

# Sensitive Painting

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## Abstract

There is a new type of approach of the contemporary art since the beginning of 1990's, based on the digital interaction between the visitor and the artwork. Such experiences are changing the interactive paradigm transporting it on fascinating metaphors rich of potentiality. This research produced a series of new ideas and technologies that could be used for the fruition of cultural heritage and the creation of new environments for communication. As an applicative example we illustrate an interactive installation based on the concept of the *Art of Emergence*. This kind of artworks generate visual and acoustical shapes through the interaction of the visitors and a creative intrinsic ability of the artwork itself.

## INTRODUCTION

There is a new type of approach of the contemporary art since the beginning of 1990's, based on the digital interaction between the visitor and the artwork [1,2,3,4,5,6,7]. This type of art is founded on the concept of a navigable artwork or in a continuous generative flow, using scientific metaphors and innovative multimedia technologies. The basic idea is that the artwork is a pyramid with his current status on the vertex, while in the below zone you can find implications, aesthetic suggestions, evocations and esthetic variants of the artwork itself.

The visitor navigates in the pyramid through personal path that sometimes result in situations absolutely original in respect to the original idea of the artist. Such experiences change the interactive paradigm between man and machine, transporting it on fascinating metaphors rich of potentiality. The research of interactive art, consolidated in the creation of artwork-experiments, has produced a series of new ideas and technologies that could be used in order to formulate new approaches and proposals for the fruition of cultural heritage and for the creation of new environments for communication.

This paper refer to a specific experience: the interactive installations of Plancton, a group of artist-scientist, founded in 1994, introducing the idea of the *Art of Emergence* [2]. This kind of artworks generate visual and acoustical shapes through the interaction of the visitors and a creative ability of the artwork to create continuously new shapes.

## THE PRINCIPLES OF THE INTERACTIVE ART

We will illustrate some of the main ideas that characterize the interactive artworks and that have general applicability in the approaches of communication of artistic and aesthetic contents. We can resume these characteristics in some essential points: a) immersivity and participation to the artwork; b) naturalness, responsiveness and opening of the interaction mechanism; c) synaesthesia; d) redefinition of the *man-machine* interface paradigm.

The relationship between the observer and the artwork changes completely when you can realize metaphors, in which the observer is part of the artwork. The effect of *embodiment* is a characteristic of the virtual reality: environments in which the visitor is involved, navigating in a three-dimensional context. A greater effect can be obtained when the space of the communication or the artwork physically wraps the visitor. In general, this effect has been rendered with the CAVE systems based on fully retro-projected rooms. Although strongly involving, such systems are very expensive and difficult to diffuse. A valid alternative is constituted by interactive installations that use natural interaction devices and video-projection (or retro-projection). In such installations, the ideal space of interaction-communication is not the screen, but the physical space where the person interacts. The immersivity is obtained with the ability to create metaphor where the visitor is immersed participating to the game and the distance between real and virtual is ambiguous.

The main ingredients are the responsiveness of the artwork, the naturalness of the interface and the opening of the interaction. The responsiveness of the interaction is determined from the rapidity of the interaction mechanism and by the possibility to influence the content. When the fruition is too much slow, not fluid or when the dimensionality is low (low number of parameters), a frustration is generated in the visitor and the interaction is an obstacle to the concentration.

The naturalness of the interface is one of the more important elements so that the person can feel itself effectively immersed in the installation. With the term naturalness we mean the not intrusive character of the device and the simplicity of the interaction gesture which shouldn't require explanations. The natural interfaces push the visitor to operate with a well known own gesture language. Helmets, mouse, gloves or similar devices have the advantage to divert the attention of the person from the content in order to focus it over the interaction device. Some of the most interesting natural devices are the tracking systems where the visitor uses the own hands or the body in order to interact. Often, such approaches are based on video-cameras and sophisticated programs of real time image analysis.

The opening of the interaction is connected to the dimensionality of the artwork. If the possibility of the visitor consists in a navigation over predefined states, very soon the feeling to explore the content will disappear leaving the place to an emotion similar to leaf through the pages of a book. A different emotion is given when the number of the possible configurations is very large and not expectable a priori. In this case the visitor can renew continuously its desire to find a personal way and therefore of feeling itself creative in the learning of a content created from an other person.

A meaningful aspect is the synchronization of various stimuli like images and sounds. When such synchrony exists, that it goes under the name of synaesthesia, our brain alloys the stimuli exalting the involvement in the perception. A good modality in order to obtain this effect is to tie sound and image to the interaction mechanism, possibly using the real time generation of music and tying the musical reactions to the actions of the visitor. Finally the three-dimensional effects of the sound have a strong effect to dip the visitor in the installation for the spatial localization effects.

For many years the term *man-machine interaction* (MMI) has been used as a paradigm of interaction to pilot computers. Today such term is misleading. The term *machine* has a mechanic connotation and it is little suitable to the idea of the communication that seems a quality connected to living systems. However the real interaction does not happen between the man and the computer but between the man and the software. The MMI paradigm is going to become obsolete in the moment in which program and computers are not more identifiable like a single unit. It is the case of the internet network where the data and the programs do not reside on the computer but they *come from outside*. A possible overcoming of the man-machine paradigm is in the concept of the

*man-digital entity* interaction. Such concept can be generalized in the construction of *real-artificial hybrid ecosystems*. In these contexts digital entities interact in between and with the human visitors evolving in time. This approach includes a provocative reference to the possibility of the *digital life* or an utopian digital intelligence. Although we are still very far from concrete realizations in these directions, the idea of interact with a digital entity with its personality, stimulates a great interest in the visitor.

