|  |
| --- |
| Interactive Storytelling in VR: Exploring the Cultural Richness of Heraklion**Ilias Proimakis, Antonis Agapakis**1#**, Emmanouil Zidianakis**1\***, Eirini Kontaki**1**, Constantina Manoli**1**, Stavroula Ntoa**1 **and Constantine Stephanidis**1,21 Foundation for Research and Technology Hellas, Institute of Computer Science, N. Plastira 100, Vassilika Vouton, GR-700 13 Heraklion, Greece2 Computer Science Department, University of Crete, Greece# Presenting author: Antonis Agapakis, email: agantos@ics.forth.gr\* Corresponding author: Emmanouil Zidianakis, email: zidian@ics.forth.gr |

abstract

Virtual Reality (VR) enables visitors to explore Cultural Heritage (CH) environments interactively, allowing them to navigate and engage with virtual objects without the need for physical presence [1]. Such experiences can be enhanced with the addition of digital storytelling [2], allowing visitors to find out the story behind a CH monument, the characters, and the events depicted. In such virtual explorations, interactivity, multimedia enhancements, storytelling, and gamification experiences have the potential to enhance immersion and memorability [3]. Additionally, the evolution of Virtual Humans (VHs) provides more versatility to the curators of cultural heritage spaces, since they can be used to produce various narratives through actual or fictional persons such as historical figures, storytellers, personal guides, etc. [4]. Their multifaceted applicability in digital experiences allows VHs to act as visitor guides while offering supplementary information in the form of multimedia, thereby providing a more comprehensive and enriched visiting experience. This work presents an interactive storytelling application offering the public the chance to travel through space in a VR environment, exploring the history of the city of Heraklion while freely navigating within selected 3D scenes of important city landmarks. Employing a playful yet educational approach, the system provides a realistic visualization of historically important 3D objects and spaces, accompanied by historical information, photos and videos, thus allowing users to immerse into the cultural richness of Heraklion. In their city exploration, users are guided by two VH storytellers, Ariadne and Dominikos, who aim to support a richer understanding of historical artifacts and sites. For the animation of each VH, motion capture technology was used to record realistic movements from real people, which were then remapped to create an animation set for each virtual human. By simulating realistic emotions and expressions, these characters foster personal connection with their audience, creating a more personalized and memorable storytelling experience.

**REFERENCES**

[1] Gabellone, F.; Ferrari, I.; Giannotta, M.T.; Dell’Aglio, A. From museum to original site: A 3d environment for virtual visits to finds re-contextualized in their original setting. In Proceedings of the 2013 Digital Heritage International Congress (DigitalHeritage), Marseille, France, 28 October–1 November 2013; IEEE: Piscataway, NJ, USA, 2013; Volume 2, pp. 215–222.

[2] Keil, J.; Pujol, L.; Roussou, M.; Engelke, T.; Schmitt, M.; Bockholt, U.; Eleftheratou, S. A digital look at physical museum exhibits: Designing personalized stories with handheld Augmented Reality in museums. In Proceedings of the 2013 Digital Heritage International Congress (DigitalHeritage), Marseille, France, 28 October–1 November 2013; IEEE: Piscataway, NJ, USA, 2013; Volume 2, pp. 685–688.

[3] Kalay, Y.; Kvan, T.; Affleck, J. (Eds.) New Heritage: New Media and Cultural Heritage; Routledge: London, UK, 2007.

[4] Carrozzino, M.; Colombo, M.; Tecchia, F.; Evangelista, C.; Bergamasco, M. Comparing different storytelling approaches for virtual guides in digital immersive museums. In Augmented Reality, Virtual Reality, and Computer Graphics: Proceedings of the 5th International Conference, AVR 2018, Otranto, Italy, 24–27 June 2018, Proceedings, Part II 5; Springer International Publishing: Cham, Switzerland, 2018; pp. 292–302.