



FROM THE ARCHIVE TO THE NEW

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Keywords

Archive
Information
Algorithms
Processes
Novelty

Under the concept “from the archive to the new” this paper explores the impact of digital computational technology in the way we store, share and transform information in a technologically mediated society. It starts by developing a theoretical investigation on the topic, while addressing a “brief history” of the digitalization of the archive and its consequences. Secondly, it proposes a practical approach to the subject through the development of a digital web-based platform divided in two key moments—*archive and program*. The digital archive gathers projects related to the theoretical investigation. We then create small computational programs in order to transform the stored information into new meaningful pieces of information. Finally, we present a framework used as a design methodology to guide the development of these computational programs, seeking to produce results whose expression, meaning and reflection contributes to a renewed view of the archive.

2016.
xCoAx
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Computation
Communication
Aesthetics
& X
Bergamo, Italy

1 INTRODUCTION

1. This work was developed in the Master of Communication Design and New Media at the Faculty of Fine-Arts, University of Lisbon.

Our research explores the theme “from the archive to the new” aiming to reflect on the impact of digital computational technology in the way we store, share and transform information in a technologically mediated society.¹ Assuming that the archive is a place where we store information that we want to preserve in the future, it can also be understood as a space of memory, or as Charles Merewether (2006, 10) asserts, “the archive, as distinct from a collection or library, constitutes a repository or ordered system of documents and records, both verbal and visual, that is the foundation from which history is written.”

In this sense, the archive is a governance space where various types of power are exercised when its narratives are re-built in different times and places. It is a technical apparatus (*dispositif*) whose structure defines what it will “say.” Therefore, in the context of transition from analogue archives to digital archives, the archive is no longer a place where we just store and share information, given that, as a digital medium, it is able to transform information through computational processes.

According to this view we explore the archive under different perspectives. Firstly as a theoretical concept, while providing a “brief history” that summarizes how the digitalization of the archive has allowed it to spread throughout all dimensions of our experience, reshaping the way we deal with information.

Secondly, this reflection on the archive is put into practice through the development of a digital web-based platform divided into two key moments: the *archive* and the *program*. We created an archive to store projects that reflect the theme of this study and then developed small computational programs in order to perform transformations on the information stored in the archive. This allowed us to reflect on, and put into practice, the new condition of the archive. In order to develop these computational programs we used a framework devised as a design methodology, or a means to structure and systematize processes that more evidently contribute to a renewed view of the archive and its potential for novelty.

2 FROM THE ARCHIVE TO THE NEW: “A BRIEF HISTORY”

2.1 THE TRANSITION FROM ANALOGUE ARCHIVES TO THE DIGITAL ARCHIVES

According to Michel Foucault (1972, 129), “the archive is first the law of what can be said the system that governs the appearance of statements as unique events”. In order to define the concept of archive, Jacques Derrida (1995, 9) stated that this concept shelters in itself the memory of the name *arkhé* and its double meaning of commencement and commandment. Thus, the archive, in its principle of commencement, is the place of domiciliation, or localization, and in its principle of commandment is the place of consignment.

However, according to Derrida, with the introduction of digital technology, an archivist technical revolution happened leading to the transition from analog archives to digital archives and transforming these objects in algorithmic devices where all the documents, regardless of their nature, are coded in the same language and placed in a non-hierarchical structure called database. Given these changes, José A. Bragança de Miranda (1996, 97) states that “if before and, since always, the archive was located, corresponding to a specific institution and therefore was controlled, today it has relocated itself, spreading throughout all the experience.”²

2. Translated from: “Se antes, e desde sempre, o arquivo fora localizado, correspondia a uma instituição específica, sendo portanto controlado, hoje deslocaliza-se, disseminando-se por toda a experiência.” (Miranda 1996, 97)

