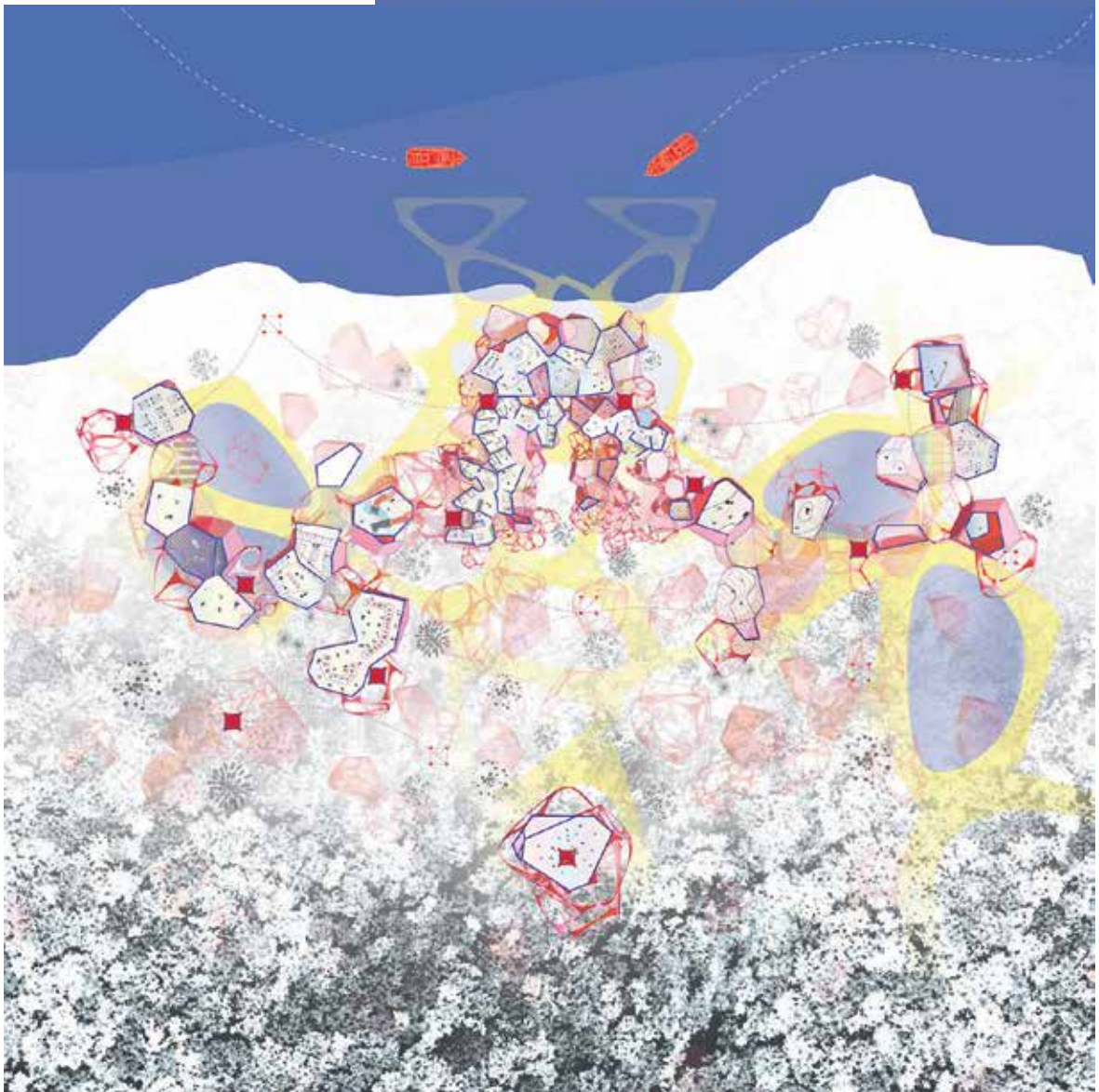
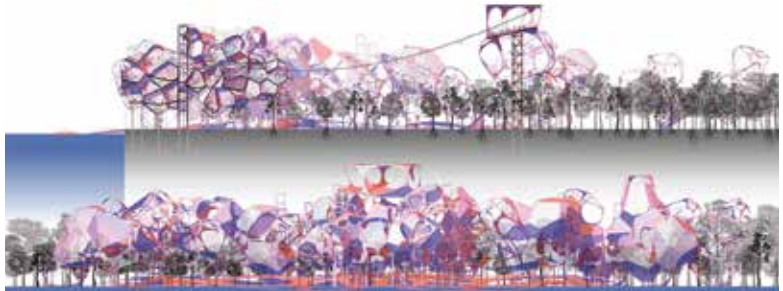
Happiness Machine is an architecture that is intimately connected with socio-cultural leisure activities which are becoming such an important part of our cities, for both the role that they play in our free time and their relevance in the market.

Vibes is a getaway machine for societies who are bored of their usual routine, and seek a more relaxing or exciting life at the same time. The machine brings nature into our actions, which can be an escape both mentally and physically. The main concept of the design is to gradient 'man-made' into 'nature' to bring back the old vibes of living.



VIBES

The design is developed from the study of the 'actions' of renovation. As society seek to escape, one of the best place that we could think of would be nature. Nature provides us something that big cities can't, something called 'vibes.' The isolation of nature gives the feeling of relaxation.



ARCHITECTURAL DESIGN III



Voronoi shapes and patterns are used in the design of the machine. The pattern imitates that of nature structure. The form is generated into positive and negative space and is assigned into different functions. The voids of the space itself are connected to different types of materials depending on the functions. This is to create variety of experiences for the user as they interact with each pods. The user can decide based on their vibes or own interpretation how they would like to interact with the machine. The activities varies from relaxation to extreme.

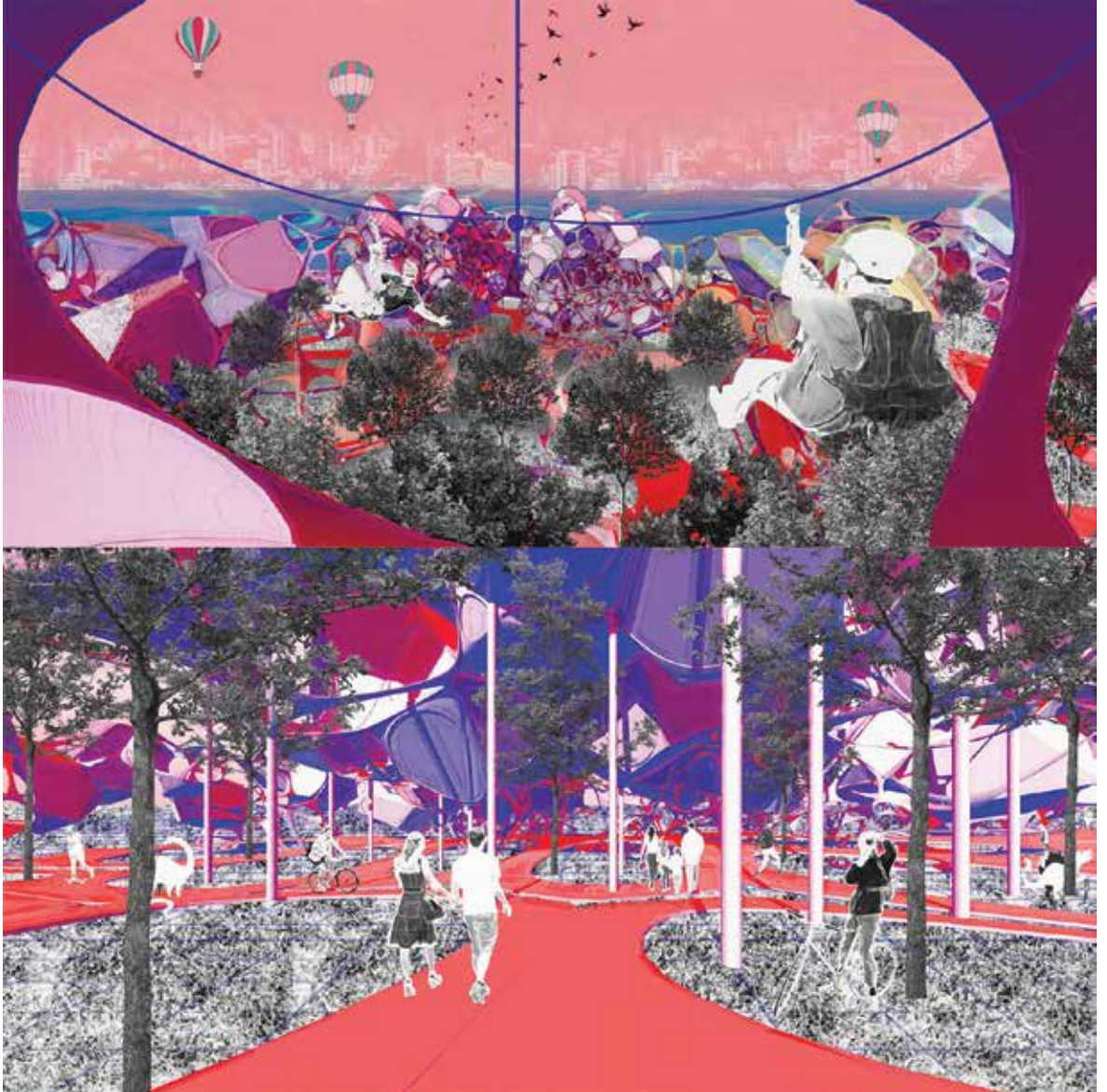


The material of the pod is aluminium which would be visible in nature. The idea is not to hide, but to express the form of nature in a larger scale that is more visible to the human eye.

