Narrative Visualisierung architektonischer Artefakte, ein Fallbeispiel

Narrative visualization of architectural artefacts, a case study

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Zusammenfassung:

Orte von historischem Wert stehen bei der Wahrnehmung ihrer traditionellen Aufgabe vor verschiedenen Anforderungen. Nur die bekanntesten von ihnen bieten örtliche Führungen, Reiseführer mit umfassenden Informationen und farbenprächtige Bilder auf Prospekten und Postkarten. Die neuen digitalen Medien spielen bei der Verbreitung kulturhistorischen Wissens eine bedeutende Rolle, sie können wirkungsvoll die Aufmerksamkeit auf normalerweise nicht so beachtete Orte lenken. Neue Medien bedeuten den Einsatz neuer Technologien bei der komplizierten Aufgabe des Begreifens der Vergangenheit. Der Vortrag stellt erste Schritte der Schaffung eines narrativen Umgebungsmodells der Eisenbahnstation in Nowa Sól (Polen) im 19. Jahrhunderts vor. Die Steigerung des Geschichtsbewusstseins der Einwohner des früheren Neusalz an der Oder ist eines der Ziele.

Abstract:

Places of historical value face various challenges to the role they have traditionally performed. Only the most popular ones have local guided tours, comprehensive information that can be found in book guides and colourful images presented on leaflets and postcards. New digital media play even more important role in promoting the knowledge of heritage and can be efficiently used to focus attention on 'usually' ignored places. New media mean new technologies to be adapted to the complex task of the understanding the past. The paper discusses the first steps of construction of a narrative environment model of the railway station in Nowa Sól (Poland) in XIX-th century. One of the aims is to increase historical awareness of the citizens of former Neusalz a. O.

1. The challenges facing historic places and tourist information

Historic and tourist information centres are typical institutions that provide information about accessible artefacts to the general public. This has been done by printing book guides, maps and folders showing the most representative images alongside with explanation of appropriate historical background. Also the places of historical interest may be carefully prepared for the visitors with direction signs, posters, artefact displays etc. The alternative approach is to use storytelling to introduce visitors to some, at first glance, unattractive places. It is usually done by professional guides, explaining to groups of visitors the social and historical role of particular artefacts. However, today's technologies create new public demands. People prefer individual access to information. Their evaluation of received information is more often based rather on emotional than rational issues. There is a tension between people who visit historical places as an educational experience and those who see it as a pure leisure. The so called edutainment blurs the boundaries between entertainment and education (that might be risky in some situations, for instance: when the museum of war may unexpectedly turn into the 'amusement' park). The whole way in which heritage is viewed is undergoing a change. The digital storytelling seems to be the technological answer to the challenges. Engaging spectators on individual basis, digital media can broaden his/her knowledge of the past without the blur of stereotypes [9].

2. Photorealistic and narrative visualisation for Digital Cultural Heritage

The main goal of visualisation is to bring understanding of data. The task is to present complex information in the most comprehensive and legible manner. Considering architectural artefacts the visualisation process is mostly focused on the understanding of spatial relations and on the recognition of particular style and form. The most natural way to convey this information is to build a three dimensional model. Architecture examines and creates human-environment and human-objects. There is important advantage of visual representation of architecture – it shows not only spatial relation of objects and environments but also its social role. It is relatively easy to integrate virtual objects into static photographs.

Virtual visualization might be the next stage in developing of visualization systems and 3-dimensional computer graphics is currently becoming the market standard. One adequate definition says virtual reality is applying information technology to create interactive 3-dimentional world effect, in which every object has presence property. It is possible to create single objects, virtual museums or even whole virtual cities (ex. Virtual Rome – www.vroma.org). 3D graphics is widely used in the field of architecture and history, notably in the virtual reconstructions of buildings targeted at wide public [1]. The research mainstream focuses on the end-user issues such as real-time rendering and mobile technologies [3,4,6,7,8]. Unfortunately most of the visualizations depict static models with simplified atmospheric effects (weather, seasons) and very often with limited or no environmental context (pedestrians-humanoids and foliage). On the other hand, the film and game industries offer new user engaging experiences with better photorealistic (3D) graphics, surrounding sound and complex interaction. This induces demand for better quality of non-commercial visualizations for wider (game-educated) audience. Digital storytelling techniques have been successfully adapted to education of history and architecture [2,5]. The idea presented in the paper is based on that area of science. The use of commonly available technologies to perform time-based 'environmental' visualization of historical artefacts is still not a common solution in non-commercial systems.

