

## **COMPUTER ARTEFACT: THE CRUCIAL ELEMENT IN ARTISTIC PRACTICE IN DIGITAL ART AND CULTURE**

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### **ABSTRACT**

The emergence of digital art and its various variants such as computer art and digital media art is discussed. As well as, how this form of artistic and cultural expression is being affirmed in a contemporaneity characterized by the digital technological revolution. It analyses the nature of the creation and enjoyment of digital art and culture, related artistic practices and how in these, the computer artefact plays a pivotal role. Examples of artefacts are presented in context, promoting their recension in the light of contemporary digital art and culture, while discussing some elements of an aesthetics of the computer artefacts.

### **KEYWORDS**

Aesthetic contemplation; computer artefact; digital/computer art; digital culture; digital media-art

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### **RESUMO**

É discutida a emergência da arte digital e das suas diversas variantes tais como a arte computacional e a média-arte digital. E de como esta forma de expressão artística e cultural se vem afirmando numa contemporaneidade caracterizada pela revolução tecnológica digital. É analisada a natureza da criação e fruição da arte e cultural digital, as práticas artísticas relacionadas e como nestas, o artefacto computacional assume um papel central. Apresentam-se, em contexto, exemplos de artefactos, promovendo-se a sua recensão à luz da arte e cultura digital contemporânea, enquanto se discutem alguns elementos de uma estética dos artefactos computacionais.

### **PALAVRAS-CHAVE**

Artefacto computacional; arte digital/computacional; contemplação estética; cultura digital; média-arte digital

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### **ABOUT THE EMERGENCE OF DIGITAL MEDIA ART BASED ON COMPUTER ARTEFACTS**

The emergence of the World Wide Web or simply web, which began in the mid-1990s, has potentiated general and accelerated access to the computing and communications media on a global scale, which has launched the contemporary society in the adventure of the so-called technological revolution, whose contours and implications, of a transverse and universal nature, in the lives of people, companies and society in general, are still, and to a large extent, unknown, a fact which is necessarily the fruit of the accelerated development of computer technologies that keep surprising us with new and unpredictable results and achievements. We now live in the age of the post personal computer, which has gradually transformed and multiplied into one more simple global

web node, from billions of other computers scattered around the globe, where each node can be instantiated in the form of various devices ubiquitously accessible through a cloud of data and connections, a kind of protective sky that safeguards private and public data and connections where a significant part of the population connects to communicate, work and socialize in growing networks and subgroups of groups of interest, evolving to what has been designated as the information and knowledge society.

In this scenario, digital media are now a fundamental part of building and sustaining this information society, especially considering the devices, infrastructure and computer technology that allow the generation (capture / synthesize), transformation, presentation or display and the communication of the information in digital format (binary base coding). Digital media, combined with information and communication technologies that enable its processing and control, strongly influence today, for example, how we nowadays understand, create and consume art and culture, especially when embodied in digital/compute artefacts that are presented to us from informational/communicational spaces, inviting us to interaction and involvement. According to recent data collected from the eMarketer<sup>1</sup> website, it is estimated that 2.5 billion people today use the portable phone, being responsible for the daily loading of more than 300 million photographs for Facebook, 40 million for Instagram and 4.5 million to Flickr. These spaces, being essentially of a purely virtual nature, are born associated with interest groups, and are maintained spontaneously and voluntarily following the natural process of pursuing a common interest that characterizes the nature of network collaboration. These values point to the rapidly growing phenomenon of network collaboration, whether in the generation or sharing of digital content, now reaching gigantic volumes, usually of free access, which are the basic raw material for network artistic creation.

Digital art, or the art of digital media as it is also referred to, as we know it today, has its advent in the artistic circles in the late 1990s when artefacts and installations imminently of digital nature began to be included in the programs of the art events. However, if we look at the nature of digital art we find that it inherits influences that run through the entire twentieth century, going back to the decade 10 and the Dada movement. To mention the Dada's artists, Marcel Duchamp or László Moholy-Nagy, who developed the concepts of virtuality, volatility or introduced the use of other senses, such as touch or smell, in their pieces. The role of the active viewer/performer, who ceases to be a simple observer to play the role of observer-actor-intervener, who interacting, can alter the artistic artefact itself and its context of enjoyment, pivotal concepts to the current digital art/computer art, were already intensely explored by Dada's artists and artists of subsequent movements. John Cage and Karlheinz Stockhausen developed the concepts of control-based instructions or controlled randomness to generate phrases and musical compositions. Other artists and pioneering theorists such as Grahame Weinbren, Nam June Paik, Michael A. Noll, John Whitney, Vera Molnar or Charles Csuri, to name but a few, developed the concept of random access in the generation of audio and computer synthesized images. Ray Ascott and Lev Manovich more recently theorized about the

<sup>1</sup> Retrieved from <http://www.emarketer.com/Article/Smartphone-Users-Worldwide-Will-Total-175-Billion-2014/1010536>

interactivity and the role of communicational media in the process of digital creation and digital, computer and interactive art in general. These characteristics define transversally the art and the digital culture and all its variants and specializations such as the digital media-art, establishing in itself the vectors of development of an aesthetics of the digital means (Marcos, Branco & Carvalho 2009, pp. 5-7; Paul, 2008, p. 27).

Digital art has been defined (and imposed) over the last almost two decades as the art produced in digital computing environments and that itself assumes this nature, in which the process of creation uses the digital/computer media as a tool and as raw material. Computer art assumes a broader definition since it encompasses all created art that is supported by computational means, not necessarily of a digital nature. Meanwhile, digital media art refers to the specialization of digital art in which the main raw material is media or digital media, themselves, and digital information, where the creative emphasis is placed (not exclusively) on the informational dimension of the artefact. The term “media” refers to the medium of communication or dissemination of information, and digital media-art refers to art created, instantiated or disseminated using the media of the digital information/communication. In this context, the term “digital” refers to the computer nature of the binary basis of the object, medium or content of the digital art artefact (Lopes, 2010, p. 3).

