SKIES

PORTFOLIO OF SELECTED ARTWORKS BY MAJA PETRIĆ


SKIES IS A SERIES OF DYNAMIC ARTWORKS
BASED ON THE STUDY OF COMPLEMENTARY EFFECTS OF LIGHT, ART AND BIOPHILIA

COMPLEMENTARY EFFECTS OF LIGHT, ART AND BIOPHILIA

Like art, light inspires. From sunsets to starlight, jellyfishes to fireflies, humans often perceive light as poetic and inspiring. But light does much more than just stir imagination; how we perceive light can affect everything from our emotions to our alertness and biological timing. Art shares a similarly profound power. Neuroscientists have determined that appreciating nature-inspired art, for example, elevates our wellbeing. Both light and art are potent tools to affect peoples' psychosomatic states. We can manipulate light to evoke sensations that engage body, mind, imagination and emotion.

As an artist, my goal is to elicit transformative sensory, cognitive and visceral experiences. To do so, I use light as a vehicle of biophilia (nature-inspired design). My approach is based on the study of the innate human connection to nature. According to the biophilia hypothesis that was introduced by American biologist Edward O. Wilson, human beings have an innate instinct to connect emotionally with nature, particularly the aspects of nature that recall what evolutionary psychologists have termed the environment of evolutionary adaptiveness, the natural conditions that the human species evolved to inhabit. As such, living organisms hold a biological need for connection with nature including natural landscapes, natural light and natural change of light.

In my art, I aim to engage people's primordial connection to nature and evoke profound sensations from natural beauty. I work with new technologies to create immersive spaces that elicit the sublimity of nature. As an example, In 2006 I created an interactive installation, *outSIDEin*, for the New York City Subway's utterly desolate pedestrian tunnel at 191st Street station of the number 1 train, also known as the tunnel of doom. I created a false ceiling that appeared to be cracked, and a combination of artificial light and fog simulated a striking natural effect of light emanating from the sky. Lights were programmed to imitate the color and intensity of the daylight outside of the tunnel. When the weather outside was sunny, the light projected inside through the cracks was bright and yellow. When the weather outside was foggy, the light shining over the passers-by was soft and blue.

My practice is focused on discovering innovative methodologies in modulating lighting based on personal needs, and the application of these methodologies to stimulate people's experiences. The evolution of my practice led me to research that combines lighting with Artificial Intelligence (AI) for artistic purpose. Together with AI researcher I have been creating light art apparatus that can see, hear, understand and respond to human beings. Our patented AI system includes light exposure tracking device that records personal exposure to daylight and uses that data in combination with information about a time of day, season, current weather and weather forecast to change the personal lighting and in so compensate for the lack of exposure to natural light.

This invention is used to drive my latest artworks. As an example, *7.4 Billion Skies* is an audiovisual art installation that uses interactive lighting and projection technologies to transform the experience of an ordinary indoor space into an immersive experience of the ever-changing sky. The piece brings the outside sensation of the sky into the enclosed space. While the piece can accommodate groups, it also creates personalized experiences for each visitor. Once a visitor volunteers information about their exposure to daylight that is sensed via light exposure tracker. The information is used to calculate the personal need for daylight exposure. In turn, the lighting and projection content around each visitors is customized to compensate for their lack of exposure to daylight and to elevate their emotional state. As a result, each visitor is immersed in a unique skyspace shaped by an artistic interpretation of how to enhance the visceral experience of that specific person.

The similar ideas are embodied in the object work titled *Skies*. These are light art box sets (40x84x5 inches) made to be installed in personal space. Each set is made of seven lightboxes that are positioned above each other. Individually, each box is filled with layers of images and lighting that provide a view of the part of the sky. Together, seven lightboxes and the light space between them forms a large scale view of the open sky that is constantly in motion. The lighting is algorithmically programmed to constantly change. Just as the same state of the sky is never repeated, "Skies" are constantly changing too. The piece adjusts in real time the brightness, color, and color temperature of the lighting to evoke a natural change of daylight but also according to the person's biological needs calculated based on data collected from a wearable light exposure tracking device and other environmental factors.

My curiosity for science led me to develop and use cutting-edge lighting technologies as an artistic tool. My approach is scientific and technical but always rooted in art. Together, these disciplines can touch on essential strands of the human experience; feelings, perceptions, moods and thoughts. If used properly, we can use light, art, and biophilia to elevate human wellbeing, a theory backed by scientific research.


SKIES USE CUTTING-EDGE TECHNOLOGY AS AN ARTISTIC TOOL
TO DEPICT NATURE AND EVOKE PROFOUND SENSATIONS FROM NATURAL BEAUTY

A Panorama Of The Skies

An interactive audiovisual installation created for **Microsoft Research** to transform the experience of an ordinary conference room into an immersive experience of the ever-changing sky that elevates the emotional state of visitors.

A Panorama Of The Skies 2.0 IN PROCESS

The new edition of the installation is currently being created. It is programmed to change the audiovisual content in response to the weather outside. When the weather during the middle of the day is gloomy, the lighting and projections inside are set to immerse viewers into more vivid kind of sky-space that can enhance their alertness and engagement.

Skies

A dynamic light art box set that depicts the sky and it's fleeting nature. The lights are algorithmically programmed to depict the change of daylight from sunset to sunrise. Just like in nature, the sky is constantly changing and the same state is never repeated.

Commissioned by: Microsoft, Hotel 7 Islas Madrid, Clorofila Gallery, Kikekeller Gallery, and private art collectors

Materials: plexiglass boxes, giclée prints, set of light filters, algorithmically programable patent-pending lighting systems

