



BIG BRAIN PROJECT

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ABSTRACT

Big Brain Project is a hybrid universal net consisting of cultures of nerve cells spread around the world and interconnected through the web.

STATEMENT

Are we individual beings or part of a universal group that shares a common objective?.

The link of all things

The genesis of Big Brain Project underlies the birth of a systemic universe in which all its parts communicate and interconnect as a large synaptic network.

Big Brain Project consists of a series of nerve cells cultures which, located at remote sites, interconnect through the web and constitutes a sort of neuronal network, a universal brain.

A global world: a boundless body.

The project shows new communication possibilities comparing the concept of synapsis with digital connection. In a first stage, it questions the way in which the introduction of communication means in social life gave birth to the concept of a global world that challenging the concept of limit as spatial category, changes the perception of distance and redefines the notion of living being. According to this concept, Big Brain Project, suggests the experience of a technologically boundless, fragmented and recomposed being, thus questioning the limits of the individual. A global brain that transcends the boundaries of its own organic being and is part of multiple simultaneous realities.

Artificial Intelligence

The brain is considered the nucleus of the intelligence. In Big Brain this quality does not lie within the biological substratum but is provided by electronic and artificial means. The sensors and transducers located in the terminals of Big Brain turn into the intelligence of the brain.

This universal and hybrid brain combines nervous cells tissue cultures with an artificial neuronal system which helps providing the capacity of remote interconnection and communication with all its nodes through Internet. This big network feeds on the surrounding experience and stimulus, providing as a result collective brain waves.

Universal brain waves

The whole of the interactions in the network may be summarized in waves that can be caught in different places, showing the concept of a unique system where the whole of its parts links and produces a common effect

New Interfaces of communication

However, Internet as well as neuronal tissue are selected as materials according to the communicative capacity they possess. Thus the brain as well as Internet are enormous networks resulting in complex dynamic systems and they have unique emerging properties. Big Brain Project shows communication as a common factor capable of linking natural and artificial within a sole system, in a new communication entity in which what matters is that it goes through linked information such as chemical, mechanical, optical, sounding stimuli, bits and electrical impulses that feed this huge organic/artificial network. In this way technology and nature make up a parallel interaction as a bio-electronic interface which represents the surrounding world.

TECHNICAL DESCRIPTION

Big Brain Project is a bio-telematics installation in which biological processes are joined with technological means of information transmission.

In several cities of the world a culture of brain cells is done in Petri dishes kept in a bioreactor, which allows its survival and development.

Each capsule, where the biological system lives, receives information from each city's environment from different sensors such as light, sound, temperature, movement and activity in Internet. Information enters the capsule which turns into a Bio-Opto-Electronic system, turning the data into electric impulses. The synapses, mechanism through which the brain cells send signals to each other, connects to Internet in order to send a stimulus to emerge from the biological system. The connection receives the electric impulses sent by the brain cells and sends them through the artificial neuronal system, towards the other neural culture fragments. The artificial neuronal network helps conceptualize the different collective neuronal answers generating a series of behavioral patterns of the neuronal tissues.

In this way a big network is formed, a sort of global brain, through which flow the signals of the activity that each group experiments. Each part of the brain sends to the system what it perceives from the environment. That information feeds Big Brain.

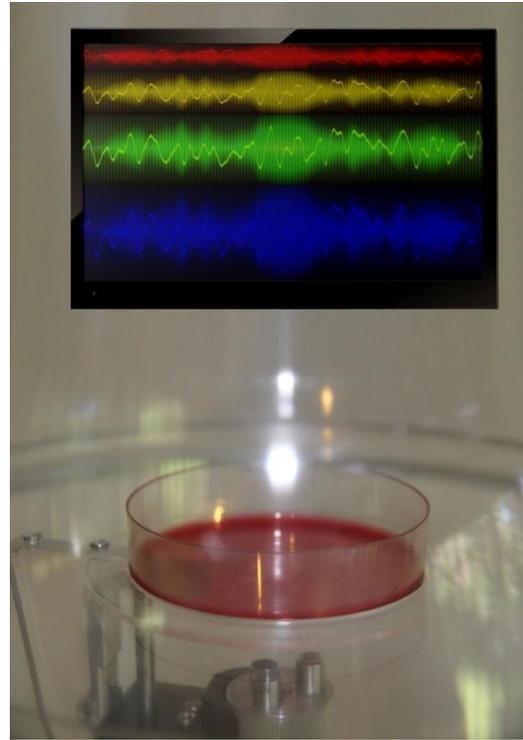
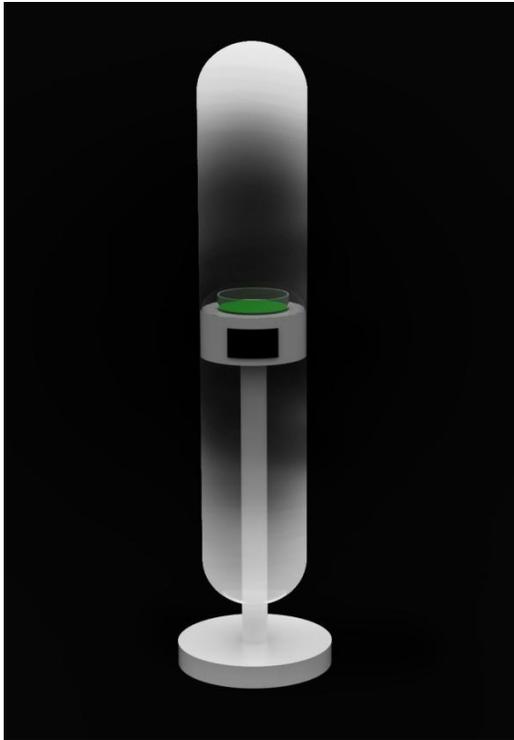
The activity within each group reflects in waves what can be measured and shown in graph. Finally the activity of Big Brain results in a unique collective, universal wave which results in the whole of all waves.

Eventually the signals that circulate through Big Brain are again decoded in each terminal, as light and sound, suggesting the spectator an experience of what happens in Big Brain in real time.

INSTALLATION IMAGES



Installation in Ars Electronica, Austria (2013)



Installation view



Neuronal tissue cultured



Maimónides University Bioart Lab





Big Brain Project Network