

TELLING THE STORY: AN INTERACTIVE MULTIMEDIA EXHIBIT NARRATING THE 900 YEARS OF THE ALMA MATER

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KEYWORDS

Digital Storytelling, Alma Mater Studiorum, Bologna City Museum, Genus Bononiae, Multimedia Design, Digital Space Interaction, Aesthetics, Saul Bass.

ABSTRACT

In this paper we present the steps that led from the conceptualization to the implementation of an interactive multimedia storytelling system that narrates the history of the Alma Mater Studiorum, University of Bologna. The aim of this work has been that of providing the Bologna City Museum (based in the Pepoli Palace and run by Genus Bononiae) with a system that describes the almost millenary history of the University of Bologna. In fact, the history of the Alma Mater was incredibly missing inside this Museum. Hence a small, but heterogeneous group of professionals, which includes historians, computer scientists, artists, art directors, 3D animators and academics, undertook this complex task, considering the important background of the institution, which boasts a history that includes the affiliation of characters that range from Dante Alighieri (the author of the Divine Comedy) to Giosue' Carducci (the first Italian Nobel prize laureate for literature). The outcome of this work is that the Alma Mater has regained the center of the stage, inside the main city museum of Bologna, with the use of modern digital storytelling techniques and following rigorous aesthetic principles, all put to good use to finally let visitors easily browse through the highest historical moments of such institution.

INTRODUCTION

This is an incredibly vibrant moment for many museums and cultural institutions all over the world, as digital technologies such as the Internet and modern human computer interaction techniques have provided many of such venues with a direct channel with the public, channel that once was absolutely unavailable. It is hence today possible to find a common ground of understanding with all tech-familiar people, which exceeds in all forms those that were available before, and that helps creating a link, some call it virtual, others direct, between visitors and museum exhibits. Such type of communication has clearly begun with the creation of web portals and the digitalization (e.g., pictures, 3D scans, etc.) of museum exhibits, but has slowly grown to include an emerging consciousness of such institutions which are not anymore limited today to a role of memory preservation venues, but now also often play the role of places where innovation and breathtaking experiences can be lived. All this is now possible because technologies have clearly changed the ways and the pace at which we all communicate

and approach reality. In essence, technology is no longer a matter limited to discussions between experts on communication protocols and codecs (Marfia and Roccetti 2010). In particular, technology often acts as an intermediary that puts a person in communication with reality. Museums, on their side, have not seen themselves spared from this process, also their information, their rich history and great stories often become today more comprehensible the moment they are interpreted, understood, i.e., seen, through the eyes of a digital system (Roccetti et al. 2010, Roccetti et al. 2012). While what should be the correct degree of pervasiveness of digital technologies in cultural institutions is a matter under study, often object of controversial debates, something that is today unconfutable is that the use of digital technologies is highly requested in all cultural venues, anywhere placed in the world. Why this is happening we have already said, but we can further summarize in one phrase: technology is the *intermediary*, the lens, through which many people today deal with reality. Getting to the practical aspect of this idea, it is through some type of digital device that people today judge and let the rest of the world know about their tastes (be it a trip, a restaurant, etc.), influence politics (e.g., consider the importance of blogs and tweets in many facts happening in the political arena) or, more simply, find the nearest gas station. Such revolution is hence understood and acknowledged by many cultural institutions around the world, which in different ways, provide novel means of understanding and discovering their artwork through technology. As an example, consider the recently renovated Cleveland Museum of Art that revealed its brand new exhibit, the Collection Wall, *the largest multi-touch screen in the United States—a 40-foot, interactive, micro tile wall featuring over 3500 works of art from the permanent collection, most of which are on view in the galleries an entire wall occupied by touchscreens* (www.clevelandart.org 2014). Interestingly, within the Cleveland Museum, its curators did not only try to place an interesting piece of technology as an aid to normal institutional operations (e.g., digital guide, etc.), they also sought for an artistic way of placing technology itself inside the museum. In this work, we can hence find that technology does not only play as a bridge that connects a visitor to the deep cultural and aesthetic meaning of an exhibit, technology itself becomes part of the exhibit, not only for how it works, but also for how it looks. This is a second interesting trend, as aesthetics and technology are more and more seen as key factors for capturing attention and improving usability, also in museums contexts as we will shortly describe (Tractinsky 1997, Ahmed et al. 2009). In this interesting evolving trend, where technology, aesthetics