Dimensions: 40 x 84 x 5 in

Samobor, Croatia
Continental Climate

Calabash Bay, Jamaica
Tropical Climate

Arctic
Polar Climate

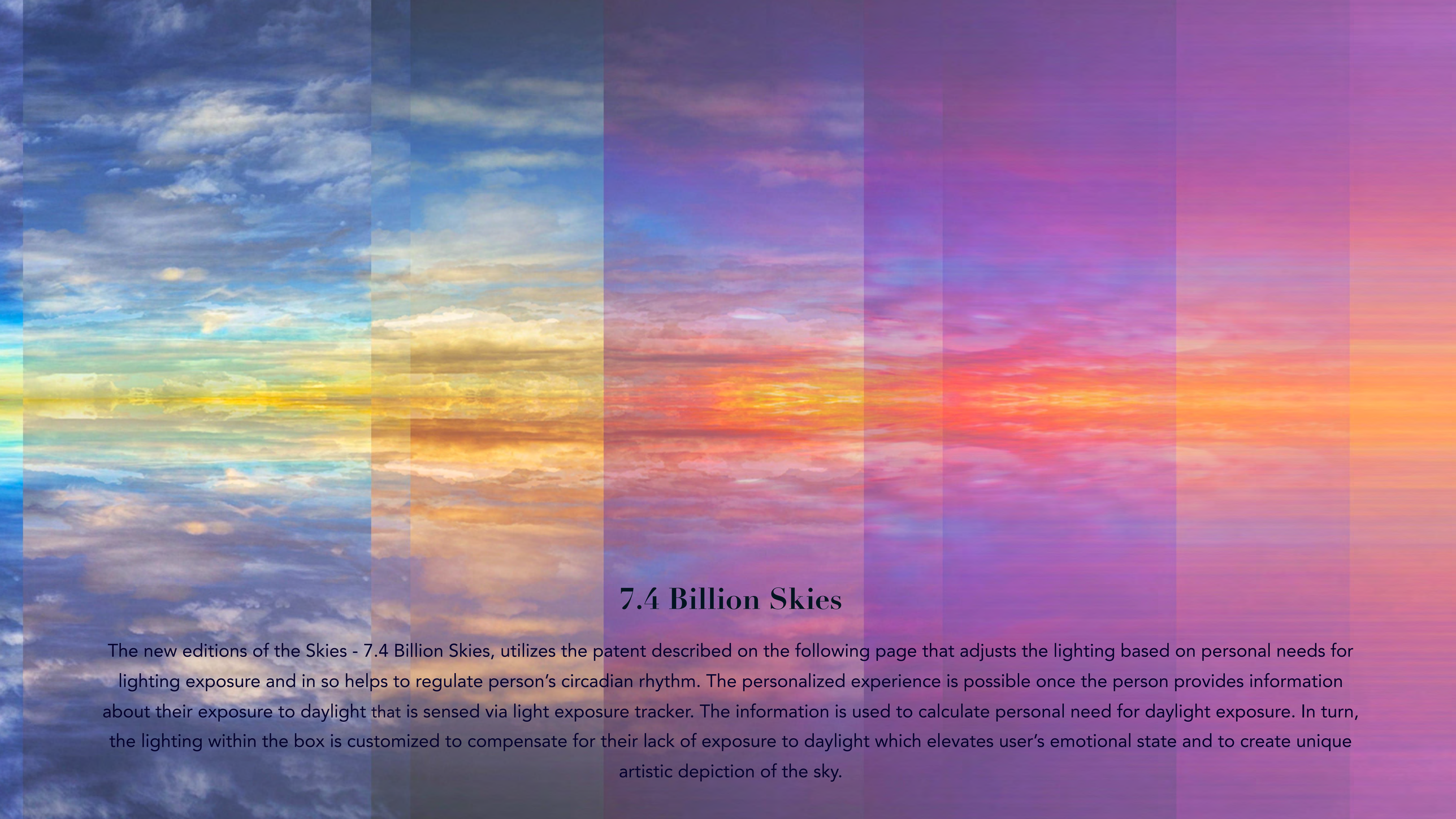
Seattle, USA
Temperature Climate

Normanton, Australia
Dry Climate

Patagonia, Argentina
Cold Climate

Skies Atlas

A series of dynamic light art boxes, Skies, in which each piece depicts a representative sky at a specific location.

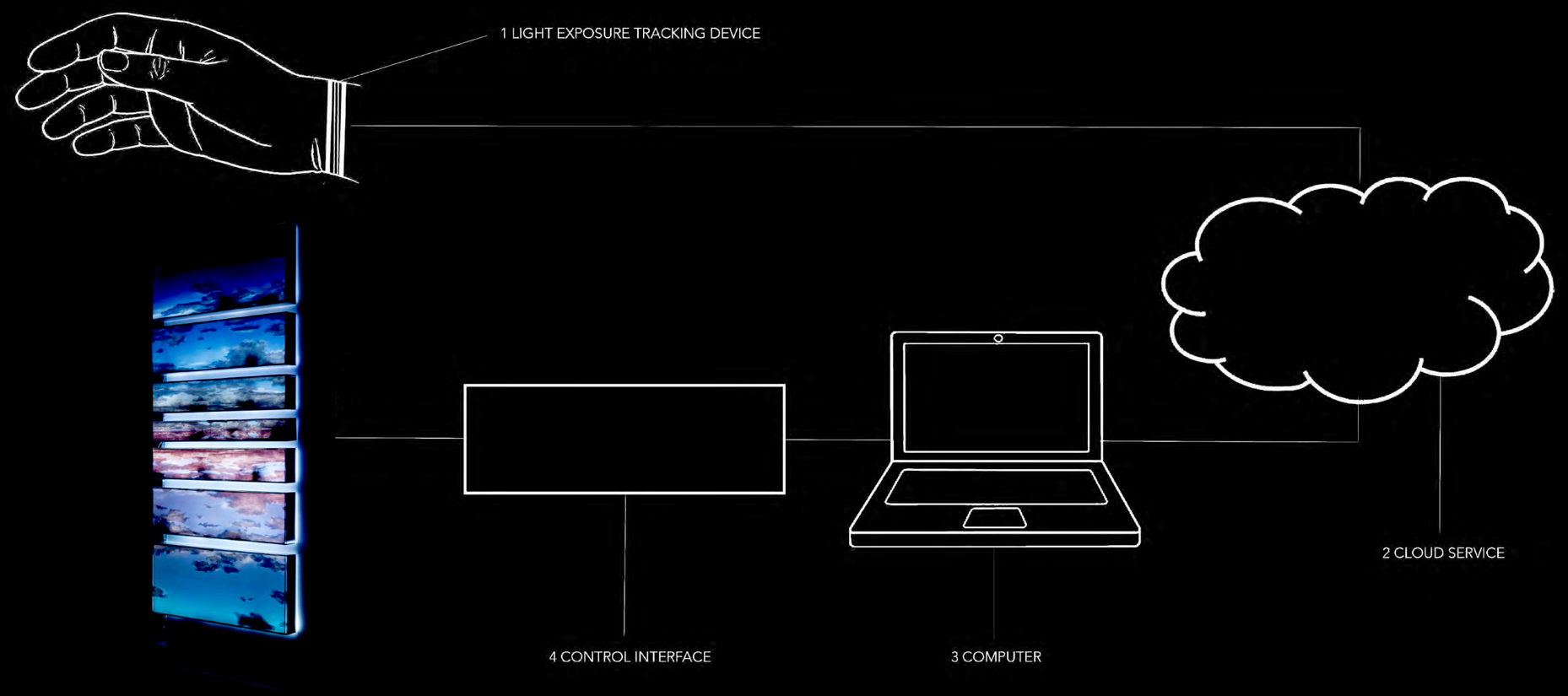


7.4 Billion Skies

The new editions of the Skies - 7.4 Billion Skies, utilizes the patent described on the following page that adjusts the lighting based on personal needs for lighting exposure and in so helps to regulate person's circadian rhythm. The personalized experience is possible once the person provides information about their exposure to daylight that is sensed via light exposure tracker. The information is used to calculate personal need for daylight exposure. In turn, the lighting within the box is customized to compensate for their lack of exposure to daylight which elevates user's emotional state and to create unique artistic depiction of the sky.

