Relating Representational with Represented Objects Using Immersive Techniques

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Abstract. Virtual Reality (VR) is sometimes used to give the user an immersive, three-dimensional sense of a real-world setting. VR is also used for information visualization, taking advantage of the perceptual characteristics of VR to convey information. We present a Web-based VR that is a combination of both these uses. This VR presents mock-ups of both the city of Amsterdam and its largest museum, the Rijksmuseum. These mock-ups convey abstract information that includes the relationships between objects in the museum, such as paintings of Amsterdam cityscapes, and the corresponding objects in Amsterdam itself, such as the buildings and neighbourhoods shown in these paintings. The principle behind this is that the user learns how to walk through the museum to view objects that together convey a unified view about Amsterdam, which the user can then later walk through.

1 Introduction

Virtual Reality (VR) is sometimes used in Cultural Heritage applications as “mock-ups” to recreate currently or previously existing real settings and objects. Alternatively, rather than recreate real world three-dimensional immersion, a sense of three-dimensional immersion that is not based on reality is used to communicate more abstract information to the user. The mock-ups presented in this paper use VR features to enhance reality-based information with abstract information about the real world objects represented in multiple settings. This VR is encoded in VRML and makes part of the RIF virtual environment, which is being developed at CWI using Blaxxun technology. This information also includes how Amsterdam has changed over time, and how various paintings in the museum, when seen together, record and communicate these changes. The VR may be used stand-alone, or made accessible across the Web as part of a multi-user virtual environment.

2 Background

2.1 Cultural Heritage

2.2 Virtual Reality as Mock-up

2.3 Virtual Reality as Information Visualization

3 Mock-up Techniques Used

4 Information Visualization Techniques Used

5 Relating Museum Objects with Real-world Counterparts

6 Implementation

7 Summary

References

[1] Furuta, R., Marshall, C.C., Shipman III, F.M., and Leggett, J.J., "Physical Objects in the Digital Library", In: Proceedings of Digital Libraries 1996, Bethesda, MD USA, March 1996, pp. 109 - 115.

[2] Rutledge, L., van Ossenbruggen, J., Hardman, L. and Bulterman, D.C.A. "Practical Application of Existing Hypermedia Standards and Tools", Proceedings of Digital Libraries 98, Pittsburgh, USA, June 1998, pp. 191-199.

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