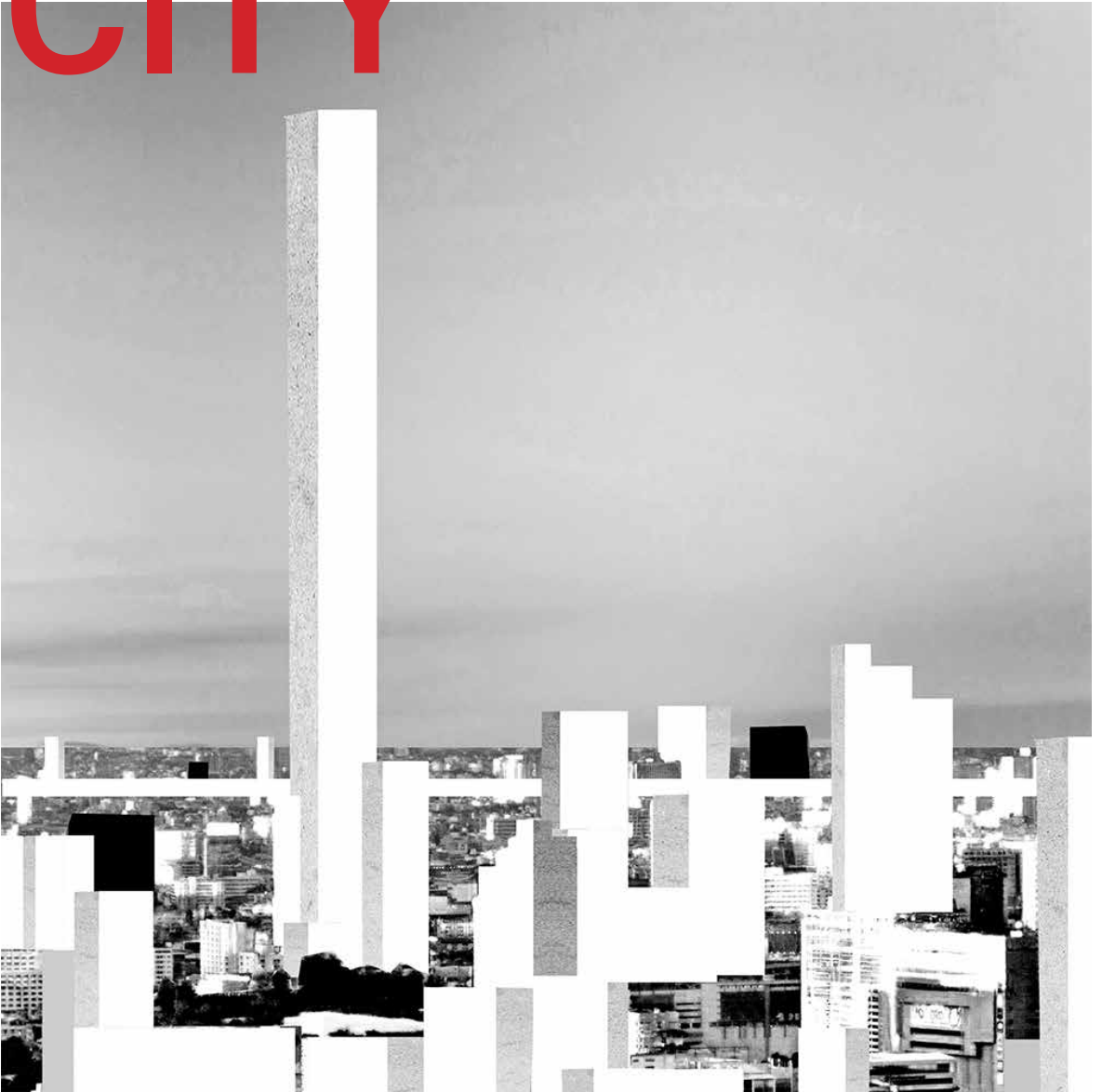
The pods are connected to each other by a set of bolts. Depending on the function, the floor is either solid or transparent. Transparent floors give user the sense of floating in a space, as they move from one pod to another.

However, modern technologies allows a more sustainable material that is eco-friendly, and doesn't require additional connectors. It is to be explored further in this project.

ARCHITECTURAL DESIGN III

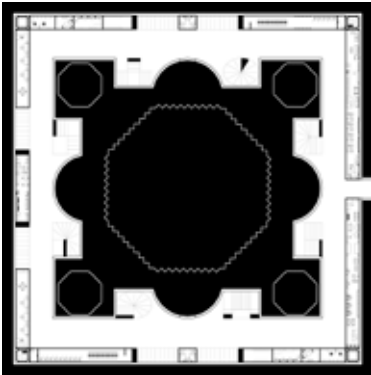


CONTRAST CITY

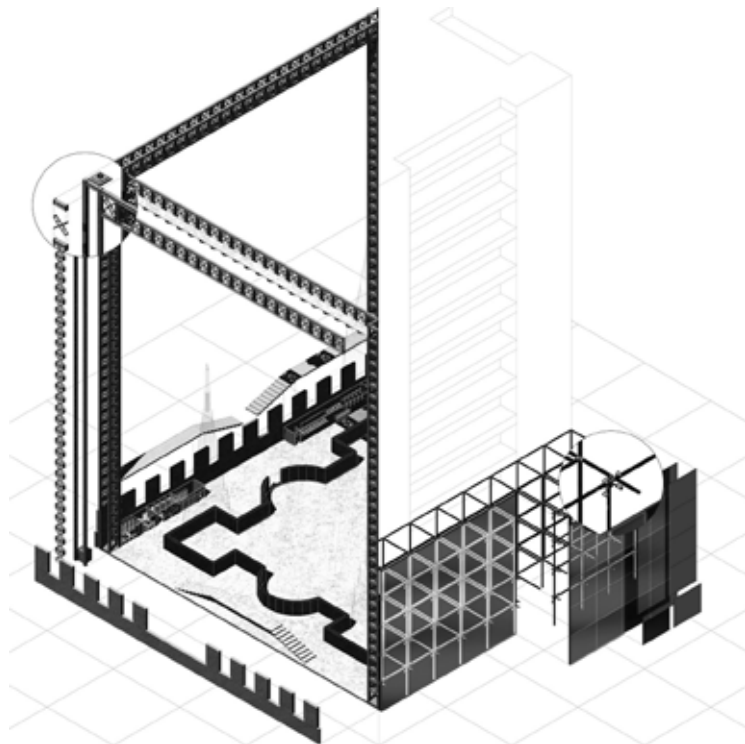


Arch. Dsgn. IV

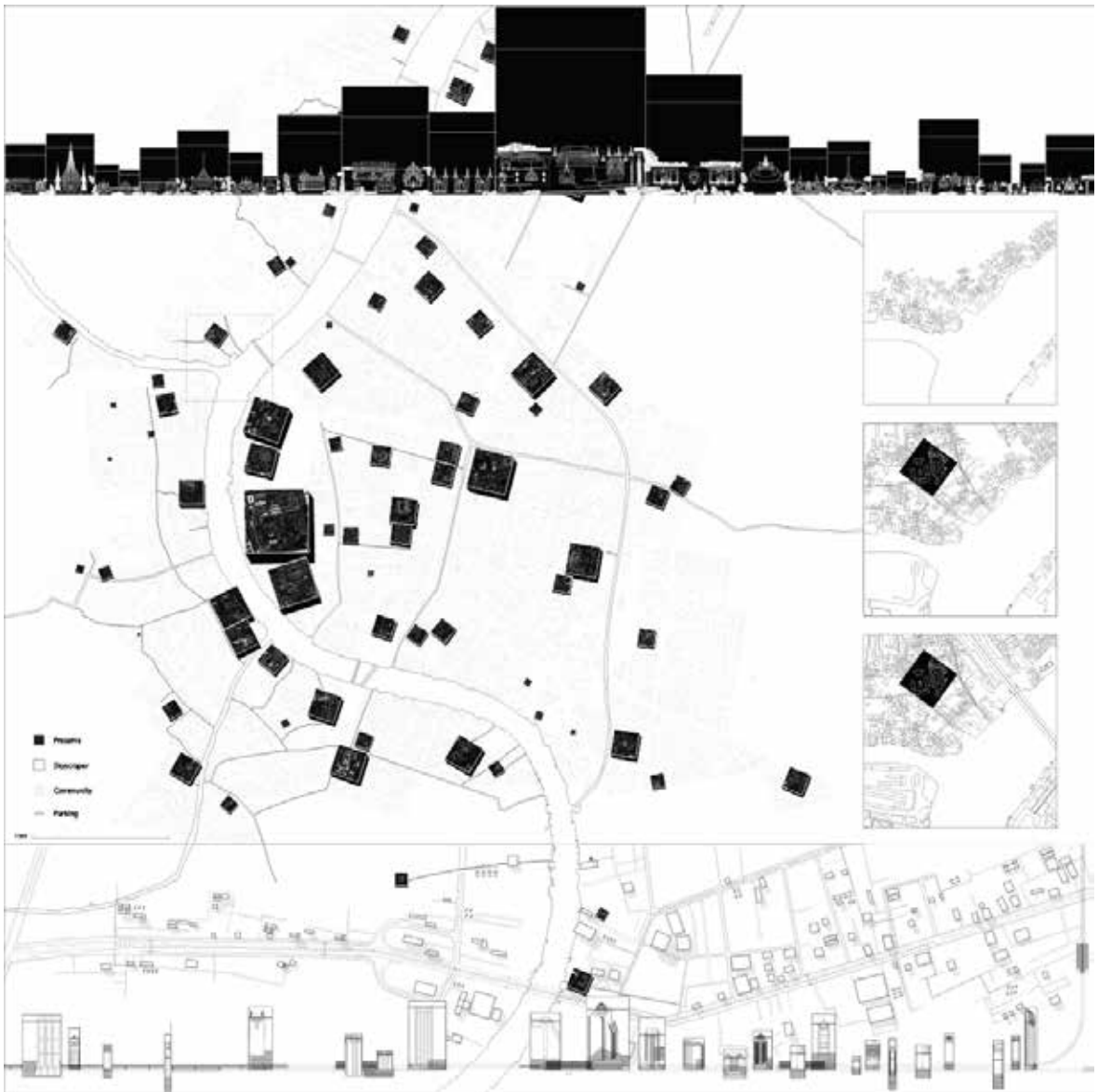
Ari/Wat Arun, Bkk



The project speculate on architecture at the scale of the city. The city will be abstract into its vital parts, such as infrastructure, to expose the aesthetic order of the city and digest its systematic and organisational principles. It is to define architectural proposals which will synthesize infrastructural layers into a system. The significant character of buildings that make architecture an art of uniqueness is when there are layers of histories behind them. Before we know, the buildings have become fragments of decayed material forms. These forms would become the symbol that tells the story of a city, using the most basic geometries



