

An Unstable Empathy an EEG based real-time audiovisual game by Kinotek http://kinotek.org cc 2008



Two players, one in front of each other, behind a giant screen.

On the background, forms follow abstract imagery trying to emerge from chaos,

but abruptly coming back undefined.

Suddenly forms settle and a voyage begin:

branches, rhizomes and inflorescences develop in a formal narration of increasing complexity,

in an equilibrium which is the resonance of two minds,

a feble tuning, constantly changing, fragile:

an unstable empathy



_screen shoots from installation's visuals

_proposal

An Unstable Emphaty is a reactive environment constantly remediated in real-time by the mind activity of two players which are constantly forced to negotiate their emphatic state. It's a collaborative game in which the meanings of cooperation, entangling and collective consciusness are directly perceived on the physiological level.

At the beginning of the game two participants are selected from the audience; then some electroencephalographic (EEG) electrode are being mounted on the head of two players. Their Alpha brainwave (8-10 cicles/second) is measured in amplitude in order to assess the mental state and the level of relax and concentration of the two participants, while the players' brain activity is rendered in real time as visuals on the big screen behind them and as spatialized sounds surrounding the environment.

The two players quickly realize that the narration of the imagery is directly driven by their brain activity.

They also realize they can continue the journey only forcing themselves in an emphatic relation: shifting between chaos and organization, they constantly have to renegotiate their own mind states in order to let the narration going on, in an unceasing research of a shared balance.

As the journey goes on, visual and sonic stimulis increase: the players watch the evocative imagery generated on the screen, and at the same time they are forced to focus on their own immer insights to keep the state of empathy and let the narration going on.

Maintaining a balance become more and more difficult: "driving" the journey requires an ever demanding stress and increasing synergics, until the end of the game.. How much empathy do we need to face with the voyage that humanity undertook?

Only those who are able to "travel" together will finish the game ...

The journey of *An Unstable Empathy* is the one every man pursues when immersed in his inner world and when empathetically engages himself in the emotions of the other.

Above all, *An Unstable Empathy* shows to the users the difficulty to keep control over his own emotions and inner states.

Beside that, it also seek to overcome the mental barriers between the people, urging to tune his Self and the its own feelings according to the other's emotions, in an attempt to get rid of preconceptions or biases concerning the interpersonal relation and giving back to the emotion its deep transactional value in the relationship with the others and the surrounding environment.

An Unstable Empathy engages the languages and techniques of both interactive installations and live media performances embracing them under the same experience: the interactivity between the two participants is paired by the linear narrative of the visuals on the big screen resembling the cinema's fruition modalities.

Furthermore the two players are both performers and spectators: the show is literally generated by their own minds.

The real-time generative visuals are always different and even with the same player will be virtually impossible to see twice the same sequence, while the sound generated is the direct consequence of brain activity, constantly changing.



_screen shoots from installation's visuals

Empathy is the capacity to recognize or understand the state of mind or emotion of another person. It is often characterized as the ability to "put oneself into another's shoes", or to in some way to experience the outlook or emotions of another being within oneself.

It may be described metaphorically as an emotional kind of resonance or mirroring.

Research in recent years has focused on possible brain processes as neural correlates of empathy (Preston & de Waal, 2002). Functional magnetic resonance imaging (fMRI) has recently been employed to investigate the functional anatomy of empathy (for reviews see Decety & Jackson, 2006; Decety & Lamm, 2006; deVignemont & Singer, 2006).

These studies have shown that observing another person's emotional state activates parts of the neuronal network involved in the processing of that same state in oneself, either for disgust (Wicker et al., 2003), touch (Keysers et al., 2004), or pain (Morrison et al., 2004; Jackson et al., 2005, 2006; Lamm et al., 2007; Singer et al., 2004, 2006; Gu & Han, 2007).

The study of empathic neuronal circuitries was inspired by the discovery of mirror neurons in monkeys that fire both when the creature watches another perform an action as well as when they perform that action.

Mirror neurons represents a possible neural mechanism for mapping others' feelings onto one's own nervous system.

Based on some of this work, the simulation theory of empathy has been developed during the past decade.

In *An unstable Empathy*, the individual state of emotive and attentional activation is measured by an important and well known psychophysiological index: Alpha wave amplitude.

This index, easily and precisely measurable by simple EEG equipments, has been often employed in various neurofeedback techniques, since the human ability to indirectly control it, intervening on the individual level of relax or activation (For an introductive review see Batty et al., 2006).

Moreover, due to his relatively short times of variation and his easily of recording, Alpha brainwaves have been extensively employed in interactive installation and live performances and to drive visual or acoustic representations (Brouse et al., 2006; Filatriau et al., 2006).

"the brain is just the weight of God, for, lift them, pound for pound, and they will differ, if they do, as syllabe from sound"

Emily Dickinson



_screen shoots from installation's visuals





_screen shoots from installation's visuals





_screen shoots from installation's visuals





what we need

what we'll bring

consolle table 300x150 cm
ergonomic chairs
videoprojector min. 5000 ansilumen with VGA input
videoprojection screen 16:9 min. 800 x 450 cm
audiomixer min. 6ch stereo
satellite speaker ex. JBL
subwoofer min. 1000 W
stereo cables

VGA cables

2 laptopsmidi controllersaudio interface2 IBVA controllervarious head sensorsmedical equipment

_more info and contact details

info@kinotek.org mob. 00393332152448 cc 2008 Kinotek http://kinotek.org