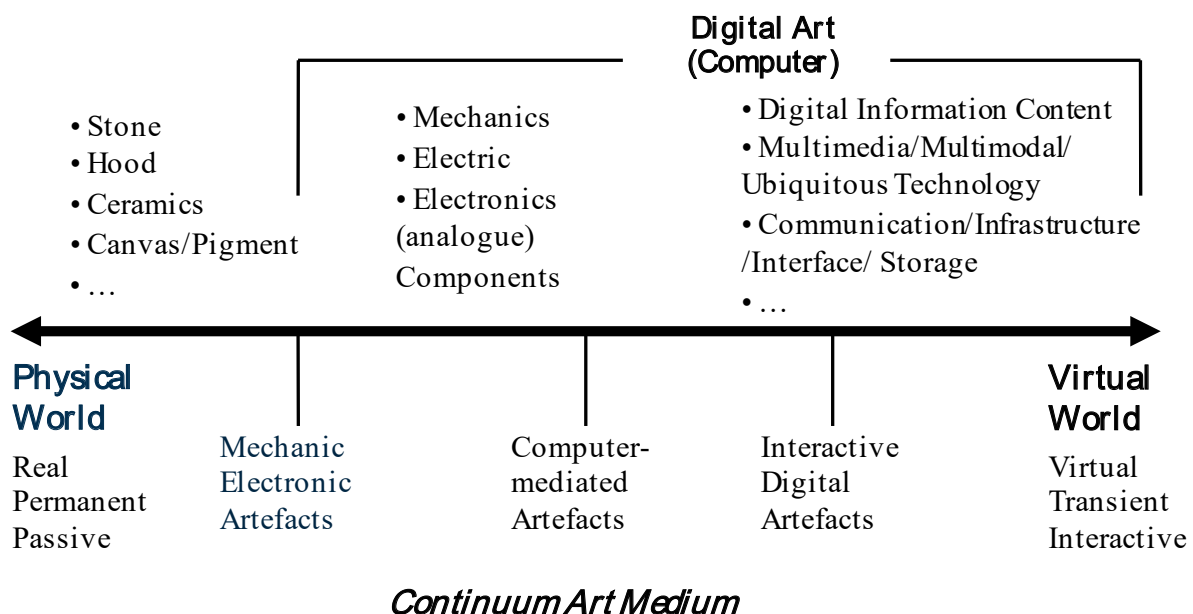


Figure 1: A general view of the *Continuum Art Medium*

Figure 1 presents a general view of the space of instantiation of art, *latu sensu*, exploring the concept of the *continuum medium* or continuous medium of art mediation, which is situated between two opposing worlds, the physical world or the tangible physicality, that of the permanent physical representation, and the transient and intangible virtual world that provides interactive experiences mediated by digital and virtual

computational means. We localize digital (computer) art close to and encompassing this digital virtual world. The artefacts of digital art and culture are also located in this area of the *continuum art medium space*.

Figure 2 presents a general, non-exhaustive categorization of digital (computer) art, based on three fundamental categories, namely:

- **Virtuality:** level of migration of the physicality of the art object, especially its seminal concept, to virtual digital spaces, of intangible nature, through any means of virtualization. The seminal concept becomes perceptible through the virtualization of its object;
- **Interactivity:** level of interaction/involvement made possible between the user/enjoyer and the artefact, a dialogue that can lead to the alteration of the artefact itself;
- **Randomness:** perceived level of non-determinism in the instantiation of the artefact (or part of) created by an algorithm based on instructions previously configured by the creative artist or by the audience itself.

It is not straightforward to determine with adequate accuracy the circumstances of the initial use of some of the above-referenced categories since pioneering artistic experiences in the use of computer technology (digital) have been happening in various laboratory spaces, in all over the world. For example, computer art would have its genesis in the 1960s through the researchers/creators of the Bell Labs, New Jersey, namely, Michael A. Noll was one of the pioneers of computer-synthesized imaging. Video art appears in the mid-1960s when its equipment became available to creators. While net.art (or web-art or internet-art as it is also referred) appears in the mid-1990s when the Web has been taken as a space for the creation and dissemination of art, generally of an ephemeral nature and only accessible on the net, being the term attributed to the artist Vuk Cosic (Greene, 2005).