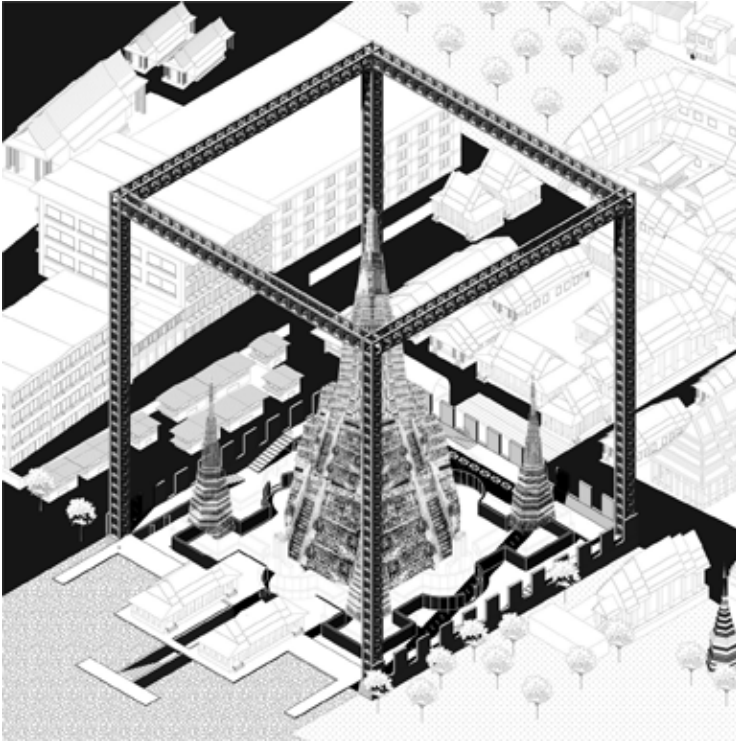
CONTRAST CITY



City dwellers and travellers tend to admire the development of forms, where there is a clear contrast between religion and use.

The project introduces infrastructure along two critical conditions, that of the white and black.

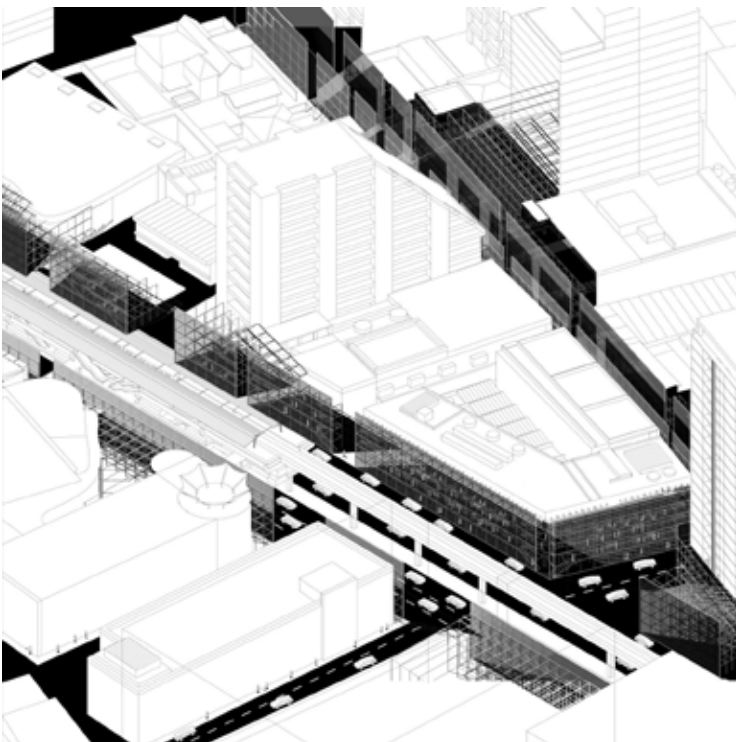




Black Box

Along the Chaopraya River contains what is most of Bangkok's historic artefacts are found since the Rattanakosin period. This territory combines the beliefs and traditions of the community, building temples, which later on become the symbol of the city. The temple is a shelter for the heart, an architecture of belief for the Thai people.

Lying next to the Chaopraya river is Wat Arun, known to be the most historic and famous temple in Bangkok. To frame it with infrastructure, is to give it more importance. The infrastructure would be like a guide for the people to experience the usual in a different perspective.



White Rectangle

Architecture of service lies along the definition of modern type buildings such as residential, offices, commercials, and so on. Ari is one example of an area in Bangkok where generic building types are very diverse and never stop growing. The rectangular plane would represent the city. The means of representation is to give full expression to feelings and ignores the familiar appearance of objects - giving order to the city.

Since Ari is always heavily tracted by cars and people at ground level, the billboard-like structure provides additional actions to occur between the space and more levels for

