



THE SHAPE OF THINGS TO COME

CHRONIQUES
INCUBATOR OF DIGITAL IMAGINATION



IMMERSIVE LIGHT INSTALLATION
DIEGO ORTIZ AND HERNAN ZAMBRANO - LES PETITS LABOS

The Shape of Things To Come is an immersive light installation that uses **air quality data on a given territory**. It invites the public to enter an arch made of recycled plastic, and to discover the invisible: the impact of humans on the atmosphere.

By **transforming the quality of the air into the quality of light**, it shows this environmental problem in a dreamlike and poetic way.





..... IMMERSIVE EXPERIENCE



Approximately 3 metres high x 5 metres wide x 8 metres long, this slender, semi-transparent sculpture evokes the shape of a garden bird's nest. It consists of two vertical and parallel walls of recycled plastic rods. These emerge from the ground and intertwine at the top, creating a sort of canopy. It forms an arch inviting the spectator to enter its core.



From the inside, the spectator walks through this **organic form**, observing the **luminous evolution** generated by the sensors. From the outside, the spectator wanders around this **strange landscape, where body, light and matter are mixed**. They contemplate this **dialectic between the plastic material and an often invisible phenomenon, atmospheric pollution**, where the air is materialized in a surface composed of waste.

The intensity and quality of the light baths sublate the material and **tell the story of the variations in air quality on the scale of a city or a territory**, over the last 15 days.

As the visitor moves along this timeline, they also leave their wake, like an allegory of their imprint on the territory.

..... ECO-INSPIRED
 DESIGN

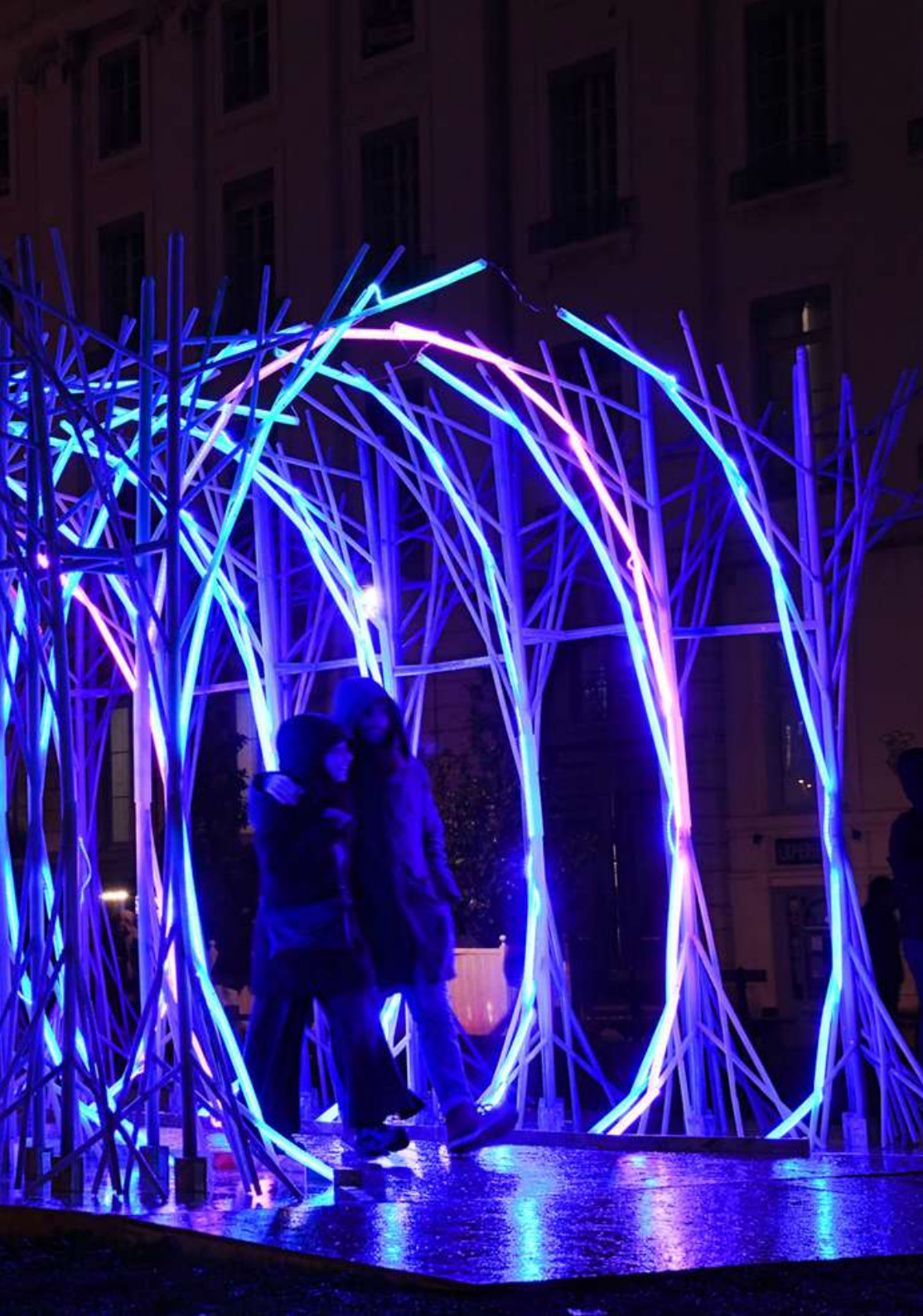
Following the principles of biomimicry, its shape and design are inspired by the architecture of garden birds' nests. In the same way that these birds collect what they find in nature to make their habitat, it is made of recycled plastic, **in an approach that transforms waste into artistic material.**

