

Luminous Void

Progettazione Multimediale III

VR PROJECT

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This project is...

ABOUT LIGHT

MEMORIES & PERSONAL FEELINGS

Sometimes, I feel memories are like flashes of light—abstract and intangible—but other times, they become something more. They blend together, like a combination of lights forming patterns, colors, and shapes. In these moments, memories feel fuller, layered with emotion and depth, as if they are creating their own kind of illumination. This blend of light and feeling is what makes them so vivid and meaningful to me.

LIGHT THAT AWAKENS NEURONS: OPTOGENETICS

In neuroscience, light is increasingly understood as a powerful tool for understanding and influencing memory. Through optogenetics, scientists can use light to activate specific neurons and bring glimpses of forgotten memories back to consciousness. This groundbreaking field reveals how memories are encoded, stored, and accessed, underscoring light's unique ability to shape cognition and emotion.



The project draws on this scientific insight by presenting light as the essence of memory.

HOW DOES THIS MANIFEST IN THE EXPERIENCE?

This VR project presents a cinematic experience set in a surreal, infinite non-place, symbolizing the undefined and abstract space of the mind or memory. This boundless void serves as a vast, universal archive, containing fragments of recollection that transcend the confines of individual or human experience. Within this vast expanse, luminous volumetric structures materialize, emerging from the depths of thought or time. These structures are confined within distinct, yet shifting boundaries, acting as vessels of memory. They hold swirling, nebula-like volumes of light and color suspended within, each fragment representing universal memories—moments, sensations, and echoes that belong to all existence, human and otherwise.

The light within these volumes interacts with the confined spaces, weaving through intricate patterns and forms that evoke the ethereal beauty of cosmic nebulas. These luminous formations are intangible, yet alive, constantly shifting and flowing, mirroring the dynamic and ever-changing nature of recollection itself. The interaction between light and the volumetric spaces reveals hidden layers of memory—abstract, mesmerizing, and infinite—inviting viewers to explore how memories emerge, dissolve, and transform within the vastness of a collective, boundless mind. In this space, memories are no longer tied to individual stories or human experience; they exist as universal phenomena, timeless and infinite, much like the light that illuminates them.

NEBULA LIKE STRUCTURES AS A METAPHORE

On Earth, natural lighting often feels mundane and predictable, but in the vastness of the universe, breathtaking luminous structures like nebulas defy imagination. These cosmic formations radiate vivid colors and intricate patterns, offering a glimpse into the beauty of light in an unfamiliar context.

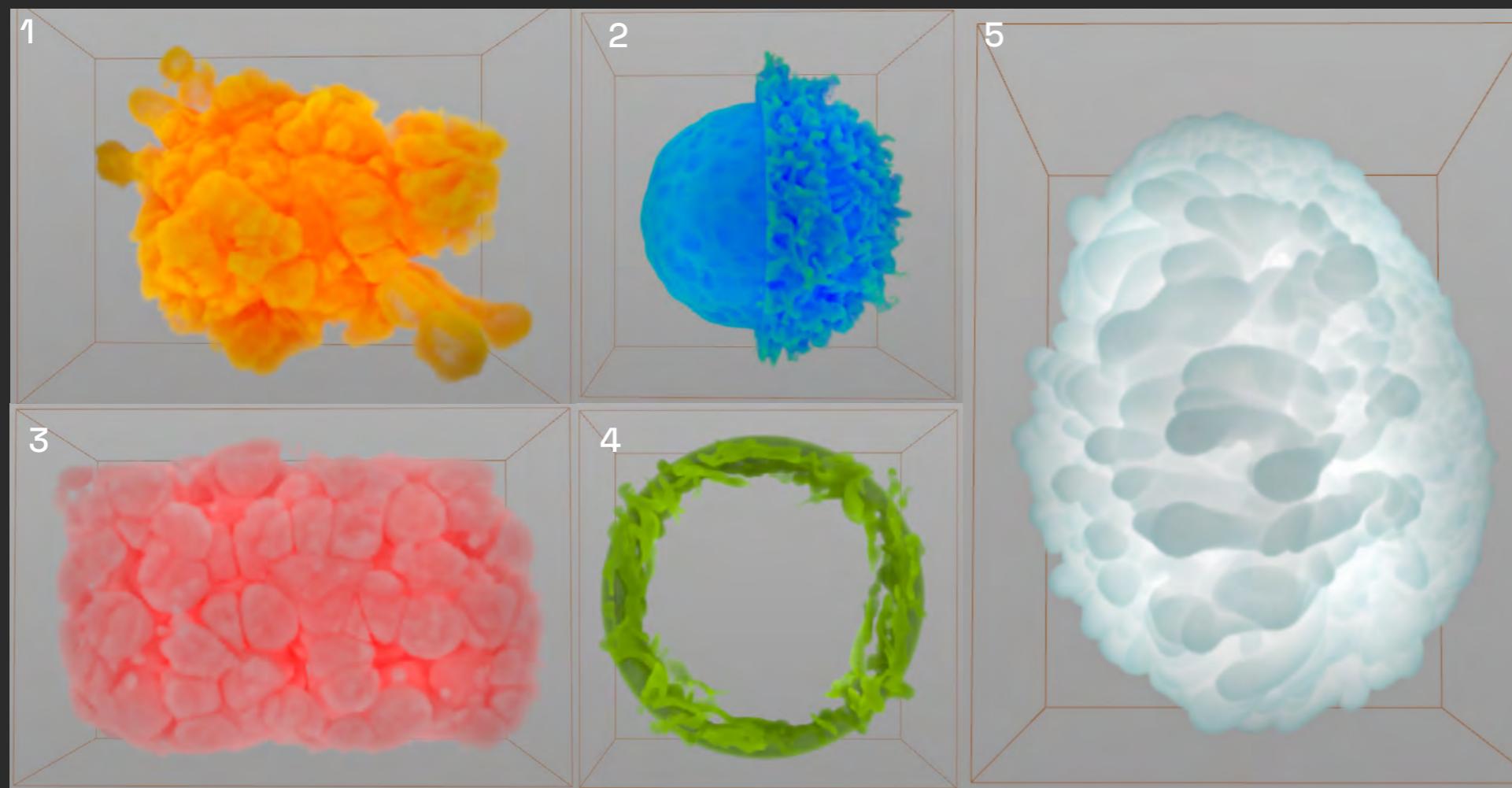
A nebula is a distinct luminescent part of the interstellar medium, formed by ionized, neutral, or molecular hydrogen and cosmic dust. Within these formations, gas, dust, and other materials 'clump' together, creating dense regions that attract further matter. Over time, these regions become dense enough to form stars, giving birth to new light.

