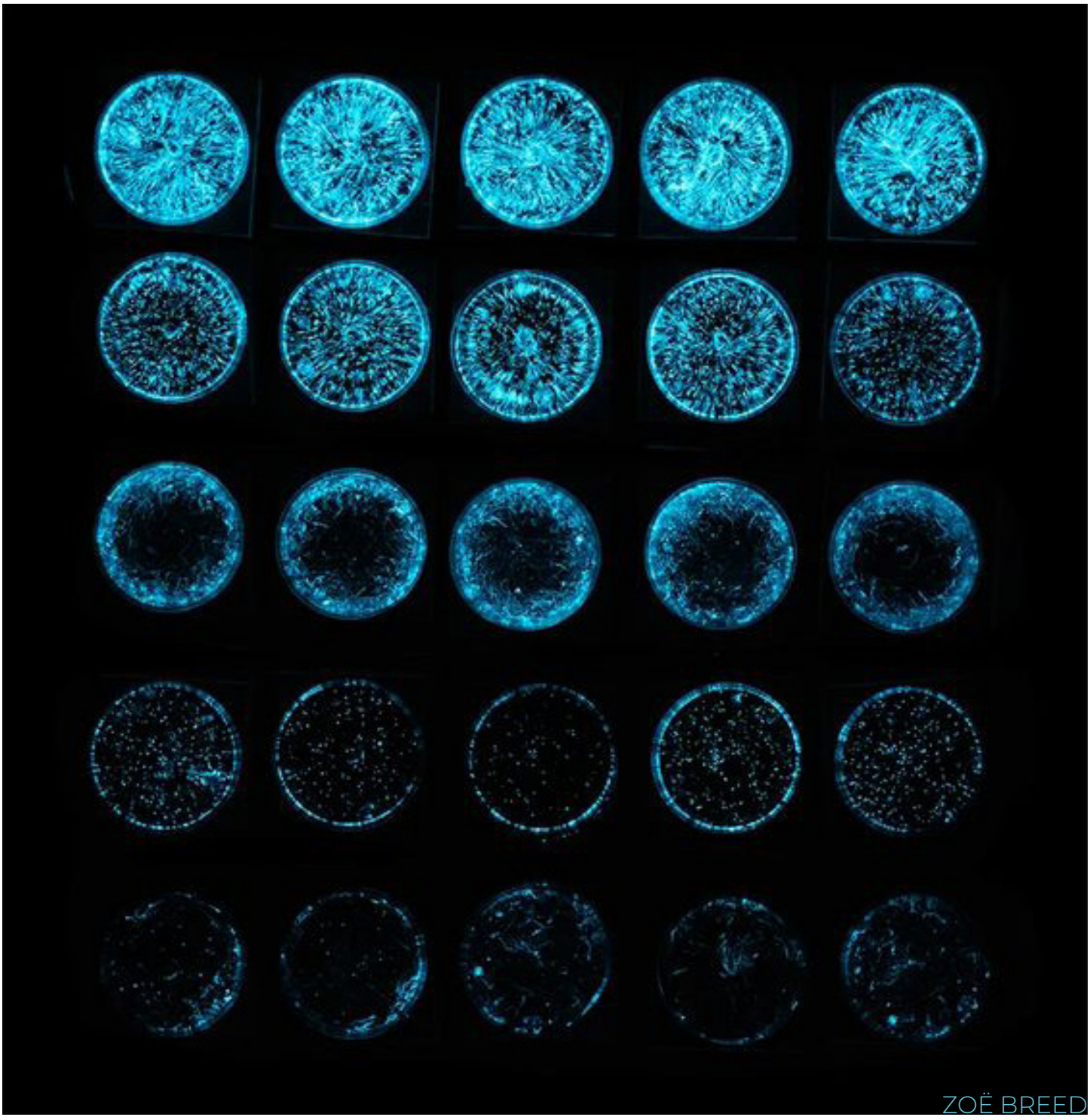


the living beacon

kinetic
to activate the environment

interactive
to engage the people

community
to initiate conversation

n is science is design is science
is design is science is design is
ce is design is science is design
s science is design is science is
n is science is design is science
is design is science is design is
ce is design is science is design
s science is design is science is
n is science is design is science
is design is science is design is
science is **design is science** is
n is science is design is science
is design is science is design is
ce is design is science is design
s science is design is science is
n is science is design is science

where did this begin?

From the introduction of this project I was excited by the idea of interactivity. I envisioned designs that people could engage with, not merely observe from a distance. This led me to consider not only activating the luminaire but also the light source itself.

There is something intriguing about people interacting with light, and light interacting with people.

