Digital Threshold. Art, Body and Self-reflection on the Screen.
Isabel Cristina Restrepo Acevedo

Universidad de Antioquia
Medellín, Colombia
cristina.restrepo@udea.edu.co, isabelr27@gmail.com

Abstract

This paper focuses on new possibilities for individual and collective expression on the screen by the use of digital remote sensing of actions and bodies. In particular, the paper studies representational environments (like biological datasets) that allow users to have aesthetic and cognitive experiences via an active exploration that integrates mental and physical perception. Users may expand their self-perception in the present moment (here and now) by their emotional connections with their representations or avatars on the screen; connections that can produce three relationships with the idea of the self: assume identity, confronting split personality, and live alterity. In the paper, computer-based interactive spaces in real time are defined as dynamic, iterative and organic processes. These processes relate to the procedural nature of digital media and unfold over time under a structural narrative that is actualized through human movement. This narrative utilizes the user's body and gestures as primary sources for the representation in twofold scenarios, the physical and the digital.

Keywords

Representational Environments, Self-representation, Mental and Physical Perception, Remote Sensing.

Introduction

Computer based interactive spaces in real time can be understood as representational environments that allow users to have aesthetic and cognitive experiences via active exploration guided by mental and physical perception. Based on the depiction of the interactors' bodies or actions in the audiovisual imagery projected on the space or screen, there is a correlation between building a sense of presence and active participation in the configuration of the emerging representation and developing a sense of empathy with those depictions or avatars. In these space interactor experiences "the feeling that one's self is located inside the biological body or an avatar's body" (Kilten, Konstantina, Groten, Raphaela, & Slater, Mel, 2012, p. 375), a sort of split sense of presence: on the physical space, on the screen.

In terms of the dynamic of designing and reception of these real time interactive projects it is possible to talk about iterative and organic processes that relates to the procedural nature of computer media proposed by Janet Murray giving their "ability to represent and execute conditional behaviors." (Murray, 2012, p. 51). At the same time, viewer's interactions unfold over time structural narrative that goes beyond the traditional conventions of written textuality to pave the way for emerging narratives resulting from human movements, requiring the user's body and gestures as primary sources for the representation in twofold scenarios, the physical and the digital. According to Katja Kwastek: "the chronological order of the actions represented in alinear narratives may be variable, the process of reception nonetheless produce a chronological progression that orders the different fragments of represented time." (Kwastek, 2013, P. 113).

Tracing the roots of these sort of interactions it is important to highlight some references that goes beyond the digital giving that were presented in explorations in the art on the 20th century. In particular, this paper intertwines those media that include or anticipate the presence of the viewer body in the representation, such us: Ives Klein in painting, Piero Manzoni in sculpture, and interactive viewers on Happenings and Fluxus works), and on those media that express a transition between the structured real time moving image (video art, quasi-cinemas, video installation) to interactive moving images in space such as Responsive environments, Augmented reality (AR) and Virtual Reality (VR) installation, among other.

The social and cultural uses of this interactive spaces in art has so much in common with other contemporary interactive spaces designed with other social and cultural uses, so it is possible to say that, although this analysis departs from an artistic perspective, the

social and cultural dimensions' overpass aesthetic dimension and impact society in a way that goes beyond the museum, galleries or traditional spaces for artistic projection.

Distant Contact: New Relationships Between Body and Technology

This first part of the research focuses on determining the characteristic of the interactive spaces that combine physical and digital representation in real time. and the ways in which these characteristics allow the spectator to build a sense of presence in relation to the sense of realism that we tend to attribute to visual representations based of the depiction that they do of elements as: shapes, details, movements and perspectives. The characteristics established here are: Real time, procedural process (algorithm), capture of the interactor's body, position or action, capture the environment, representations on the screen that combine virtual and real representations. In the present computer based interaction is delimited to those spaces with some sort of remote sensing that captures human activity without the necessity of a relationship between human body and technology that involves physical contact. Thus in these spaces became a system with inputs and output as those describe by Phillip A. Laplante y Seppo J. Ovaska in the book *Real-Time Systems Design and Analysis. Tools for the Practitioner*, 2011. Specifically, cameras, sensors, or Global Positioning Systems, GPS, are the most common device for controlling the inputs in the analyzed interactive spaces and the outcomes are visualizing in different kinds of screens.