In many ways, these vast, luminous structures serve as a metaphor for hidden memories. Like nebulas, memories are often undefined yet captivating—abstract in their form but filled with layers of meaning. They emerge as bursts or combinations of light, much like the vivid colors and intricate patterns seen in cosmic formations. Light becomes the central element that links these two concepts together, illuminating the way memories can appear suddenly, bright and fleeting, or gradually form into something more defined and profound.

This connection is even reflected in the field of optogenetics, where light is used to reveal and manipulate memories, much like the light of nebulas reveals hidden beauty in the depths of space. In both cases, light serves as a guide, uncovering what is otherwise intangible and unseen, turning ephemeral impressions into something luminous and meaningful.

VOLUMETRICS

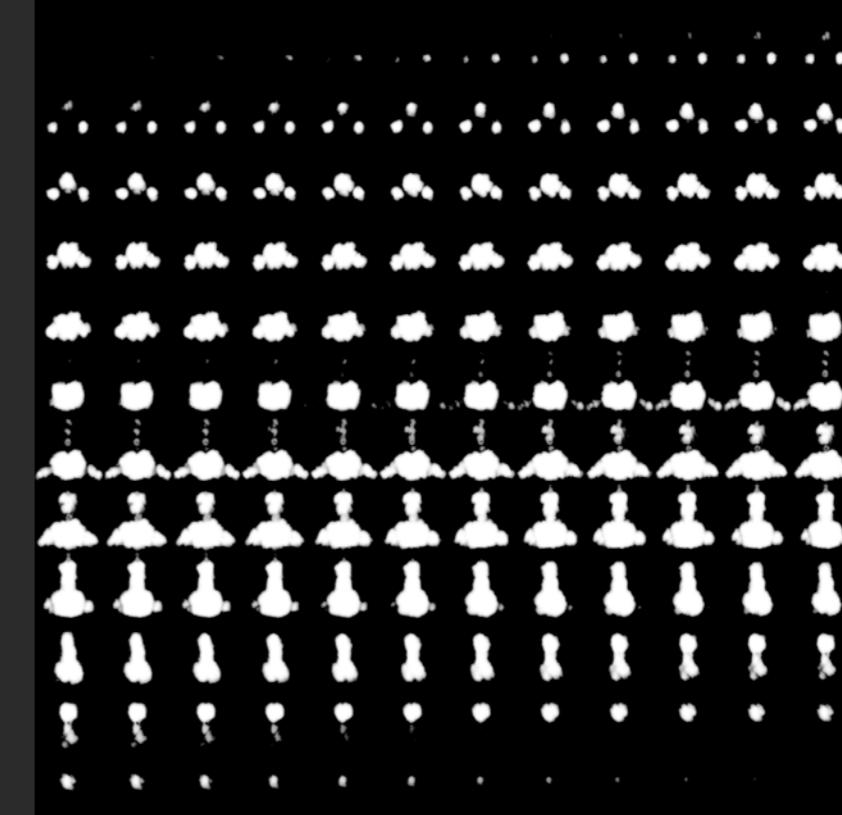
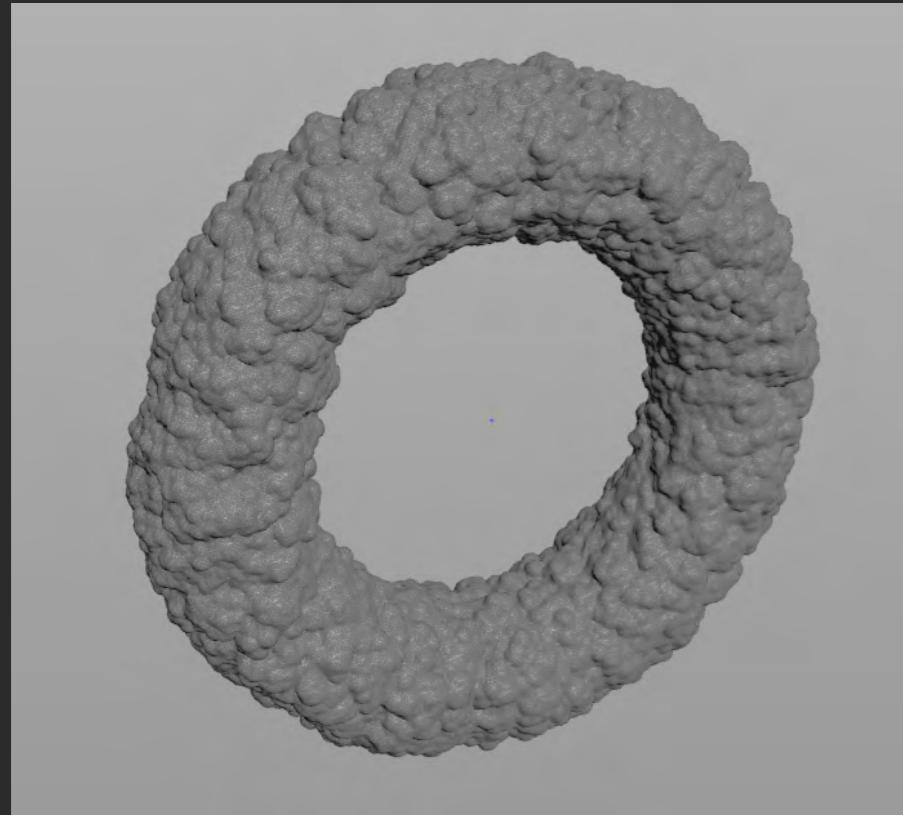
I've chosen to use 3D models of cosmic structures like nebulas and supernovas because memories are often unclear and abstract. Rather than replicating a personal experience, I want to use these nebula-like structures as a metaphor for memories. These cosmic forms, with their shifting patterns and vibrant light, symbolize the intangible, fluid nature of recollections. The pure light within these structures represents how memories can appear in bursts of clarity or remain undefined, just like how light and form behave in the vastness of space. This approach allows me to explore memory in a more universal, symbolic way., I'll also create procedural noise patterns, which will be used to generate structures that look like cosmic formations. This noise will be applied to the models to distort and alter them, adding a sense of unpredictability and transformation, much like how memories shift and evolve over time.



1. Supernova Cassiopeia A
2. Tycho Supernova Remnant
3. Generated noise
4. 1987A
5. Supernova remnant IC 443

BUILDING THE EXPERIENCE

- 3D textures



High resolution 3D model imported in SideFx Houdini

The mesh gets converted to a volume, it can optionally be distorted with noise or animated

The volume gets exported as a volume texture that analyzes slices of the volume.