Its interactive device, inspired by kinetic art, reveals the traces left by some of our polluting activity on the planet. Against the collapsologist's discourse, **it proposes a "repairing" perspective, materialized by a potential nest and by the promise of an eco-responsible use of our planet's resources.**



Thus the installation imagined by Diego Ortiz and Hernan Zambrano acts at times as a revelation and information, at others as a sentinel and refuge: while alerting us to our role in atmospheric pollution, **it offers us the prospect of concrete alternatives for our lifestyles, such as frugality, reuse, and observation of the living.**





This piece, designed for the public space, is an important milestone in **the desacralisation of the work of art**. In the tradition of conceptual art or land art, it integrates a principle of modularity that privileges both its character as a work of art, during the suspended time of the exhibition, and its eventual transformation, after recycling, **into an object for functional use**.

Both an aesthetic experience in its own right, and a device within which know-how, knowledge and interpersonal skills are combined, *The Shape of Things to Come* has an underlying political dimension, opening up the field of art production to environmental issues.

A way to imagine,
to give to see,
the shape of things to come.

..... WORK ON LIGHT

The interactive writing in real time is not based on the creation of a new instrument, but rather on **the aesthetic quality of the interactive conduct of lights from a collection of data on air quality**. This writing is made **in adequacy with a frugality as for the consumed energies**, the speed of the development and is based on a research around the colour by playing of the complementarity between the plastic material and the effects obtained thanks to the technique of LED pixel mapping.



THE INFLUENCE OF LIGHT

Since the invention and mastery of artificial light sources (gas, phosphorus, halogen, neon and LED), research on the influence of light on biological systems has been very diverse and rich in content.

A light wavelength such as carmine red is capable of activating the amygdala, the organ that modulates all our reactions to events that are of great importance for our survival, and which is, in part, responsible for the secretion of hormones such as adrenaline or cortisol. Thus, an individual who is exposed to red light will have an increase in heart rate and all his senses will be on alert for a short period of time. We also know that exposure of the eyes to warm light with colours ranging from orange to green generates a feeling of security and that cold light with tones close to blue and cyan can generate emotions of tranquillity or sadness depending on the culture.

The artists used this research to create a light interaction that is both familiar and inspiring to the audience. In this way, they took the colour codes of the global warning system (green, orange and red) as a reference and modified it to enrich it with other levels and broaden the chromatic spectrum.

By working with addressable LED ribbons, they also added rhythms through transitions or fades programmed with our own C++ and Python source codes.

..... WORK ON LIGHT

LUMINOUS WRITING

With this work, Diego Ortiz and Hernan Zambrano are experimenting with interactive writing based on homogeneous light, which is diffused over the entire plastic material. **This initiative, closer to painting than to the production of machine interfaces, is reminiscent of pictorial movements such as "pointillism" or "impressionism".**

Thanks to the integration of RGB LED ribbons in the material itself, they conceal the light sources. To concentrate on ambiances, feelings of the masses, a certain sensuality

The lighting effects are structured around the shape of the rods. On a vertical plane, the choice of colours is made according to the polluting elements captured. The light rises from the base to the top, revealing the set of colours associated with air quality.

When the air quality is poor, the base of the stems will be red and intense while the rest of the stems will remain dark. Conversely, when the air quality is optimal, the light rises to the top and spreads a cyan-like light.



Then, **on a horizontal level, the artists explored a relationship to time.** The artwork represents a period of 1 month (31 days) to bring a cyclical dimension to the work.

This allows them to imagine a principle of breaking down time into units of matter: each stem or threshold represents a day. This scale of time, which everyone can imagine, allows the work to be close to the public, to the rhythms of our daily lives.

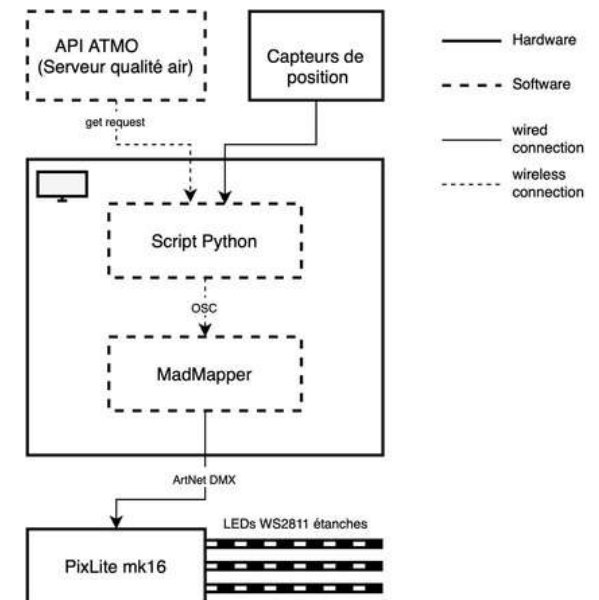
..... CONNECTED DEVICE

PYTHON SCRIPT

A central Python script retrieves the pollution data via the API. It interprets the data to control different lighting scenarios that are sent to the MadMapper pixel mapping software, which projects them onto LED ribbons using a PixLite mk16 board.