Patent

PERSONALIZED LIGHTING SYSTEM FOR COMPENSATING LACK OF EXPOSURE TO NATURAL LIGHT

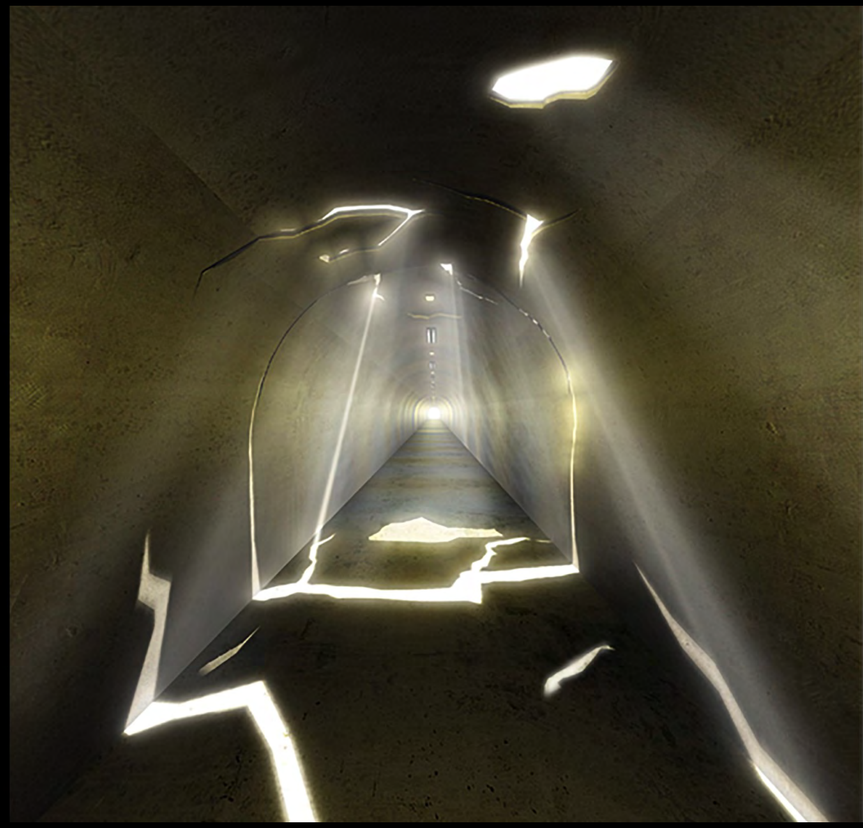


SUMMARY OF THE UTILITY INVENTION

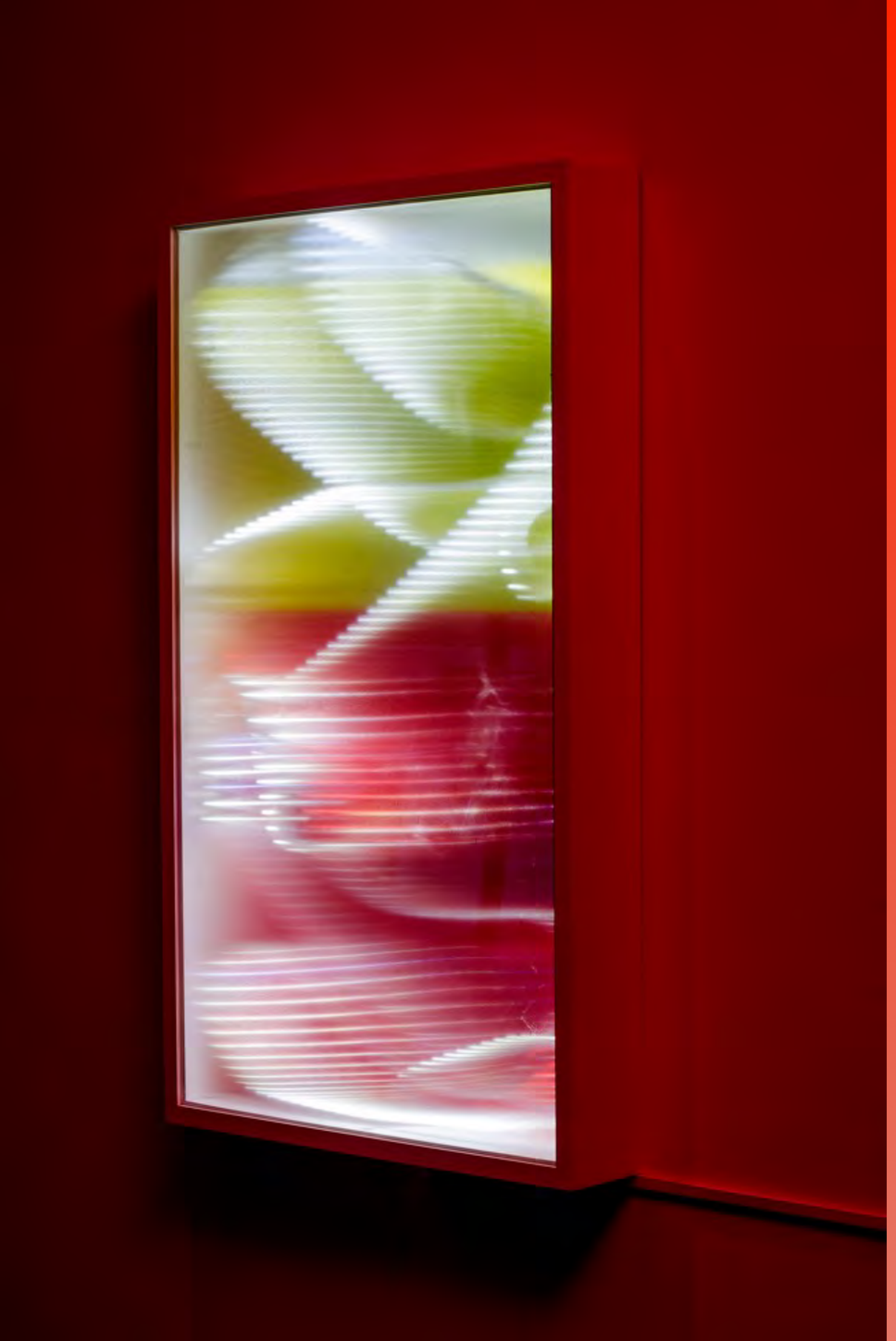
The present invention seeks to provide a solution to this problem by calibrating the lighting users are exposed to based on their personal requirements for exposure to natural light. The present invention adjusts in real time the brightness, color, and color temperature of the lighting according to the user's biological needs calculated based on data collected from a wearable light exposure tracking device (LETD) and other environmental factors (such as time of day, season, current weather and weather forecast, etc.).

outSIDEin

An interactive light art installation created for the **New York City Subway** and requested by the **LOS ANGELES METRO.**