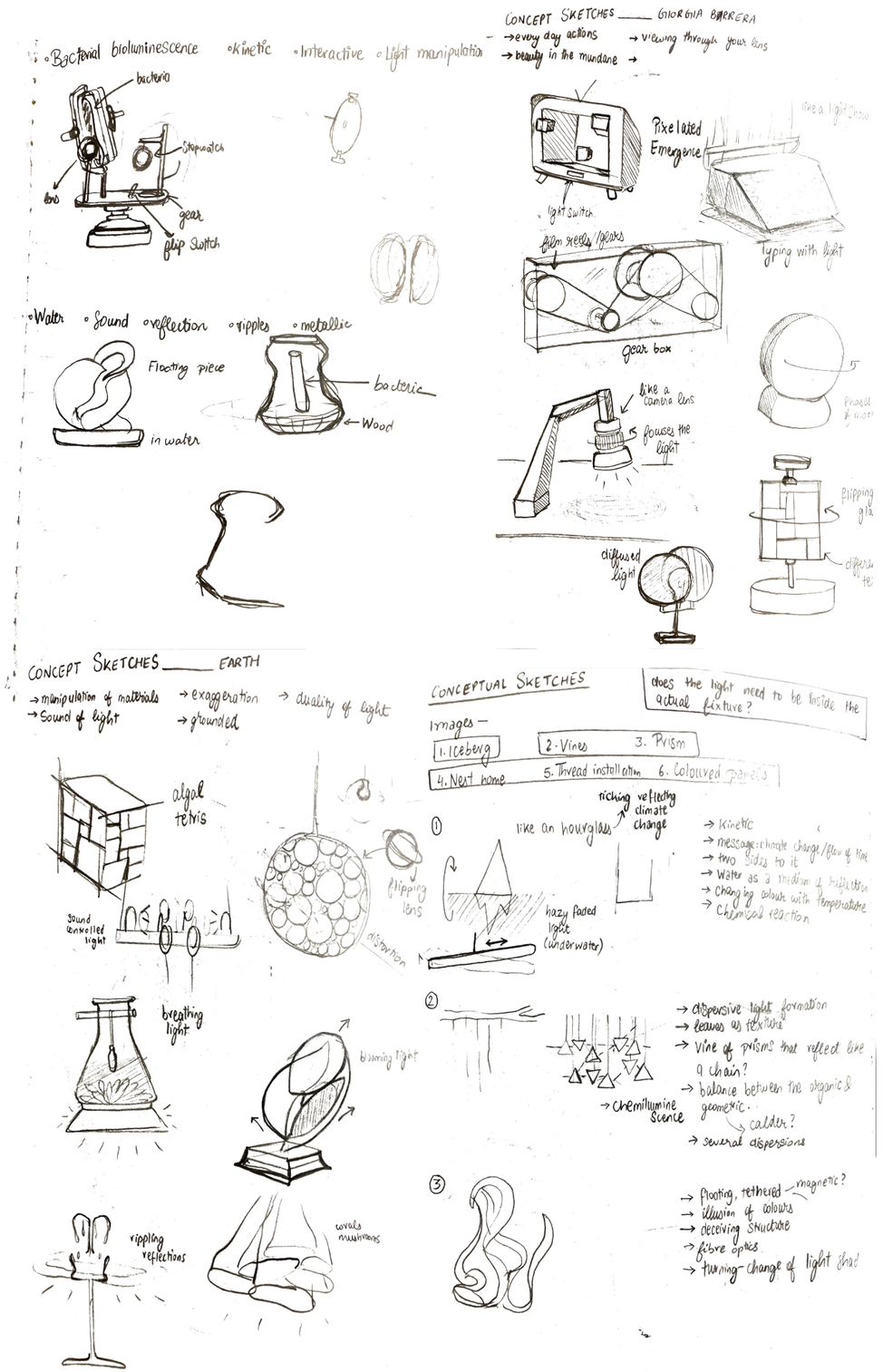
why did this begin?

This project began as a simple assignment, but it quickly transformed into something much bigger. It became a journey of exploration, prompting me to question various aspects of design and what I want to contribute to the design world.

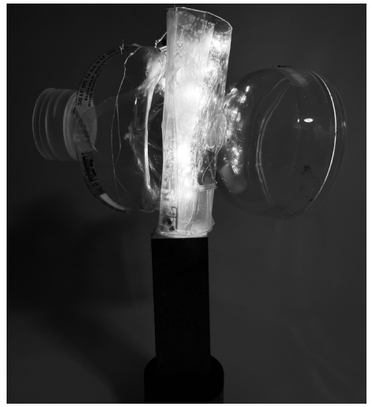
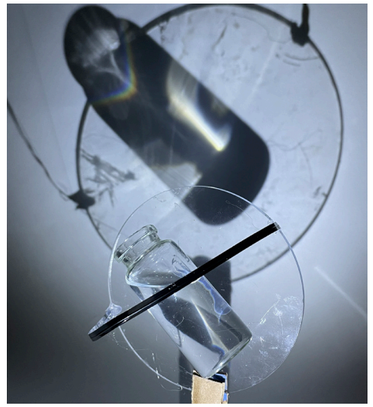
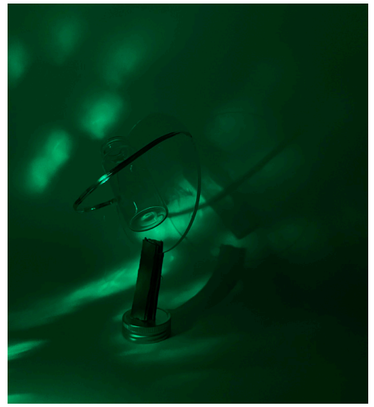
I found inspiration in the intersection of nature and technology, discovering how they can complement and influence each other.