2.2 THE NEW DIGITAL ARCHIVES

The digitalization of the archive has resulted in the fragmentation of memory and consequently the fragmentation of experience. In these new technical devices it is not the data but the meta-data that are the archival element (Ernst 2013, 92). In other words, it is no longer in the data itself that relays the principle of what is said by the archive but in the gap between the data. Therefore, it is the relationship that is established between the data that determines and builds new significant fields: “the new archive’s task is to meaningfully link up different information nodes—a variable archive art. (...) Here it is no longer a question of reactivating objects but of relations.” (Ernst 2013, 83)

In this sense, these new archives are structured by databases which Manovich (2001, 194) defines as “collections of items on which the user can perform various operations: view, navigate, search”; and because they are not linearly readable they clash with the narrative principle of the archive. As Manovich

3. Translated from: “A exteriorização da memória e dos saberes, quando atinge o estágio hiperindustrial é ao mesmo tempo o que estende o seu poder sem limite e o que permite o seu controle (...) instalando plenamente a questão de uma biopolítica, uma psicopolítica, uma sociopolítica e uma tecnopolítica da memória.” (Stiegler 2009, 27)

adds, the databases and the narratives are enemies. As a result of this new fragmented construction, according to Ernst (2013, 82), we live in a dynamic memory culture which is always updatable. Bernard Stiegler (2009) considers that we pass from the *mnemotechnics*—technical objects as bearers of memory—to *mnemotechnologies*. These new devices have the ambiguous role of simultaneously empowering us with an immense memory that is always retrievable and, at the same time, remove our knowledge, given that instead of bearing the memory inside our body we can upload it in external prostheses. Thus, according to Stiegler (2009, 27), by being external to us, these prostheses are more permeable to be controlled by others, and this fully installs “a question of biopolitics, psychopolitics, sociopolitical and technopoliticalization of memory.”³

2.3 THE TECHNOLOGICALLY MEDIATED SOCIETY AND ITS CONSEQUENCES

In the “Cyborg Manifesto”, Donna Haraway (2000, 295) said that “a slightly perverse shift of perspective might better enable us to contest for meanings, as well as for other forms of power and pleasure in technologically mediated societies.” It seems that the terminology “technologically mediated society” is the perfect translation of this era in which we upload our memory in technological prosthetics and trust in these technologies to mediate our social, economic, political and emotional structures.

Considering the recent history of the evolution of societies, Foucault identified the existence of a *disciplinary* society in the last century, as a model born from an economy focused on production and in which the government is concerned with managing bodies as a mass and normalizing it through surveillance. Foucault termed this type of government *biopolitics* and presented as architectural metaphor the *Panopticon* of Jeremy Bentham, where the subjectivity of the bodies is silently overwhelmed by the feeling of vigilance. Within the crisis of confinement institutions, and as a result of the technological revolution, Deleuze announced the substitution of the disciplinary society by the society of control. In contrast to the *Panopticon*, this new model replaced the disciplinary exercise on the confined individual, by controlling the individual in open-air through a super-structure named *Synoptic* by Thomas Mathiesen. So, according to Deleuze, there is no longer about a regulated mass but about a set of divided individuals governed by a numerical language built by codes and passwords that allow access or cause exclusion. In this sense,

4. Translated from: “O controlo é introduzido no esquema como a capacidade de dominar o processo de actualização” (Miranda 2001, 32)

Byung-Chul Han (2014) refers to *psychopolitics* as the new exercise of power where technological seduction puts us in a position between being users or being used by the technologic apparatus. Thus, the *psychopolitics* is no longer concerned with shaping the bodies to produce but with seducing the psyches to explore themselves in a voluntary and passionate way.

Therefore, at a time when virtually every field of our lives is mediated by these digital technologies we can raise the question of how this new language and this new order shape individuals and contemporary societies, as well as by whom is the information captured by these technologies being used. Taking Bragança de Miranda’s (2001, 32) definition of control as “the ability to dominate the update procedures”,⁴ and being aware that these technologies are also increasing their procedural features, we can say that they become more and more able to act on information. This ability raises issues of agency and control, becoming increasingly undefined by who controls whom.