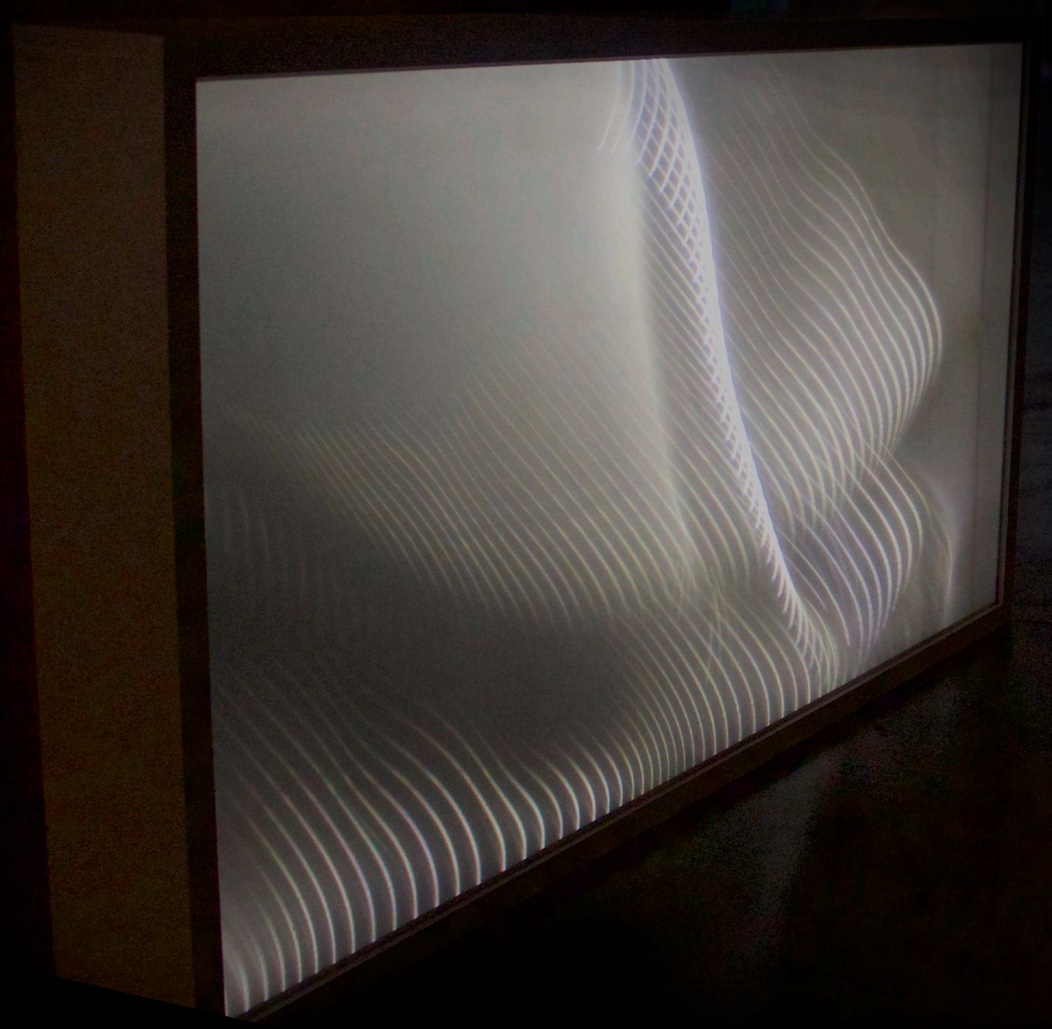


An interactive light installation intended to transform the experience of the deteriorated **New York City Subway** tunnel at 191st Street station, also known as the tunnel of doom. The installation entailed a false ceiling that appeared to be cracked, and a combination of artificial light and fog simulated a striking natural effect of light emanating from the sky. Lighting was programmed to imitate the color and intensity of the daylight outside of the tunnel. When the weather outside was sunny, the light projected inside through the cracks was bright and yellow. When the weather outside was foggy, the light shining over the passers-by was soft and blue.



Reduced Landscapes

A series of dynamic light art boxes made to depict abstracted atmospheres of landscapes such as sky, air, stars, sun, water, etc. The pieces change their appearance depending on the angle of viewing.

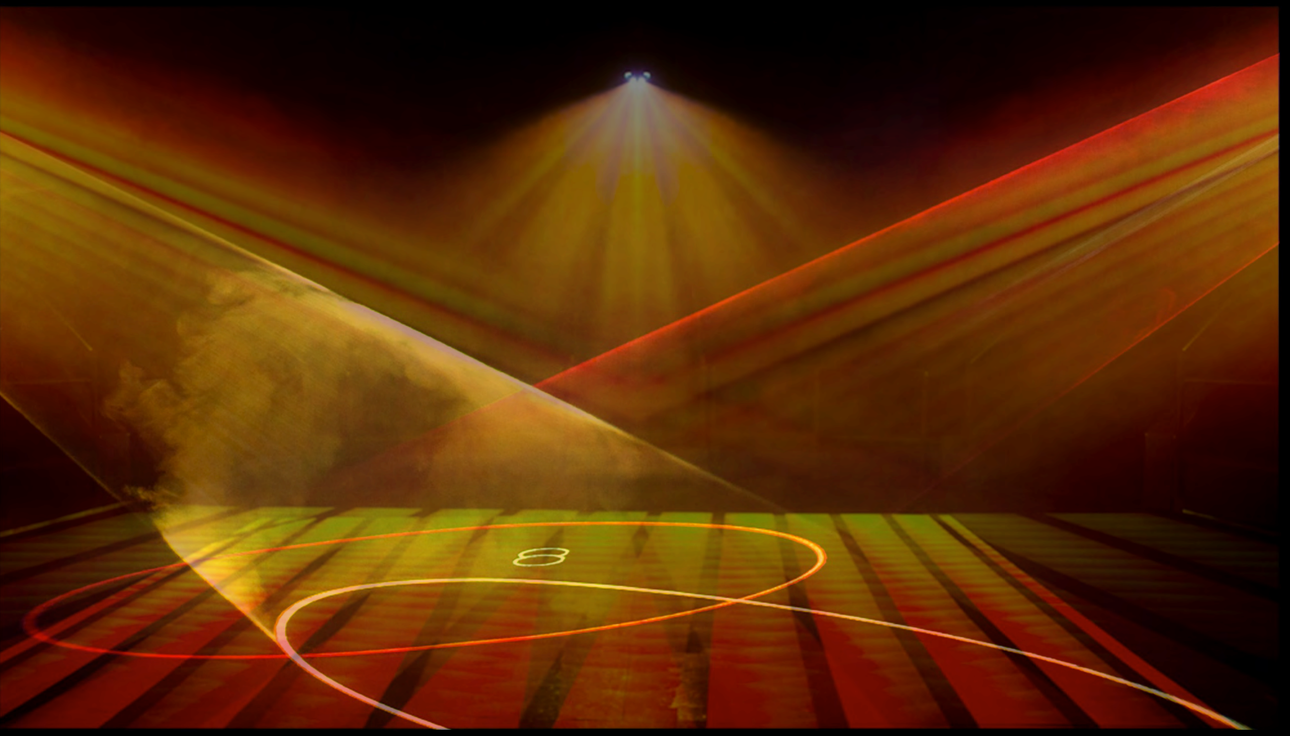


Commissioned by: Hotel 7 Islas Madrid, Clorofila Gallery, Kikekeller Gallery, and private art collectors

Materials: plexiglas boxes, light filters and reflectors, algorithmically programable lighting systems

Dimensions: from 50 x 80 x 5 in to 110 x 250 x 5 in


Horizon Is An Imaginary Line



An experimental light and electroacoustic installation that transforms the experience of Seattle's **Playhouse Theatre** space into a poetic experience of nature. The piece innovated the use of a moving image by projecting it into a space filled with haze to create seemingly tangible sculptures that were continuously morphing around the visitors.

Skies In A Tree

A dynamic light art box made to depict the atmosphere of an ever-changing daylight appearing through the trees. The lighting is programmed to mimic the color temperature changes of the daylight from sunrise to sunset at the location where the piece is located.