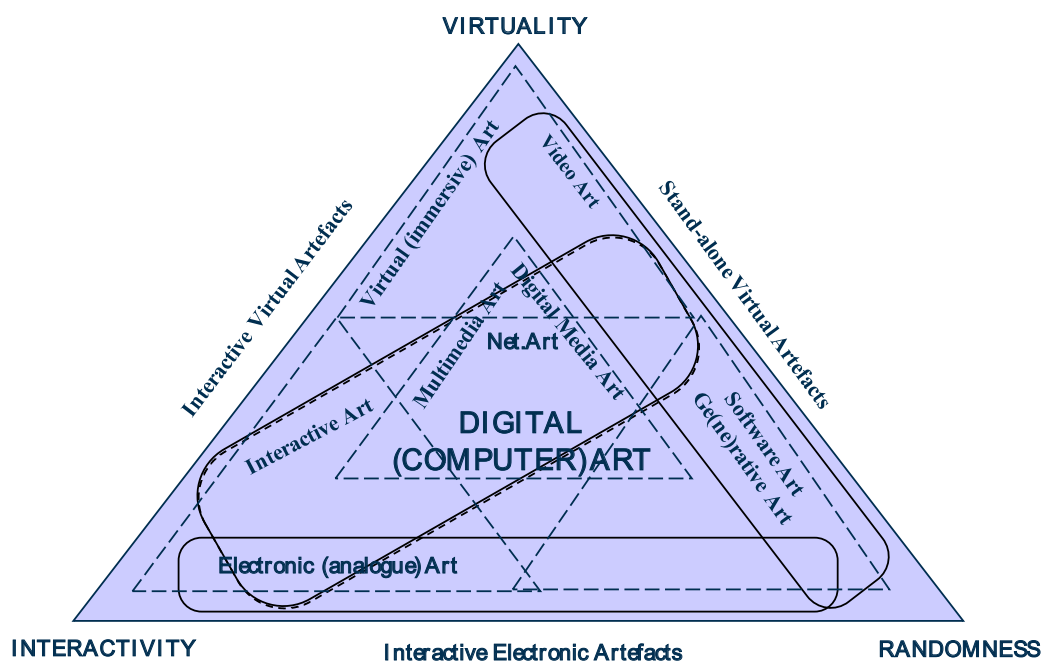


Figure 2: A general categorization of digital (computer) art

Digital culture and digital-art objects are digital (binary) or computational (encompassing computational elements not necessarily binary) objects that essentially provide an informational nature, aiming at enhancing meaningful experiences to the observer/user/enjoyer, who may be metamorphosed, perhaps, also as an intervenor (co)author. The authors try to explore frequently in these artefacts the interactivity and expressiveness, be it informational or communicational, transforming them into inducers of artistic and cultural action-intervention. In their most striking essence, these artefacts are not only objects to be passively appreciated, but bring virtual characteristics, eventually immersive, enhancing interaction, leading the user-enjoyer to embark on a journey of aesthetic contemplation of a polysemic nature, in multiple use and fruition scenarios, ranging from educational, scientific, playful, philosophical or even sacred, which can stimulate the realization of qualitative, inter, multi or even transdisciplinary experiences when various knowledges and sensibilities intersect and complement each other to generate apprehensions of complex nature.

A meaningful experience is defined as that in which the subject classifies as important, relevant and rewarding its contributions, and these may be of various kinds (aesthetic-contemplative, educational, playful, entertaining, historical, social, etc.).

#### **ABOUT THE CYCLE OF CREATION AND ENJOYMENT OF DIGITAL ART AND CULTURE**

Given the nature of the digital media (*medium*) that constitute both the creative tool and the raw material of digital (computer) art, the digital artefact creative cycle naturally inherits characteristics of the computer artefact development process, embracing aspects intrinsically related to the creation/configuration of the digital artefacts, being these systems or applications. The act of artistic creation or the process of creation itself has been subject of much debate and research in the last (many decades), even considering that issues related to art and beauty were the subject of analysis already in ancient Greece, by Plato and Aristotle, for example. For example, Duchamp in his lecture entitled “The Creative Act” (Duchamp, 1966) states that the artist never finds himself alone with his work; there is always an observer/spectator who will later react critically to the work presented. It is commonly accepted that if the artist succeeds in transmitting his or her initial purpose through the mediation of his / her artefact, whether it be a message, emotion or feeling, reflection, etc., taking the form of a meaningful experience, then an aesthetic osmosis process takes place through the artefact (the medium), considering all its constituent parts, be these inert material or digital components, for example, in the sense in which it allows that mentioned experiment to happen, perhaps by enhancing aesthetic contemplation (Eco, 1962; Grau, 2003; Marcos, 2012).

The process of creation in digital art and culture is generally oriented towards the design of the message and experience that is intended to be provided through the artefact and its physical development. The computer environment or medium, embracing the tools for editing, design, programming, communication, network collaboration, etc. as well as digital information content and infrastructures, sustains the whole creative

process. The process of developing the computer components of the artefact follows, to a large extent, the procedures adopted in the development of small and medium-scale computer systems and applications. However, contrary to the traditional design process where the solving of a problem guides the designer's action, in digital art the systematization does not appear primarily for such purpose, but rather to enhance a meaningful experience of aesthetic contemplation that comes from the fruition of the artefact. Although artists generally adopt a similar process in pursuit of their creative ingenuity, i.e., from an initial concept or idea that may eventually evolve, in cycles of advancement and retreat, to the final artefact, it is also noted that this does not happen consciously, in many cases, but rather randomly and spontaneously (Quintas et al., 2015, p. 82). The zero phase of the creation process, even before any initial concept is adopted, is filled by experimenting with technology, compiling ideas, reading and acquiring specific technical knowledge and skills. And then, gradually, a particular aspect emerges and gains preponderance, becoming the centre of experimentation and reflection, giving indications for the design of the future system or application, or of the experience to be given to the user/enjoyer, from which several paths are posed, some of them will be tried, followed or abandoned, in the sense of gradually reaching more refined instances, one of which (or group of them) is chosen to support experimentation and continued development until the final artefact (Marcos et al., 2009, p. 16).

The process of creation in digital art and culture tends towards cycles of intense reflection and apprehension about the nature and creative potential offered by technology and digital / computer media. Marcos says about the creative cycle:

in fact, one of the central activities of the process of creation in digital art (and culture) is aesthetic musing (meditation), which represents the moments of contemplation where the artist revisits his/her initial vision in the light of the decisions taken (or about to be taken) during the phases of design and implementation of the artefact and establish with it a deep inner relationship. This aesthetic reflection is driven by two fundamental vectors, namely the aesthetic apprehension related to the need to provide a significant perceptual experience of pleasure, sense of satisfaction (or others); and the technological innovation that encompasses the issues of exploring the most prospective characteristics of the technology, in the sense that it can effectively function as a driving / inducing force for the creation of new aesthetic discourses. (Marcos, 2012, p. 140)

The artist or creative person in digital art and culture immerses in a journey of intense reflection, resulting from the gradual maturation of his/her primordial vision (*theoria*), practical experimentation with technologies and materials (*praxis*) and the effective setting up or materialization of prototypes of and of the artefact itself (*poesis*) while in the scenario of exposure, use and enjoyment. It is a journey full of inner conflicts and questioning, in relation to the process, the materials, the primordial idea and the public. Practice has taught us that the deeper the process of reflection-experimentation-construction

(materialization) carried out by the creator, carried out at the appropriate times, which include pauses and periods of intense activity, the greater the propensity to achieve results to reach high aesthetic quality in the perspective of the experience provided (Marcos, 2012, p. 142; Marcos & Zagalo, 2011, p. 147).