The script is run every day at start-up so that it only makes one request per day, thereby reducing server-side load. It obtains **the air quality history of the last 15 days linked to the air quality present at the Atmo measuring station closest to the work, in the form of a dictionary containing for each day an air quality index ranging from 1 (Good) to 6 (Extremely bad) as well as the major pollutants responsible for this air quality (O3, NO2, pm10, ...).**

According to the air quality index from 0 to 6 (0 is in addition as a qualifier of an 'unknown' data), the Python script sends via OSC a different light state (colour, gradient, opacity, effect, ...) to the Madmapper surface corresponding to this day of the month.



MADMAPPER

MadMapper receives "orders" from the python script via OSC and applies them to the configured elements. To map these data to the LED ribbons, it sends them via DMX to the PixLite board which will relay them to the LEDs.

Several groups of surfaces can be used to combine individual or grouped lighting effects, horizontally or vertically, in addition or multiplication, or other.

These surfaces are superimposed on a projector, itself sent via Syphon (Spout for PC) and projected on the DMX fixtures.

..... ECO-DESIGNED ARTISTIC PRODUCTION

One of the strong axes of the project is the **experimentation of a low carbon impact artistic production** as a demonstrative tool for an **ecological transition**.

LOCAL CREATION

To make this work, the artists worked mainly locally, in the South Region:

prototyping in their workshop within the third place Coco Velten, sourcing recycled plastic via the recovery of waste from a company based in the Southern Region, collecting open data on the quality of the air in the territory where the work is located.

RECYCLING OF PLASTIC WASTE

Diego Ortiz and Hernan Zambrano are convinced not only of **the potential of plastic as a material for art and design creation**, but above all of the **benefits** that such a practice can bring in terms of **social cohesion, circular economy and eco-responsible production**.

In order to be independent in the production of their works, they established a recycling and creation workspace based on the Precious Plastic global network, **with open source machines allowing the recycling of plastic into new material at a local and artisanal scale**. The Atelier des Recycleurs Fous, a member of the French network based in the Vendée, provided them with an extruder to make very large pieces from plastic waste.

The artists also concluded a partnership with LAPP-MULLER, a company specialized in plastic engineering and sensitive to their approach, which sent them about twenty tons of plastic waste, resulting from the purging of their machines.



..... ECO-DESIGNED ARTISTIC PRODUCTION

BIOMIMETRY

Diego Ortiz and Hernan Zambrano have chosen an aesthetic close to that developed by garden birds in the construction of their habitat. This biomimetic approach focuses on the **arrangement and accumulation of stems and twigs to create a vertical nest.** In the same way that these birds collect what they find in nature (twigs, pieces of fabric) to build their habitat, **they did not seek to produce new materials but to collect around them materials destined to be discarded, which they can reuse, such as plastic waste.**

However, the plastic present in nature or in household waste does not have these characteristics, which leads them to **imagine similar forms by imitating the living and by a research of modularity.** In order to **preserve the organic and random effect of the nests**, they thought of a geometrical principle which is based on the alignment of straight rods.

Each stem is placed at a point equidistant from each other. The curves and rounded forms are drawn thereafter thanks to a play on the angles. Thus, **the shape of the nest is completed and becomes more complex by the succession of several segments.** This assembly principle was first tested on a small scale, using 3D printing to validate the concept.

The machines are installed **in the artists' workshop in the Coco Velten third place in Marseille** and work as follows: one to grind the plastic, another to heat it and mold it by manual injection, and a last one to heat it and extrude it. The final manufacturing was done at the ICI Marseille fablab.



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..... THE ARTISTS

DIEGO ORTIZ

Franco Colombian artist who lives and works in Marseille. His work **questions the relationship between reality and fiction through the creation of interactive devices and audiovisual experiences using mainly mobile technologies**. He thus proposes **relational contexts that disrupt the place and the role of the spectator in the process of creation and diffusion of the work**. He has presented his work in France (Beaux Arts de Paris, Fondation Vasarely, Friche de la Belle de Mai, Frac Paca, les Subsistances, MA Scène nationale de Montbéliard, Chapelle des Jésuites de Saint Omer...), as well as in Colombia (Festival de la Imagen (Manizales), Alliance Française (Cali)) Spain and Sweden. He is currently an associate artist at ZINC, a center for the creation of digital arts and cultures in Marseille and one of the founding members of the Flux(o) laboratory.

www.diegoaortiz.com
FLUX(O) | laboratoire de création artistique (fluxo.fr)



Des objets et des ombres (2019)
with Hernan Zambrano



Dissolution (2018)
with Javiera Tejerina-Risso



L'Aire fantôme (2017)



Emotions Tree (2011)
with Sylvain Delbart et Benjamin Kuperberg
Production : Dark Euphoria

..... THE ARTISTS

HERNAN ZAMBRANO

Artist-researcher in the arts and sciences of light, Hernan Zambrano explores **new forms of production of eco-responsible art committed to the preservation of the balance of natural systems.** A former student researcher at Ensadlab (SAIL and Reflective interaction programs), he has collaborated with scientists, designers, craftsmen and engineers to create **mechanical and digital devices** that have been used to produce **interactive installations with light and sound.** These installations have been presented at various art and design festivals such as D'Days at the Bastille Design Center and the Before at the Musée du Quai Branly.

www.hernanzambrano.com



Cornucopia, with Daina Romero
(2016)



Émergente (2014)



Iris (2011)

He met **Diego Ortiz** at the École Supérieure des Arts Décoratifs in Paris. Together, they founded **Les Petits Labs**, a laboratory of exploration and creation for their artistic duo.