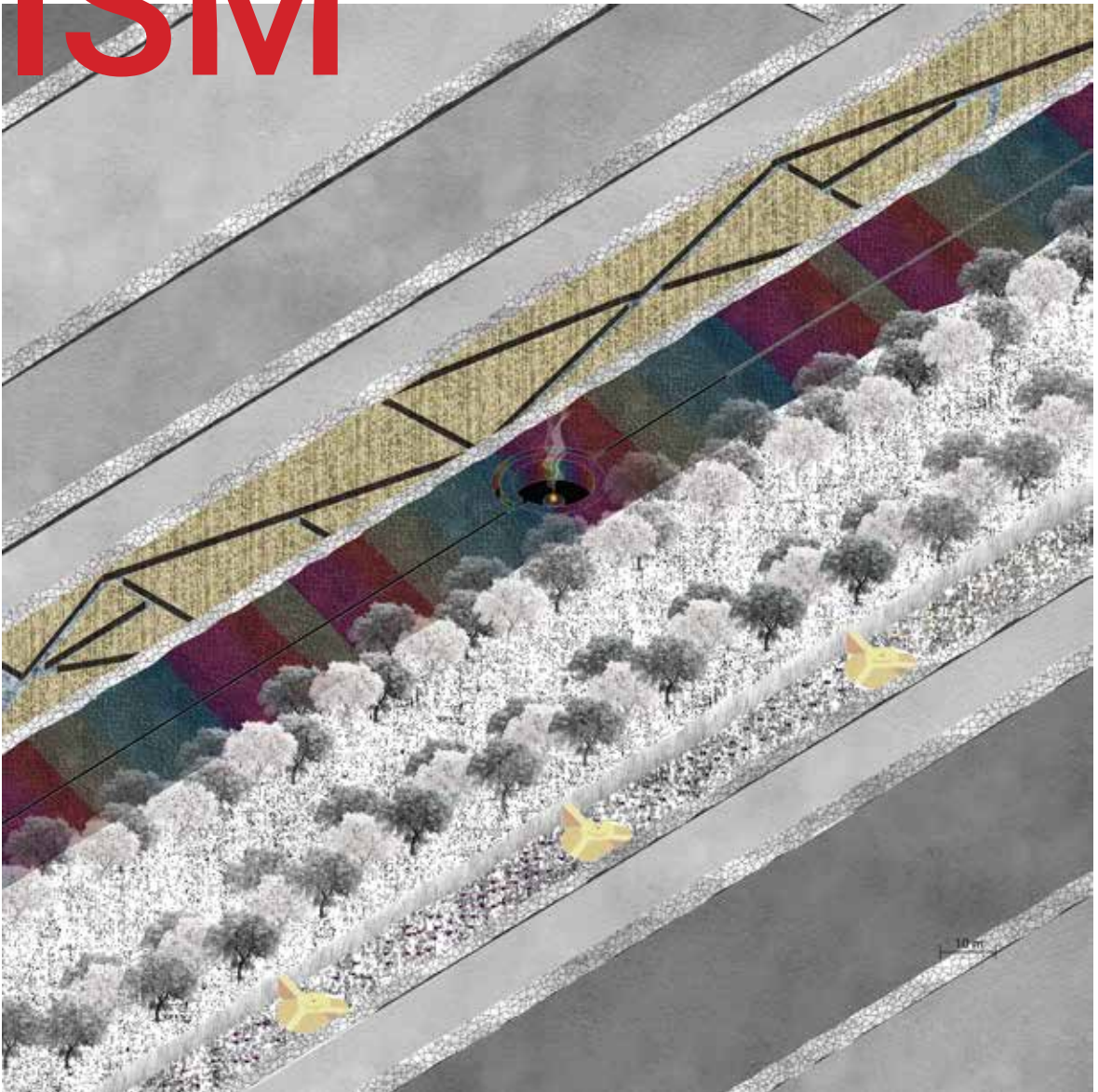
CONTRAST CITY



ARCHITECTURAL DESIGN IV



SHAMAN-ISM



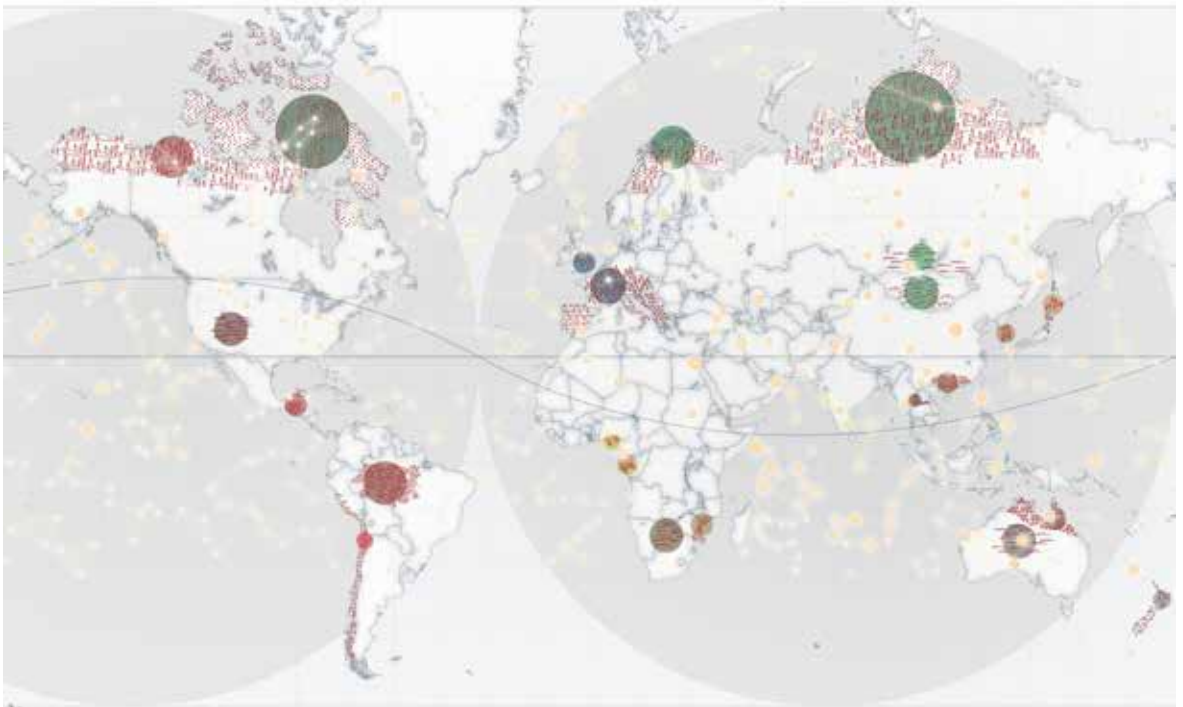
Arch. Dsgn. V

Bangkhunthien, Bkk



Shamanism is an ancient practice and a way of life. The teachings of shamanism focus on our connection to nature and accessing the unknown of all creations. They believe in the three worlds; upperworld, middleworld, and underworld, which all makes up the tree of life. To connect with the three worlds, they have to reach altered states of consciousness in order to perceive and transcend energies into this world and to travel through the shamanic journey.

The monastery acts as an instrument to explore their journey and their chosen path. A shamanic path is a timeless guidance to form their own life experiences.



SHAMANISM

Time is represented in shamanic society as circles, a symbol of the complex relation in itself, as timing evokes movements in harmony with the rhythms of nature in the universe. The monastery is then design to be that of a circular shape, meaning the non-linear time of their journey. As they encounter each elements, they will be able to use the space provided according to their interpretation and instinct. They will experience different ways of entering trance and shifting their consciousness as they walk through the journey.

Sundial

The sundial is used to tell time, read by the movement of the

Sleep

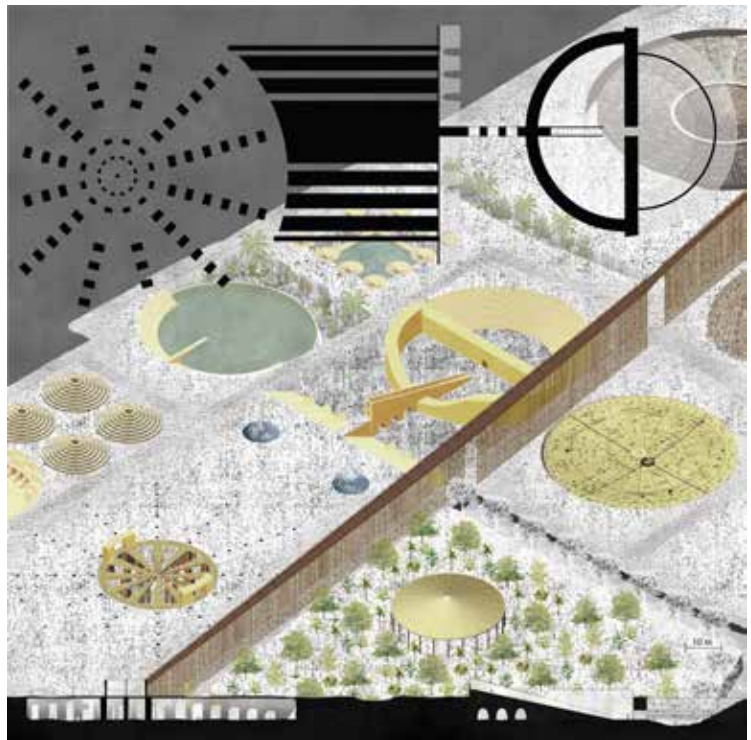
To connect to the otherworlds, the shamans would sleep in digged holes. This is to connect their mind and body with nature.

Meet

Shamans meet to carry out their daily ritual of talking to the spirits in the otherworlds. At night, they observe the astronomical signs to read the future.

Retreat

The journey can be tiring to the shamans as it requires lots of physical and mental practice. An underground thermal bath and overground pool is provided for relaxation.





Eat

The upper part is used for gathering, as the lower part is used for cooking. Smoke from underground will travel overground, signalling that the food is ready. The smoke represents the symbol of the spirit of the otherworlds, while the shamans are in their concious state.

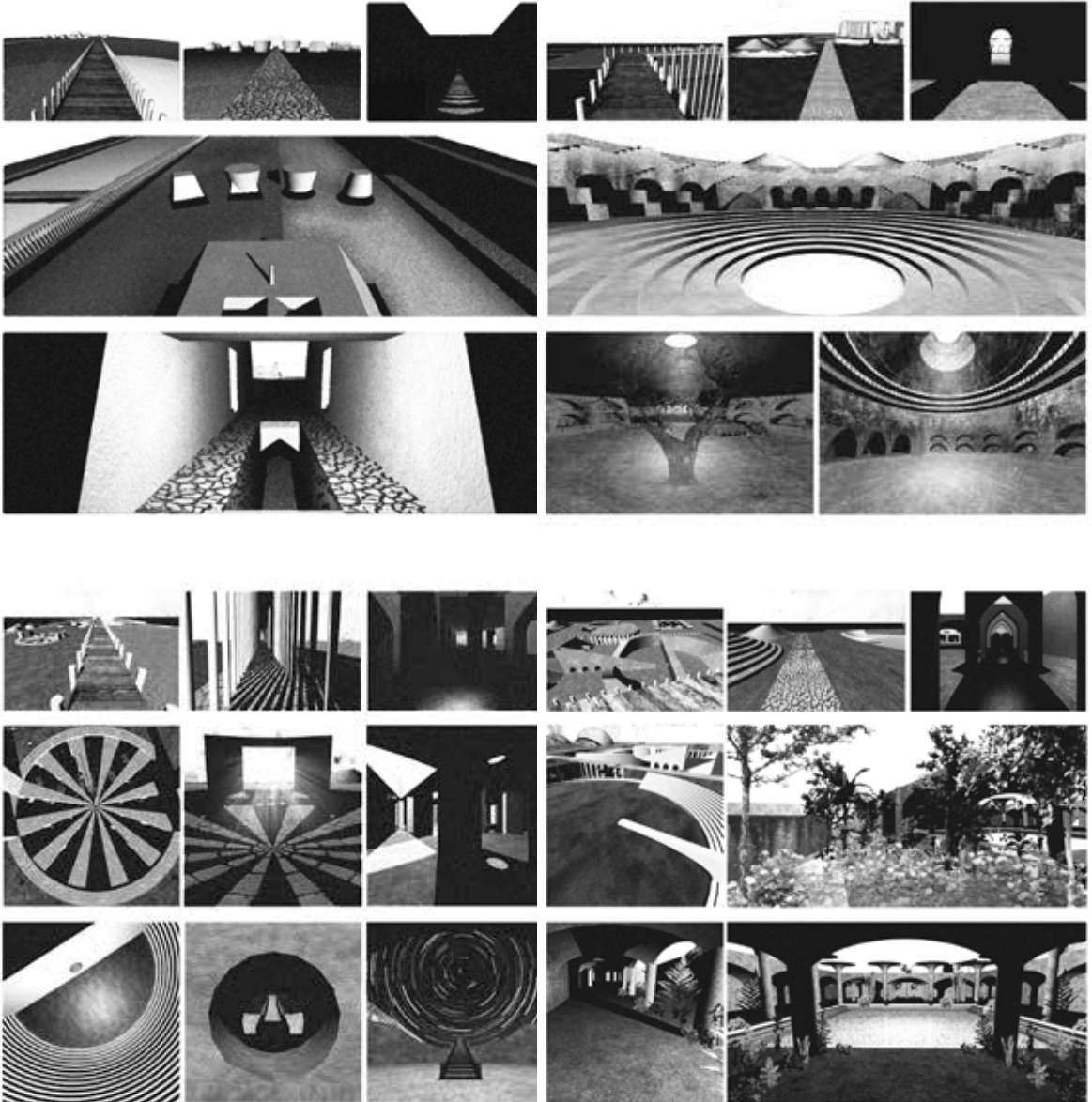


Study

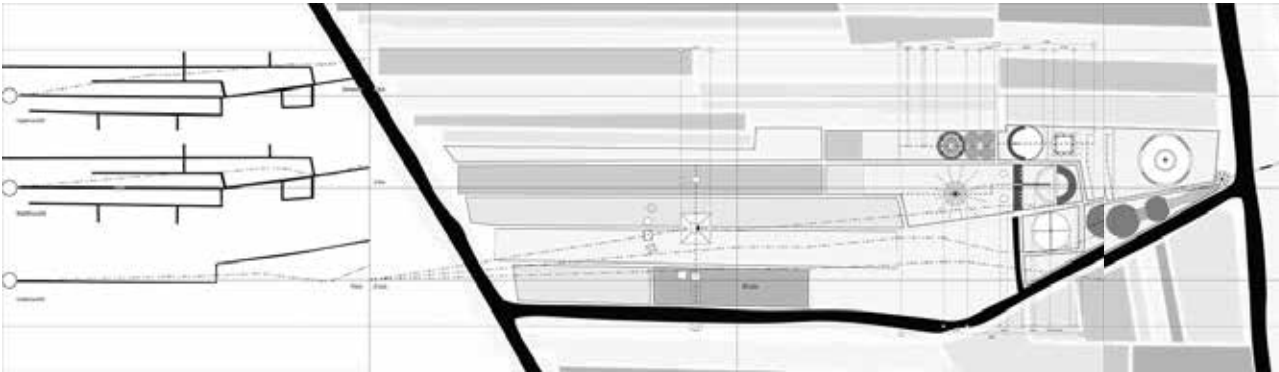
The path of the shamanic journey is to study about the ways they could connect with the otherworlds. Inside the library is the tree of life where lights shines upon. The shamans can use the space to read and meditate as a way to see the world. Nature will be understood more in order to gain knowledge and access to the otherworlds.