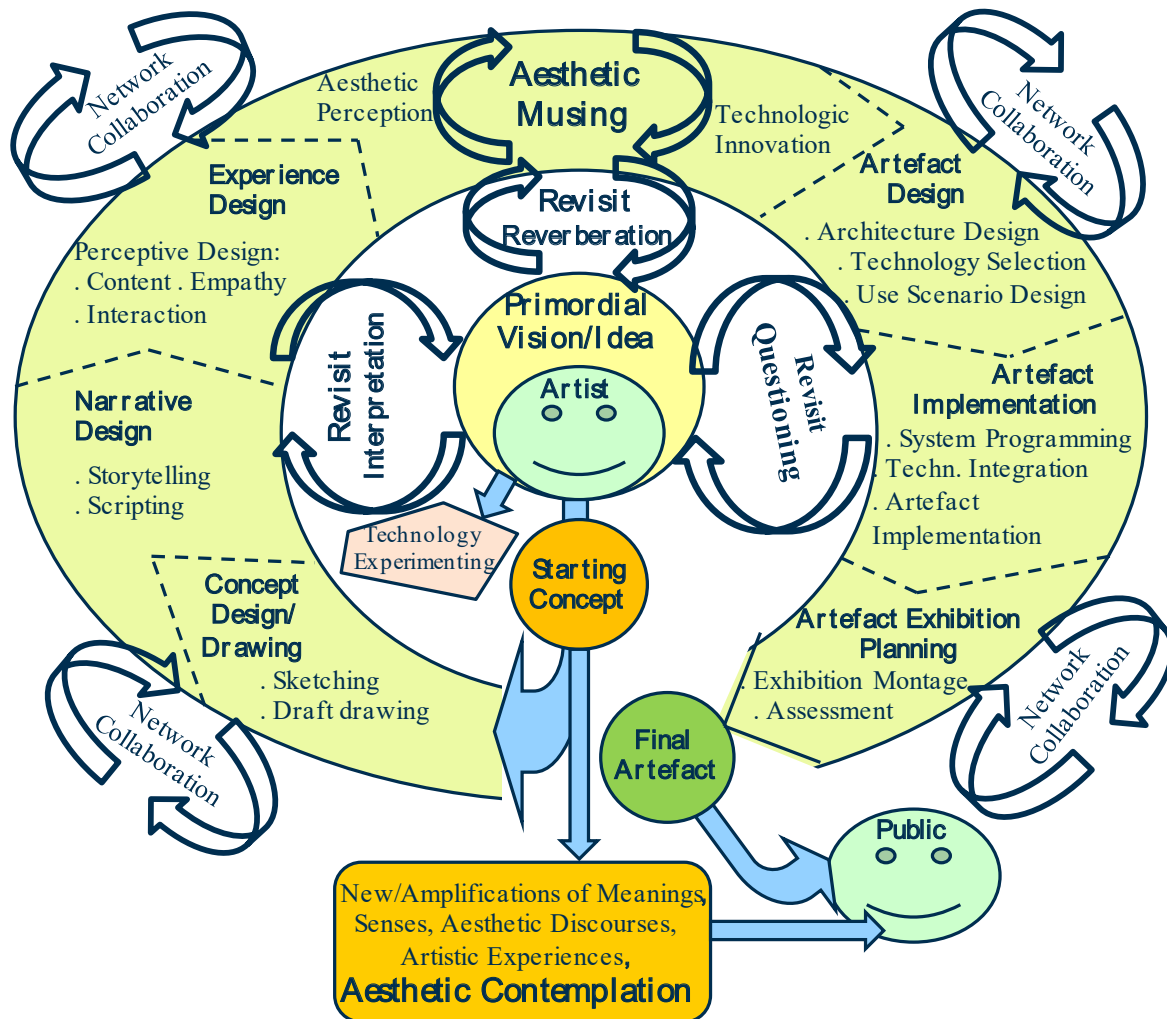


Figure 3: The creative cycle in digital (computer) art

Giannetti warns us that the creation or creative cycle tends to move away from the final object, the artefact, as the epicentre of the process of aesthetic reflection, to be reoriented itself to the process itself, the system, the technologies and the context, the latter, the space-time in which experience of fruition will take place. Giannetti says:

there is a need to look for different forms of thought and experiences that allow the assimilation and analysis – never the negation – of contemporary phenomena. The practice and theory of media art and, specifically, of interactive art allow the understanding of these new forms. This artistic field is based on some essential premises that give rise to new conceptions: the

reaction against the aesthetic theory centred on the art object and favourable to the reflection on the process, the system and the context; the wide interconnection between disciplines; and, finally, a redefinition of the author's and observer's roles. (Giannetti, 2012, p. 6).

On the other hand, the creation or creative cycle naturally opens up to networking among interest groups, combining different knowledge and disciplines, in view of the technological and expository specificities required in the development of the artefact.

Figure 3 presents a general view of the creative cycle in digital/computational art and culture. The creative cycle begins when the artist / creative person launches a starting concept/idea, even if unaware of this fact. This phase can be preceded by moments of free technological experimentation where the artist seeks the appropriation of the potentialities and limitations of the computational means (tools, applications, systems, etc.) that he/she considers likely essential to the implementation of his primordial vision.

There are several phases of the creative cycle, each one contributing with key components to the setting up of the final artefact. Namely,

#### *Message Design Phase:*

- **Concept Design:** encompasses the conversion of the idea/concept into sketches, informal drawings, i.e., the abstraction materializes in a tangible, but still perspective, structure. It is a phase of pure exploration, where no final work is intended.
- **Narrative Design:** in possession of the results of the previous activity, a composition is conceived, a sequence of events that allows to architect the message through the involvement of the spectator/user through a narrative supported by the artefact itself. The narrative takes the form of a chronological sequence of themes, motifs, and plot lines. The result of this activity will support a greater or less involvement of the spectator/user in a certain narrative or story that instantiates the general message of the artefact itself.
- **Experience Design:** Encompasses the design of features to be printed at each event of the narrative so that it can provide the viewer/user with a certain experience. The conception or planning of this experience, in each event of the narrative, is carried out considering individual or group precepts, known or suspected, at the level of beliefs, emotions, knowledge, skills, experiences and perceptions.
- **Aesthetic Musing:** This activity plays a central role in the creative cycle, since it represents the moments of contemplation where the artist/creative revises, revisiting his seminal vision in the light of the decisions made (or only planned) (see Figure 3) during design and development of the artefact. We identify two drivers vectors in these activities, namely:
  - **Aesthetic Perception:** Process of reflection and conception of the integration of characteristics in the artefact that provide experiences of pleasure, meaning or satisfaction (or others), coming specifically from manifestations and sensorial stimuli generated from the artefact through its form, colour, sensorial immersion, sound, Texture, design or rhythm, among others. The aesthetic dimension here is exclusively related to the perceptual nature of the various components of the artefact.
  - **Technologic Innovation:** Process of reflection and design of innovative aspects in the (re) modelling, use, combination and exploitation of the technology that forms and substantiates the artefact. This points to the aesthetic dimension of computational media, to the creation of new aesthetic discourses supported and fostered by them, where virtuality, interactivity and randomness play a primordial role.