..... PRODUCTION DARK EUPHORIA

DARK EUPHORIA,
line producer

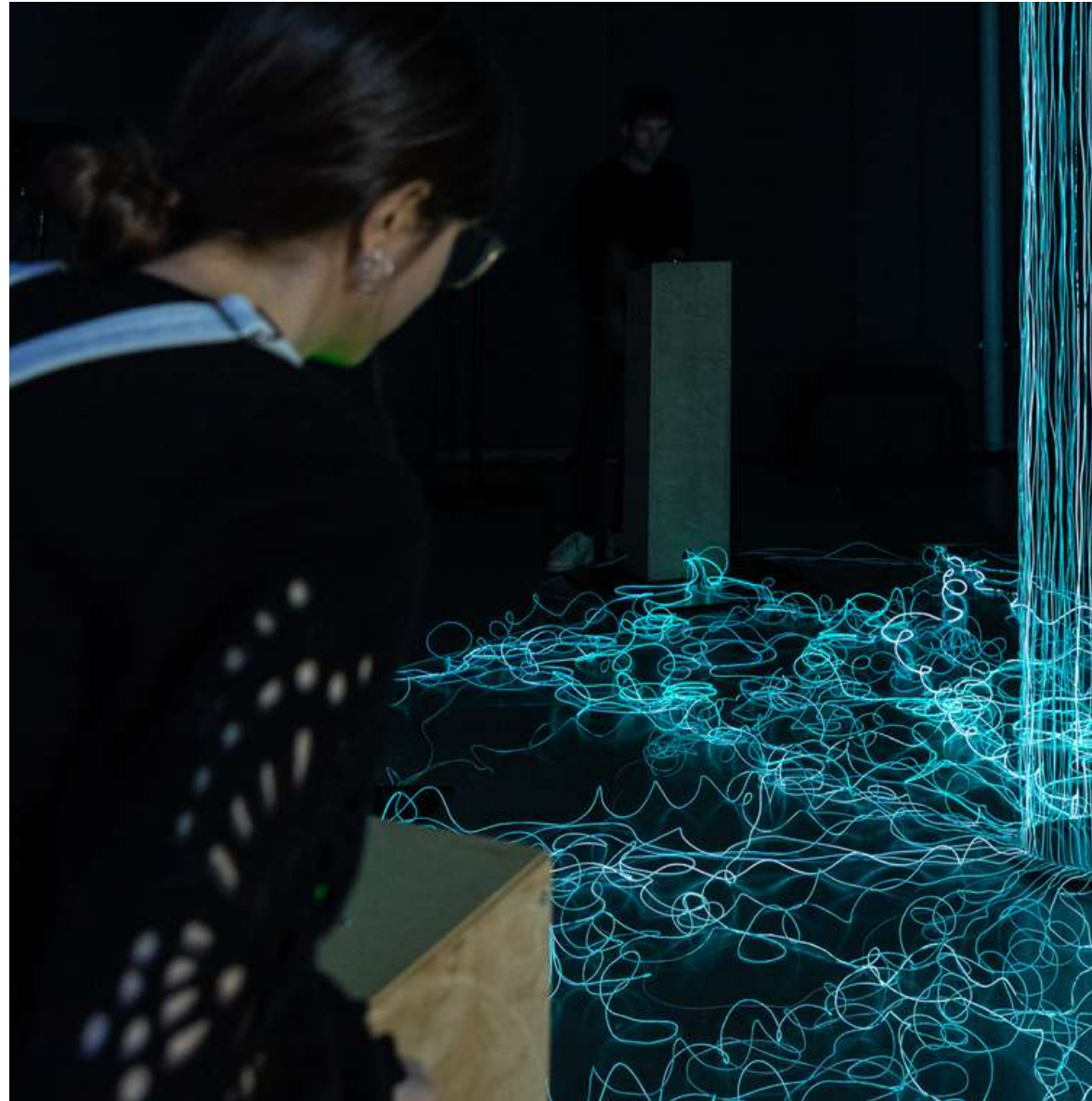
Dark Euphoria is an artistic production and cultural innovation agency based in Marseille.

We prototype and produce transdisciplinary projects at the crossroads between art and digital technologies: interactive installations, immersive experiences, augmented shows....

Over the last 3 years, DARK EUPHORIA has produced artistic projects which, although they are all different in the technologies implemented (VR, artificial intelligence, emotional recognition, 3D volumetric capture), have in common the desire to take advantage of digital innovations to put them at the service of narration, emotions and collective experience.

The Shape of Things to Come is Dark Euphoria's second collaboration with the artist Diego Ortiz, after *Emotion Trees*, a generative interactive installation for the Ada Lovelace high school in Nîmes, France, produced within the framework of a 1% artistic grant.

www.dark-euphoria.com



CHRONIQUES

..... PRODUCTION

CHRONIQUES PRODUCTION

Operated by ZINC / SECOND NATURE, the CHRONICLES CREATIONS platform brings together operators from various fields of culture (visual art, live performance, music, audiovisual, virtual reality...) who are committed to supporting artists who use and/or question new digital technologies.