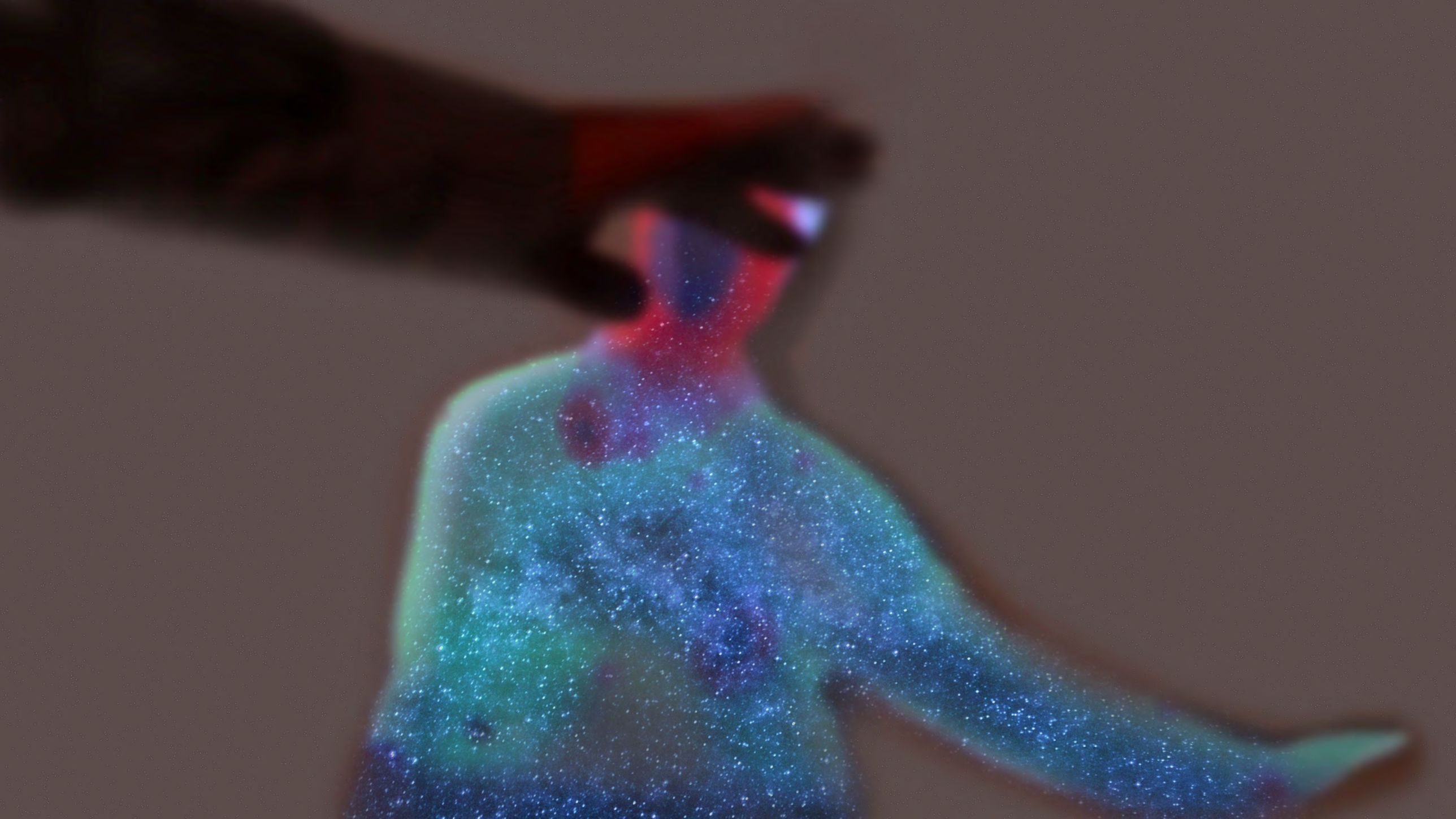
Commissioned by: LEDCON, Hotel 7 Islas Madrid, Clorofila Gallery, Kikekeller Gallery, and private art collectors

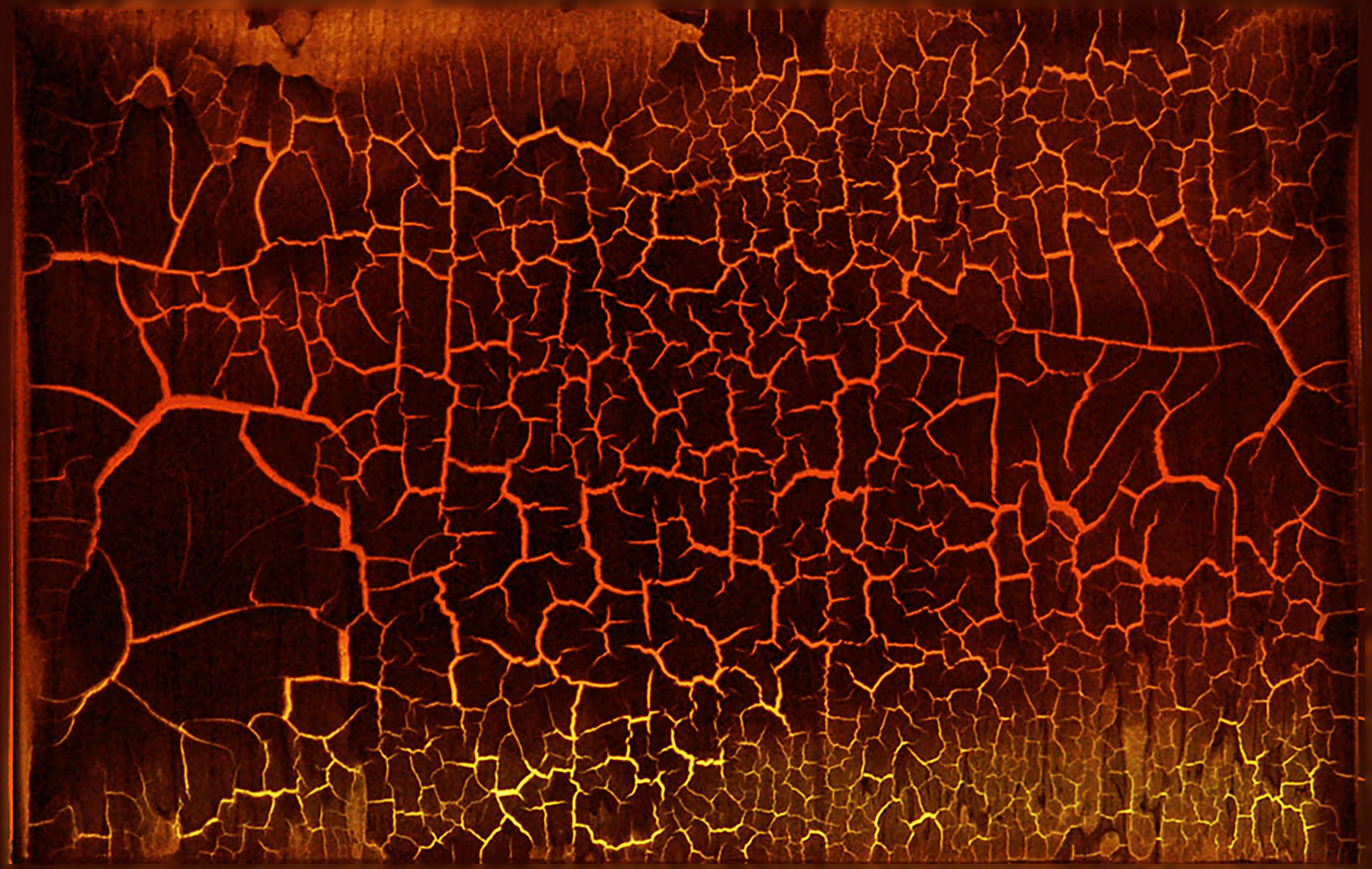
Materials: light box, light filters and reflectors, giclee print, algorithmically programable circadian lighting