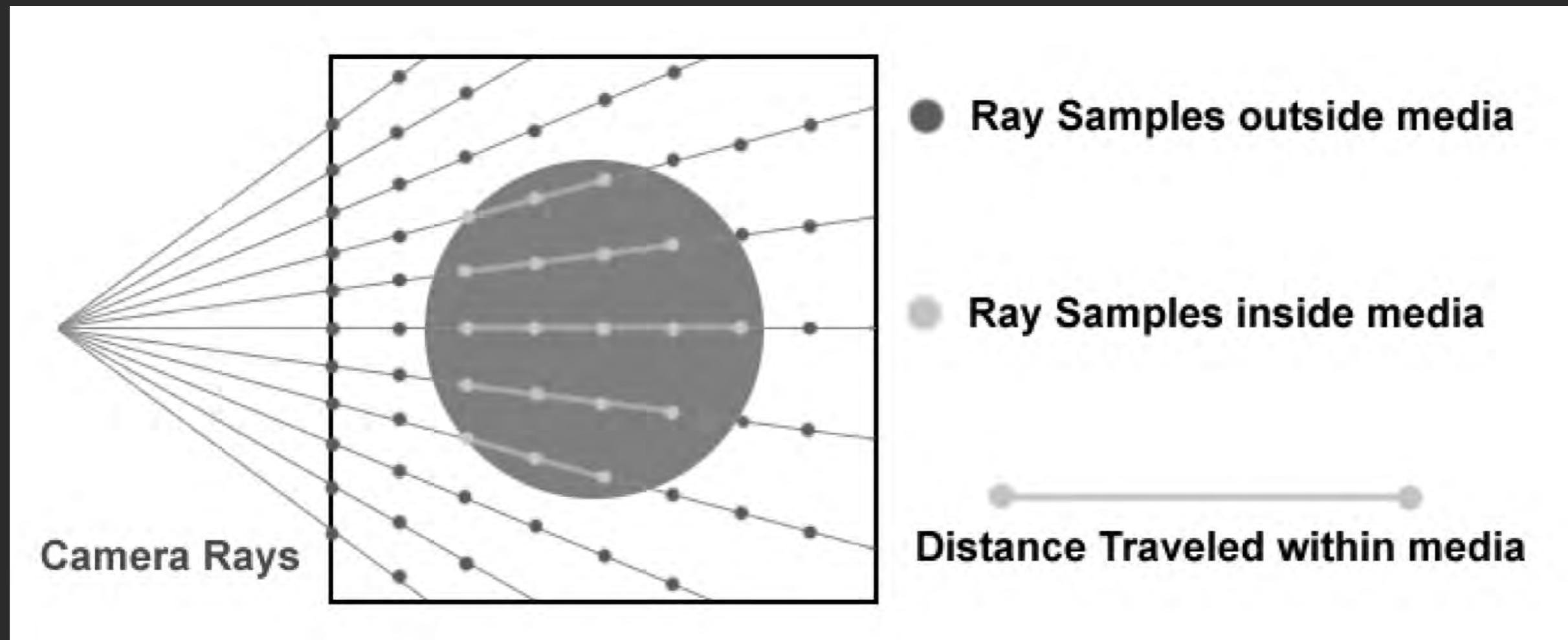
BUILDING THE EXPERIENCE

- Volume rendering

The volume texture gets imported in Unreal engine where it can be used inside a custom shader to render the volumetric shape in real time.