After they have reached the altered state of conciousness, they will move on to the shamanic rituals in the shrine located at the end of the journey.

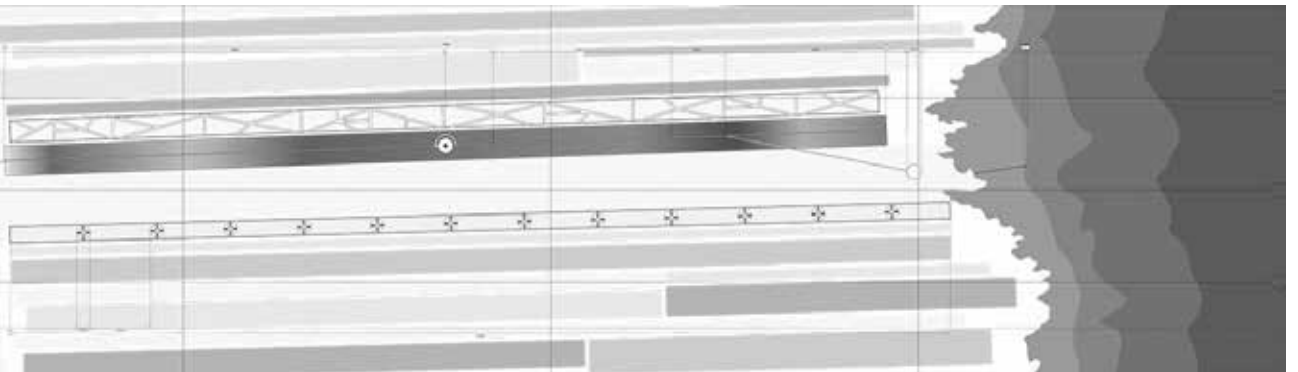
SHAMANISM



SHAMANISM



ARCHITECTURAL DESIGN V

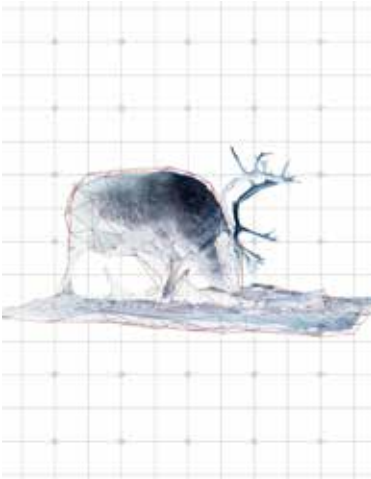


AUTO- NOMOUS TRANS- HUMANANCE



Arch. Dsgn. MArch

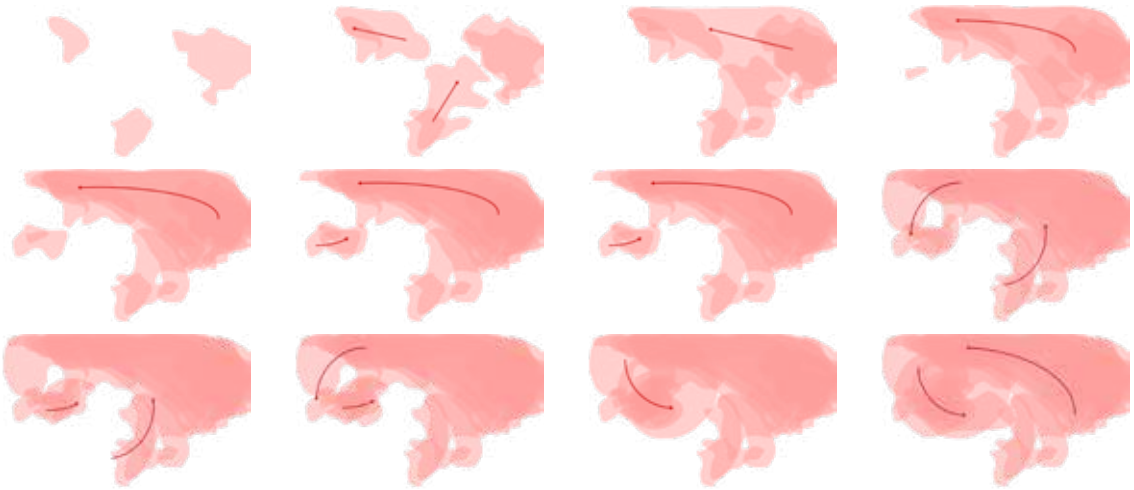
Yamal, Siberia



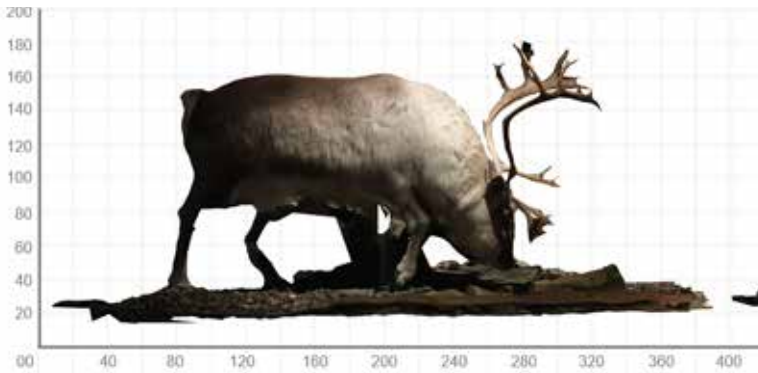
Rise in global temperatures has an acute impact of the Arctic. A thawing Arctic leads to a plethora of consequences. Increased accessibility to the region results in construction of infrastructure for capturing the newly exposed natural resources, especially fossil fuel. New shipping routes through the Arctic further speedup this development. This results in displacement of flora, fauna and the natives, while also creating more conditions which cause thawing. This project is an attempt at adapting to these rapid changes, through the means of preserving the endangered and archiving the extinct.



AUTONOMOUS TRANSHUMANCE



Reindeer Behavioural Pattern

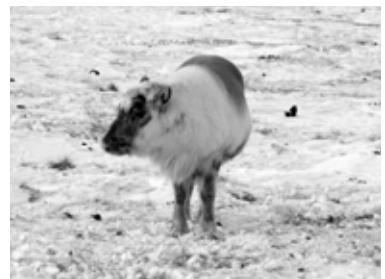


Reindeer

Reindeer are one of the keystone species of the Arctic. They occupy both Alaskan and Siberian tundra, often as a semi-domesticated herds. They have a heightened olfactory sense. They are able to sniff out vegetation under thick snow cover and up to 5 kilometers away.

The herd does not have a designated leader. Reindeer herds are often loosely packed. The leader is decided on the basis of movement. They also show a tendency to turn anti-clockwise as an instinct when suddenly spurred to start moving, such as by a predator.

This project observes the behavioural pattern of reindeer in order to herd them to food sources. As the human populace moves away, the reindeers are left to fend for themselves in an increasingly uncertain landscape. As a keystone species of the Arctic, any changes in the reindeer behavioral patterns has implications on the whole ecosystem.