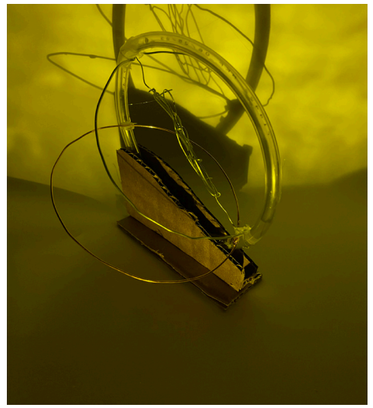
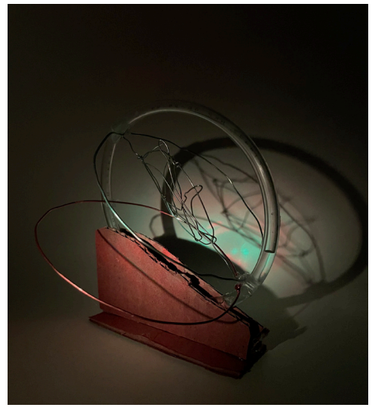
form exploration

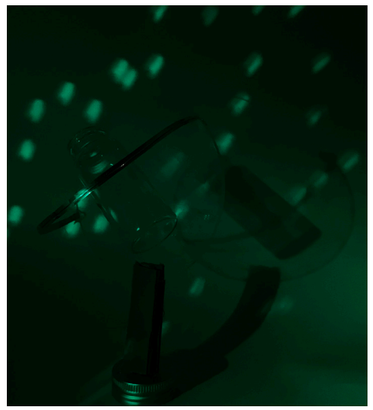
The ideation phase involved viewing different aspects of designs and drawing inspiration from different mediums, and elements of nature.
It involved viewing from different perspectives and sketching every idea no matter how impossible they might be.