Volumetric raymarching

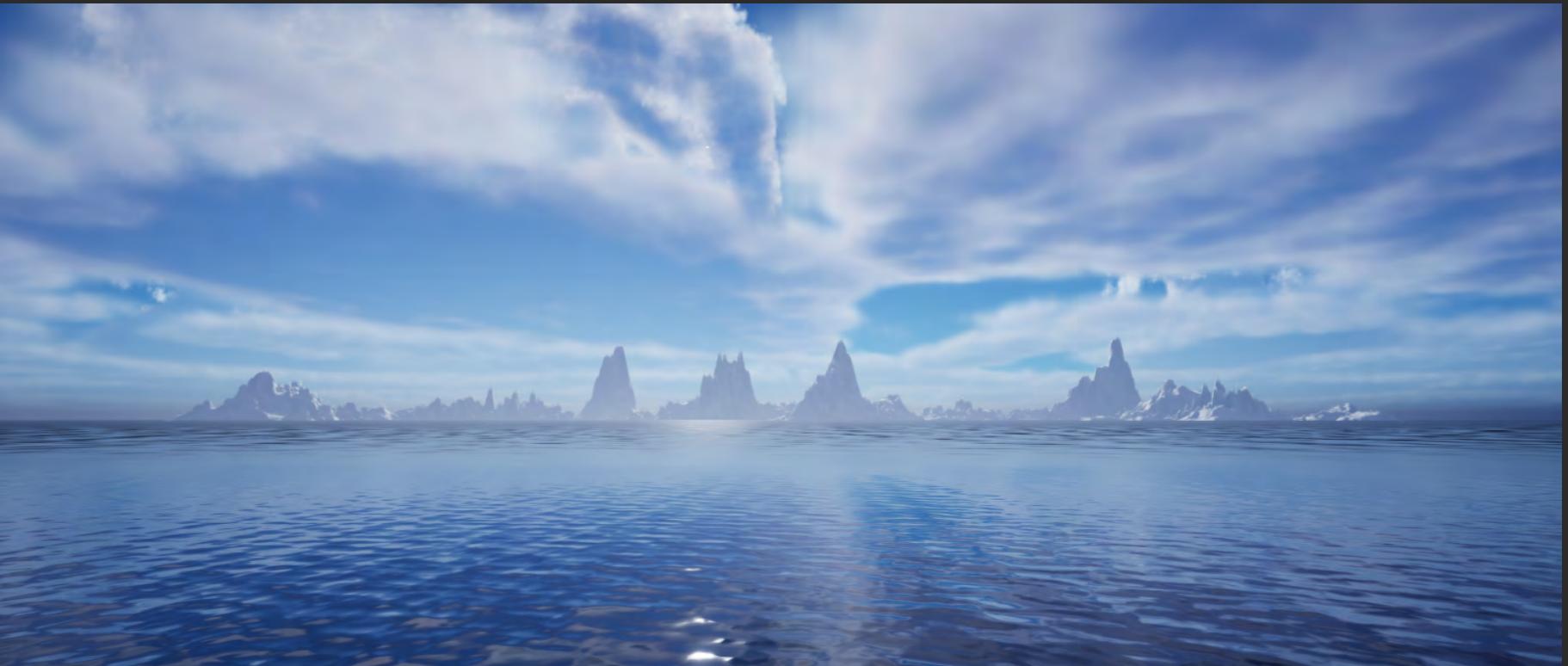
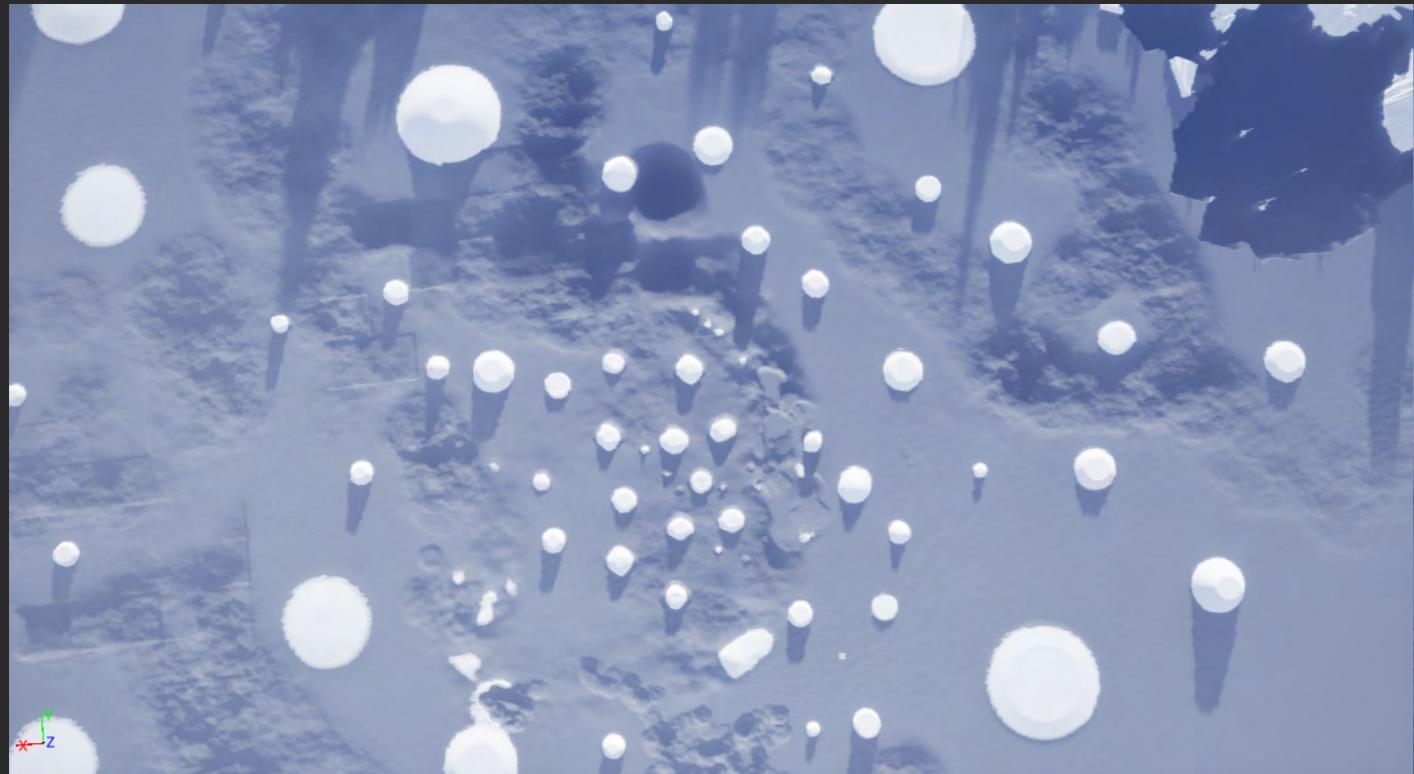
Rays are cast from the camera through each pixel, sampling the scene at intervals, accumulating density.



