Arbor:
Interactive Sculpture - From the Tree of Letters to the Tree of Words

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ABSTRACT
This article will describe the interactive sculpture Arbor in conceptual and operational terms, analyzing the relation developed with users, peering into the technology and the interfaces installed, checking the elapsed interventions and anticipating possible exploits. Arbor, due to its original concept, has had recreational and pedagogical approaches which have exceeded expectations, throughout little more than one year of public exposure. The versatility of Arbor presented the authors with several new dimensions for interaction, exceeding the applicability initially imagined by its authors. This text will begin with an introduction, followed by how, through code and art, the technology allowed the writing of words and exposure of knowledge.

KEYWORDS
Aesthetic, Artifact, ASCII, Computing, Data-Base, Electronic, Interactive, Interactivity, Interface, Media-Art, Metaphors, PHP/MySQL, Sculpture, Tree of Letters, Tree of Words

1. INTRODUCTION
The tree, in Mother Nature, symbolizes the structuring pillar of primordial forest, historically linked to the beginning of mankind and the original sin. Its branches, fruit and flowers are sources of life and, symbolically, sources of literature from which emerges the metaphor “tree of letters”, sending us to another metaphor, the “tree of words” both beautiful and impregnated of meaning. Its fruits, the letters of the alphabet and the numbers, are symbols of the written code, the builders of the words, of the text, which are evidence of the knowledge of a language. As Foucault says, “Languages, as an inaccurate knowledge, are the thorough memory of a continuous improvement. They mislead you and yet learning is accomplished…” (2005), and this learning tangible or non-tangible, is responsible for the transmission of human knowledge. The symbols of the written code led to words, numbers, text, literature, a complex learning process for the proficiency of language that starts in childhood. It involves mastering both the oral and the written codes, as far as comprehension and expression are concerned and this process happens in many ways during childhood and are meant to remain in continuum.

Culture and Universal History has been showing us different forms of fixing the text, through multiple technologies and interfaces, from the pre-historic writing on the wall till the actual touch displays. From the handwriting till the machine writing based on mechanic or electronic, virtual,
character matrix, we write mostly, in a flat surface. Arbor challenges this act of writing, through an innovative, three-dimensional and interactive sculpture. The goal is not give more efficiency or speed on writing in a new matrix, or simply to offer another form of writing. Far from this, Arbor wants to connect the pleasure of art with the pleasure of writing, creating a feeling of uniqueness between the pleasure of writing as well as reading, and sharing this with others. Arbor does it in an exemplary way with its multiple displays; challenging the new, we create a new artistic form of writing, a new interface without the act of touching (neither the one of the pencil on the paper or the tips of the fingers on a keyboard. In short, no flat matrix) - the “Tree of Letters.” The act of writing occurs by the approximation of the hand or finger, after what there is an irradiating light, which is born from this act. At that moment, the user creates a sense of belonging that is unique and personal, an inner sensation that results from a deep experience that is beyond the mere attainment of a result. The enjoyment of this word-generating interaction is shared, simultaneously and in real time in the “Tree of Words”. These words, the text that is sent through the Internet, allows sharing them in a global way: on a remote computer, a smart TV, or even in the palm of our hand, through a tablet or smartphone (Figure 1).

This appropriation of a new form of writing, evidenced that the conception and artistic artefacts creation may be valuable with the introduction of electronic in combination with computation, resulting in three-dimensional man-machine interfaces that can confer to artifacts an interaction of high symbolic and artistic value. As we will see in the following lines, the symbiosis between art and technology, more precisely between sculpture, electronics and computing, allowed us to fulfill the goal of designing an original, three-dimensional and interactive work. In addition to intensive research, we use our individual skills (artistic and technological) to obtain this unique artifact in the form of writing, setting and sharing words and sharing knowledge (Figure 2).

The public of Arbor is diverse: from children to senior citizens; within educational, recreational, and artistic contexts. With children and young people, this new possibility of contact with the symbols of the written code and with the text can increase the taste for writing and reading within a technological environment that fascinates them; with the general public, its use is essentially participatory and artistic, providing an opportunity to intervene artistically in the exhibition context and sharing with others their contribution to the construction of the “Tree of Words”, in a structure defined by the authors, as Paul tells us “…digital art is not always collaborative but often participatory, relying on multi-user impact. In some artworks viewers interact within the parameters that have been set by the artist…” (2008).

In this article, after this introduction, in chapter II, we will approach the state of the art and the origins of the artifact; in chapter III we describe the artifact in structural and technological terms, the developed software for the “Tree of Letters” and the “Tree of Words”; in the next chapter, IV, we analyze the opinions of users in a specific context and present the conclusions in chapter V.

2. STATE OF THE ART AND ORIGINS OF THE ARBOR

At the beginning of the twentieth century, the manifestations of visual poetry had already appropriated letter and word as visual elements to be exploited plastically, attributing to them an artistic dimension and instigating power, a process initiated by Magritte.

In Digital Art, category of a large part of the current works that integrate computing elements, we find, again, the exploration of the letter as an artistic element but also a way to enhance interactivity. “Projects addressing the “physicality” of typography and writing spaces are complemented by the vast body of hypertext writings, that consists of predominantly text-based, non-linear narratives. While hypertext writing community is quite large, relatively few of this writing have been recognized in an art context…” (Paul, 2005).

Text Rain (1999), R. Archituv and C. Utterback installation, uses, as a mean of activation, the human body, triggering an action that consists in raining letters on a projection screen. John