Dimensions: 26 x 26 x 2 in

Shadow Inverted

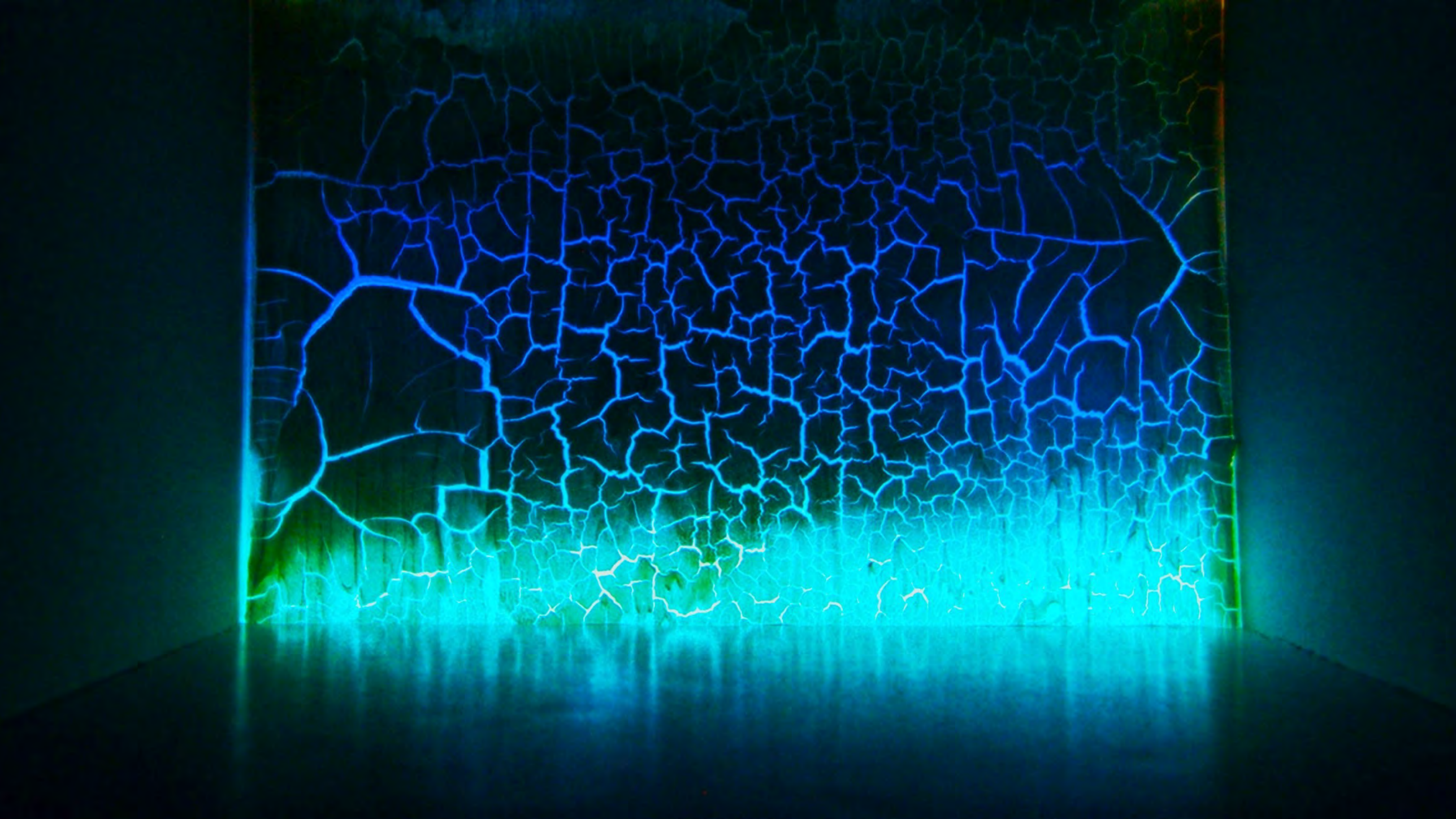
An interactive video art installation created for **Microsoft.** It is inspired by a shadow as a place in absence of light. This interactive piece creates an inverted experience, where shadows are illuminated and filled with images of the sky and space.

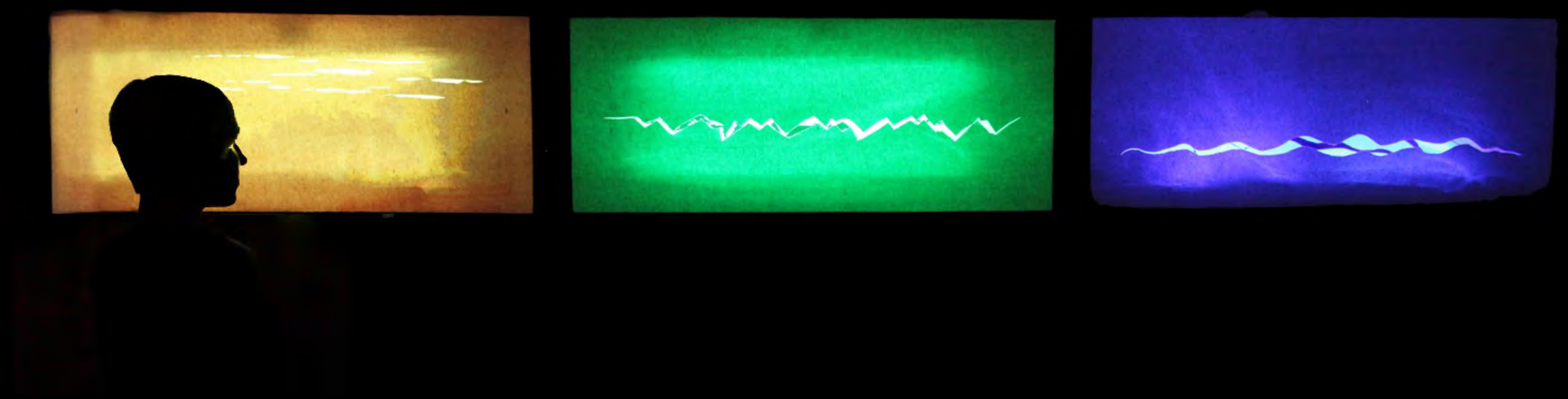




As It Is Cracking is an interactive light and video installation situated in seemingly ordinary, empty, white room. One of the walls in the room was designed to crack over the course of one day. As the wall cracked, lights and video appeared through the cracks simulating the change of daylight that is happening outside.