### *Artefact Development Phase (see Figure 3):*

- **Artefact Design:** Encompasses the design of the system or computer application, considering all its parts, of any kind (mechanical, electronic, materials, etc.), that will instantiate the final artefact. It includes the design of the architecture, the interface and the interaction of the system, as well as the selection of technology for its implementation or the design and design of the scenario of exposure or enjoyment.
- **Artefact Implementation:** Encompasses the actual implementation of the artefact itself. This activity integrates tasks such as programming systems and applications, testing and debugging, as well as technology integration and the final implementation of the artefact as finished work, and can be carried out with the support of an interdisciplinary team of computer scientists and digital artists.
- **Artefact Exhibition Phase:** Covers issues related to the planning and assembly of the artefact display. This is the final stage of completion of the work, where the artefact is made available to a specific audience. This phase includes aspects related to the organization of the exhibition space, the logistics of the different components, or the contextualization/integration of the artefact in the whole of the exhibition, according to a certain curatorial plan.

The creative cycle in digital art and culture is therefore supported by two fundamental sub-cycles that demarcate the continuous action-reflection carried out by the artist/creator: the design of the message and the development of the artefact, mediated by the activity of aesthetic musing, intersecting with moments in which the artist revisits his/her primordial idea by confronting it within the creative cycle, in the state in which it is, with the materials and the tools, and even, if already in the phase of implementation and test of the artefact prototype, with the observers / users / enjoyers.

Aesthetic musing implies a posture of contemplation or reverberation about the deeper and intrinsic motivations faced with the sense / meanings sought with the artefact, in a perspective that is shaped, usually, of an interventional character. Aesthetic musing represents here also the conception and creation of mechanisms of questioning of the world through a process of interaction with the developing artefact to (re)create meanings or strengthen senses, being able to embrace research for technological innovation in the path of new aesthetic digital (computer-based) discourses, exploration vectors that can open doors to new perceptions, ultimately, new artistic experiences and aesthetic contemplation be these for the creator or creators of the artefact, but above all for the final consumers (Marcos & Zagalo, 2011).

### **ABOUT EXAMPLES OF COMPUTER ARTEFACTS IN DIGITAL ART AND CULTURE**

Art and digital culture is substantiated in the social interaction, from the manifestation of the individual and collective imaginary, through the artefacts, which coexist in a common informational and communicational space supported in the digital media and digital infrastructures. These artefacts represent the greatest expression of our common imaginary within our contemporary era that is also named after the information society.

Routio presents the science of artefacts, or arteology, using the combination of “ars” from Latin (art, technique) and “logos” from Greek (work, knowledge). Arteology

studies the semiotics of artefacts, of any nature, their functionality and usability, beauty, message and wrapping, processes of research and categorization, among others. It thus proposes the comparative study of various artefacts in the sense of helping to understand the activity inherent in their production, their creative processes and their creators, thus promoting the development and advancement of the study, *latu sensu*, of the artefacts. Routio analysed in detail aspects such as the difference of expectations and as such may be at the origin in the difference of experiences that a certain artefact can mediate:

if the observer of a work of art has an expectation, his impression of the work seldom corresponds to the expectation exactly. The difference can be called a difference of expectations. If this difference is too small, the result will be that the work gives a trivial impression. If, however, the difference is too large, the work of art may remain totally incomprehensible. Only when a work of art differs from the expectations to a suitable degree, is the aesthetic impression positive. (Routio, 2003, p. 355)

What Routio called the adequate difference of expectations in a certain work of art or artefact is assumed in the present reflection as the realization of a meaningful experience of aesthetic contemplation provided by the respective artefact. This difference of expectations also depends on the prior experience and expertise that the observer/enjoyer possesses in relation to similar works. It is obvious that experts and professionals in any area of art have broader and far more detailed expectations than non-experts or lay people. These differences of expectations also explain the differences in attitude in the appreciation of art that we usually encounter between the general public and art critics.

Three representative artefacts of digital art and culture are presented below.

#### *Artefact Interactive Carpet “Óbidos / Oppidum”*

The wearable computers allow to transform the garments into components of a computer system with more or less complexity, establishing new lines of development and reflection in the area of fashion design, performance and body expression, where the body is explored as mediator of intervention in art and digital culture.

The artefact *Interactive Carpet “Óbidos/Oppidum”* by Barradas et al. explores the possibilities of embedded sensors and tiny computers in fabrics, also referred to as e-materials, are programmable in view of the gathering of information of diverse nature be these physiological signs, signs of the environment such as temperature, luminosity, etc. These high-tech fabrics can configure clothing that has the potential to alter its shape and appearance, absorb impact, reconfigure surfaces and temperatures, and so on (Barradas et al., 2014, pp. 74-76; Quinn, 2012).

The *Interactive Carpet “Óbidos/Oppidum”* is a digital textile artefact that studies the interaction of e-materials with the traditional tapestry technique. According to the authors, the choice of a carpet and not a wearable artefact came as a response to the call for a project alluding to the Portuguese village of Óbidos. The artefact displays a stylized drawing of the Óbidos castle, where it is intended to promote, through e-materials, the

rediscovery of traditional techniques and propose new readings of the carpet object, presenting it as a contemporary tapestry, assuming a dimension that is more aesthetic than practical, highlighting the role of the artisan as an artist.