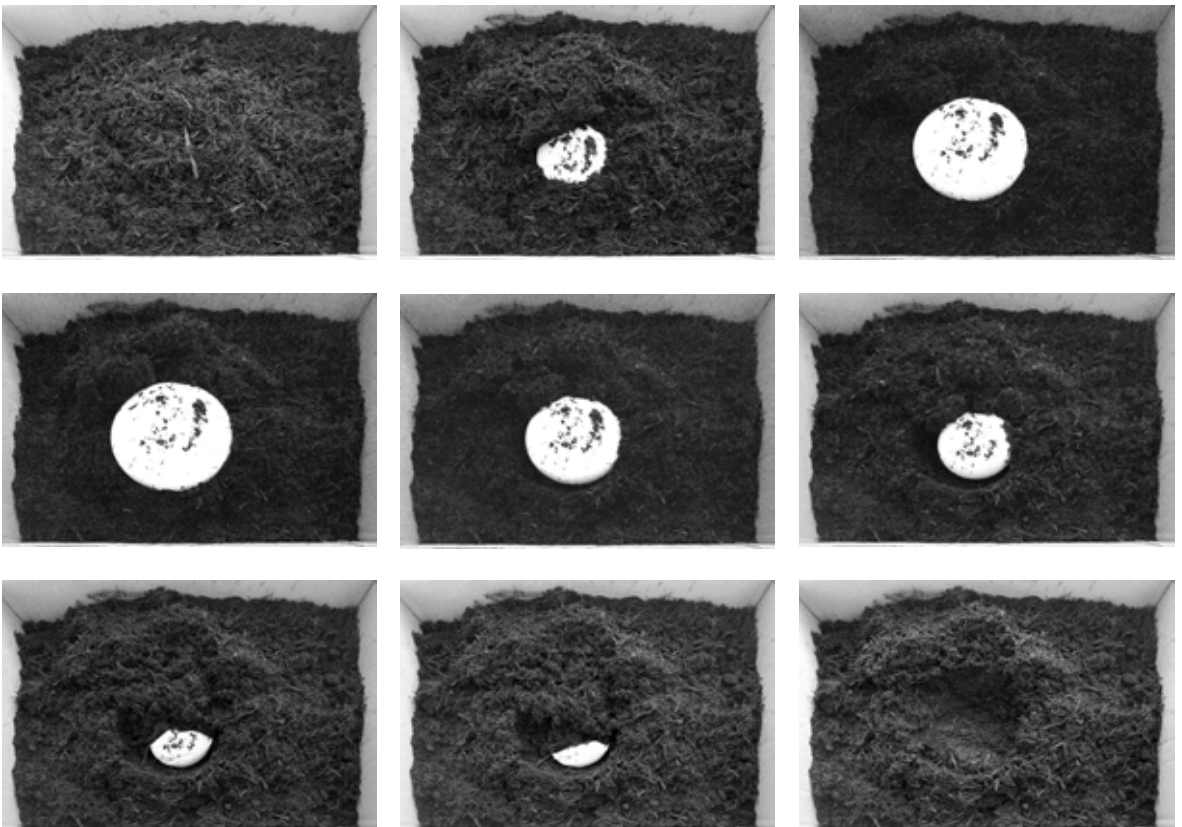
ARCHITECTURAL DESIGN



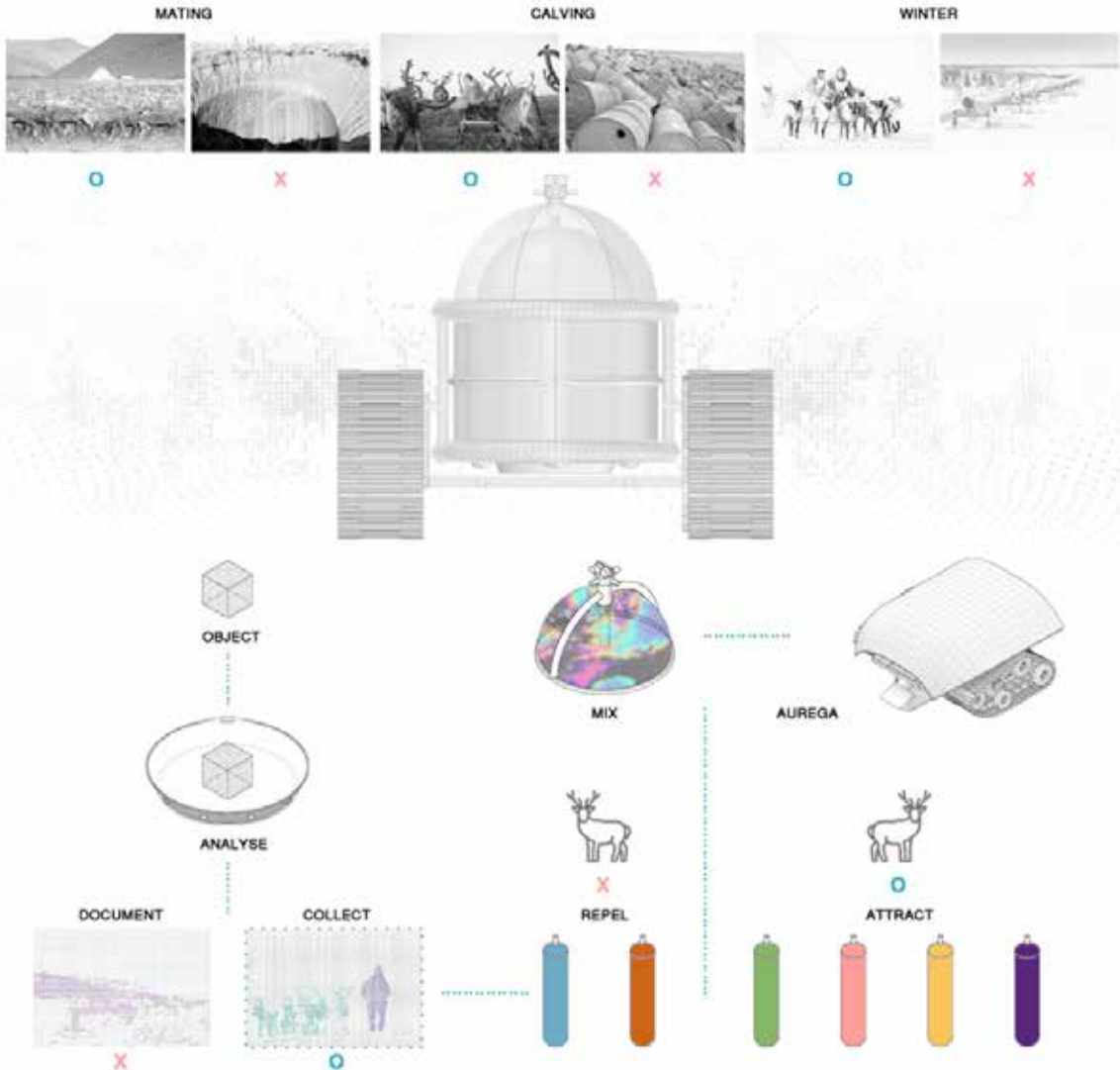
Pingo

One of the prominent landform that dots most of the Arctic region is known as Pingo. Pingos are periglacial mounds, which means that they are formed through the process of repeated freezing and thawing. Despite mostly containing ice, the pingo still had enough earthen content to support vegetation. This is where the reindeer will be herded to once it is regenerated into food source. Furthermore, the methane found in pingos will be used to power the arctic urban development.

Recreation of Pingo Cycle

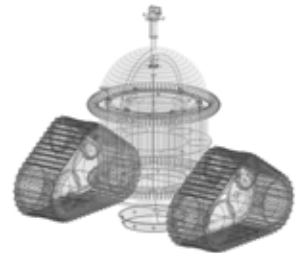


AUTONOMOUS TRANSHUMANCE

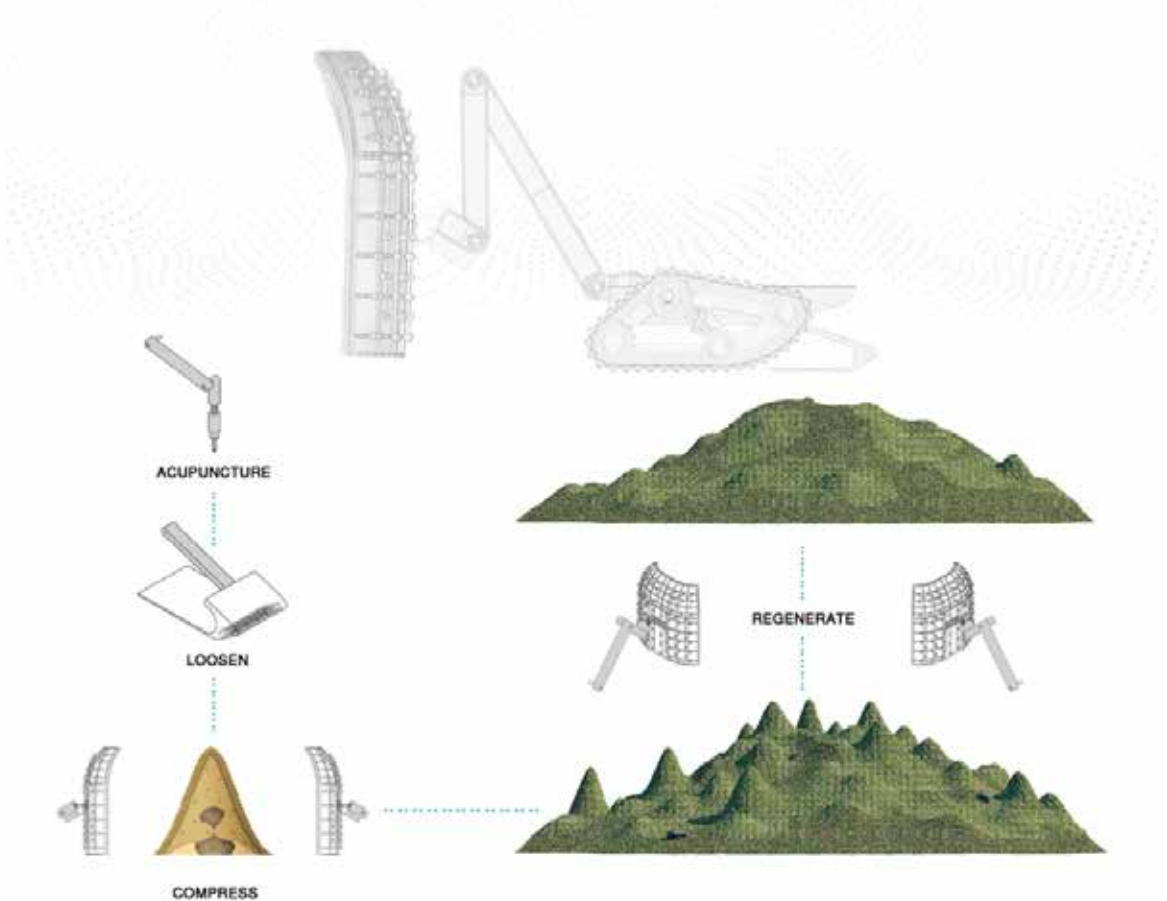


AuRoRaH

Autonomous Robotic Reindeer Herder is a robotic shepherd for the reindeers. It aims to non-invasively guide the reindeers to food sources, ensuring that reindeers can survive in the absence of human care, in the constantly changing Arctic. It does so by triggering their sense of smell to guide them towards food or away from danger. It actively monitors the Arctic for changes and takes herding decisions based on them.

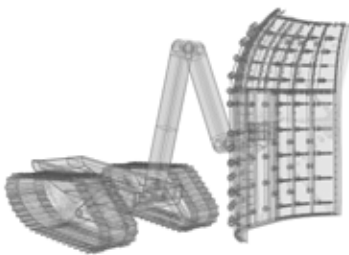


ARCHITECTURAL DESIGN



AuReRa

Autonomous Regenerator is a robotic landscape acupunturist. It aims to non-invasively retame the landscape for both humans and non-humans. It does so by detecting methane leak spots on pingos, acupuncturing the spot to relieve pressure, and regenerate the spot. It actively monitors the pingo and prevents explosion due to methane buildup. It further helps transform the pingo into a methane storage unit as well as a new pastoral land for the reindeers. It also helps visualise methane emissions in the Arctic to the layman.

