VWBPE 2013

EXPERIENCE THE TEMPLE OF HORUS ON AVAYALIVE ENGAGE

AVAYALIVE ENGAGE is an online, immersive collaboration environment that lets you communicate with others as though you were face to-face. AVAYALIVE ENGAGE runs on the UNREAL 2.5 gaming engine and is embedded as a browser plug-in that integrates with your local network, security and business software tools. Knowledge flows freely-from instructor to students, peer to peer, coach to team-all while presentations and materials display. MellaniuM is leveraging this 3D virtual environment platform to be capable of both importing all 3D file formats with photorealistic textures generated both by photogrammetry and laser scanned items and monuments for archaeological and educational use.

The Unreal engine has been promoted in the past as a complete solution for the accurate rendering of archaeological reconstructions and museum exhibits[1]. However until the advent of the UNREAL engine version 2.5 and the wide acceptance of hardware 3D graphical acceleration video cards and DIRECTX 8.0 it was highly impractical to produce virtual buildings and accessory items with high polygon static meshes and photo-realistic textures and 2D graphics which were not subject to debilitating pixellation on close inspection. Maria Sifniotis[2] has compiled an excellent summary of the game engines and their strengths and weaknesses.

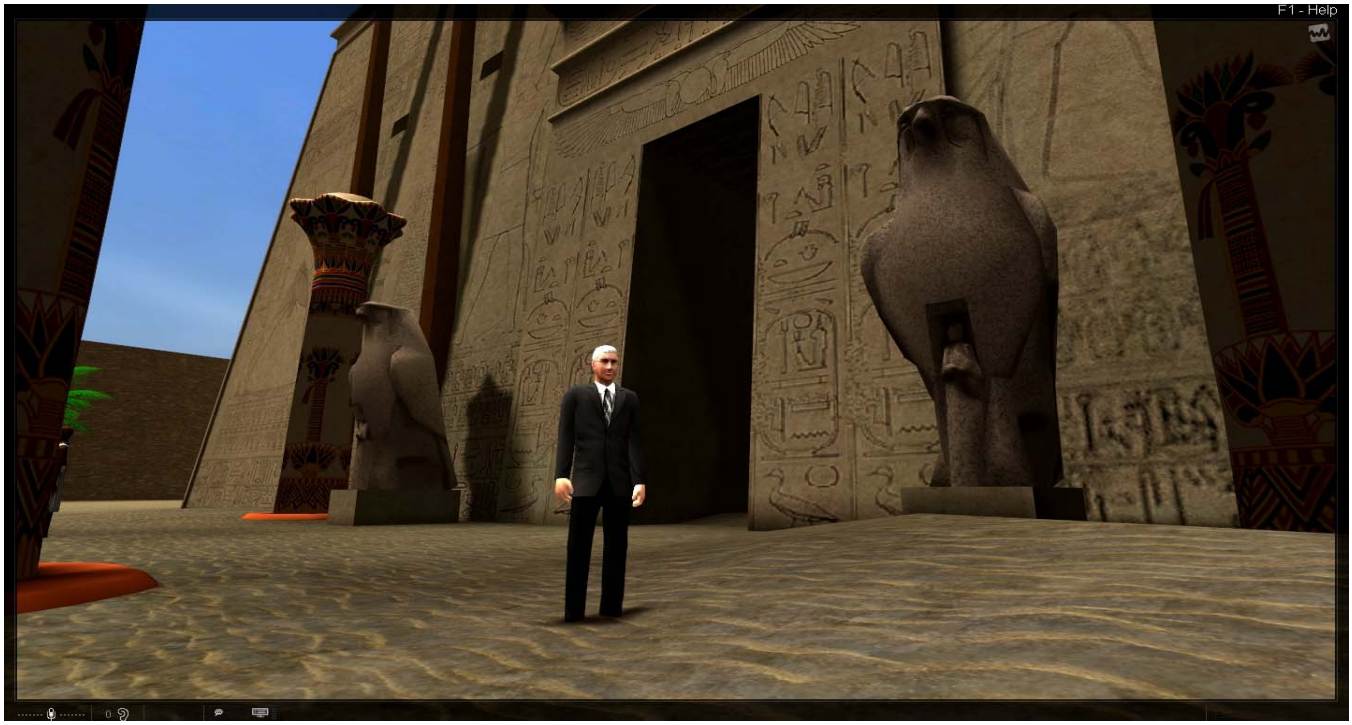

FIG 1. Entrance to the Temple of Horus at Edfu

Jeffrey Jacobson has been working for several years on VR applications using the extensive features of the UNREAL game engine. His thesis and an UNREAL environment of the Temple of Horus, now being used in the Carnegie-Mellon museum, is available on the PublicVR website.