The user can interact with the artefact by changing its luminous configuration and triggering signals of a sonorous-musical nature. It proposes a deconstruction of the static nature of the traditional rug to allow its reinvention through interactive visual-sound-musical language, introducing it into the imaginary of objects of art and digital culture. The dialogue between the enjoyer and the artefact takes place through proximity actions on the electronic components that constitute the e-materials embedded in the carpet fabrics. Figures 4 and 5 show images of the artefact, categorized more by the dimension of interactivity and less of virtuality.

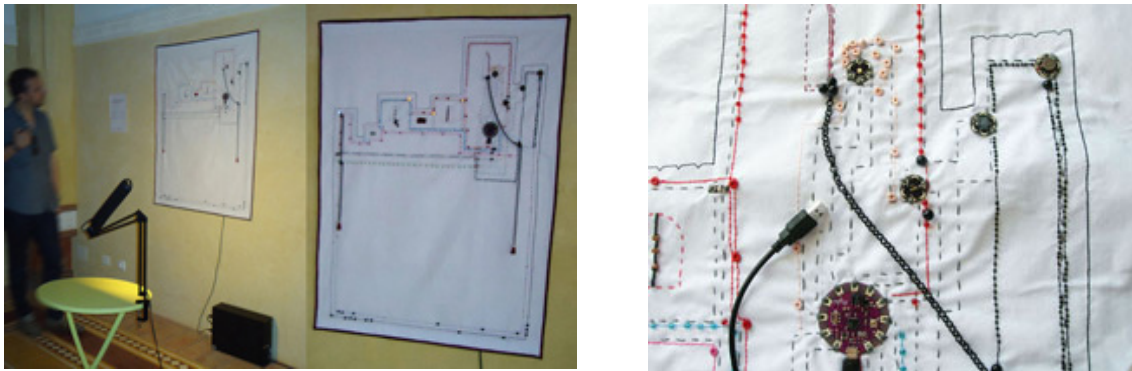


Figure 4: General view of the artefact (left) in detail (right)



Figure 5: Interacting with the artefact

### *Artefact “Sculpture Présence”*

Sound art is an artistic practice where the artist materializes his/her primordial idea through sound. Sound art was consolidated from the end of the 1990's, manifesting itself through several exhibitions in galleries and museums, although the term appeared in the 1960s (Cox, 2009, p. 22).

The artefact “*Sculpture Présence*” by Quintas, Marcos and Tavares (2015) uses the principles of sound art to explore the concept of the user's sound portraits. The sound

portraits are the result of spontaneous choreographies where the user generates electronic sound compositions that uniquely identify him/her from the body movements he/she performs and which are recorded along with the sound content. This set represents a unique picture of the user as intervener in a given physical space (Quintas et al., 2015, p. 5).

The artefact “*Sculpture Présence*” integrates an interactive system for sound composition that provides sensory experiences in the level of hearing and body movement. The experience is sonorous, since it is based on the real-time generation of an electronic music composition; but it is also corporal and gestural, since it requires the corporal movement and gestures of the user-performer, who immerses himself/herself in a performative and choreographic dimension of self-representation (self-portraiture). Figure 6 shows the main components of the device.

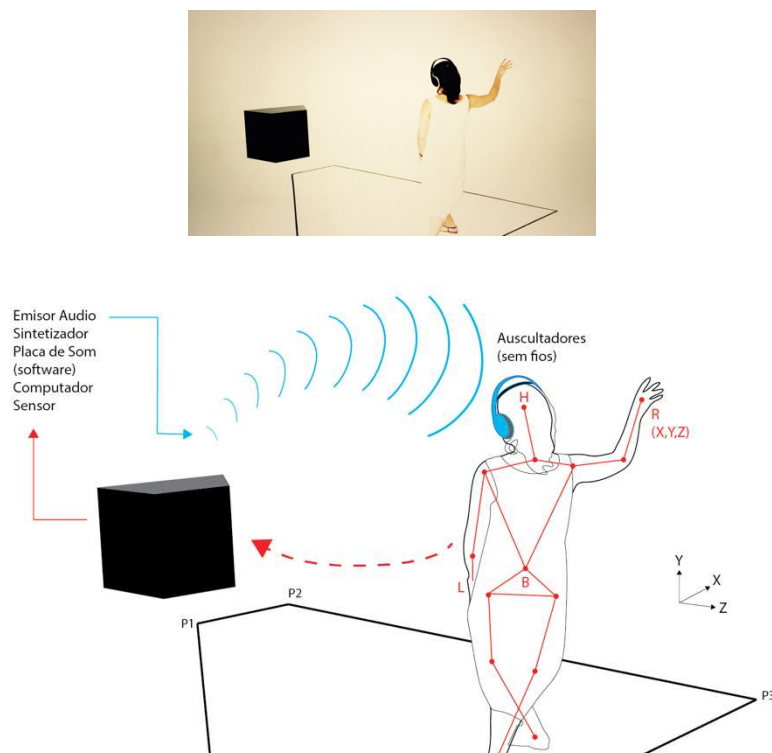


Figure 6: Interacting with the artefact (top). The system's main information flow

The system was developed to offer an intuitive and responsive interface aimed at the public. The users can experience an original, expressive, computer-mediated sound experience without the need to have previous knowledge in musical composition or interface learning.



Figure 7: Participants experiencing the sculpture in the gallery Adamastor Studios, Lisbon

The artefact was widely exhibited and enjoyed in various spaces and contexts, allowing us to gauge an extensive diversity of reactions that, in their overwhelming majority, witnessed poetic and contemplative experiences. The opinions, thoughts and oral and written reports of more than 500 participants revealed, in their almost totality, deeply personal experiences, especially in the group of the blind and partially sighted, as if the artefact would have been created specifically for each one of them individually.