BUILDING THE EXPERIENCE

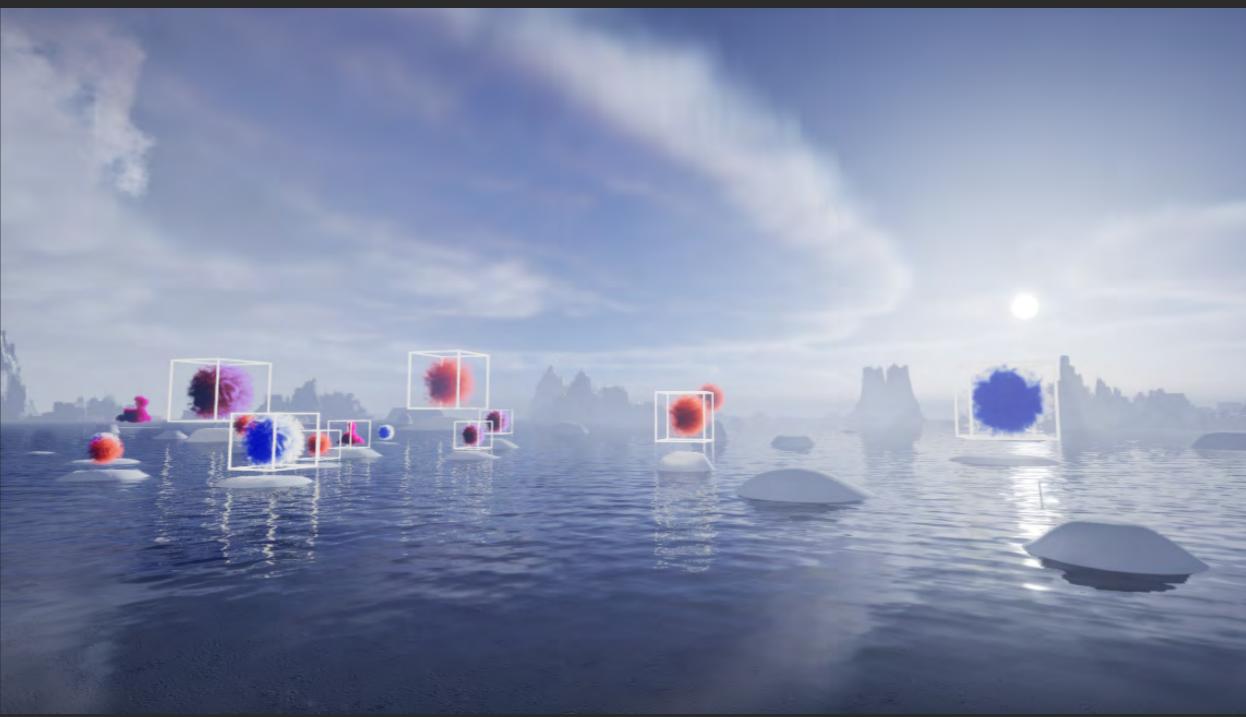
- Landscape creation

I created an abstract landscape using the Landscape Editor mode in Unreal Engine 5.