These issues become more evident when we face a world where technology pervades our communications, our bodies and our lives and, at the same time, we find ourselves under a state of surveillance through a massive capture of information which presets our identities and our decisions, using systems as statistic and predictive analysis performed by complex algorithms. The fact that these technologies are able to transform information through models built by humans but performed by machines, which have an unimaginable capacity of processing and abstraction, raises questions about the neutrality of these technologies. In the end, as William S. Burroughs (1978) asserts, all control always needs time, opposition, concession and ultimately to be controlled.

3 FROM THE ARCHIVE TO THE NEW: THE PROJECT

3.1 PRINCIPLES

As a result of a theoretical investigation that led to this brief history, and in order to test the potential of transformation of digital media, a practice-based investigation was developed as a means to perform actions that explore the transition “from the archive to the new”. So, broadly speaking, this is a project where the information gathered in a given archive is transformed into new information through computational processes, with the aim of promoting a reflection on the way we store, transform and share information. According to this idea, the A—P (Archive—Program)⁵ is a web-based digital platform divided into two key moments of action: the *archive* and the *program*.

5. <http://www.saraorsi.com/demo/ap>

3.2 DIGITAL CONTEXT

In order to define an understanding of this digital environment, let us start by addressing the possibilities of computation that Alan Turing revolutionized when he conceived a machine capable of simulating all others machines and, above all, a machine capable of simulating itself. This “Turing machine” gave rise to modern computers which, according to Wardrip-Fruin (2009, 1) “are designed to make possible: the continual creation of new machines, opening new possibilities, through the definition of new sets of computational processes”; or as stated by Florian Cramer (2002):

If one defines as a medium something that it is between a sender and a receiver, then computers are not only media, but also senders and receivers which themselves are capable of writing and reading, interpreting and composing messages within the limitations of the rule sets inscribed into them.

In this regard, computers exceed the primary condition of being a medium to become what we might call a procedural medium. That is, they no longer just receive and send a specific signal but have the ability to operate or execute processes that can transform this same signal. So these digital machines, according to Broeckmann (2005), “force their signals to pass through the barely material interface of electrical current and algorithmical calculations” changing the way the machines mediate our understanding of the world.

Manovich (2001) also highlighted that “the identity of the media has changed even more dramatically” and summarized the key differences between old and new media based on five principles: numerical representation, modularity, automation, variability and transcoding. Taking into account that what is often referred to as “new” media, like Cramer explains, is not so much a matter of a temporal relation, but rather a matter of procedural nature, we have chosen to use the term “digital media” in the sense defined by Wardrip-Fruin (2006, 25), meaning that “for something to be digital it need only be represented by discrete values”, a characteristic that transforms a digital object into a mathematical structure that can be algorithmically manipulated: (...)

we are increasingly experiencing media that not only say things and show things—but also operate. These media have internally-defined procedures that allow them to respond to their audiences, recombine their elements, and transform in ways that result in many different possibilities. These human-designed processes separate such media from fixed media, which

have only one possible configuration. (Wardrip-Fruin 2006, 2)

Digital media then differ from fixed media by being “media for which digital computation is required at the time of audience experience” (Wardrip-Fruin 2006, 7). That is to say, the result—a digital work—is defined, not merely in relation to its digital format, but by involving computational processes, given that what we experience, even as static displays, are the results of ongoing computations.

We can take as example the digital poem, as addressed by Katherine Hayles (2006), who emphasizes that its “digital characteristics imply that the poem ceases to exist as a self-contained object and instead becomes a process.” In this manner, Hayles raises the issue of a new temporality, stressing that with digital media the poem becomes “eventilized”:

“Less an object than an event, the digital text emerges as a dance between artificial and human intelligences, machine and natural languages, as these evolve together through time.” (Hayles 2006, 187)

Among the various types of digital work, we can find web-based works that are developed in the context of the Internet, as an infrastructure where a protocol system regulates a network of technology composed by browsers, servers, and connections, establish by a relationship based on the model of client-server.⁶ Therefore, web-based applications or programs are only active with an Internet connection, as they run in web browsers that, instead of being connected to a device’s memory, are fed via servers connected by a network that uses the HTTP protocol. These works can be configured as websites, web-applications, web-add-ons or web-platforms.