The primordial idea of portraiture is thus achieved through the set of each choreography and the corresponding sound composition, thus representing a plastic and poetic transposition of each individual (Quintas et al., 2015, p. 12). Figure 7 presents examples of participants in full fruition of the artefact. It should be noted that this artefact clearly combines the three categories of artefacts of digital art and culture (interactivity, virtuality and controlled randomness).

#### *Artefact “Between the Sacred and the Profane in the Feasts of S. João d’Agra”*

Annually, in the middle of Serra d’Agra, a mountain located in the Minho region, northern Portugal, the festivities or pilgrimage of St. John of Agra take place, an event of peculiar religious character, already classified as the most exceptional in this category (Guerra & Paulino, 2010, p. 131). In these festivities we find coexistence, a kind of symbiotic promiscuity, between sacred and profane practices, that is, processions, prayers, masses, etc., on the one hand, and on the other hand, the bohemian foliage made by Pagan symbols and primitive behaviours such as duels and fights, challenges, drunkenness and uncontrolled comrades, and so on.

Pilgrims are motivated both by participation in the most sacred dimension, in honour of St. John, considering here literally as the institutionalized sacred, and those who move to the place for the various profane feasts that take place there. It is established that a competition between these two streams of pilgrims, who compete with each other for the possession of the place and the respective festivities. It is this competitiveness between these two groups that constitutes the primordial concept in the artefact “Between the Sacred and the Profane in the Feasts of S. João d’Agra” of Dominguez et al. (Dominguez on 2014, p. 4).

The artefact “*Between the Sacred and the Profane in the Feasts of S. João d’Agra*” develops a pictorial, dynamic representation that represents the place of the pilgrimage,

which is changing as a result of the interaction of the user who manipulates a pendulum, leading to the representation of the place covered by small points of two colours, which run through the space in flow and competition, symbolizing the two groups of pilgrims in confrontation and symbiosis, since both are necessary to make reality S. João d'Arga.

The artefact invites the user to explore several levels of a visual narrative by manipulating a suspended pendulum over the image representing the place, thus inducing behaviours of the different pilgrims, also generating allusive sound information. These changes are only verifiable if one of the two conceptual axes (sacred or profane) gains strength as the specific pendulum movement stimulates it, providing not only an empirical experience based on the simulation of the confrontation of the two groups of pilgrims, visible as a game, but also, above all, the aesthetic experience of the construction of the pictorial frame, a visual narrative, made from the combination of the pictorial symbols of the pilgrims represented in confrontation on the base figure of the place of the pilgrimage. The various created images can be saved separately together with the creation / interaction context.

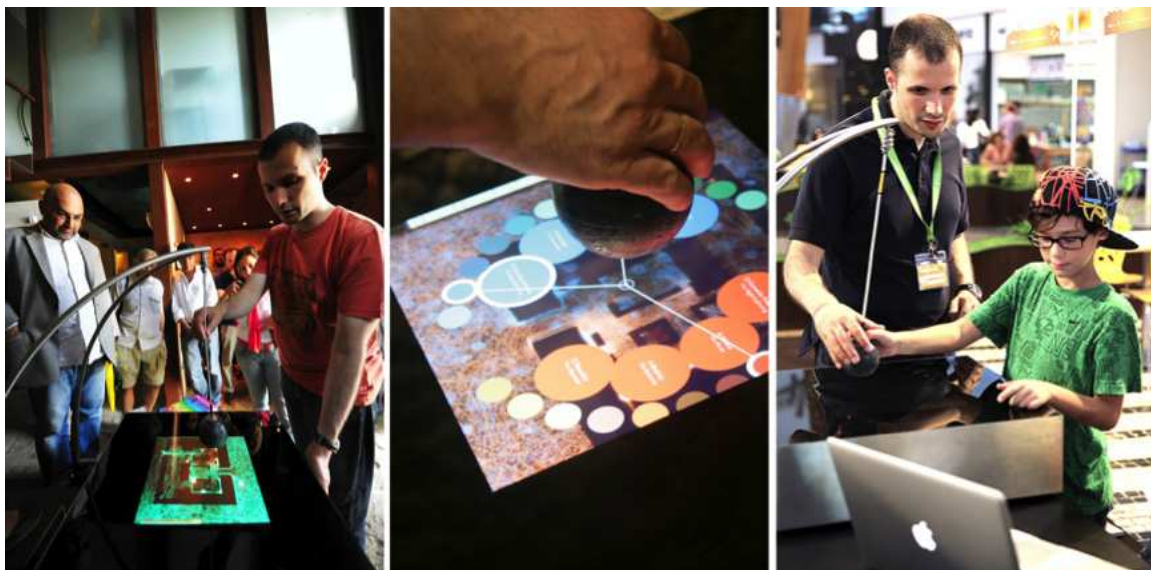


Figure 8: Experiencing the artefact *"Between the Sacred and the Profane in the Feasts of S. João d'Arga"*. Examples of visual compositions generated by the artefact

Each image is constructed using principles of generative art, i.e., they synthesized through algorithms that receives as parameters the interaction elements (velocity, position/inclination of the pendulum, relative position of the user against the artefact, etc.), colour and its gradual changing, etc. in order to generate the image with some levels of controlled randomness, making in some ways unpredictable the behaviour of the pilgrims and, consequently, the visual aspect of the images generated. Each experience is unique and unrepeatable. Figures 8 and 9 show a view on the use of the artefact and examples of visual compositions generated by its using. This artefact clearly combines two of the three categories of art artefacts and digital culture (interactivity, controlled randomness).