lighting studies

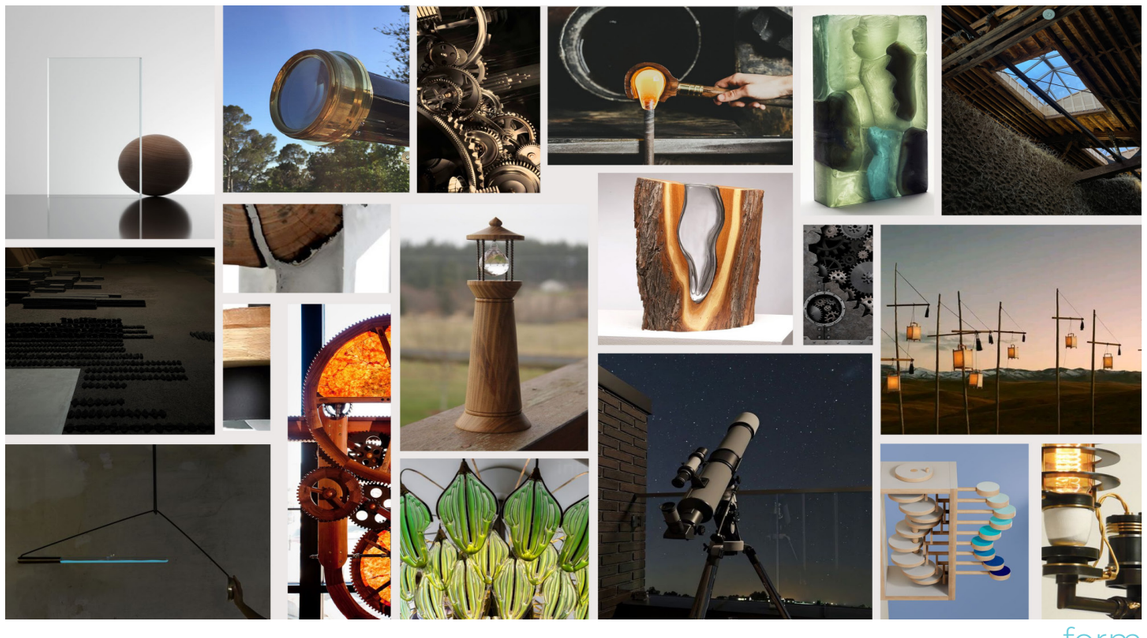





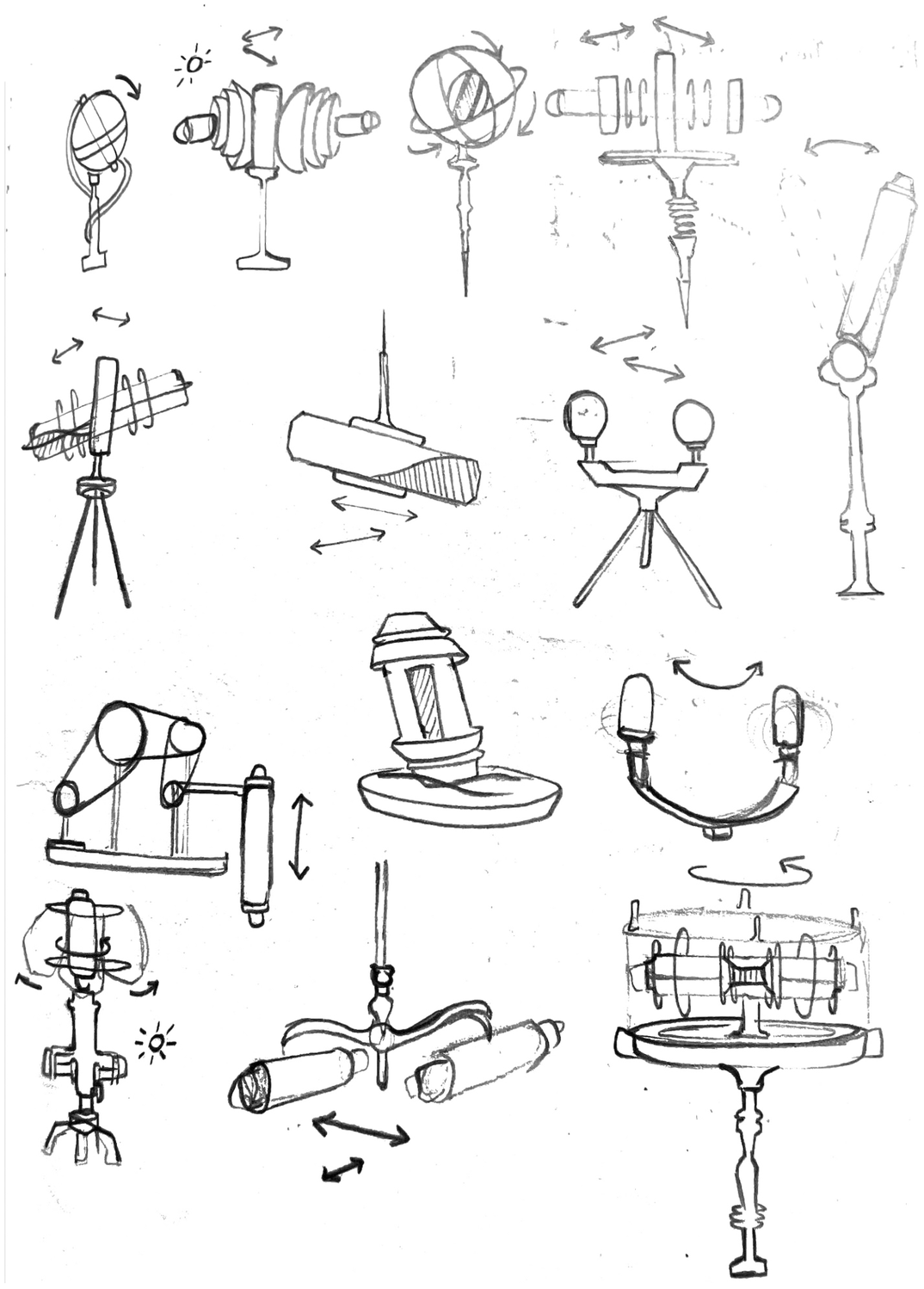

material exploration

Using different sources of light and understanding how they interact with different mediums helped me understand better what materials can create interesting reflections, shadows, and diffraction.
It also helped understand the interplay of opacities and textures.