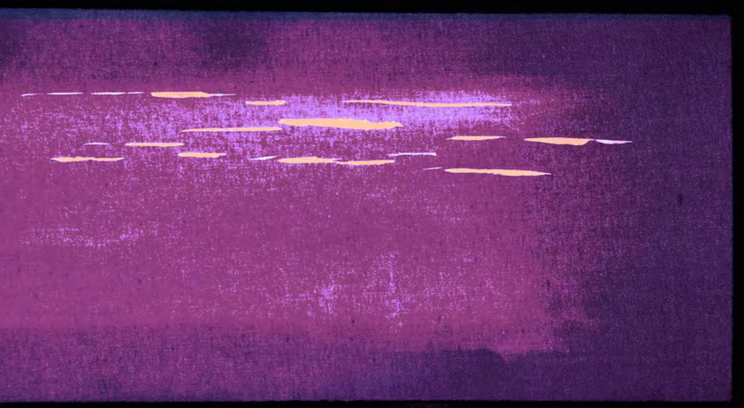
The wall is designed to crack over the course of one day

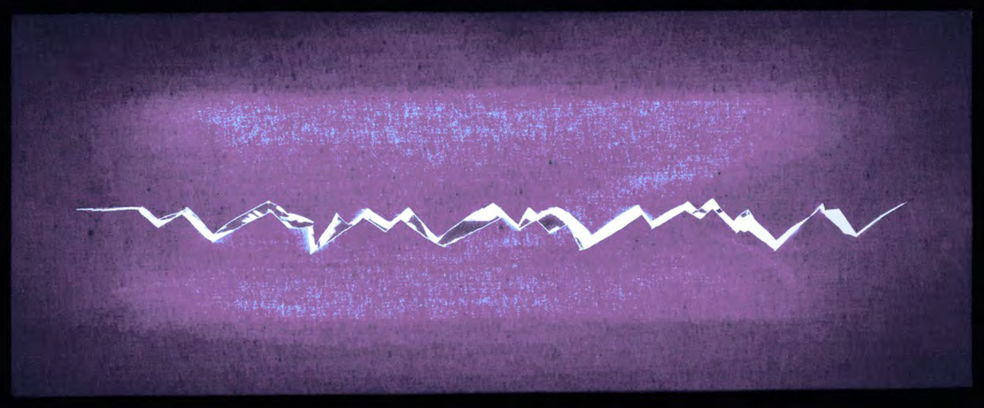


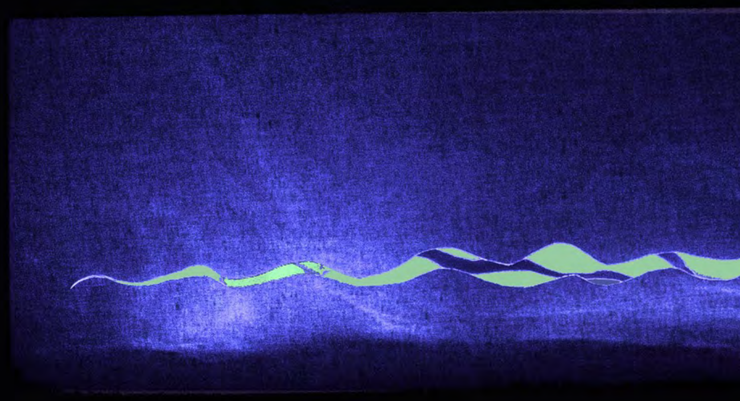


One Landscape: Three Events

A set of three dynamic light boxes. Each represents one of natural elements - sky, mountain and sea. They are individually lit in the color of the light found in the part of the landscape that they are representing, and programmed to change color depending on the environmental light. Light in one part effects the light in other natural elements. The result is depiction of interconenctive nature.

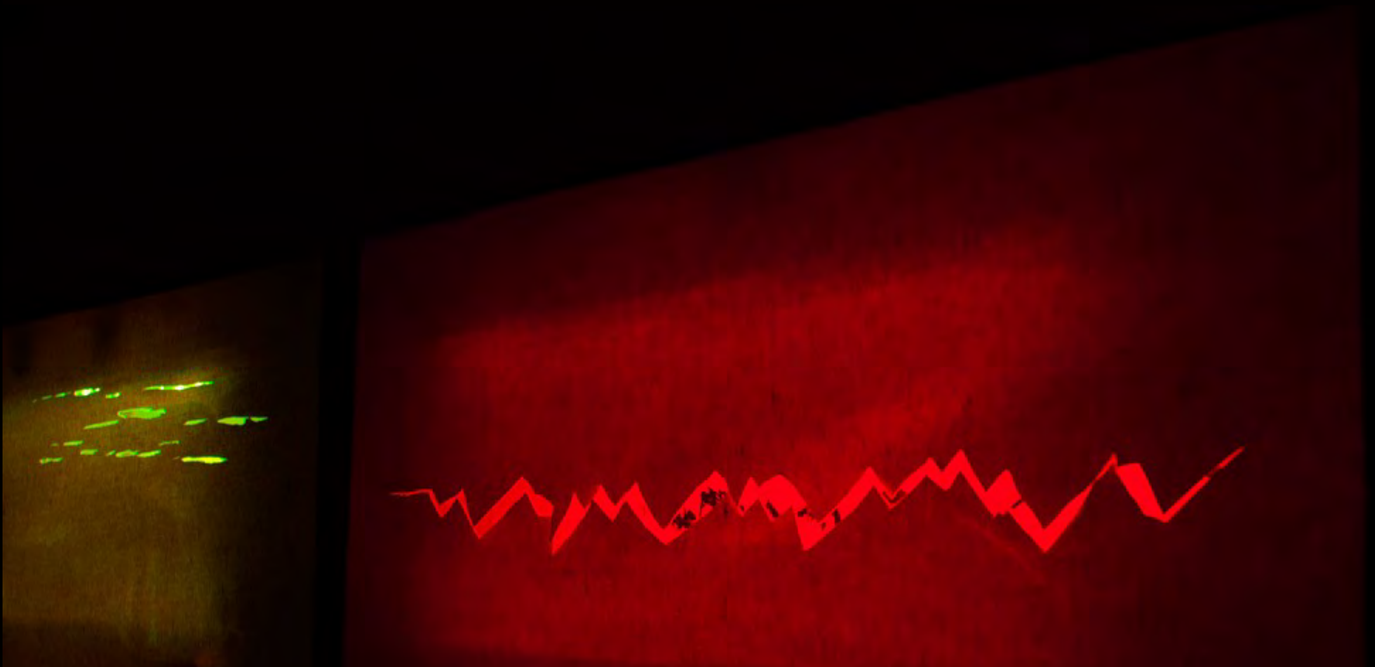






Materials: LED lights, canvas, mirrors, wood, custom software

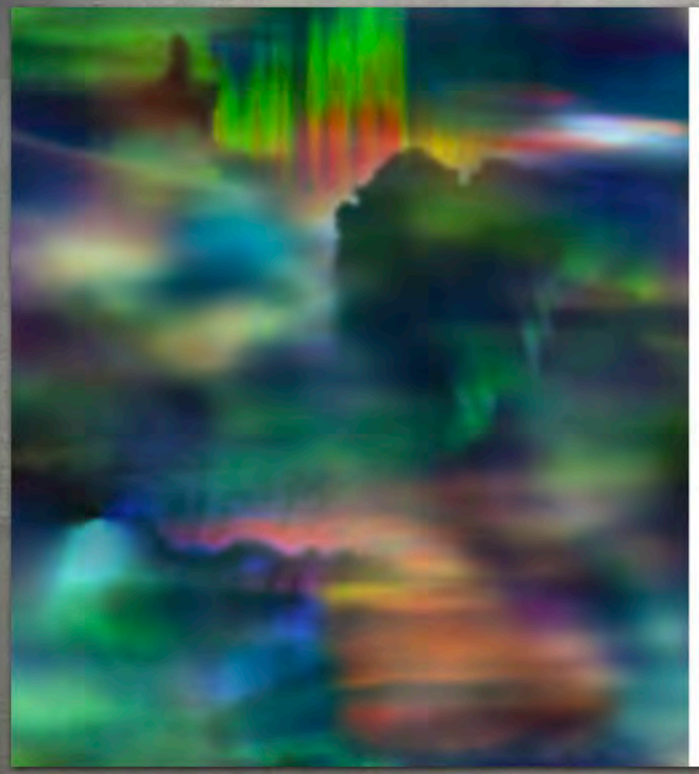
Dimensions: 14 x 126 x 2 in



The Skies Epitomized

A series of computer generated visualizations of the sky created in collaboration with machine learning **Microsoft Researcher Nebojša Jojić**. It is a series of backlit images representing the essence of the sky from the perspective of humans gazing at it from various locations.