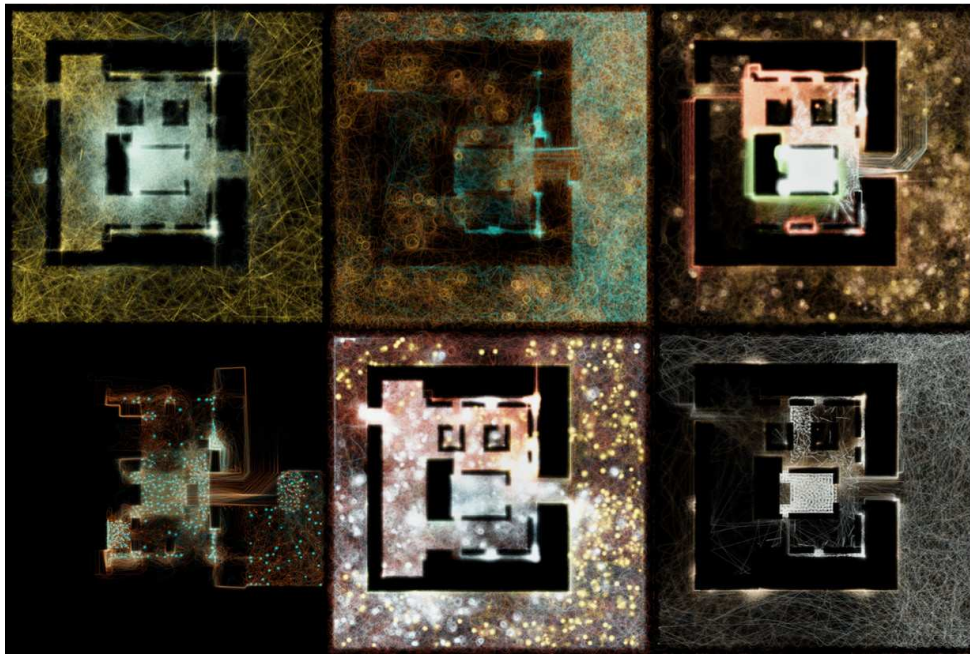


Figure 9: Examples of visual compositions generated by the artefact

#### ABOUT THE AESTHETICS OF COMPUTER ARTEFACTS

Any discussion about aesthetics or aesthetic discourses embedded in contexts of contemporary practice necessarily encompasses Kant's thinking when he performs a deep analysis of art and its impact on the life of the human being, differentiating issues related to art itself, the form of judgments of aesthetic character, about objects of art and others; and those questions of a more theoretical nature. Kant sought to define basic concepts of aesthetics as we now understand it, be it the immanence of objects, reception and representation, the limitations of apprehension, the role of time and space, the subject and its history and sensitivity, etc.:

we have tried to prove that all our intuitions are only representations of phenomena, that we do not perceive things as they are in themselves, nor are their relations as presented to us, and that if we suppress our subject, or simply the subjective constitution of our senses in general, all properties, all relations of objects in space and time, and also space and time would disappear, because all this, as a phenomenon, cannot exist in itself, but only in ourselves. For us it is completely unknown what may be the nature of things in themselves, independent of all receptivity of our sensibility. We know of them but the way we have to perceive them; Way that is peculiar to us; But that so little must necessarily be that of every being, though it be that of all men. (Kant, 1787 quoted in Gil, 1992, p. 75)

That is, Kant is at the origin of the definition of meaningful experience, of aesthetic contemplation, in vogue in the theory and practice of the various contemporary arts,

which with Duchamp, Giannetti or Routio, expand to definitions around the artefact and the polysemic perspective that can even spur on the observer, leading him to take on other roles, including that of co-creator of the object itself. The artefacts of digital art and culture do not only assume the form of expression or declaration of human subjectivity, but are inseparable part of the affections of the spirit.

However, the art and digital culture, in the sense given by Machado, cannot be confined to the drift of massive industrial production of artefacts aimed at the stimuli of pleasure, of fleeting affections, without risking losing the greatest desideratum of art in promoting the questioning, reflection and reverberation of the foundational themes of our existence as individuals, society, humanity and as universe. It is urgent, therefore, to seek and construct an aesthetic of the digital media that assumes and maintains this desideratum, a process in progress and that, by definition, never finished:

the present challenge of the media art is not, therefore, merely the naive apology of the present possibilities of creation: media art must, on the contrary, draw a clear difference between what is, on the one hand, the industrial production of pleasant stimuli for the media of on the other, the search for an ethics and an aesthetic for the electronic age. (Machado, 2004, p. 6)

From this it follows that the aesthetics of computer artefacts integrate or unfold in the various aesthetics of the artefact as mediator of meaningful experiences by an interventional public, taken as an individual or a group. As stressed by Giannetti, they are aesthetics of participatory and interactive experiences:

the reception of art assumes a peculiar relevance from the original relationship between people and works through technical interfaces. Virtual reality, artificial life and artificial intelligence as embodied systems of art presuppose new participatory and interactive experiences that allow the viewer to be integrated into the context of the work. They are models of a technically activated environment in which we are always part of the system we observe and interact with. Dialogue between work and spectator is established not only on the basis of language or reflection, but above all, in a practical and intuitive way, in the circular sense of communication, insofar as it stimulates the very action of the public around the work. (Giannetti, 2012, p. 23)

The artefacts of digital art and culture incorporate the various aesthetics related to the meaningful experiences they provide, when they confront fundamental concepts related to the affections of spirit, emotion, sacredness, contemplation (including the dimension of the sacred), originality, complexity, order, etc. added to the dimensions of randomness, virtuality and interactivity, where technique yields its place to the environment and context where the experience is realized. Other characteristics are common to this aesthetics, namely:

- The ephemeral and volatile, when the artefact, in part or as a whole, consists of components of fleeting existence, although without prejudicing the appropriate times for the realization of the experience;
- Sociability and networking experiences, when the set of accumulated knowledge and practices in a particular cultural context or interest group serve as sustenance and valorisation of the experience of aesthetic contemplation;
- Learning, when the artefact mediates learning processes;
- Games and playfulness, when the artefact assumes dimensions of gaming and entertaining;
- The post-human, when the artefact assumes characteristics proper to an artificial and autonomous intelligent entity, a nonhuman subject “capable” of creating;
- The own aesthetics, the freedom to define criteria capable of evaluating their own creation.

The aesthetics of computer artefacts in art and digital culture are thus characterised by characteristics of a multi-, inter- and transdisciplinary nature where art intersects with science and technology, hoping that the experience itself can also encompass other dimensions of philosophical or even existential nature. These artefacts represent, in the last instance, manifestations of an eclectic, plural and complex contemporaneity.

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