function

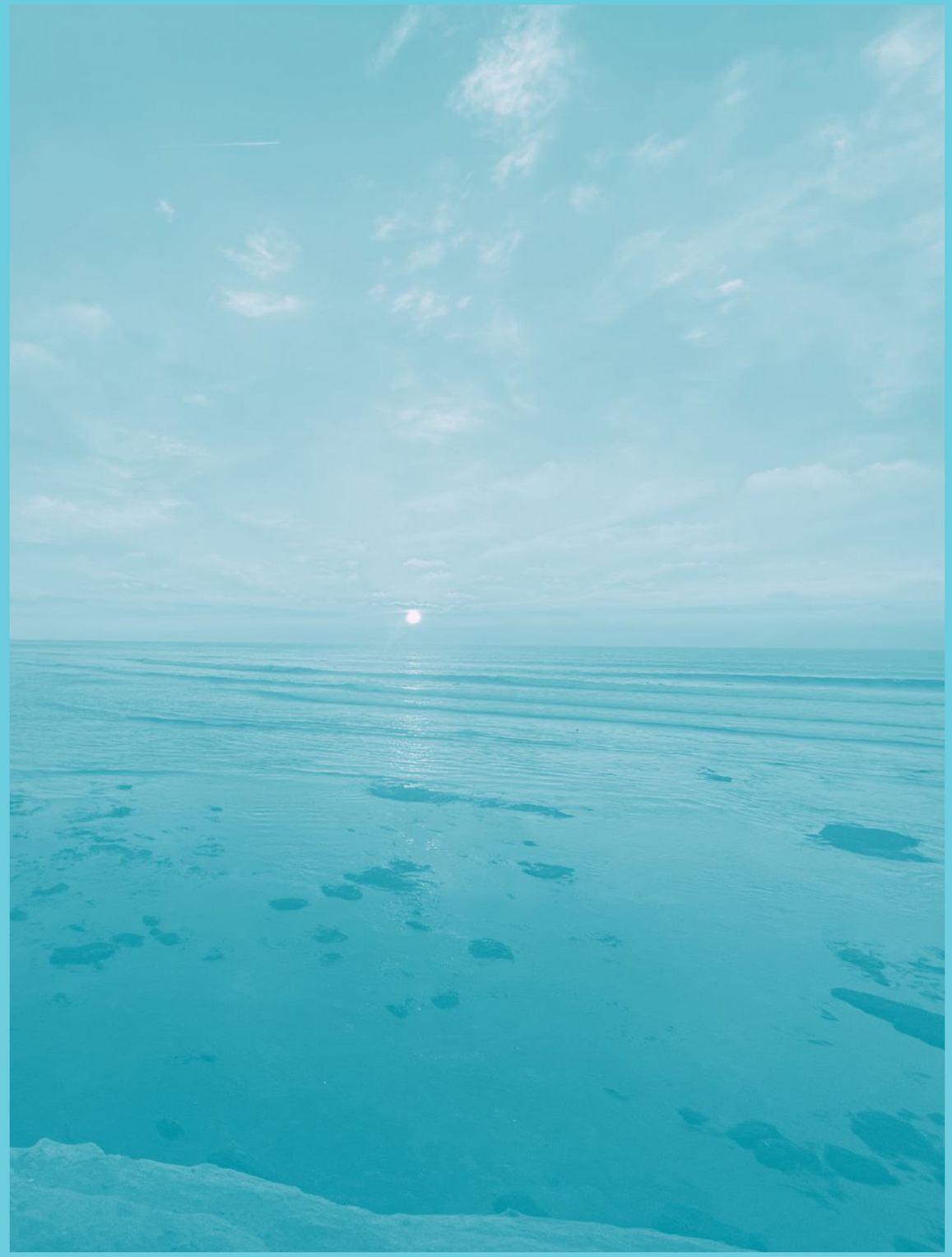


form



design statement

THE LIVING BEACON IS DESIGNED FOR COMMUNAL SPACES, WITH A FOCUS ON STIMULATING AND NURTURING COMMUNITY INTERACTION. UTILIZING KINETICALLY ACTIVATED ALGAL BIOLUMINESCENCE AS ITS LIGHT SOURCE, THE DESIGN IS DEDICATED TO PRESERVING THE NATURAL AMBIANCE WITHOUT ADDING TO LIGHT POLLUTION. ITS FORM IS ENGINEERED TO INVITE INTERACTIVITY AND ANIMATE THE LIGHT SOURCE. BY INCORPORATING METAL, WOOD, AND GLASS, THE MATERIALS ENHANCES THIS ACTIVATION WITH DYNAMIC REFLECTIONS AND STRIKING A BALANCE BETWEEN TEXTURES AND OPACITY.



design whys?

Bioluminescence: It avoids contributing to light pollution and aims to strike a harmonious balance between nature, science, and technology.

Interactive: It activates both the light and the communal space, fostering engagement and playfulness in its design, inviting interaction rather than passive observation.

Materials: Wood, metal, and glass are carefully chosen to enhance contrast in opacity and form, adding depth and visual interest to the design.

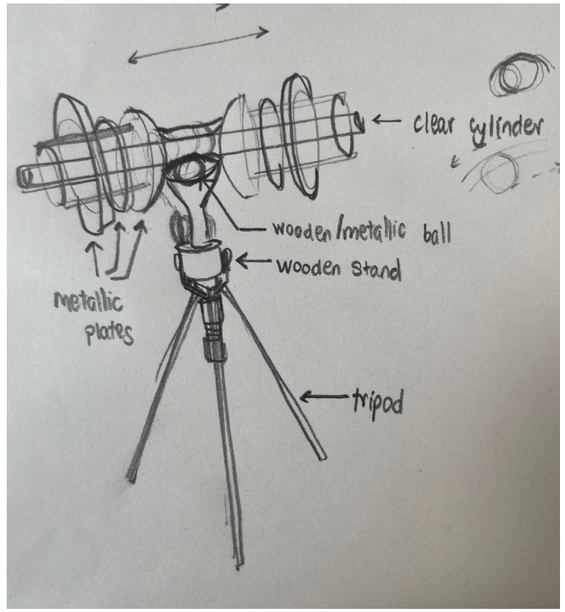
Form: Taking inspiration from the sleek and functional design of starry skies and underwater equipment, its form resembles that of a scientific device like a telescope, evoking a sense of exploration and wonder.

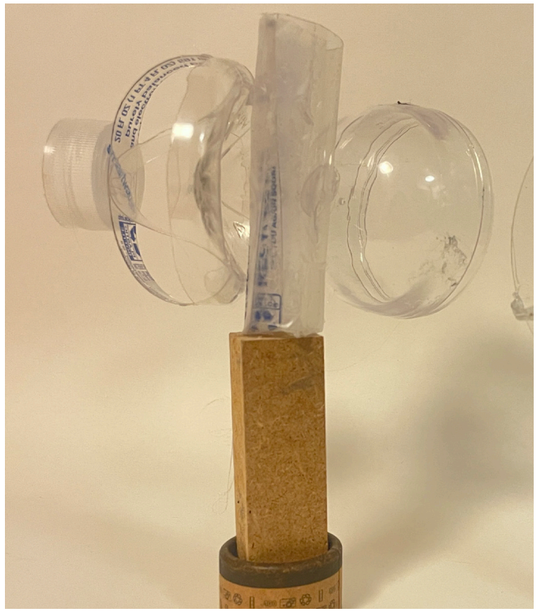
Kinetic: Designed to enhance engagement and playfulness, it encourages interaction and engagement rather than being merely an object to behold.

Scale: Designed to provide a full view of bioluminescence, it offers an immersive experience for observers.

Orientation: Drawing inspiration from telescopes, it is elevated from the ground, inviting viewers to gaze upward and explore the depths of its luminous display.

design





development

inspiration

Teresa Van Dongen is a bio designer and her work revolves around the intersection of science and design. Her exploration of materials and microbial life led me to study this and make my own investigations and interpretations.

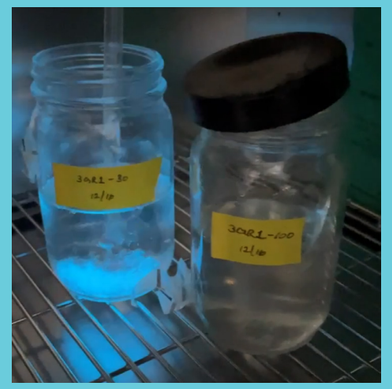
Studio Drift served as a big inspiration with their artwork which fosters a connection between audiences and experiences that ignite a reconnection with our planet. Studying their work and philosophy influenced my approach, towards a delicate balance between technical precision and natural responsiveness.