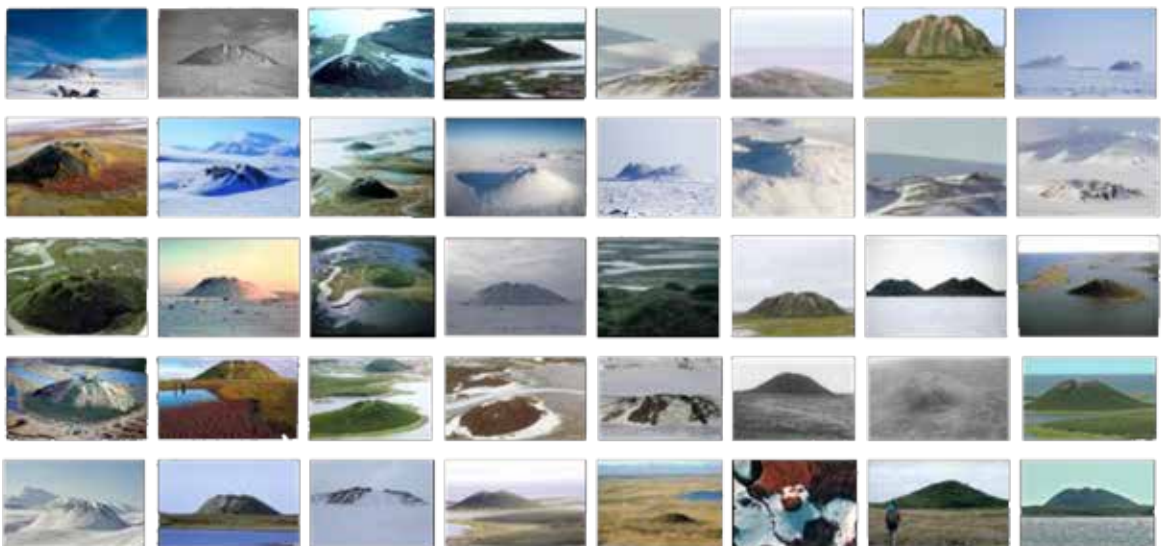
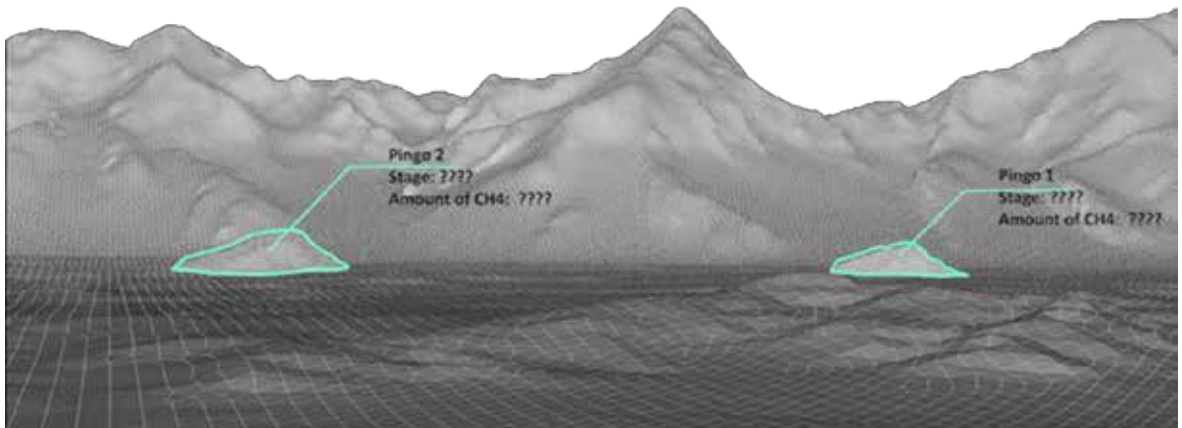
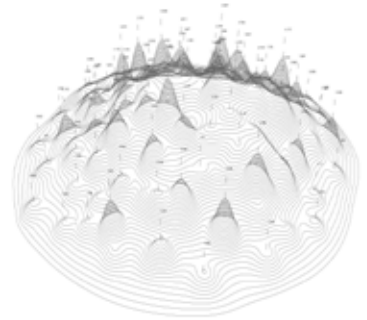


AUTONOMOUS TRANSHUMANCE

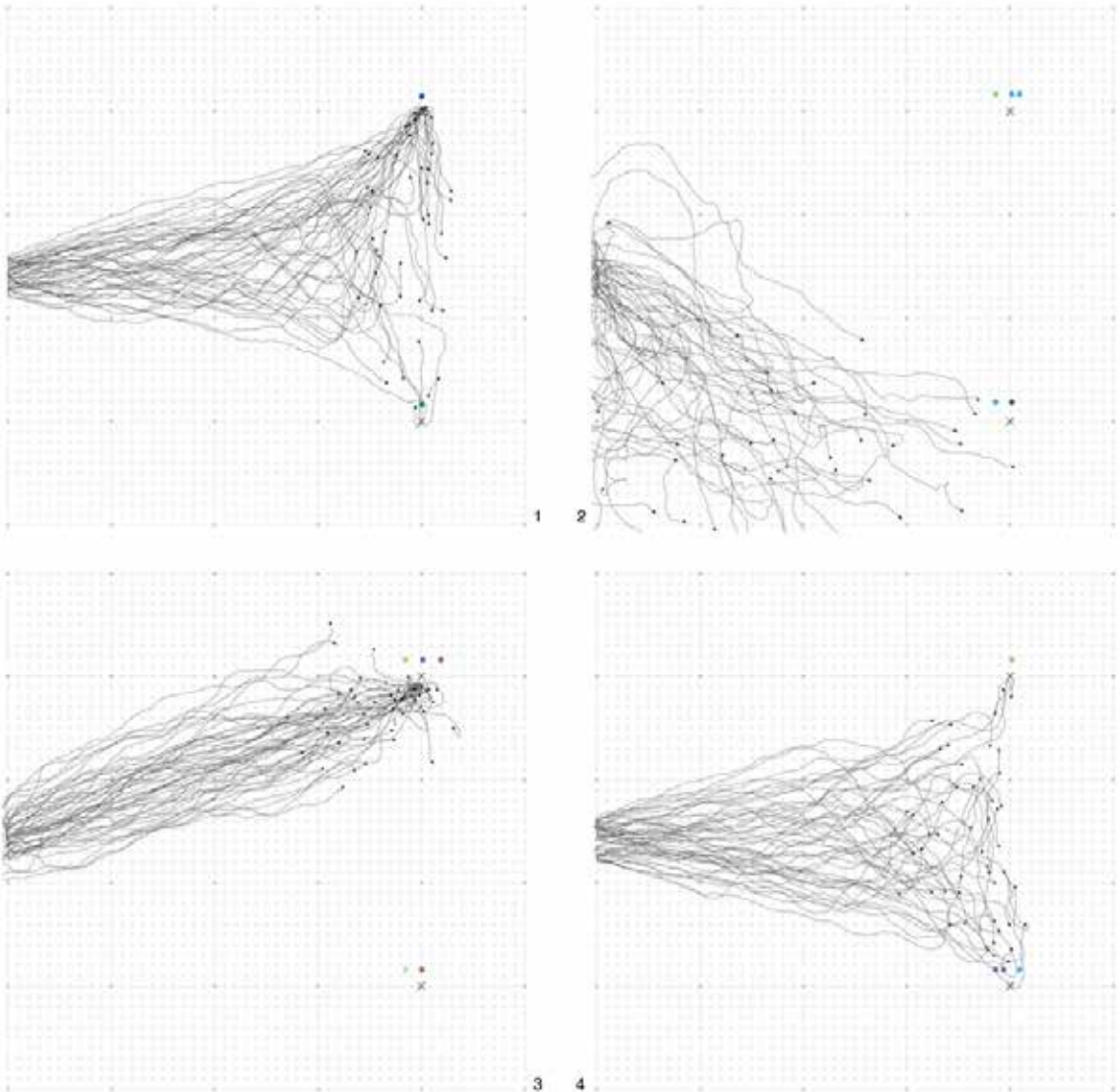
Machine Learning

The system is trained with machine learning algorithms in order to decode the Arctic environment. The sentient family is able to differentiate Pingos from other similar looking landscapes like mountains.

In addition this, the system can decode basic elements of the Arctic landscape like, highlands, lowlands, forests, infrastructure etc, to be able to optimize routes for transhumance. Convolutional Neural Network is created for the purpose of identification of Pingos and other landscape elements. A linear regression model is created with inputs of basic mathematical formulae to qualify pingos for their stage, ratio of ice to methane, amount of methane and the number of reindeers facilitated.



ARCHITECTURAL DESIGN



- 1 - Herd towards pasture.
- 2 - Herd through difficult terrain.
- 3 - Herd away from pasture.
- 4 - Divide herd.

- Lichen
- Herd Urine
- Gland Secretion
- Trees
- Asphalt
- Wolf Dropping

Smell Mixing

Simulations were run using Grasshopper to test the combinations of the collected smells in various competitions. A potency value was assigned to each smell, and then a series of simulations were run using combinations of these smells, where two combinations were put against each other to see the effect and reindeer behaviour.