This commitment and this collective work allow the production of original works by artists who are accompanied in their work from the thought of the work to its inscription within the current ecosystem of digital arts.

Every two years, four calls for applications are published. About fifteen projects are then selected to be accompanied and produced by the members of the CHRONIQUES CREATIONS platform. The works are then shown during the BIENNALE CHRONIQUES and at events organized by the platform's partners.

The artwork *The Shape of Things to Come* was selected in the framework of the call for projects 2022 of the CHRONIQUES platform and was presented in November at the biennale of the same name in Marseille.

www.chroniques.org



..... TECHNICAL FILE

The work is adaptable to different scenarios of diffusion: outdoor public space, or indoor. According to the chosen context, it is planned to adapt the device to offer the most relevant experience to the public:

- outside, the work can remain inactive during the day and be illuminated at nightfall
- indoors, it is always illuminated and the lighting of the space is adjusted to make the most of the lighting device.

TECHNICAL DESCRIPTION

The installation includes :

- the **complete structure made of recycled plastic**: recycled polypropylene, waterproof, resistant to shocks and high temperatures, the LED ribbons are integrated into the rods
- the **wooden frame** (10 x 5 x 0,10m) allowing to support the work, as well as to integrate and protect the electronic and computer part as well as inclined sides allowing an access to the persons with reduced mobility.
- 1 **computer**
- **position sensors**
- 1 **PixLite card**
- 4 **LED power supplies**

The plastic structure as well as the wooden platform can be completely dismantled and transported in a truck (20 to 30 m3).

TECHNICAL REQUIREMENTS

- **Electricity** : 220 watts power supply for the computer and the PixLite card and a 32A mono connection equipped in P17 and protected in 30mA
- **Connexion Internet** rapide (min 5mbps) : filaire ou 4G selon les possibilités

SET UP AND DISMANTLING

2 to 3 days of set up
1 day of dismantling

The assembly is done in a modular way (see plans). It is done by the 2 artists and a technical director.

PRODUCTION TEAM

Head of production : Marie Albert
Production officer : William Board

SPACE

Estimated dimensions of the work :

width 5m
height 3m
depth 8m

Floor area approximately 40m2

MEDIATION AND GUARDING

1 to 2 people to accompany the spectators in the discovery of the work and to supervise the device during all the duration of the exhibition.

1 security guard to watch over the work at night and outside the exhibition period if the artwork is exhibited in the public space.

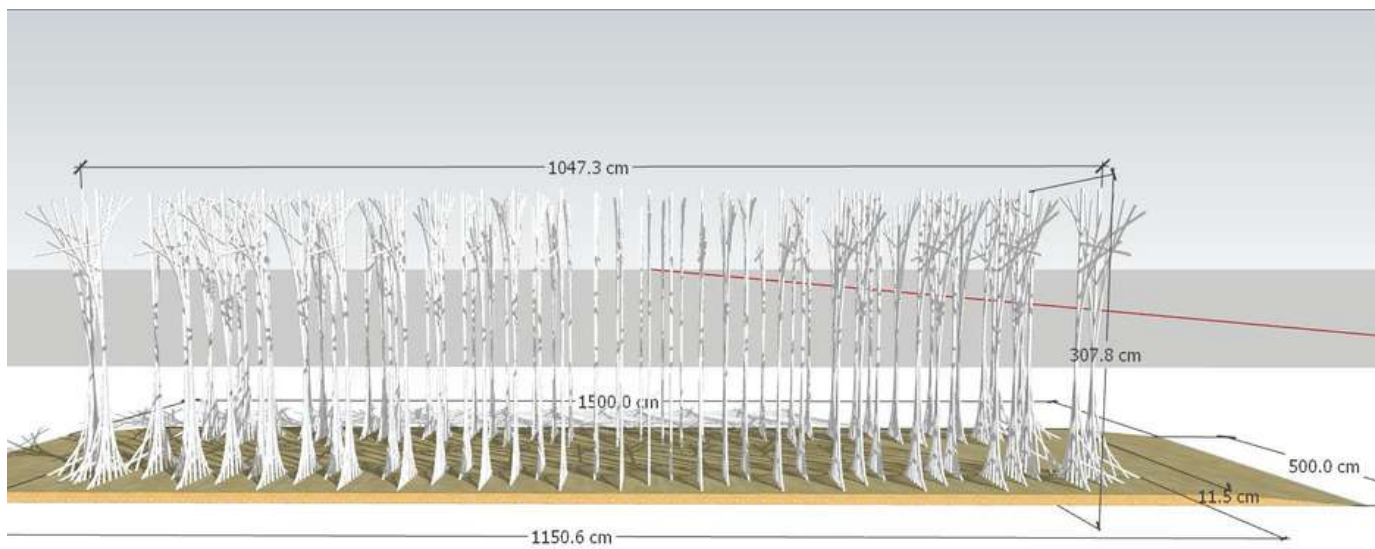
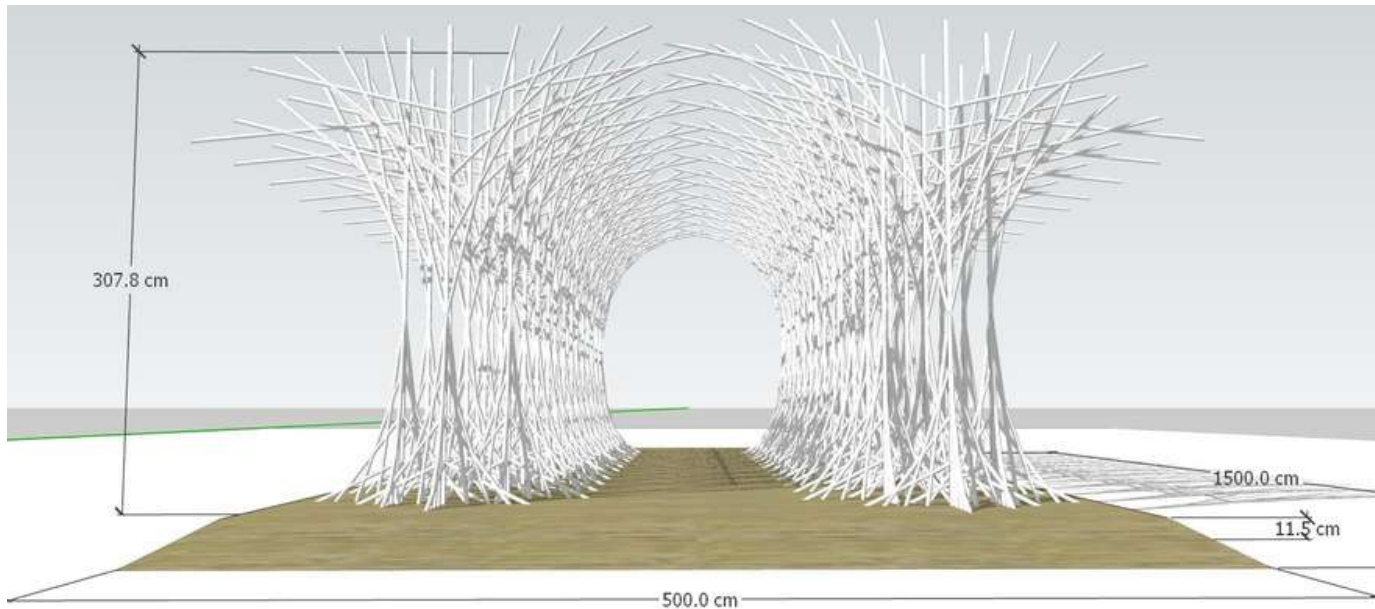
GAUGE