and so-called traditional culture blend, combining one with the other in different forms and ways, we will here describe the conceptualization and the implementation of an interactive multimedia storytelling system that well falls along these lines. Taking one step back, at the beginning of 2013 the curators of one of the major museums of the Bologna City Museum, based in the ancient Palazzo Pepoli and run by a public institution termed Genus Boniae, decided that time had come to dedicate an area to the rich history of the local University. In fact, the University of Bologna is widely recognized as the oldest one in the western world. For this reason, although the Palazzo Pepoli Museum is brand new and has been only very recently opened, i.e., on January 28th 2012, this museum has immediately appeared incomplete, as no room inside this museum was specifically devoted to the University. Such gap has been filled on the past January 24th 2014. In this paper we describe how and by which means. The remainder of this paper is organized as follows. In the *Context* Section we will describe where the team started from and how the right location for the history of the University has been found. In the *Concept* Section, instead, we will discuss which are the fundamental choices that have been made (aesthetic, historical, artistic), while in the *Implementation* Section we briefly anticipate details about the implementation of the system.

CONTEXT

The context within which our team has moved to find the ideal staging of the history of the University is the Bologna City Museum in Palazzo Pepoli. This is a remarkable construction, whose history begins in 1276 when Romeo Pepoli, one of the Pepoli family members, acquires real estate property in the city of Bologna to settle down his business headquarters. Its location right at the city center and the wealth of its owners let this building become one of the most prestigious of Bologna. Many centuries later, in 2004, the palace's ownership was transferred to a public foundation, the Fondazione Carisbo, with the scope of creating the city museum of Bologna. Since 2004 the building has undergone considerable renovations and, although it has not been modified in its structure, it has been augmented with a brand new heart. In fact, the center of the palace, originally occupied by a very spacious courtyard, has been partially filled with a new infrastructure, consisting in a steel and glass tower, which no one would expect to find in such type of setting. The architect, *Mario Bellini* (http://en.wikipedia.org/wiki/Mario_Bellini) with his creation points to new ways of experiencing culture, ways where attention is posed on the preservation of both the container and its content (<http://it.detail-online.com> 2014, <http://www.genusbononiae.com> 2014). Now, the brand new glass and steel tower, which metaphorically represents the content, i.e. the history of Bologna, offers the possibility of staging exhibits and artifacts along its rooms and halls. Interestingly, this has been identified being the best place, both for its significance and for its practical position, for Bologna's most important jewel, the story of how within the walls of its University fundamental pieces of knowledge have been constructed by the hard work of generations of students, scholars and scientists.

CONCEPT

Glass and steel, two very simple materials that have been combined so well in so many different institutions and monuments around the world, hence amounted to the substrate upon which the new installation would lie. Clearly, such type of staging immediately suggested that any new exhibit representing the University should occupy the minimal required space, in order to properly well integrate with the surrounding space. However, minimalism, or simplicity, was not only imposed by the particular context, it was also imposed by the history of the University itself. In fact, the task of portraying a so long history, made of so many keystone moments, ideals and human stories, required a drastic simplification process, as we were here realizing a celebrative installation, not an encyclopedic one.

