AVATAR–BASED INTERACTIVE STORYTELLING: A NEW CULTURAL HERITAGE TECHNOLOGY

Stories About the Past Storytelling is a familiar and effective way to convey information to a general audience, especially in the field of Cultural Heritage. Yet with the increasing use of standardized interactive applications in museums and historic sites, it is difficult to appeal to a wide range of visitor interests. This problem can be solved through the use of interactive storytelling, which allows the visitor to choose from a large selection of subjects and themes to create a personalized "story," appropriate to his or her interests and the time available for the visit.

Presentation systems featuring interactive storytelling should be easy to update and maintain, without the expertise of technical specialists. Text-based interactive story telling applications, driven by a relatively simple XML or database application, allow museum and site staff to update the content by merely typing in texts. Recorded narration is generally more effective than text in conveying information to the visitor, but its use in interactive storytelling has a major drawback concerning updating : changing minor parts of the content requires major investments in time and money (studio recording sessions, editing, digitizing) which often results in discouraging frequent updates and jeopardizing the entire update process.

By adding synthetic voice capabilities to the interactive storytelling system, this problem of updating time and expense can be effectively addressed. Text-to-voice translation software makes it possible to create narration from the keyboard. Simple software tools can be used to alter intonation or stress significant words, making the synthetic speech more lifelike. The sound files can be easily exchanged in the application and they can provide narration in several languages.

A Virtual Guide An additional element can greatly enhance the effectiveness of an interactive storytelling system: the use of an avatar to serve as personal guide and storyteller for each visitor. Interpretation specialists have long commented on the highly impersonal nature of the "disembodied" narrator's voice. The use of an avatar (or multiple avatars) can provide a distinct point of view, attitude, and physical appearance to enhance effect of the interactively created story on the particular visitor or visitor group. And this element too can be integrated into a system that is easily updated.

The Archaeological site of the Abbey of Ename in Belgium will be used as a test site for a showcase that demonstrates Avatar- Based Interactive Storytelling.

In the prototype system, the Avatar's speech and animation is fully synchronised with the synthetic voice, derived semi-automatically from written text in storytelling database. This integration can provide easily updatable multi-lingual, interactive explanations of major points of archaeological, cultural, and scientific interest in the form of self-authored "stories" conveyed by a virtual guide.

The Ename showcase will also utilize Virtual Humans to "populate" digital reconstructions of the site—and to illustrate questions about archaeology, the abbey and the
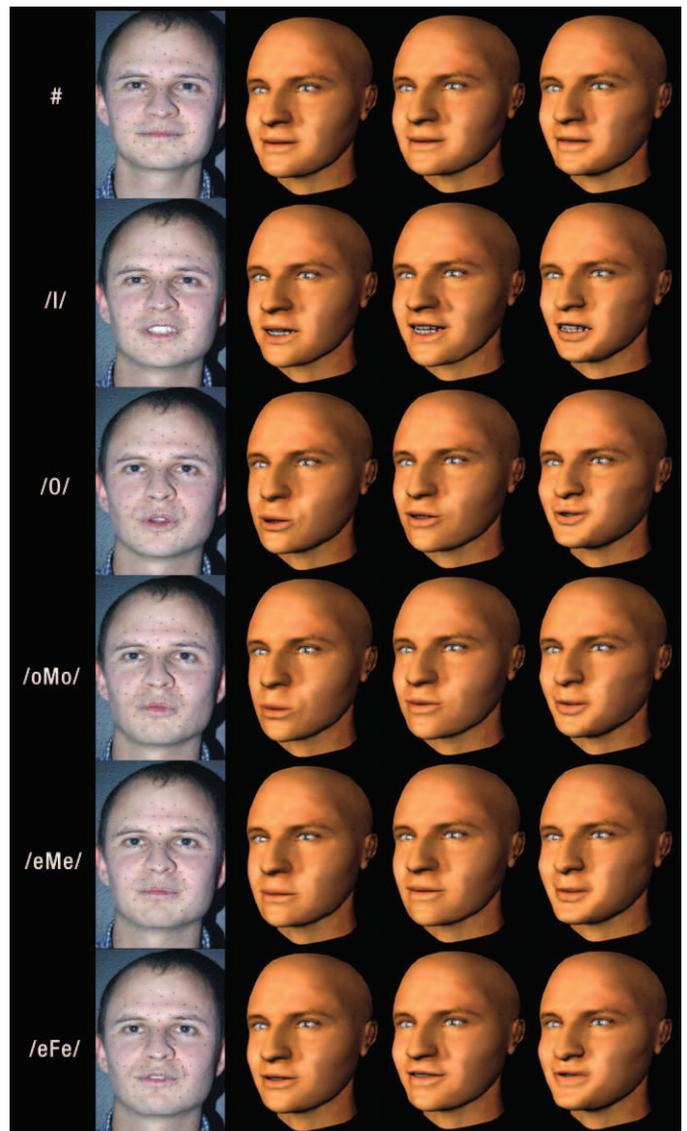
Digitalisation of a real person and his pronounciation of a set of phonemes yield a speaking avatar

monks who lived there. Issues of alternative architectural reconstructions techniques will also form a research priority for this showcase.

of the Computer Vision Lab of ETH Zürich, and use standardised emotions. The virtual humans are created and animated by MIRALab.

Technical specifications The showcase application is based upon the TimeScope 3 software, developed by the Ename Center and IBM, which is an Open Source XML and Java environment, build upon an Apache Tomcat server. Data entry for content specialists uses standardised forms to input texts and link images, animations and sounds. The text-to-speech software called RealSpeak Solo is developed by ScanSoft Inc. The synchronised avatars are a development

Partners The showcase *Avatar-Based Interactive Storytelling: A New Cultural Heritage Technology* is being realised by:

▶ The Ename Center for Public Archaeology and Heritage Presentation, Belgium,

▶ ETH Zürich, Computer Vision Laboratory, Switzerland,

▶ MIRALab, University of Geneva, Switzerland,

with the support of Prof. Em. Dr. Arch A. L. J. Vande Walle

Interested?

Are you interested in this showcase? Do you think that this approach can help you in creating effective Cultural Heritage presentation projects or can be integrated in new research projects? Please contact Heidi Tency (heidi.tency@enamecenter.org) of the Ename Center at +32 55 232445.