

# LEIKHĒN

**Interactive immersive installation -  
Panoramic video, surround sound, touch sensors and brainwaves-**

**by Claudia Robles-Angel**

**LEIKHĒN** is an audiovisual installation, created for and during an artist in residence at the Immersive Lab (IL) at ICST (Institute for Computer Music and Sound Technology) Zurich which consists of a panoramic video made by four video screens arranged in a cylindrical form, in addition to a full-scale interaction surface, which tracks the visitors' touch from behind the screens using infrared cameras. The audio components inside the IL consist of 16 loudspeakers arranged behind the screens in two levels, and two subwoofers.

The installation was inspired by the composite plant of *lichen* (from Greek: *leikhēn*), which is the result of a hybrid partnership between a fungus and an alga. The installation is therefore a reflection upon the interaction and mutualistic relationship between two organisms, and how this union impacts on their behaviours inside a created audiovisual immersive space.

The acoustic part of the environment is composed by sounds from nature (crickets, cicadas, etc.) and the visual elements consist of close-up images from diverse *lichen* species that together recreate a nature reserve. The spatialisation of sound is programmed with ambisonics.

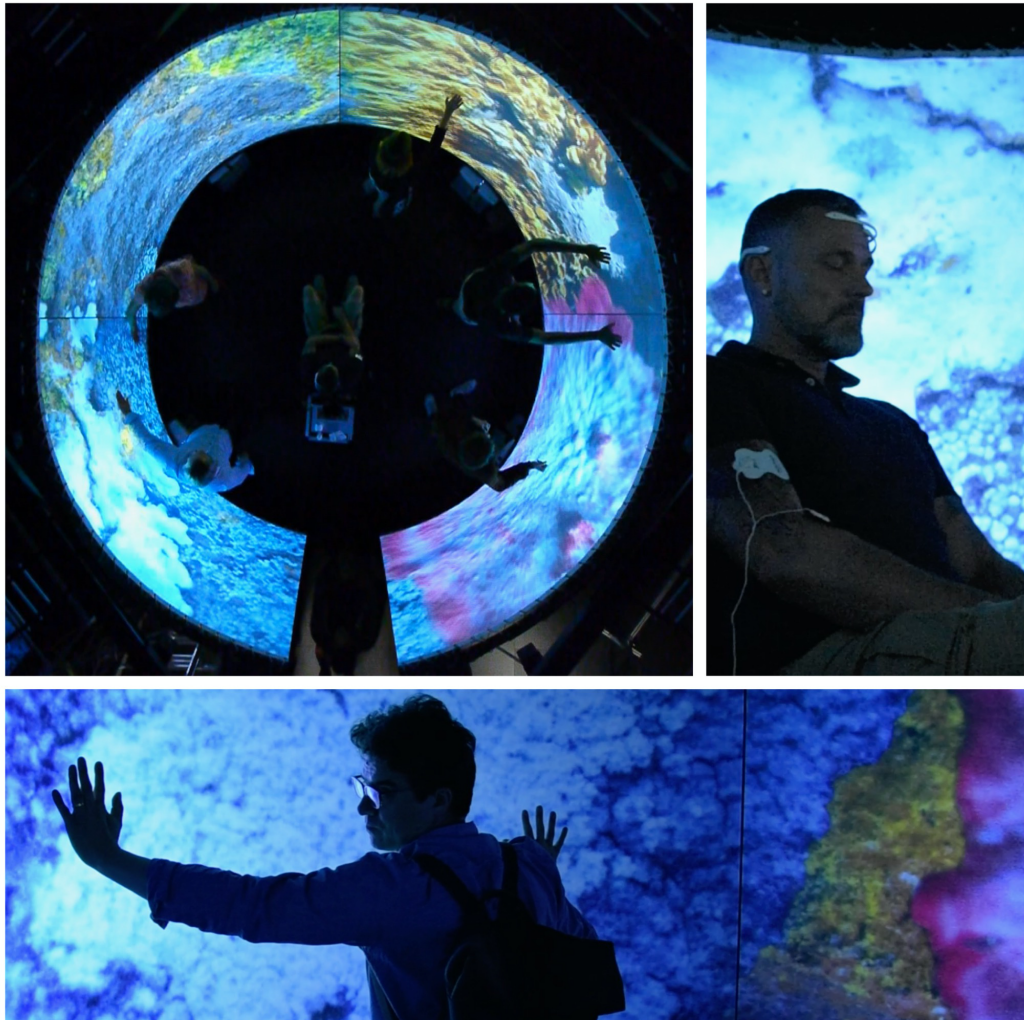
The installation consists basically of two types of participants: the *central figure* or *host*, sitting in the middle of the panoramic video space, whose brainwaves' values are collected via an EEG interface in order to influence the sonic environment; the second type of participant is represented by the *guest(s)*, visitors who, by touching the screens, influence the host's emotional states through to the tactile transducers that are attached to the chair where the *host* is seated and consequently, also the audiovisual environment.

LEIKHĒN *uses* the values from the touch sensors from the IL by constantly sending them to a computer (using the *Max* software), where they are mapped into different sound frequencies and sent back to the *host's body* through the afore-mentioned tactile transducers: as soon as the screens are touched by visitors, the *host* feels that touch or presence in his/her own body.

The *host* is therefore an intermediary, through whom the interaction between visitors and environment happens when visitors touch the screens: each touch sends data transformed in frequencies to the tactile transducers which are received by the *host*, influencing his/her emotional reactions and consequently, his/her mental processing (brainwaves). These values are captured by an EEG interface and transmitted to the computer, where different algorithms impact on the sonic aspects of the audiovisual environment, creating a feedback loop where the *host* is affected by the audience's actions, whilst the audience is simultaneously affected by the *host's* reaction measured via his/her brainwaves. **The screens become consequently the skin of the *host*.**

Visually, as soon as guests touch the screen, a lichen appears on the touched point, and this lichen is amplified in size in direct connection to the duration of the touch, whereby the sonic environment reacts accordingly to the host's reaction, highlighting the mutualistic relationship. The installation invites therefore guests to be aware of their behaviour towards the *host's* habitat.

Due to the fact, that different visitors interact with their own emotions, it is intended that a particular and distinctive audiovisual habitat/environment is created each time in either of the parts of the installation, as feelings, emotions, etc. are susceptible to change amongst diverse groups of people in different moments.



**LEIKHËN at the immersive Lab - ICST**  
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