BUILDING THE EXPERIENCE

- Work in progress



BUILDING THE EXPERIENCE

■ Sound

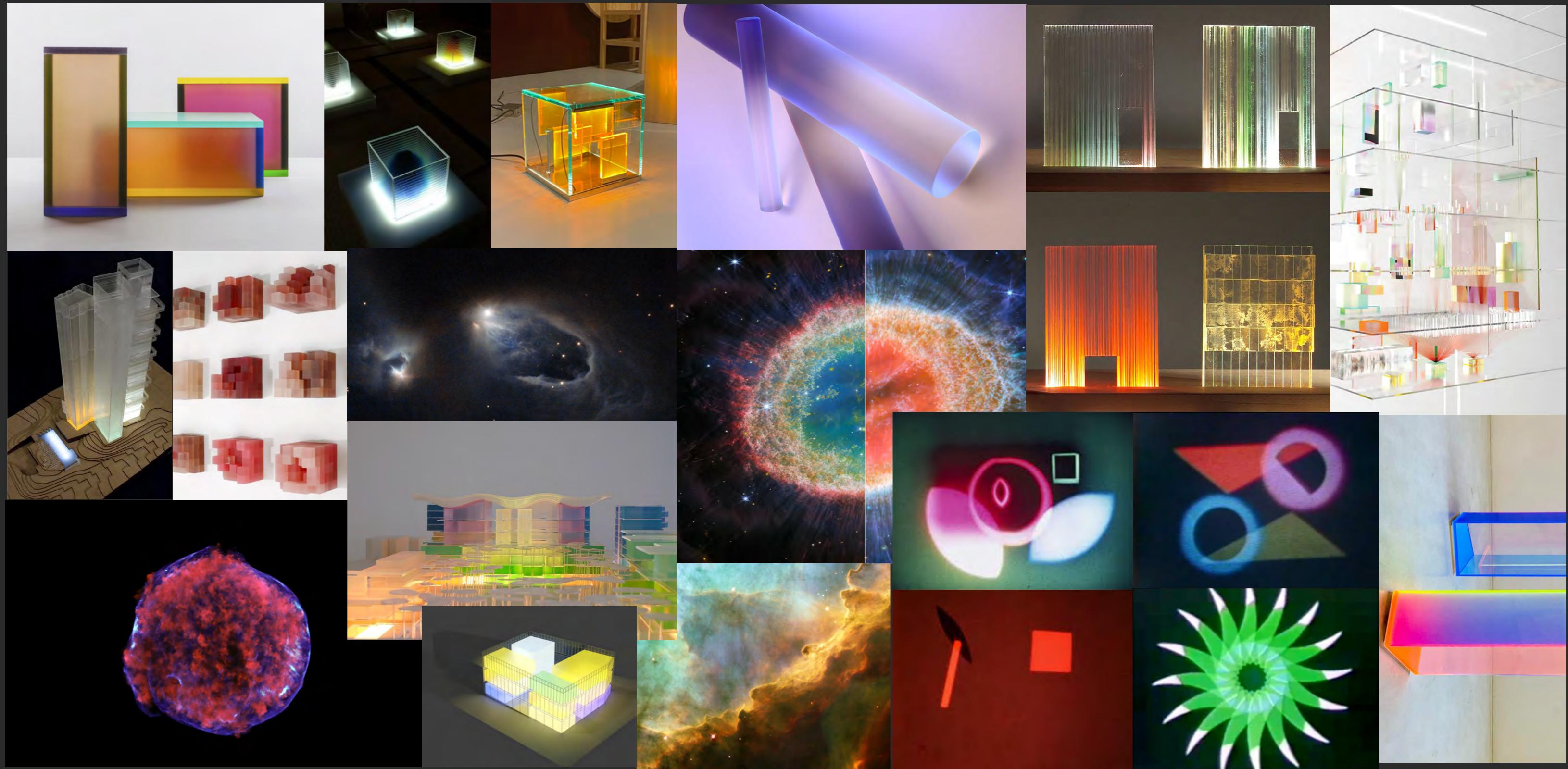
Voiceover narration

I used a first-person voiceover because this project is based on my ideas, and I want to invite users into a new world. By speaking directly to the audience, I aimed to guide them through the experience and help them connect with the abstract concepts of memory and light in a more intimate way.

Ambient soundscape

Generative sound made with BEAP tools in MaxMSP. The goal is for the ambient sounds to immerse the user in the environment, enhancing the feeling of being in an abstract, timeless space

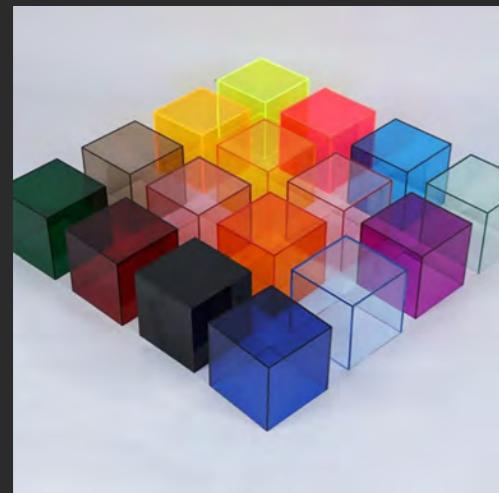
MOODBOARD



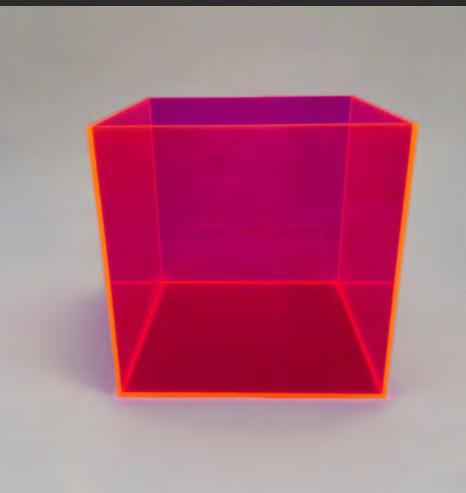
SCENOGRAPHY

The scenography should focus solely on the VR container, making it an efficient and visually impactful way to engage users. An acrylic box with embedded LED strips houses the VR headset, creating a sleek, futuristic aesthetic. Frosted or clear acrylic panels diffuse light elegantly, while smaller acrylic elements scatter and reflect the LEDs, echoing the visuals of the VR experience. The user directly interacts with this scenography, as the VR headset is stored inside the illuminated box. This interaction bridges the physical and virtual, drawing the user into the experience before they even don the headset. The container becomes a tactile and visual gateway to the immersive world.