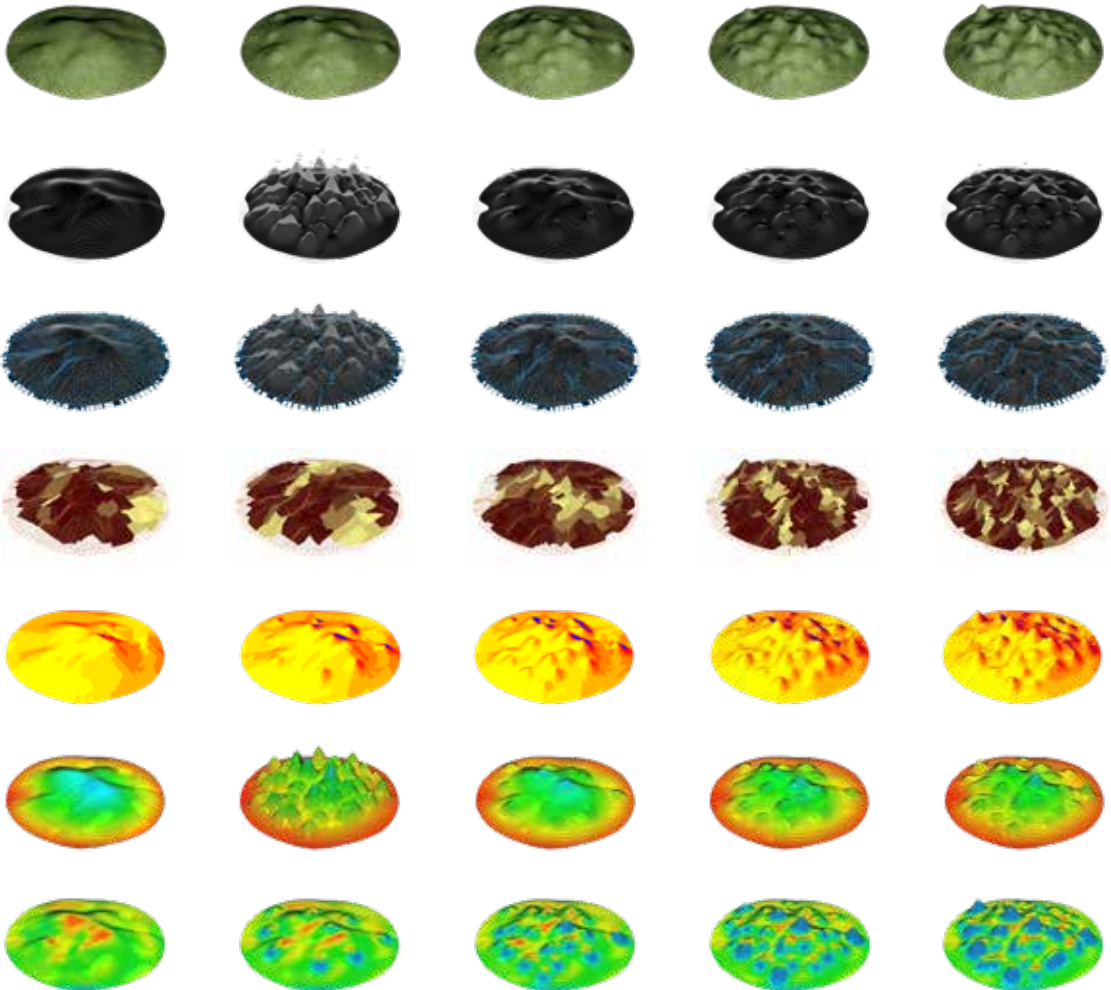
AUTONOMOUS TRANSHUMANCE

Pingo Regeneration

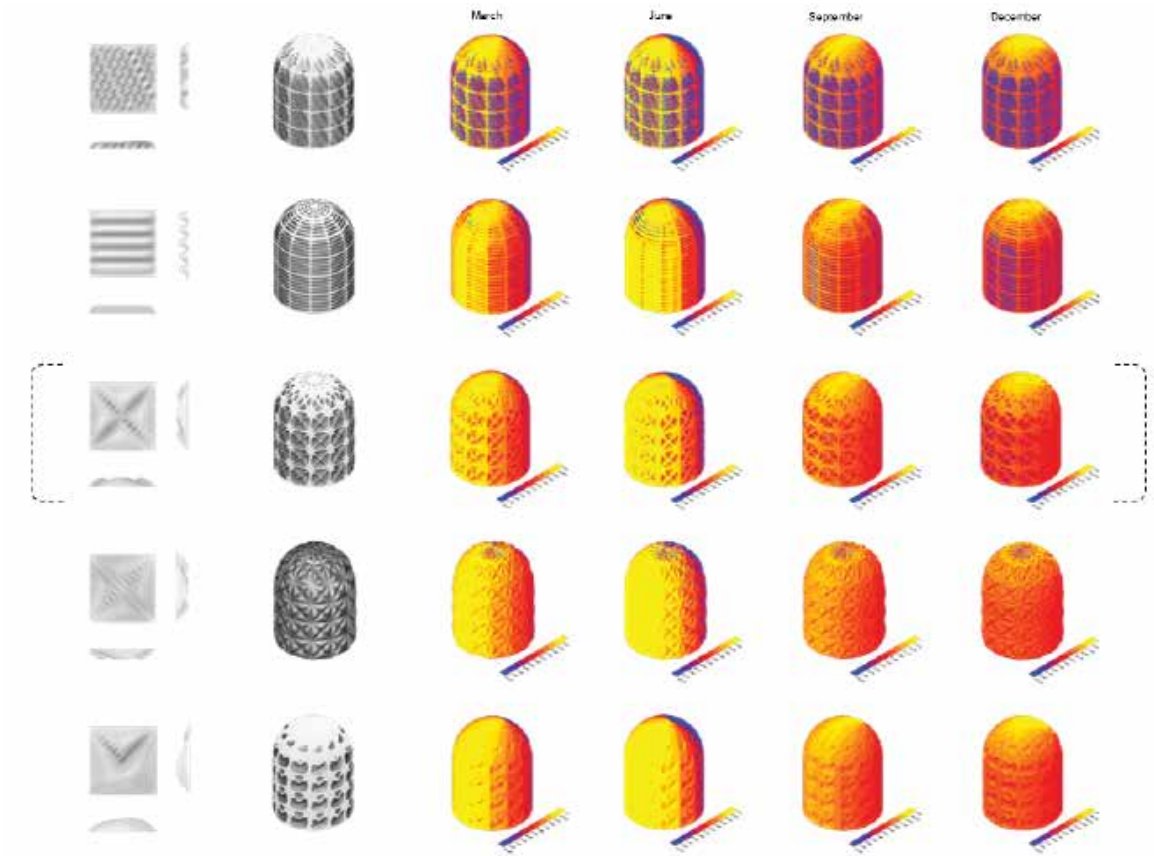
AuRega regenerates the pingo by repeating a set of action multiple times. As the mound builds up from each action, it gets pushed up by the methane trapped inside. the pingo thus grows in size over multiple cycles of regeneration.



Pingo Analysis



ARCHITECTURAL DESIGN



Pattern Testing

The patterns created on the pingo mound is selected from a database, based on suitable conditions to facilitate vegetation growth. Patterns are also selected based on thermal efficiency. Higher the thermal retention capability, better the vegetation growth.

Patterns are further classified based on other physical properties, each pattern suitable to be used in certain situation only.

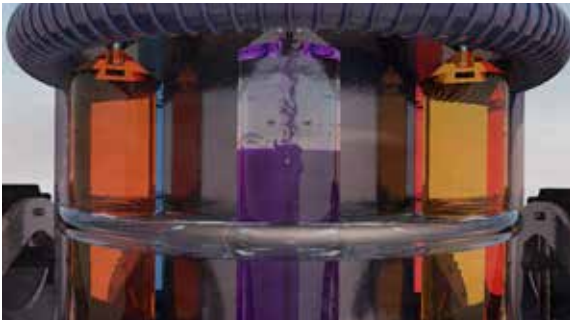
AUTONOMOUS TRANSHUMANCE



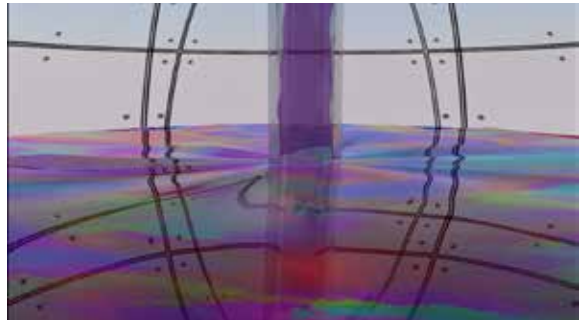
AuRoRaH identifies the reindeer



Collects lichen as smell source



Store the smell in a tube



Mix the smells in a chamber



Sprays the smell to attract the reindeer



Smell got the reindeer attention



Herds the reindeer to a pingo



Reindeer follows AuRoRaH

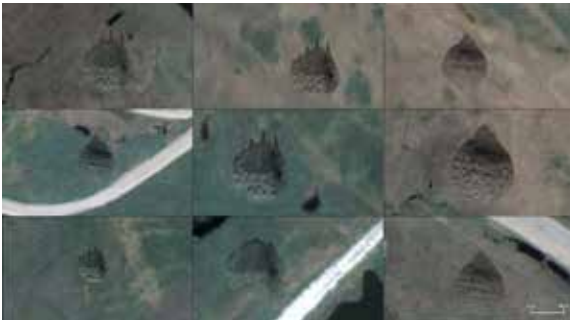
ARCHITECTURAL DESIGN



The reindeer reach the pingo



AuReGah regenerating the pingo



Pingos monitored in real time



Location of pingos found



Methane from pingos are stored in tanks



Methane is used to power the city



AuRoRaH depositing smell in the library



The archive of arctic smell library

AUTONOMOUS TRANSHUMANCE



ARCHITECTURAL DESIGN



Link to Video: <https://youtu.be/EYxWfdji2Jg>

S19 HOUSE



Architecture Project Sukhumvit, Bkk



The house is a big scale project located in a private area in Sukhumvit. Since it is a private residence, the concept of transparency is implemented into the design of the house. To protect the house from excessive sunlight, the roof is protuded out enough to receive the right amount needed.

The idea of the house is to give emphasis on the horizontal and vertical lines. The transparency gives an airy atmosphere while still providing ventilation throughout. The design of the roof is to make the line of steel visible from the wood to create a continuous flow of material.



S19 HOUSE



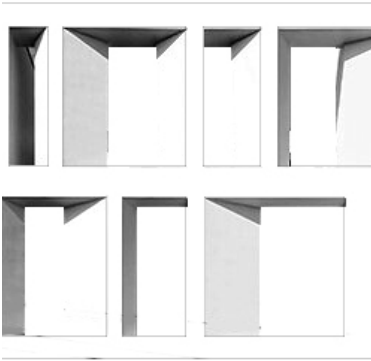
ARCHITECTURE PROJECT



INTAMARA HOUSE



Architecture Project Intamara, Bkk



The house is located in a high density residential area in the Central Bangkok. The design is prominent from the surrounding houses because of the picture frame facade that captures the environment when looking out. The flat facade provides ventilation while playing with the casting of light and shadow through the changing seasons. The concept of the house is to give a calm and peaceful ambience, while still being perky from the exterior. Due to the limited site, the idea of an outdoor garden is merged with the interior. The first floor is a green space where it is also visible from the second floor.



INTAMARA HOUSE



ARCHITECTURE PROJECT



GIANT BAKES



Architecture Project Ari, Bkk



Giant Bakes is a small scale cafe located in the trendy side of Bangkok. The concept of the 30 square meter cafe is that of a chocolate cake, where the material asphalt shingles is used as the rood covering. The roof is curved at the end to give more space for storage at the back. This also makes the space feel more cozy than gigantic because of the high roof structure. The interior is arranged to give maximum performance to both the baker and customer. The customer can enjoy the smell of the bakery and see the work in progress in close proximity while the baker remains undisturbed.



GIANT BAKES



ARCHITECTURE PROJECT



GIANT BAKES



ARCHITECTURE PROJECT