Polar Sky



To build the epitome of the polar sky, the machine learning software is trained with the results of an internet search for images containing "polar+sky+skies." The software looks at all of the resulting images, analyzes their salient properties and based on them learns to generate brushes, which are used to paint the "sky epitomized"—the epitome of what people associate with a polar sky.

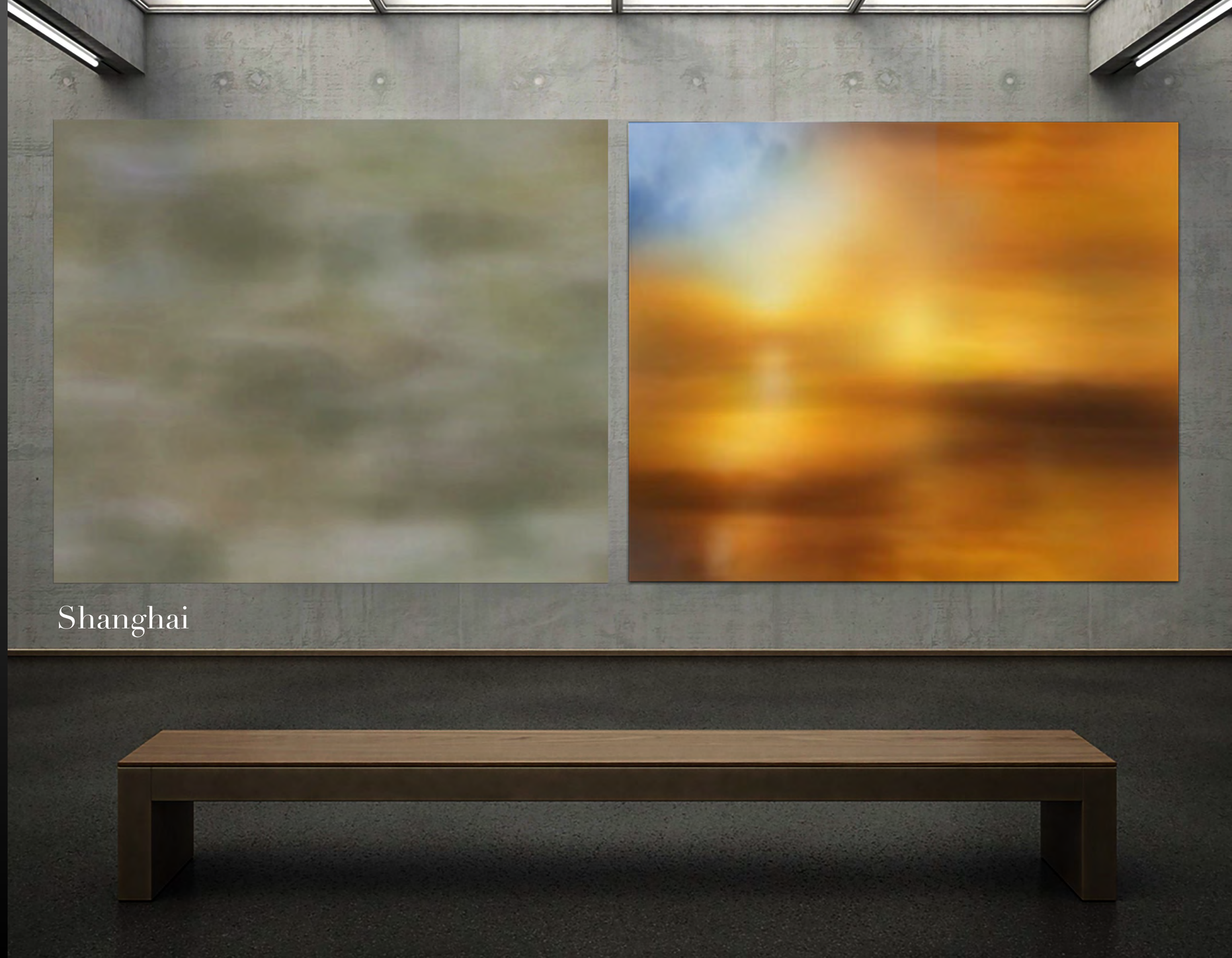
Baghdad Sky

Commissioned by: Microsoft, 9 evenings 2: Experiments in Art and Technology
Awarded: FastCo. Innovation by Design Awards 2016 Nomination

Materials: plexiglas boxes, giclée prints, lighting systems
Dimensions: 90 x 50 x 3 in

The Lost Skies

utilizes machine learning algorithms as an artistic tool to generate visualizations of the skies that have been impacted by pollution. The image on the left shows the sky based on meteorological imagery of the sky from the specific location and the image on the right shows the same sky from the perspective of a climate change sceptic.



MAJA PETRIĆ

Maja Petrić is an artist working with cutting-edge technology to create innovative spatial experiences that evoke the sublimity of nature. She grew up in Croatia during the violent fragmentation of Yugoslavia. It is then that she became preoccupied with using art to elevate a sense of the surroundings. She received a Ph.D. from University of Washington and a Master from New York University on the topic of transforming the poetic experience of space through the experimental use of technology. Training at these pioneering institutions gave her an opportunity to explore various artistic methods to manipulate people's senses through which they experience space cognitively and emotionally. Maja discovered that lighting is one of the most potent tools to shape people's experience. Since the year 2000, she has been studying, researching, practicing, and teaching complementary potential of light and art to create a transformative human experience. On this subject, she had developed a theoretical body of knowledge that is embodied in her art practice.

Maja's light art has been exhibited worldwide at venues including Henry Art Gallery, Medialab Prado, Microsoft Gallery, and Matadero Madrid. Her artworks have been commissioned by Amazon, Microsoft, Kikekeller Gallery, and included in private collections. Maja has been nominated for Arts Innovator Award Nomination, FastCo. Innovation by Design Awards 2016, The International Light Art Award, and received numerous international awards including Microsoft Research Art Residency Award, Richard Kelly Light Art Award, Thunen Light Art Award, and Croatian National Award for Science and Technological Development.

She is currently writing a book on history of light as an artistic tool and developing a large-scale immersive installation, *We Are All Made Of Light,* that utilizes interactive lighting driven by artificial intelligence (opening in Seattle's *MadArt Studio* in 2018).

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