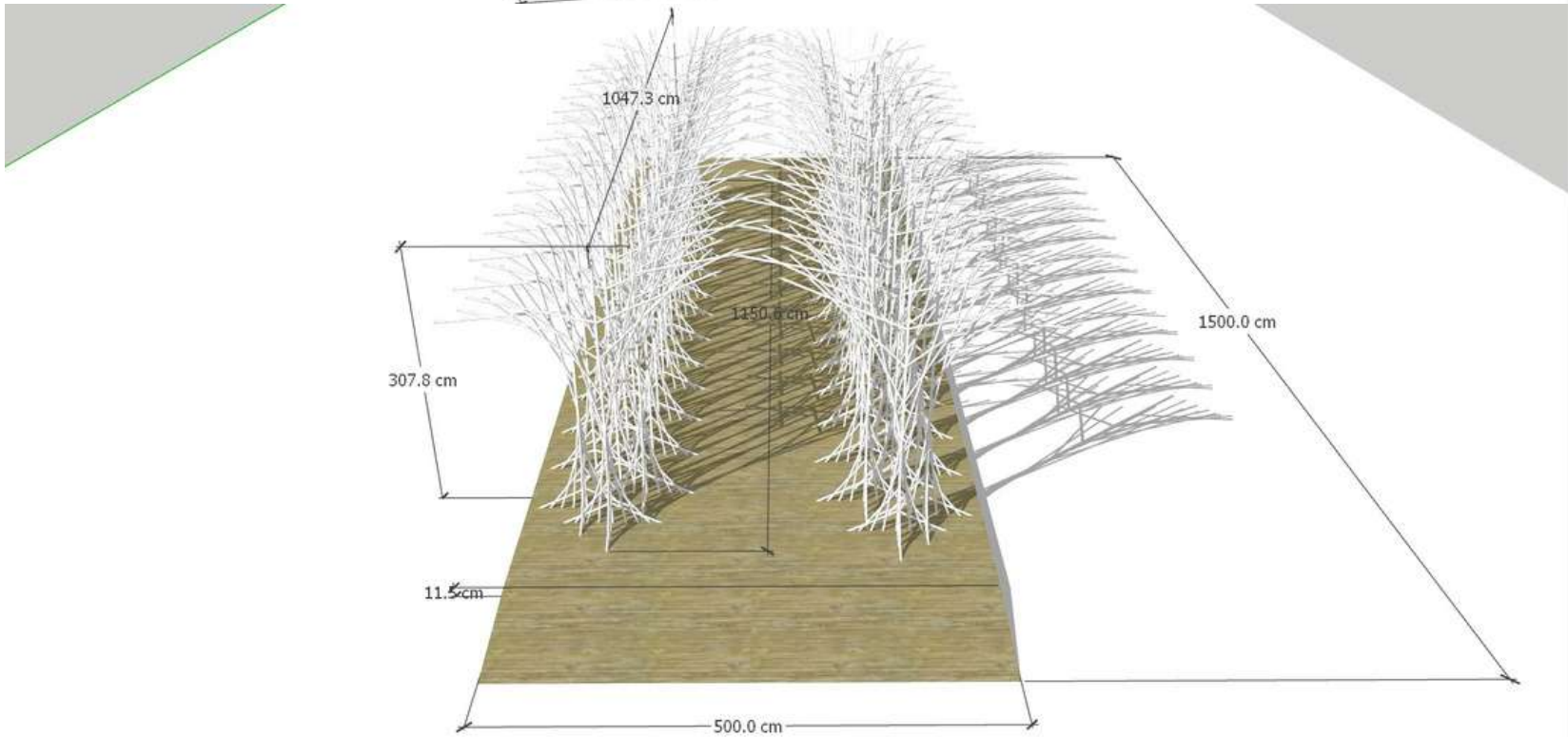
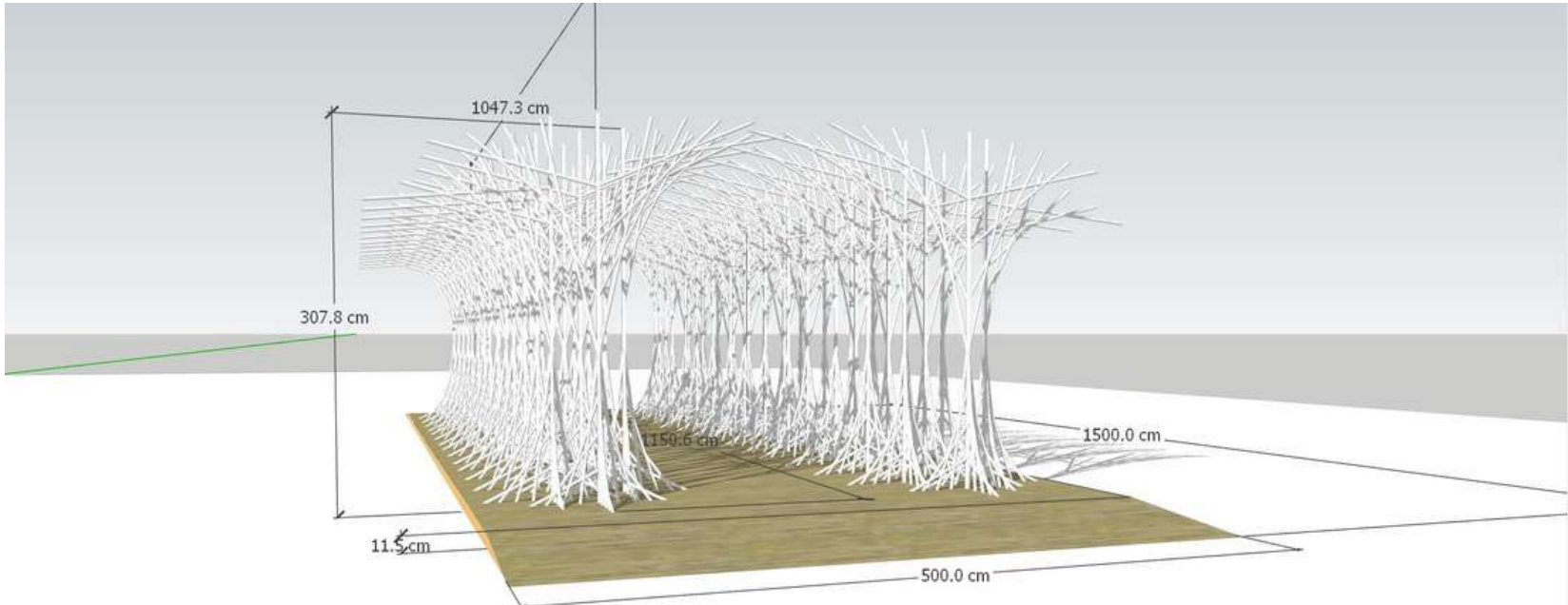
In order to keep a comfort of wandering and contemplation, the work will be able to welcome a **maximum of 20 people in its heart**. This gauge will be controlled by the people in charge of the mediation and the reception of the public. However **the installation can also be contemplated from the outside by a larger number of people**.