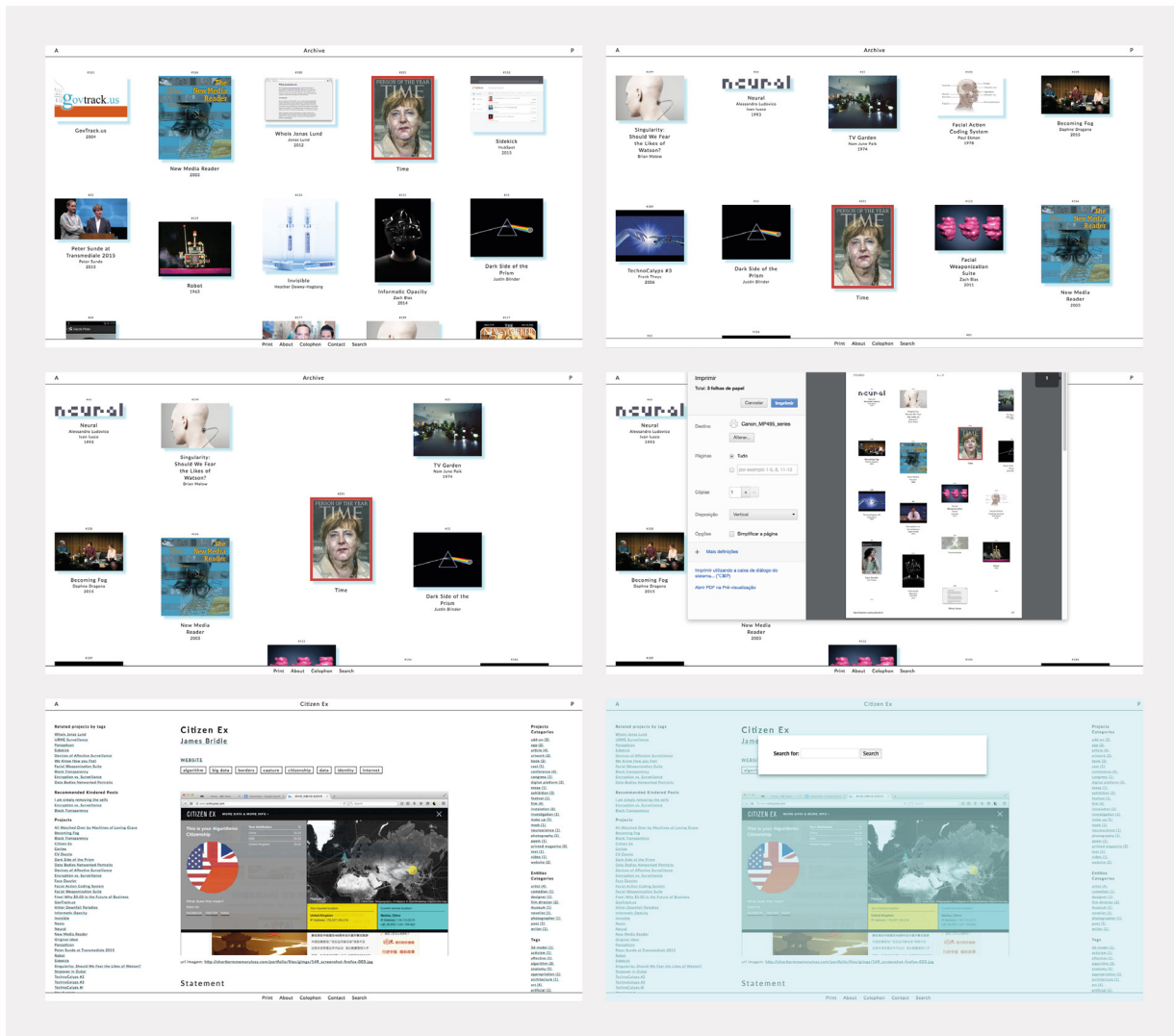
6. On Wikipedia we can find a definition of the Internet as “the global system of interconnected mainframe, personal, and wireless computer networks that use the Internet protocol suite.”