3. The "Railway Station in Nowa Sól" project

Visualisation of architectural objects with their natural and social context is not a simple case. The project investigated how information about the Railway Station in Nowa Sól (Fig.1) could be presented in a more intuitive fashion, creating some emotional bond with the viewer. A number of objectives were defined:

- To investigate the process of creating a narrative virtual reconstruction based on available (different) information sources,
- To provide alternative ways to understand representative elements, and function of the building,

Fig.1. Current view of the Railway station in Nowa Sól

Fig.2. An old photograph depicting the Railway Station

Fig.3. Digital reconstruction of the XIX-th century building

- To put a stress on maximum photo realism of the virtual representation of the Railway Station (Fig.3),
- To convey the mood of that historical place,
- To offer interactive video (guided tours) in order to make visiting more comfortable for the first time users,
- To keep the media files small for Internet accessibility.

The Railway Station in Nowa Sól has changed several times in the latest century(Fig.2). The general idea was to present its look in XIX-th and XX-th centuries, to make current citizens aware of the past times. The "Neusaltz a. O. Bahnhof" was a central point of the city, where lots of people crossed their ways. It was pictured on several postcards (used as a reference pictures). In order to convey the history in most natural way, our aim was to introduce the character of a little boy travelling with parents, observing the surrounding environment (Fig.4).
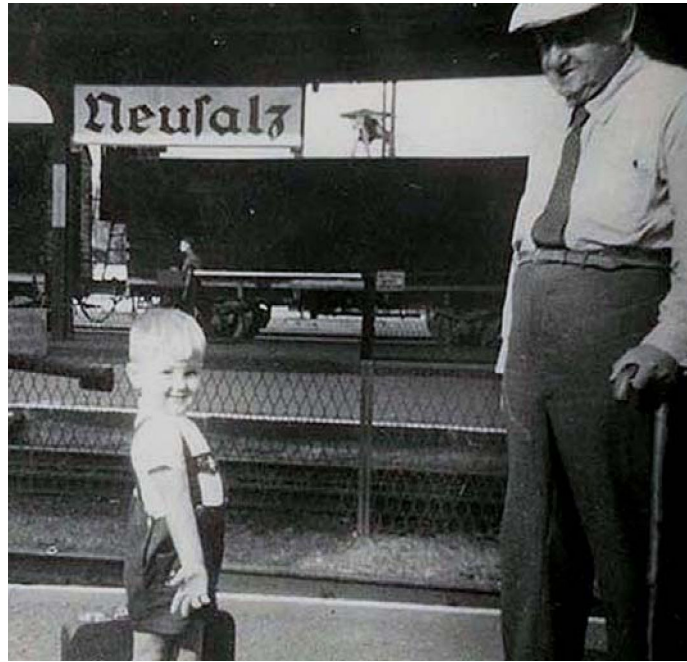
Fig.4. An old photograph capturing the young passenger- one of the inspiring resources.

At the moment, few basic elements of the environment are finished: the main building, platforms and important surrounding elements, atmospheric effects and ready post-production pipeline. All the components provide visual cues for the observer. Another (linked) university project on reconstruction and animation of steam-power train with carriages from XIX-th century is almost ready. The University of Zielona Góra has acquired the motion-capture system, and it is planned to perform mocap sessions to develop animation for humans, that would complete the reconstruction. Then some alternative paths/view will be assembled along with the narrative speech and background music.

4. Conclusions

The architectural visualization presents several challenges in the field of digital cultural heritage. All historical objects were built to serve special social functions. Lack of cultural and social context in reconstruction reinforces artificial 'museum' style, where the broader context is left to museum guides or just missed. Some of the object have been refurbished so many times that their original form is someway forgotten.

The narrative visualization positions visualization of the architectural heritage as an emotional experience that follows the ambition of visual realism and visual understanding of changes that took place in the past [9]. It is possible to greatly enrich the usefulness of digital media representations, provided that some attention is put to credibility of the information depicted in the virtual reconstruction. It can help to illustrate evolution of architecture in broader context of the cityscape, allowing user to interactively compare recognizable images of the buildings with those virtually recalled from the past.

Acknowledgements

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