The described concepts could inspire applications where the visitor interacts with the content of artworks of great masters. The basic idea is that the artwork is an intellectual property of the artist, but the fruition process is a personal right of the person who visits the artwork itself. Such idea can appear banal, but it is necessary in order to claim an important right of the visitor to determine own perceptive path. Such right is obvious in the interaction with the real artwork but it is critical when the interaction is mediated through a multimedia representation of the artwork. In the passage from the real artwork to the represented artwork, often the visitor loses wide part of freedom (and consequently the interest) in the fruition of the content. It is necessary to give back to the visitor the resolution on the detail, the variations of light, the possibility to concentrate itself on a subject, the possibility to dream in front of the artwork and to see the colors to change or to saturate, the shapes to move itself, to imagine and to try the creative process of the artist, to see the color blobs, to feel the sounds of the time. The value of an artwork is embodied also in its dimensionality, that is the potentiality in term of possible variants and interpretations. To realize it in an interactive installation, is not to change the representation of an artwork, but to give back to the visitor the perceptive freedom that he has with the real artwork but that nearly always it is denied in the digital representation.

As a methodological example, in the next paragraph we will refer to a specific installation realized in 2001 from Mauro Annunziato, Isabella Tirelli and Piero Pierucci. The concept at the base of the installation is an attempt to animate a process of dynamics perception of a pictorial artwork. The perception process is guided from our subjectivity, from our history: we see that we want to. The idea is that the visitor, through a cyclical process of interaction, can find a personal way to approach the artwork. In the metaphor, such process has been turned upside down in provocative way: the *Sensitive Painting* has its sensibility and living attitude and it reacts to the actions of the visitor altering the visitor perception.

## **SENSITIVE PAINTING**

*Sensitive Painting* is an interactive installation where a projector linked to a computer, casts images on a large size picture. The picture has been realized as a patchwork with 8 layers. Each layer has been realized composing infinite fragments of colored, transparent papers, stuck together with water based glue. Each layer portrays the eternal flux between Eros and Thanatos (love and destruction). The Libic Sybil, from Michelangelo Buonarroti on the Cappella Sistina, closes (and opens again) the open question summoned by the painting. The images projected on the painting consist of the internal layers memorized in the computer. The underlying layers of the painting are scarcely visible on the painting itself. Some shots of the scenes were taken and then digitally captured during the artwork realization. Images coming from the creation progress symbolize a sort of genetic memory, composing themselves with the final painting to build the basic material of the artwork.



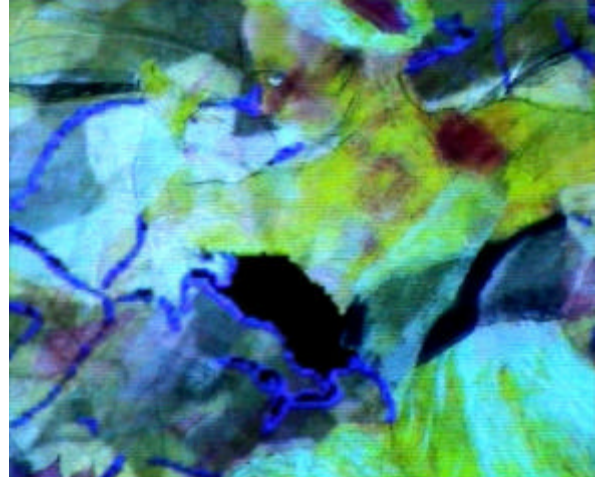
Before the projection, the images are modified in terms of saturation, hue, color inversion and other color contrast models in relation to the people interaction. The perceptive results depends on the composition of the projected image, and the reflection on the physical matter of the real painting. In this way, the painting seems to change dynamically in color and shape.



In front of the painting the visitors can interact on a interaction device composed by a table with a *sensitive surface*. The surface has a woman body shape. The sensitive surface represents a sort of *nervous system* of the painting ranging from the eros to the thanatos zones mapped in the surface. The visitor can interact moving their hands on the surface. When the hand of the visitor pass close a *nerve* of the painting, it reacts modifying the perceptive variables. Following the different trajectories on the surface, the visitor explores he whole aesthetic content of the painting. He can modify the color saturation (related to the eros zone), rotate the colors preserving the original relations, navigate in the painting history.



In the thanatos zone, the visitor push the painting to *destroy* the colors towards the gray. This effect is obtained combining the original color of the painting with the complementary color projected by the computer. Still in the thanatos zone, the visitor causes a de-structuration or decomposition of the painting in several shape fragments that begin to move autonomously around the painting. In the eros zone, the visitor push the painting towards the recombination of the fragments to recompose the original shape.



The nervous system of the painting is attached to a music generator. The music flow trough the attractor of chaotic functions. The perceptive variables of the music generation are still connected to the sensitive surface. Depending by the position of the visitor hands and movements, the music seems more passional (eros zone) or more surreal (thanatos zone) or more melodic in the intermediate zone between eros and thanatos. In this zone the eros and thanatos forces are combined producing a sort of dynamic harmony and equilibrium.

The main theme of the installation is perception seen as an active principle and a dynamic process, causing a change in reality based on observer's attitude, culture, action. The perception changes continuously the subject and the subject changes continuously his perception. This sort of continuous self-reflexive cycling of the output in the input is one of the most significant mechanism at the base of the aesthetics and learning process. In this metaphor the painting, animated by its own nature, reacts to the observers, causing a continuous change in perceptive flux, dynamically underlining its aesthetic potential. The meeting between observer and the "sensitive painting" portrays the fusion between the artist's and observer's creative flux. The process of the artwork realization, embodied in the projected images is unceasingly elaborated by the observer's interactions, altering the receptive structures of the painting with their movements.

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