

MULTIMEDIA PRESENTATION OF MUSICAL INSTRUMENTS

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The problem presented in the paper belongs to a wide subject concerning the use of multimedia technology for the improvement of educational activities in museums and for attracting the audience with objects of art. Several examples of temporal and regular multimedia performances in galleries are known in Poland and abroad, but still the technology is not fully used in traditional museums. In the paper, the case study of multimedia presentation devoted to the collection of the historical instruments from the Museum of Musical Instruments in Poznań is described. By their nature, musical instruments are interactive, but for the reasons of security and costs, only on rare occasions may visitors listen to their sound. Multimedia can change this situation. The inspiration for creating the multimedia presentation was the 250th Anniversary of Wolfgang Amadeus Mozart birth. The historical 18th century instruments from the collection of the museum accompanied by the music of the composer have been virtually exposed. Shown during the “Museums Night” in May 2006, the presentation has gained interest of hundreds of guests and proved useful for future educational actions.

Keywords: motion graphics, musical instruments, audiovisual representation.

1. Introduction

There is a common belief, that computerization brings the most promising cultural effect and an opportunity to see the human being anew [1, 2]. The authors of the newest multimedia standards proclaim the idea of common access, use, creation and modification of media objects for communication. The idea of “interactive storytelling” using multimedia techniques [3] is popularized, responding, as it is said, to the endless human need to tell stories. Interactive multimedia techniques would improve conveying content to the audience. On the other hand, the father of MPEG initiative, Leonardo Chiariglione complained: “Digital Media Technologies is the most challenging set of technologies ever created and assembled. They should have been enablers of manifold opportunities, but they have not” [4]. Indeed, the dramatic development and expansion of new media, although found common acceptance and are widely consumed, especially

by young people, did not become a new common communication language yet. There is much less professional producers of multimedia content than it might be expected. Partly it is because the authoring tools are not developed to the extent, that could serve as an expression tool for rich content and partly because that the multimedia professional formation is still not very popular.

Conversely, there are domains traditionally far away from digital techniques, that are potentially huge beneficent of multimedia technology. In 2005, UNESCO General Conference approved the proclamation of 27 October as the annual World Day for Audiovisual Heritage. Proclaiming a commemoration day by an international institution should be understood as the declaration of the cultural and historical importance of audiovisual recordings, calling for decisive steps to ensure their preservation [5]. The term “audiovisual heritage” means different things in different contexts, from effective limitation of the expression to moving images [6], through the whole spectrum of recorded sounds and moving images, separately or in combination, plus related materials and artifacts [7] to a very broad and inclusive view of audiovisual heritage which extends to the intangible as well as the tangible [8]. Proclamation of such a commemorative day is a very good occasion for many regional organizations to take steps to rescue the traditional and folk art from oblivion using multimedia techniques.

Preservation means not only digitization but also popularization of digitized cultural heritage. This is especially important for museums and regional chambers of culture. They can enhance their mission by including audiovisual productions and Internet presentation in their programs. Such an enhancement of actions may be already observed in several museums in Poland and abroad, but similar improvement of artistic objects presentation is awaited by many other museums too. This task may be fulfilled by the teams of multimedia designers, but their number in Poland is still too small. Multimedia design has been popularized by international competitions, as for example Imagine Cup [9] or Top Talent Europrix [10]. There are attempts to develop the tools that would facilitate the design process.

In the following sections, an attempt to improve the presentation of musical instruments using multimedia technology has been presented as a result of the cooperation between the Institute of Computing Science at Poznań University of Technology and the Museum of Musical Instruments (branch of the National Museum) in Poznań. Section 2 refers to the inspiration for the presentation, Section 3 discusses multimedia techniques, Section 4 describes some details of the presentation and Section 5 concludes the paper.

2. “The museums night”

In May 2006, Polish museums along with museums in Europe organized an open event for general public called “Museums Night”, when the collections accompanied by many special events were opened for public during late evening and night. The idea was fully accepted by the audience, and museums were widely visited that night. The event was very inspiring and offered a great opportunity to include unusual actions in the program.

In 2006, “Museums Night” events in the Museum of Musical Instruments in Poznań were combined with the celebration of the 250 Anniversary of Wolfgang Amadeus Mozart birth. The authors’ discussion with the management of the museum led to the idea of enhancing the forms of audience attraction by using multimedia techniques. It was decided to create a multimedia presentation of Mozart’s life and musical instruments from the composer’s epoch that were in the museum’s collection. The presentation was displayed in a large format on the façade of the museum building located in the Old Market Square. In this way, a multitude of pedestrians could get interested in the museum’s collection and the composer. The large format of the presentation posed also some special requirements for the design – the objects presented had to be large enough and exposed at an adequate tempo.

3. Multimedia techniques

Although there is a multitude of specialized authoring tools on the market, most of them are rather demanding and using them is time consuming for an average user. To use them, authors (even those very creative) need a lot of skills. That is why such tools are not so common in practice. Multimedia designing tools are expected to:

- be able to build compelling interactive content using robust and advanced features,
- get up to speed quickly with an intuitive and familiar user interface,
- develop content without complex coding,
- quickly and easily modify and update content,
- reuse and extend libraries of project elements,
- test and explore interactive concepts,
- access different kind of story presentation.