Self-reflections on the Screen

After discovering their self-reflection on the screen people have the possibility of expanding their experience of themselves in the present moment (here and now). They live the now in a splitting space, here (physical space) and there (screen or audiovisual emerging representation). Their emotional connection with their representations can produce three relationships with the idea of the self: assume identity, confronting split personality, and/or live (encounter) alterity. The active presence of interactors on these digital environments encourage them to consider interactors as digital immigrants that potentially live a unique transformative experience of the present in a split space that takes them out of their homeland, to a place where new

rules, structure and systems need to be learn. At the same time, these kind of interactive space open new cognitive an under the responsibility of the interactor. So, as Brenda Laurel described on the book Computer as Theater: "Designing human-computer experience isn't about building a better desktop. It's about creating imaginary worlds that have a special relationship to reality –worlds in which we can extend, amplify, and enrich our own capacities to think, feel, and act." (Laurel, 1993, pp. 32-33). A Colombian example of an interactive space that was design to invite people to think, feel and act is the augmented reality piece Entránsito (2008-20111), a piece developed by the research groups Hipertrópico, arts and technology and GEPAR, from Universidad de Antioquia, which reflects on the topic of motorcycle in the city of Medellín. The piece was designed to unfold two possible interactive narratives: one under the responsibility of two actors who follow a pre-structure narrative that emerge of real time, and the second one that one the space to the audience and allow them to freely interact with the component guided by the premises of what they saw from the actor or by the images on the screen. In both cases, bodies were remotely sensing by a web cam and people´s action immediate affects the visualizations on the screen. This double possibility for interaction, performer and the audience, aligns with the interaction in the renowned interactive work Messa di voce, 2003, developed by Golan Levin y Zachary Lieberman.

Figure 1. Image from the augmented reality interactive piece Entránsito with the resulting representations of actors on the screen. ©Hipertrópico, arts and technology research group, Universidad de Antioquia

Figure 2. Image from the augmented reality interactive piece Entránsito with the resulting representations of actors on the screen. ©Hipertrópico, arts and technology research group, Universidad de Antioquia

Digital Threshold: Cultural Dialogues on the Screen
By defining the elements that constitute the interface in real time (computer, algorithm, sensing devices, space, screen, users, and space of visualizations), I define the representational (demarcated) space as a digital threshold, or in other words, as a frontier that combines physical and digital logics and creates an organic language, characterized by iterations, and in which cultural messages are created by a collective configuration (creation) with different levels of participation. The configuration could be defined in terms of a media equation, resulting in the combination of coupling perspectives of different actors: human, machines and images. This equation can be represented visually as a spiral that moves around establishing departing points.

Given the strong aesthetic audiovisual component of these kind of interactions on real time, and as a way to understand their potential in culture, there are multiple connections between these interactions in relation to media in art history that expresses procedural logic and includes some sort of viewers' presence and participation in the artistic work. However, these kinds of interactive spaces enable cognitive and physical movement of the interactors in two different ways. From an individual perspective, the interactor's actions have the potential to empower physical expression and mental development, a potential that relates to body expression and gestures as the medium to create significant messages (in the terms propose by Amy Cuddy this is relating with the idea that "body language affects how others see us, but it may also change how we see ourselves"). From a collective perspective movement can impact at a social and political level in a sort of a collective choreography for creative and emotional thinking.

References

Kilten, Konstantina; Groten, Raphaela & Mel Slater (2012): The Sense of Embodiment in Virtual Reality. In Presence, 21, n.o 4.

Kwastek, K. (2013): Aesthetics of Interaction in Digital Art (Warde Niamh, trad.). Cambridge, MA: Massachusetts Institute of Technology, MIT.

Murray, J. H. (2012): Inventing the Medium: Principles of Interaction Design as a Cultural Practice. Cambridge, Mass: MIT Press.

Laplante, P. A. & S. J. Ovaska (2012): Real-Time Systems Design and Analysis: Tools for the Practitioner (4th ed.). Hoboken, N. J.: Wiley-IEEE Press.

Laplante, P. A. & S. J. Ovaska (2012): Real-Time Systems Design and Analysis: Tools for the Practitioner (4th ed.). Hoboken, N. J.: Wiley-IEEE Press.

TEDGlobal 2012 · 21:02 · Filmed Jun 2012. Amy Cuddy: Your body language shapes who you are. Accessed 2013: http://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are?language=en

Author Biography

Isabel Cristina Restrepo Acevedo is an Associate Professor and director of the research group Hipertrópico, Arts and Technology from Universidad de Antioquia, Colombia. Her research and artistic practice explore relationships between new media art and society. Restrepo received her PhD in Arts in 2014 with the Magna cum lauden recognition for her thesis. Restrepo also received a MFA in Art with emphasis in Multimedia from San Diego State University in 2007 and BA in Art from Universidad Nacional de Colombia in 2002.

She was a Fulbright-Colciencias Scholar from 2004-2006. Restrepo has directed researches as: Interactivity and Augmented Reality and Imaging and Artistic Education: A Pedagogical Model. Such work has led to the creation of the pedagogical multimedia Líneas Digitales, based on the use of GIMP, and to creation of Entránsito, an augmented reality piece that deals with motorcycle accidents. She is currently directed the research Puppets, humans and machines: an interdisciplinary circuit for the creative learning and expression.