We ended finding out that minimalism, hence, was not only an aesthetic constraint, but also a user experience one (De Angeli et al. 2006, Hartmann et al. 2007, Resnick et al. 2000, Rosner et al. 2014). Keeping this idea in mind, we moved along two different directions, creating, hence, two distinct digital storytelling systems. The first direction entailed providing a visitor with the idea of the two fundamental historical events that occurred in Bologna: (a) the crowning of Emperor Charles V, and, (b) the signature of the Magna Charta Universitatum, the fundamental document that renovates university traditions and bonds, by all University Rectors from all around the world. The second direction, instead, amounted to identify the distinctive symbols, i.e., events and notable people that best represent the long history of the University. For what concerns the first part of the installation, the one that represents the crowning of Emperor Charles V and the signature of the Magna Charta, the choice has been that of portraying the two processions that occurred during these two events. For this reason, the skillset of a very well known Italian artist, Giuseppe Palumbo, was engaged. ([http://it.wikipedia.org/wiki/Giuseppe_Palumbo_\(fumettista\)](http://it.wikipedia.org/wiki/Giuseppe_Palumbo_(fumettista)))

Thanks to Mr. Palumbo's work and to the work of a skilled group of 3D animation experts it has been possible to recreate the myth of the two processions using the language of computer 3D motion comics. For what concerns, instead, the second part, after everlasting discussions, which considered both the historical and the scientific aspects of the choices that were being made, sixteen of such symbols were identified. However, identifying such symbols was not enough. It was also important to find a way of putting such symbols, often completely unrelated, if not for the common Bolognese roots, together. The creativity of *Saul Bass* provided that aid, so deeply necessary at this point (Bass 1959, Bass 1960). In fact, just as Saul Bass masterfully did with film titles, creating connections with different objects, people, titles, that would incredibly morph one into the other, while still preserving the semantics of the underlying story, we here wove the thread of the University's history through sixteen different stories. In Figure 1 through 16 we provide those storyboard parts that specifically relate to the given symbols: Mosaic Tile, Moonstone, Empire Symbol, Student, Scalpel, Squared Note, Third Degree Equation, Blazon, Gregorian Calendar, Leaf, Prims, Frog, Poggi Palace, Carducci, Globe, University of Bologna Symbol. Now, what we would like to emphasize in the choice that has been made

by the involved historians, artists and artistic directors, is that all these symbols seem to be extremely generic.

However, each of these extremely generic symbols is closely related to a given phase of the University. For example, the leaf symbol recalls the fact that during Renaissance, a new awareness pervaded the investigation of the great book of nature. Classification, in that period, became the method utilized by naturalists; botanical gardens were perhaps the first laboratories. All this is very important in the University's growth, as Bologna's *Ulisse Aldrovandi* was unmatched in this science

(http://en.wikipedia.org/wiki/Ulisse_Aldrovandi).

A second interesting example is given by the third degree equation symbol. In fact, Scipione del Ferro, a Renaissance mathematician that taught at the University of Bologna, first discovered a method to unlock its solutions (http://en.wikipedia.org/wiki/Scipione_del_Ferro).

As a last example, let us consider the frog sketched in Figure 12. While in Bologna, Luigi Galvani, a physician, ignited the first sparks of a whole new science, bioelectricity, while experimenting with the dead bodies of frogs (http://en.wikipedia.org/wiki/Luigi_Galvani).

In essence, the driving ideal that has led to the creation of the installation that represents the University of Bologna in Palazzo Pepoli is that of representing the main historic symbols that best portray it. This is not all, however. In fact, inspired by what Saul Bass has taught in his professional career, we have narrated a multimedia story where any given symbol becomes subjected to a graphical transformation thus to morph itself, after a few tens of seconds since its first appearance, into the subsequent new symbol in the story. This way, a sequence of graphical symbol transformations account for the historical centenarian transformations that have contributed to the fame of the University of Bologna. In the next Section we will briefly unveil additional details on how all this has been implemented.



Fig. 1: Mosaic Tile.



Fig. 2: Moonstone.



Fig. 3: Empire Symbol.