3.3 ARCHIVE

In our project the web-platform is initially configured as a digital archive that acts as a systematic repository of projects with online available documentation related to the themes addressed in the theoretical investigation. This archive is always updatable and its information does not necessarily follow a linear narrative, since it is fragmented in a non-hierarchical space where its order is always subject to change. Accordingly, this archive is divided into two folders: the *projects* and the *entities*. The *projects* are included if their theme, their design, their information, context, or any other aspect is considered valid or relevant regarding the

aim of the archive. There is no limitation in terms of format or time periods. The *entities* folder gathers information available online about the authors or participants in the projects included. As a result, we have an online digital archive that is never accessed in the same way since its order can be changed when updated or even altered by the user, who can perform various operations such as view, navigate and search.

Fig. 1. Variations of the digital platform in the archive section.



3.4 PROGRAM

Secondly, the platform becomes a program. It is conceived as a cultural program built with computer programs that perform

processes to transform the information stored in the archive into new significant pieces of information. We consider the “cultural program” as a selection of projects by a certain entity, according to a thematic or a conceptual aim, and the “computer program” (software) as a set of instructions that describe a task to be performed and involving computational processes running in real-time, web resources and online information. In order to guide the development of this project, we used a framework that allowed us to systematize processes according to their potential for novelty and expression, so that the aim of the cultural program can be achieved; that is, to promote a reflection on the way we store, transform and share information in a digitally mediated culture.

4 FROM THE ARCHIVE TO THE NEW: THE FRAMEWORK

4.1 PRINCIPLES

Taking on Hunicke et al.’s (2004, 1) idea of using a framework as design methodology to “guide the creative thought process and help ensure quality work”, we developed a framework in order to structure processes. In order to create this framework, we articulated different models and views on digital media. As a starting point, we considered digital computational systems as aesthetic artifacts (Ribas 2014), while articulating the MDA (mechanics, dynamics, aesthetics) by Hunicke et al. (2004) and combining it with the “model of digital media” proposed by Wardrip-Fruin (2009) with its focus on processes, as well as aspects of the “framework for understanding generative art” by Dorin et al. (2012). We particularly focused on the time dimensions as treated by Hayles (2006) in the shift from “object to event”, keeping in mind Manovich’s “principles of new media (2001)”.

According to this, we address the conceptual, mechanics and experience dimensions, and within these dimensions we highlight the role of different agents: author, computer and audience. This framework is conceived as a methodology for structuring our project, regarding its constituent elements and the views from which it can be considered, as well as its specific steps of development.

Principles of New Media	Model of Digital Media (process-oriented work)	Framework for the description, analysis and comparison of generative artworks (process-based)	Poem as a machine that organizes time	Framework (Properties)	Framework (Dimensions)	Perspective on digital computational systems as aesthetic artifacts	MDA	Framework (Agents)
(Manovich 2001)	(Wardrip-Fruin 2012; 2006)	(Dorin, et al. 2012)	(Hayles 2006)			(Ribas 2014)	(Hunicke, et al. 2004; (Dorin, et al. 2012) LeBlanc	
Author				Themes and principles	Conceptual dimension	Conceptual dimension		Author
Numerical Representation	Data	Entities	Time of writing	Units	Mechanics dimension	Mechanics dimension	Mechanics	
Modularity		Initial Conditions	Time of code	Structures of processes				
Automation	Process	Processes	Time of performance	Process as performance	Experience dimension	Experience dimension	Dynamics	Computer
Variability	Surface	Sensory Outcomes		Surface		Dynamics		Audience
	Outside processes and							
	Interaction	Environmental interaction	Time of reading					
Audience(s)						Aesthetics		

Fig. 2. References and elements of the framework.

4.2 DIMENSIONS

Conceptual

According to Broeckmann (2005), a “recent re-evaluation of Concept Art” defines it as a “precursor to digital media art”, indicating that “the concepts of media art have evolved into a broader cultural environment.” This idea evokes Sol LeWitt’s words about Concept Art, meaning, “the idea becomes a machine that makes the art”. In this sense, the author’s decisions concern the conceptual choices, regarding the *themes and principles*, to be expressed by the work as computationally implemented at the level of its mechanics; as structures of processes that will be automatically executed by a computational device as a *performance*.