FIG 2. Inner Courtyard at the door to the Hypostyle Hall

However it has to be accepted that the key to effective virtual realism, especially for fields like archaeology, is the creation of an environment so well conceived interpretively that the user becomes emotionally involved in the content of the simulation. Users obviously desire to experience a design that has been created in terms of lighting effects, finishes, surface textures, layout and construction details which will lend itself to a complete suspension of disbelief. The MellaniuM application allows for the importation of high polygon models and rich textures that are being used now in the Temple of Horus complex to create the realism necessary for a true reduction of cognitive friction and the subtle transcendence to a believable immersion.

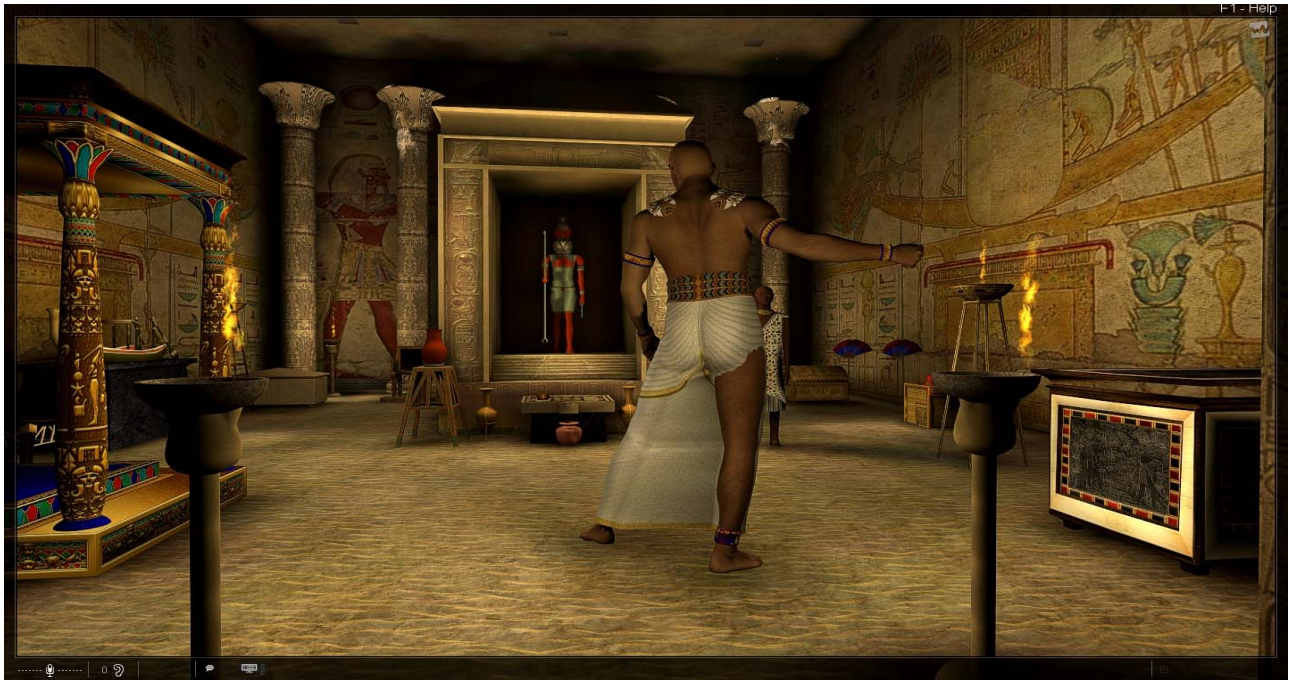

FIG 3. Inside the Throne Room of the Temple of Horus

In addition comprehensive descriptive metadata relating to the original source, age, design and existing knowledge on associated artifacts can be connected effectively to any 3D item in the environment. By introducing small unobtrusive portal icons within the 3D models, which can be approached on the screen the participant will automatically be directed to URL or local links (web pages and movies) with pertinent information to the item. This type of semantic interactivity is vital to produce an environment that will encompass both a truly informative and a sensory experience resulting in an academically accurate and effective educational space.

It is entirely possible with one URL web link click to enter along with up to 50 others to explore and learn about the fascinating details of the Temple Complex. For a demonstration of the Temple of Horus go to
http://wa3530.avayalive.com/

REFERENCES

1. DeLeon, V. and Berry, R. (1998), 'Virtual Florida Everglades', Proceedings of VSMM Virtual Systems and Multimedia

2. 3D Visa Bulletin, Sept 2007 Featured 3D Method: 3D Visualisation using Game Platforms Maria Sifniotis University of Sussex, UK http://3dvisa.cch.kcl.ac.uk/paper_sifniotis1.html

3. Ancient Architecture in Virtual Reality "Does Visual Immersion Really Aid Learning?" Jeffrey Jacobson, PhD University of Pittsburgh, 2008 http://publicvr.org/publications/Jacobson2008.pdf