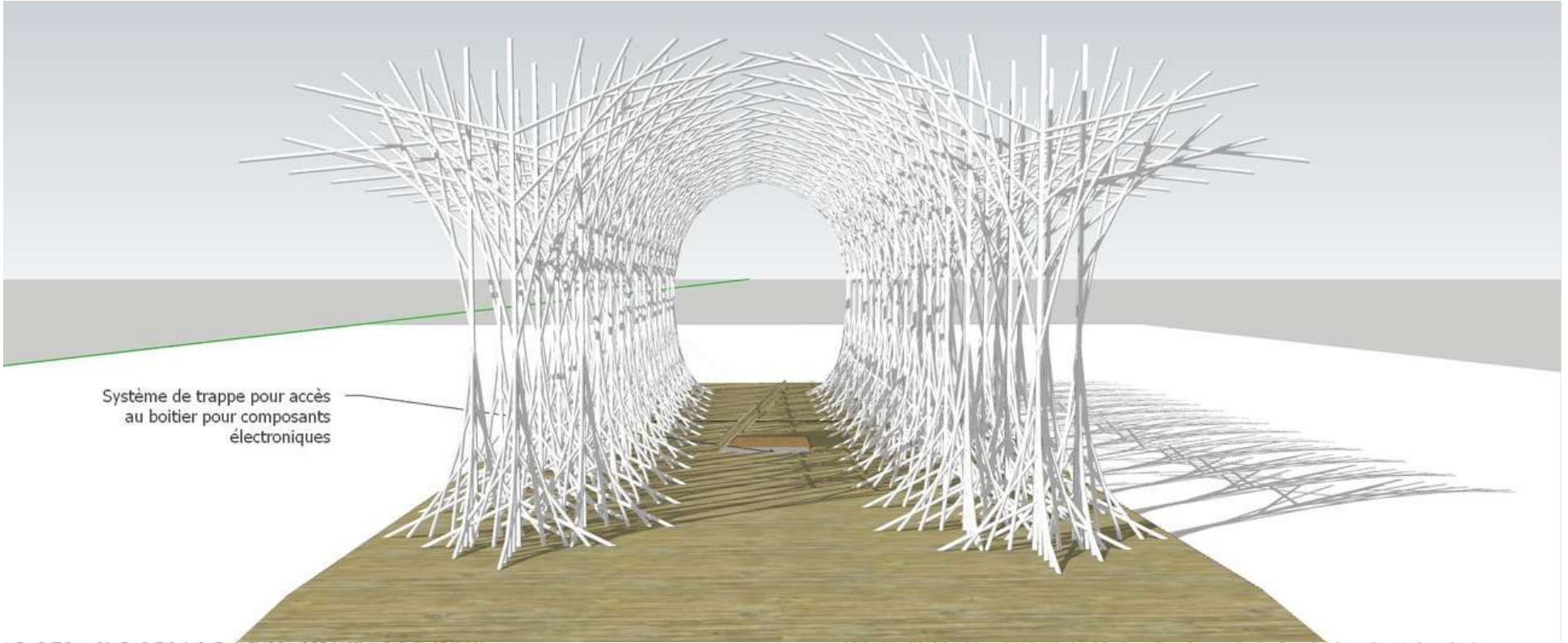
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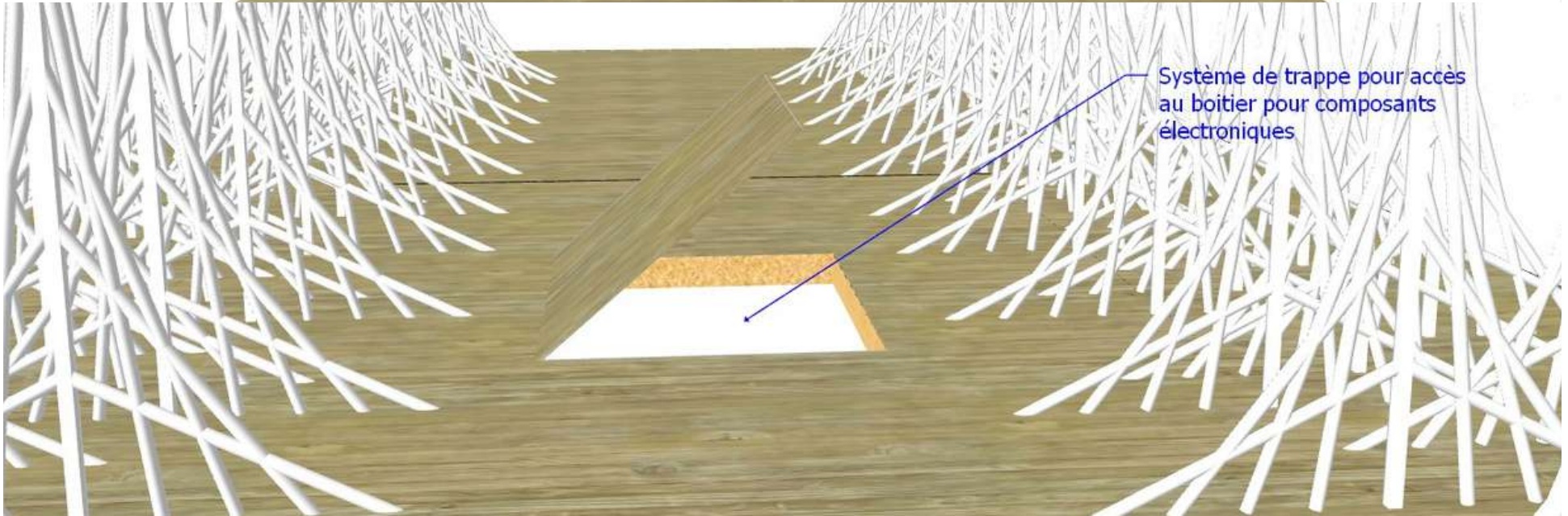
..... 3D MODELS







Système de trappe pour accès
au boîtier pour composants
électroniques



Système de trappe pour accès
au boîtier pour composants
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DESSIMINATION

- + *Fête des Lumières*, Place Antonin Poncet, Lyon, december 2022
- + *Biennale des Imaginaires Numériques* CHRONIQUES, Friche la Belle de Mai, Marseille, november 2022
- + Aires Numériques #3, *Festival d'Avignon*, Grenier à sel, Avignon, july 2022



PARTNERS AND SUPPORT



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