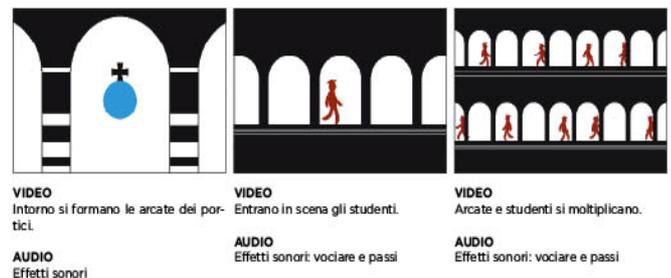


Fig. 4: Student.



Fig. 5: Scalpel.

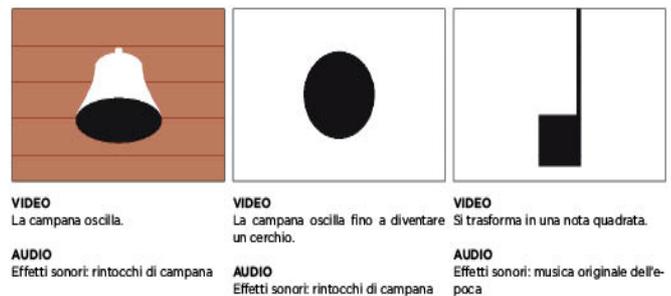


Fig. 6: Squared Note.



Fig. 7: Third Degree Equation.



VIDEO
La formula si dissolve e resta lo stemma.

AUDIO
Effetti sonori

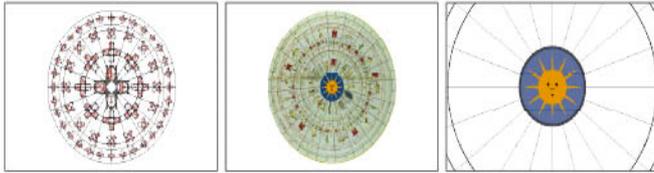
VIDEO
Gli stemmi si moltiplicano: sono quelli del complesso araldico delle Nations degli studenti.

AUDIO
Effetti sonori

VIDEO
Gli stemmi ruotano in un caleidoscopio di colori.

AUDIO
Effetti sonori: musica originale dell'epoca

Fig. 8: Historical Blazon.



VIDEO
Gli stemmi si trasformano nel calendario gregoriano.

AUDIO
Effetti sonori: musica originale dell'epoca

VIDEO
Il calendario ruota nello schermo.

AUDIO
Effetti sonori: musica originale dell'epoca

VIDEO
Al suo centro un sole sempre più luminoso.

AUDIO
Effetti sonori: musica originale dell'epoca

Fig. 9: Gregorian Calendar.



VIDEO
Il sole brilla in alto sullo schermo e fa crescere una pianta.

AUDIO
Effetti sonori

VIDEO
La pianta cresce rigogliosa.

AUDIO
Effetti sonori

VIDEO
Vediamo nel dettaglio una foglia con le venature.

AUDIO
Effetti sonori

Fig. 10: Leaf.



VIDEO
Nella notte stellata appare un prisma.

AUDIO
Effetti sonori

VIDEO
Fasci di luce entrano nel prisma rifrangendosi.

AUDIO
Effetti sonori

VIDEO
Lo schermo si sfoglia come la pagina di un libro.

AUDIO
Effetti sonori

Fig. 11: Prism.



VIDEO
La saetta da vita a una piccola rana.

AUDIO
Effetti sonori: rumore di gracidiare

VIDEO
La rana attraversa lo schermo saltellando.

AUDIO
Effetti sonori: rumore di gracidiare

VIDEO
Sull'ultimo saltello si tuffa in una macchia d'inchiostro.

AUDIO
Effetti sonori

Fig. 12: Frog.



VIDEO
Entra in scena un pennello che s'intinge nell'inchiostro.

AUDIO
Effetti sonori

VIDEO
Il pennello inizia a dipingere un palazzo.

AUDIO
Effetti sonori

VIDEO
È Palazzo Poggi.

AUDIO
Effetti sonori

Fig. 13: Poggi Palace.