Mechanics

As Hunicke, et al. (2004, 2) assert the “mechanics describes the particular components of the game, at the level of data representation and algorithms.” At this level, and when considering process-based work, we are addressing the computational implementation of an idea as the definition of the components (*units*)

and the description of processes (*structures of processes*) necessary for the process to run.

In this context, a *unit* is what can be considered individually, drawing on Dorin et al.'s (2012, 244) conception of entities as “constituents that are (conceptually) unitary and indivisible, and whose functional relationships are not typically expressed in terms of internal mechanisms.” However, they “may exist in structured or hierarchical relationships with one another, leading to the creation of new composite entities.” Therefore, we consider that multiple *units* can compose a new *unit* of another scale, i.e. in the case of a text, a word would be a micro-scale unit and a sentence macro-scale unit. The *units* may also vary in diversity, being homogeneous or heterogeneous; in quantity, by being single or multiple; and they also may vary in meaning, if they have semantic value.

The *structures of processes* or algorithms can be seen as a description of instructions to be performed. Dorin et al. define the basic characteristics of processes, which include the “initial conditions—the state and configuration of the entities before the process begins—or initialisation procedures—the actions or conditions necessary to start the processes” (2012, 245). When thinking in terms of time, Hayles (2006, 245) states that in fixed media such as print “writing and coding often coincide and become virtually the same activity from the author’s point of view (...). With electronic poetry, by contrast, writing and coding become distinct and often temporally separated events.” That is, when Hayles (2006) refers to the temporal dimension of the operations of the poem-machines, the *structures of processes* corresponds to the “time of code,” as the time to “decide on behavior.”

Experience

The experience dimension views the *process* as *performance* or as an element of the experience that concerns the run-time behavior of the work as automatically executed by the computer on which it runs. In this sense, the surface “includes what is made available to the audience for interpretation (and interaction) as well as instructions to the audience, physical interface devices, and so on” (Wardrip-Fruin 2006, 10). The elements of experience of digital computational systems as aesthetic artifacts then concern “not only their surface but also their dynamics, or the variable behavior tied to their processual and performative qualities” (Ribas 2014, 61). So, rather than focusing merely on surface elements, we also focus on the dynamics—the performance of processes as an element of experience—since the surface may

be static or variable in time according to internally defined procedures.

5 CONCLUSION AND FUTURE WORK

The primary aim of this research was to explore the theme “from the archive to the new” while reflecting on the impact of digital computational technology in the way we store, share and transform information. Taking on the idea of the archive as a place of memory as well as place of control and governance, this study sought to clarify the consequences of the digitalization of the archive and understand its new condition. Under this view a theoretical investigation was developed in order to explore the questions of agency and control that arise as digital archives and databases increasingly mediate all aspects of our lives.

Seeking to give concrete form to this reflection, we developed a web-platform guided by two main purposes: creating a digital archive of projects that deal with these questions, and performing transformations on the information stored in order to create something new. In order to emphasize the alignment between concept, mechanics and experience of this work we resorted to the design methodology proposed, seeking to develop processes that can become expressive in defining the experience of the archive. However, we acknowledge that at this stage of development, the archive and the program do not necessarily accomplish the full potential of these processes, since they were devised as indices or as starting points for a further study of complex and expressive processes.

According to this, our aim is both to feed the archive as a way of consolidating this investigation, acknowledging the limitations of the *program*, and establishing as a priority the development of additional experimental transformations of information. Another aspect that deserves our attention in terms of future research, is the further development of the framework by detailing its dimensions, elements and also the temporal aspects implied in these different views of processes.

In conclusion, with this approach this work sought to explore and reveal how digital archives can spread through almost all aspects of our lives, being no longer understood as mere storage spaces but rather as sites of transformation, under the control of processes that are capable of generating new meaningful information.

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