Materials



Acrylic boxes



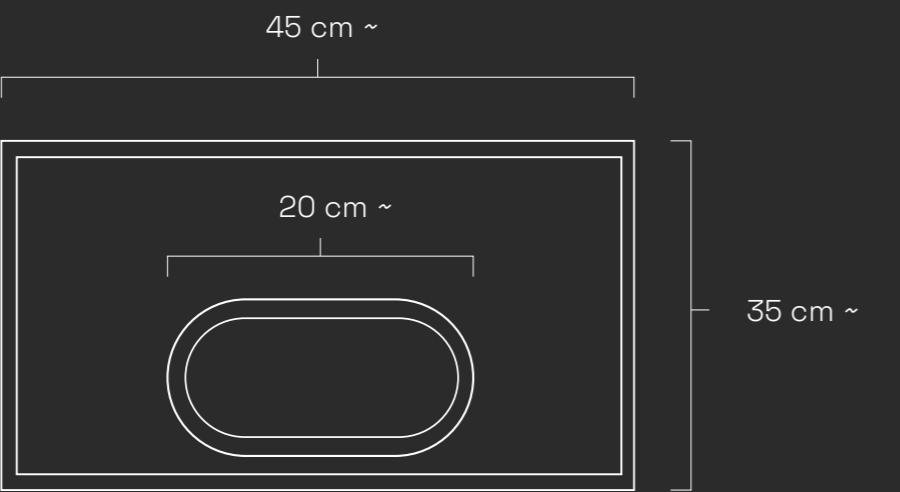
Acrylic panels



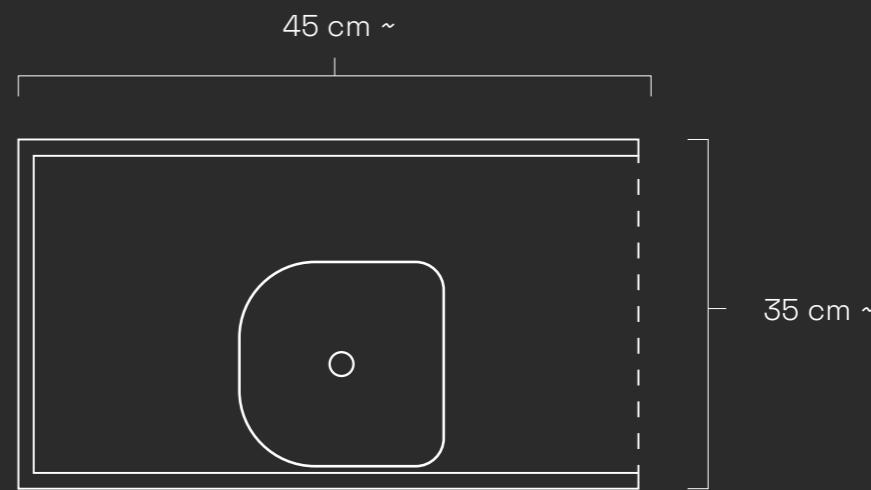
Led strips



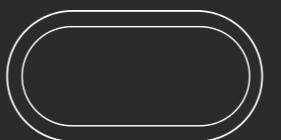
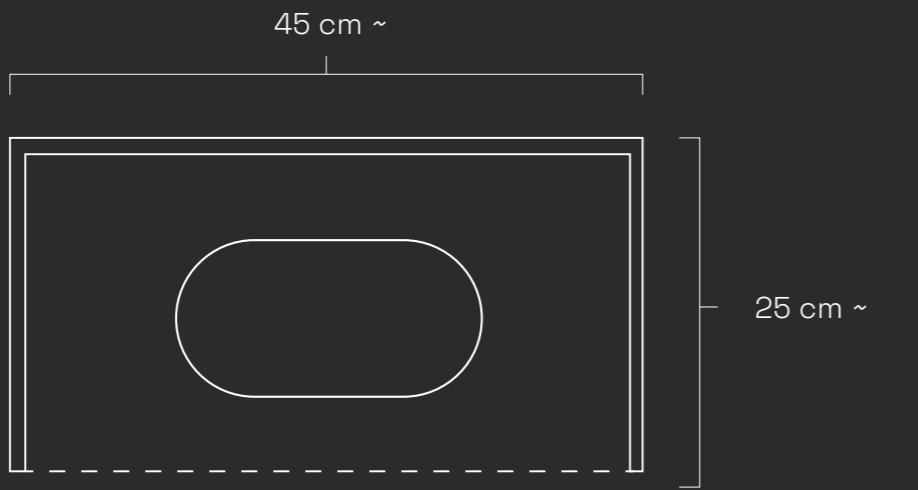
Front View



Side View

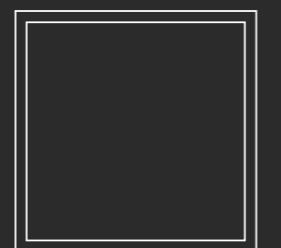


Top View



Headset

Open side



Acrylic box



This project is a result of the creative freedom I had within certain constraints. While I worked within technical and conceptual boundaries, those limitations pushed me to think outside the box and experiment. The process taught me how to build a VR experience from the ground up, while also giving me a fresh perspective on both the technology and the way stories can be told in virtual spaces.



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