Glowee is a biological lighting that glows without electricity, instead of being extracted or processed, the raw material is cultivated simply by giving the bacteria an environment in which they thrive.

research

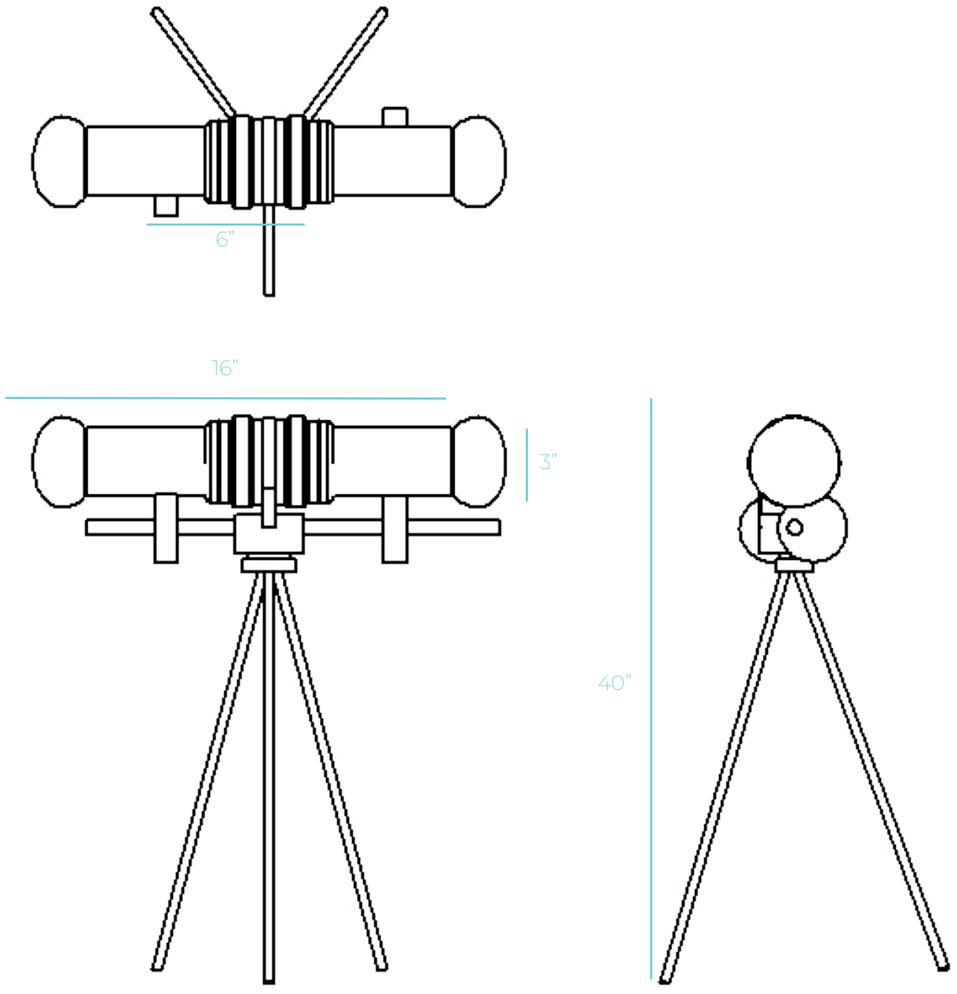
Dinoflagellates, diverse and predominantly planktonic, exhibit a wide range of sizes, from microscopic to as large as 2 mm. Propelled by two flagella, they move in a characteristic spiral motion. While many possess an internal cellulose-like skeleton, their lifestyles vary—some are photosynthetic, while others are heterotrophic, feeding on other plankton. Certain species form symbiotic relationships, especially with marine invertebrates. Despite this diversity, dinoflagellates primarily reproduce asexually, underscoring their ecological significance.

In the case of Pyrocystis fusiformis, the culture in the Living Beacon, who I named ‘Bucky’, each cell hosts chloroplasts containing chlorophyll, akin to plants, enabling them to photosynthesize by absorbing light. Alongside light, they absorb water and CO_2 from their aquatic environment. These dinoflagellates exhibit a circadian rhythm governing their bioluminescence and photosynthesis on a 24-hour cycle. Bucky engages in photosynthesis during daylight hours and emits bioluminescence exclusively at night, aligning its metabolic activities with environmental cues.