VIDEO
Le onde si trasformano in parole.

AUDIO
Effetti sonori: voce che declama

VIDEO
È il discorso di Giosuè Carducci per le celebrazioni dell'ottavo centenario dell'Università.

AUDIO
Effetti sonori: voce che declama

VIDEO
All'interno di una lettera, ecco il ritratto di Carducci.

AUDIO
Effetti sonori

Fig. 14: Carducci.



VIDEO
Intorno al ritratto si formano le date dell'ottavo e del nono centenario.

AUDIO
Effetti sonori

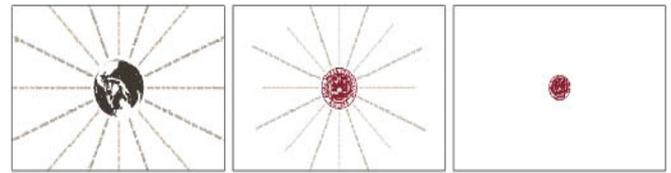
VIDEO
Ruotando intorno al ritratto lo trasformo in un globo.

AUDIO
Effetti sonori

VIDEO
Il globo emana i nomi dei paesi firmatari della Magna Charta.

AUDIO
Effetti sonori

Fig. 15: Globe.



VIDEO
I nomi come dei raggi si allontanano dal globo che si rimpicciolisce.

AUDIO
Effetti sonori

VIDEO
Il globo inizia a trasformarsi.

AUDIO
Effetti sonori

VIDEO
È il logo di Unibo.

AUDIO
Effetti sonori

Fig. 16: University of Bologna Symbol.

SOME FEW IMPLEMENTATION DETAILS

Once the two directions of work have been identified, the problem became that of understanding which could be the best ways of implementing them. Truly believing to the adage "one picture is worth a thousand words", we show how the installation appears to a visitor in Palazzo Pepoli in Figure 17. In particular, it is possible to see that the underlying glass and steel infrastructure has not been changed in any way and that the installation, composed of two video walls perpendicular to each other and of a totem placed at the middle of the room well fits with the surrounding architectural features.

The two video walls have been placed perpendicularly one to the other, as they are in this way capable of giving a visitor the illusion of a 3D setting. Such effect is implemented letting the processions that occurred when Charles V was

crowned, as well as when the Magna Charta was signed, move from one video wall to the other. When standing at the center of the room, hence, a visitor can feel right as if s/he were at the center of P.zza Maggiore, the main city square. A completely different experience is instead available at the video totem, placed at the center of the room. Also this piece of the installation has been thought in a way that it could well blend with the architectural that lie around it. The totem is, hence, in glass and the screen it embraces readily captures attention. How the application running on the touchscreen appears is shown in Figure 18. While a video runs, narrating through subsequential graphical transformations the story sketched by the sixteen symbols described in the previous Section, a copy of all symbols sit at the bottom of the screen, along with a timeline that marks the centuries that correspond to the given event appearing on the screen. As the video runs and specific symbols appears (after a graphical transformation), the corresponding symbols sitting at the bottom of the screen lights up. This indicates that that symbol is now active and that, if the visitor touches it, the video will pause and it will be possible to read the caption of the given symbol on a pop-up window. Clearly, the best way of enjoying the performance is visiting the museum.



Fig. 17: Global view.



Fig. 18: Touchscreen.

CONCLUSION

We here briefly described how a very broad concept, i.e., describe the history of the University of Bologna, has been concretized into the actual implementation of a performance system exhibited at the City Museum of Bologna in Palazzo Pepoli.

ACKNOWLEDGEMENTS

We are indebted towards: Andrea Zanotti, Giuseppe Palumbo, Federico Condello, Silvia Colombini, Ameleto Cascio, Roberto Affuso, Umberto Romagnoli, Alessandro Vitali, Agnese Baruzzi, Diego Sanna, Alberto Cerchierini and many others who gave their fundamental contribution to the design and implementation of this multimedia exhibit.

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