The most common technique for presenting still images in an interesting way is *motion graphics* [12]. Motion graphics are graphics that use video and/or animation technology to create the illusion of motion or a transforming appearance. These motion graphics are usually combined with audio in multimedia projects. The term *motion graphics* is useful for distinguishing still graphics from graphics with a transforming appearance over time. Motion graphics extend beyond the most commonly used methods of frame-by-frame footage and animation. Having origins in 19th century, the technique really started to be used in mid 20th – century as a computer technique. By calculating and randomizing changes in imagery, the illusion of motion and transformation is created. Desktop programs such as Adobe After Effects, Discreet Combustion, and Apple Motion make the technique accessible, but still time consuming and not very easy. It continues to evolve as an art form with the incorporation of sweeping camera paths and 3D elements.

4. “Traces of Mozart” multimedia project

The concept of the multimedia project “Traces of Mozart” combining sound and images of musical instruments from the times of the composer came from the Museum of Musical Instruments in Poznań and the stages of the production were consulted there too. It is a two-part application – the first presents a short story based on the existing iconography of Wolfgang Amadeus Mozart’s life and oeuvre presented in the form of a 3D book with moving pages. The second is devoted uniquely to musical instruments from the times of Mozart that are part of the museum’s collection. The violin, flute, oboe, bassoon, trumpet, horn, pianoforte, clavichord and glass armonica were chosen for the presentation to create the climate of the composer’s epoch.

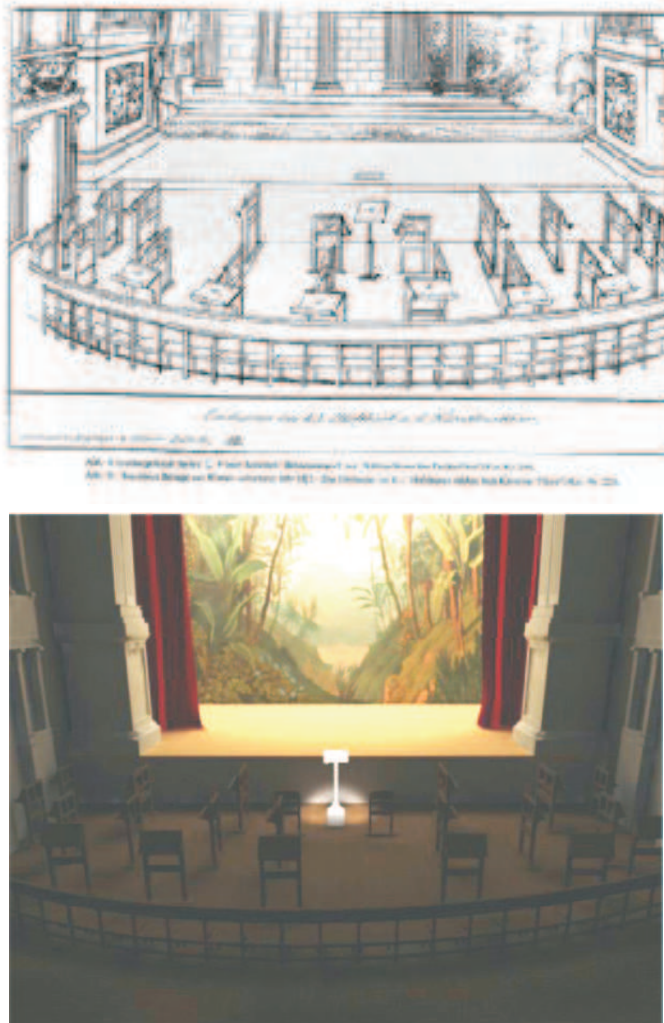


Fig. 1. Original illustration and a 3D reconstruction of the opera scene and its historic decoration.

The task was demanding, as static iconography had to be animated in such a way, that the viewer was not annoyed. Along with informative elements accompanying an image of the instrument (name, origin, date), a set of moving ornaments, staffs, waving and folding ribbons, changing textures, nice fonts etc. were applied to make the presentation interesting. Since multiple elements of the scene were animated, the viewers never got an impression of immobility and their attention was constantly attracted by moving details. Individual instrument entered smoothly into the scene from the left or right side of the screen. The speed was slowing down. The instrument color was toned out, but after a while a moving red ribbon unveiled its full color.



Fig. 2. Two objects before and after corrections.

The ribbon was shaped using Bezier Curves and *stroke* and *cylinder* functions. Clouds of moving musical notes enhanced the impression of being immersed in music. This attractive effect was obtained using the particle system for animation, accompanied by dodging and burning effects, so that the notes were clearly visible on a dark and light background.



Fig. 3. One of the multimedia presentation frames concerning the violin.

The soundtrack contained fragments of the following W.A. Mozart compositions:

- Symphony No. 41 in G minor “Jupiter” KV 551 for accompanying the violin and the trumpet pictures,
- Serenade No. 10 in B-flat major, KV 361 for Wind Instruments “Gran Partita” – for accompanying the flute, the oboe and the bassoon pictures,
- Horn Concerto No. 1 in D major KV 412 – for accompanying the horn picture,
- Sonata in A major “Alla Turca” KV 331 for accompanying pianoforte and clavichord picture,
- Rondo for glass armonica, flute, oboe, viola and cello KV 617 – for accompanying glass armonica picture.

The whole presentation lasted 10 minutes. More information concerning the design process may be found in [13].

5. Conclusions

In the paper, a short discussion of the problems related to the necessity and importance of using multimedia technology for preservation of audiovisual heritage and supporting museums in their educational mission has been opened. As an illustration of a discussion, a multimedia presentation of musical instruments images and their sound has been described. The presentation was created for the Museum of Musical Instruments in Poznań on the occasion of the “Museums Night” event and the 250 Anniversary of Wolfgang Amadeus Mozart birth in 2006. It is the first step, as the authors hope, to further support museum activities with the ICT technologies.

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