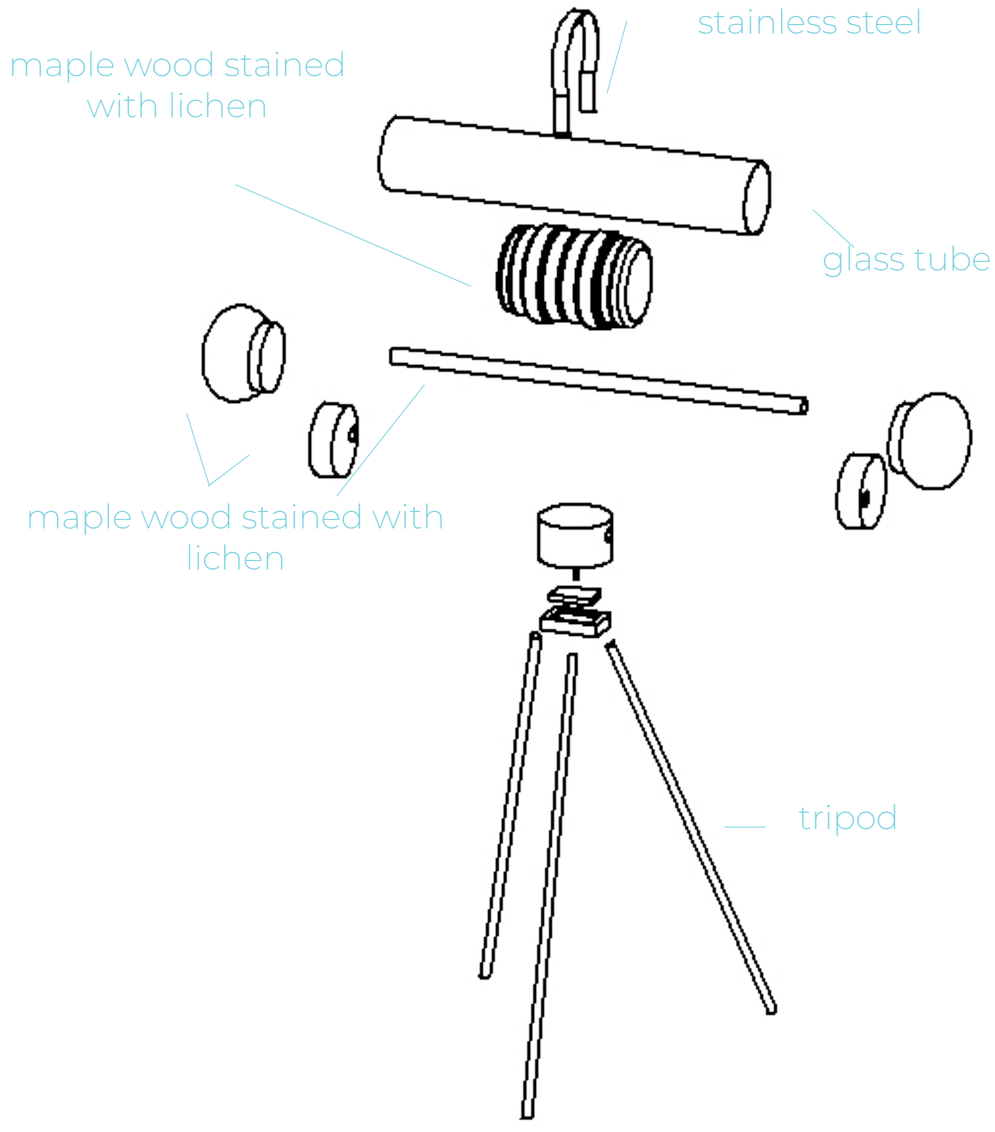


Growing subcultures of initial culture in an incubator at 22°C - 25 °C, with 12 hours of light and 12 hours of darkness

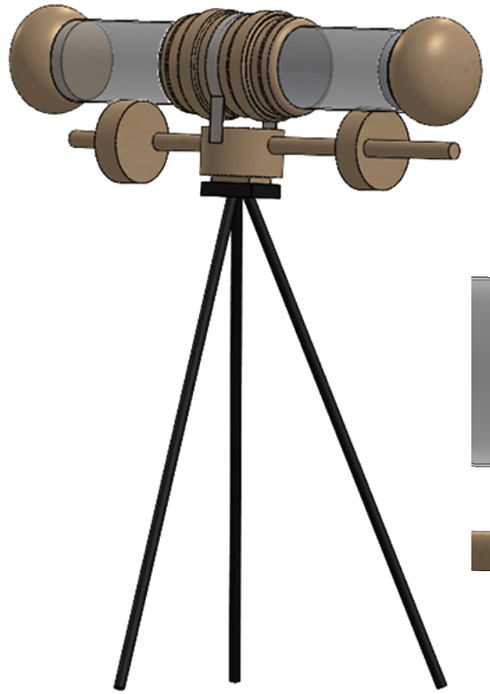
orthographic drawings

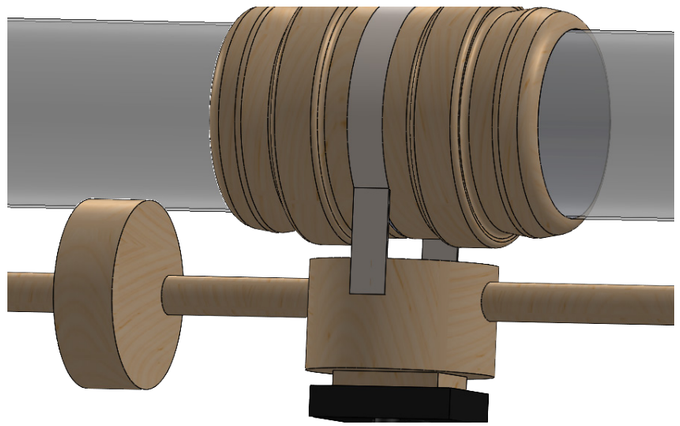


exploded views



final renderings

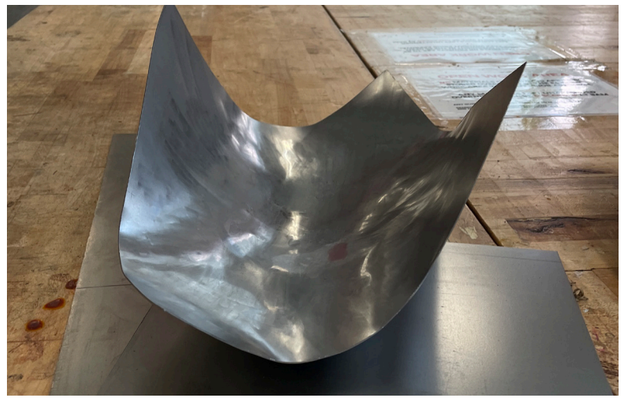


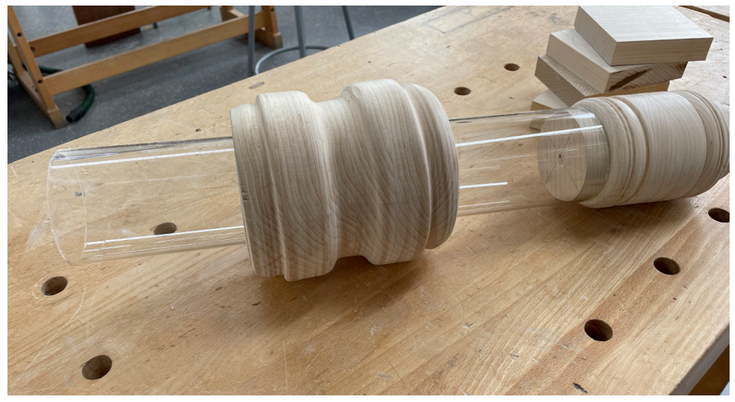


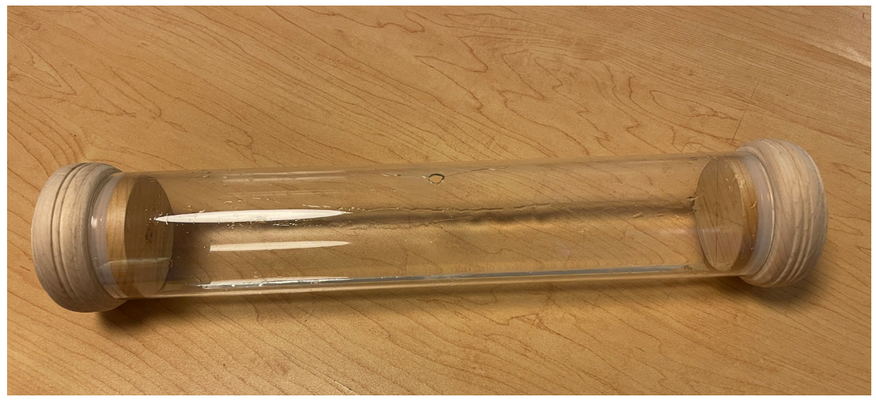
process documentation

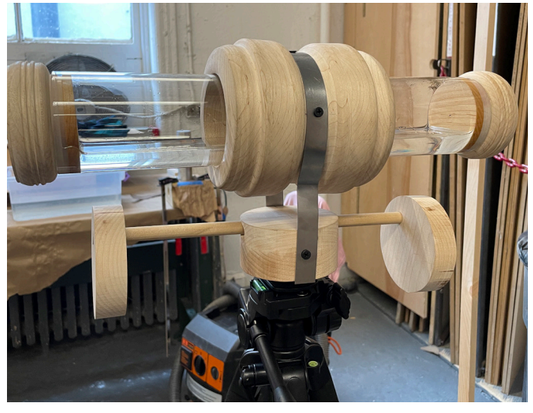
sketching measuring gluing sawing turning
measuring sanding drilling chiseling fitting

sanding sanding cutting bending oiling
measuring sawing testing sanding staining

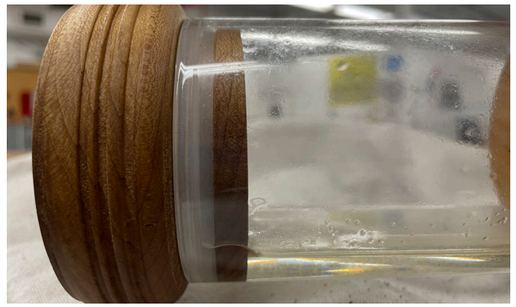


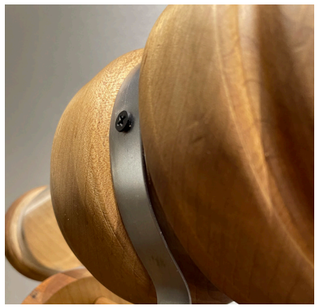


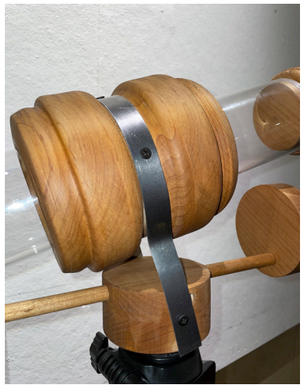




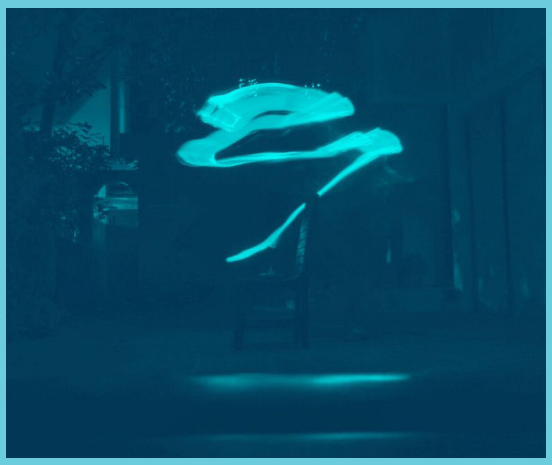
final model







the living beacon



i am alive