Essex Egyptology Group - April 2026

***"Coffins as Magical Machines: Visualising Ancient Egyptian Funerary Texts in 3D"* - Dr Rita Lucarelli,** Associate Professor of Egyptology at the University of California at Berkeley and Faculty Curator of Egyptology at the Phoebe A. Hearst Museum of Anthropology.

In April, following the AGM, Dr Rita Lucarelli gave the group a talk over Zoom from California. The use of AI is not currently reliable enough to accurately assemble ancient Egyptian imagery in an authentic way. However, the great technological progress since the digital revolution began in the '60s has enabled the use of software such as photogrammetry to create authentic 3D visualisations, bringing together separated elements such as coffins, related monuments & artefacts in a virtual reality format. Walter Benjamin said that "Even the most perfect reproduction of a work of art is lacking in one element - its presence in time and space." Virtual reality now enables the viewer to travel to view objects in their original context to be able to restore their material presence in time and space.

Using traditional photogrammetry and other digital tools, it is hoped to be able to train AI to combine separate images of ancient Egyptian artefacts and scenes in a more historically accurate manner. Currently, AI tends to combine visual ancient Egyptian elements in inaccurate ways, along with making up some meaningless imagery.

The Hearst Museum of Anthropology is a part of the 'museums have no borders' scheme that promotes the digitising of all museum collections to enable global interconnectivity. Digital Humanities and Egyptology students From UC Berkeley have been using photogrammetry software to photograph Egyptian artefacts from various angles, then manipulate them three-dimensionally on screen, and place them in a virtual reality landscape where their digital avatars can then explore and interact with them. Students have also produced their own projects. One student produced a digital project called "3D Copies, Fakes and other Excuses: A post colonial perspective on the digitisation of ancient artefacts", that explored the possibilities, challenges and current limitations of digital media and especially AI.

Digital technology can be used to produce facsimiles as faithfully as possible to the original, or it can be used to create a 3D model as a new medium - creating a new object, not just a copy, but deciding what to emphasise. There are potential issues in creating AI images that are inaccurate formally, aesthetically, functionally, or have ethical concerns. It is vital not to lose sight of the real object, but retain its authentic shapes and details.

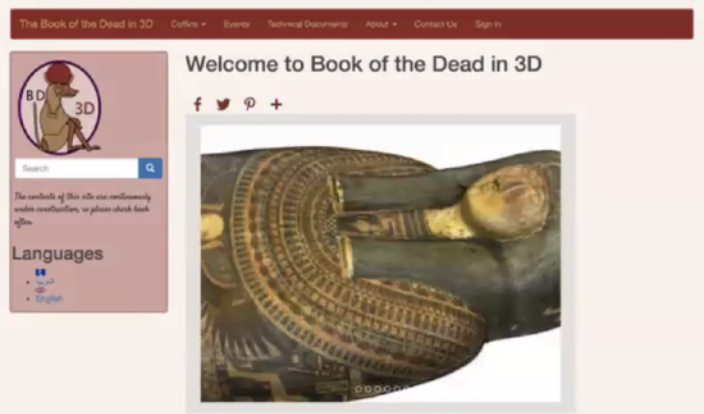

Image © courtesy of Rita Lucarelli

Dr Lucarelli is currently creating a 3D-modelled Book of the Dead online which enables 3D digital manipulation of artefacts such as decorated anthropoid coffins as well as placing them in the tomb where the coffins were originally found and the landscape where the tomb is located. This is termed 'Virtual Travelling' - a sort of digital repatriation, assembling artefacts with their original context. 3D modelling allows a fuller view of the exterior and interior decoration and texts of coffins. From the 21st Dynasty onwards, coffins became a substitute for the tomb, so they became more textualised. Where papyrus scrolls of the Book of the Dead had usually been used to make translations, translating the texts on coffins can now enhance previous translations as more creative, abridged versions of spells that fitted the limited available space would summarise the essential meaning of the text. Book of the Dead text sources also include scarabs, amulets, shabtis, and mummy bandages.

Students were set the task of photographing the texts on unpublished coffins on display or in storage in several nearby small museums such as the painted wooden coffin of Irethoru (Late Period) in the Museum of Man, San Diego. Digital scanning of decorated coffins from various angles enable the 3D manipulation of these artefacts onscreen. The group was shown this with the 26th Dynasty coffin of Iwefaa from Akhmim. His inner coffin was also able to be virtually re-nested inside its outer coffin stored elsewhere in another museum.

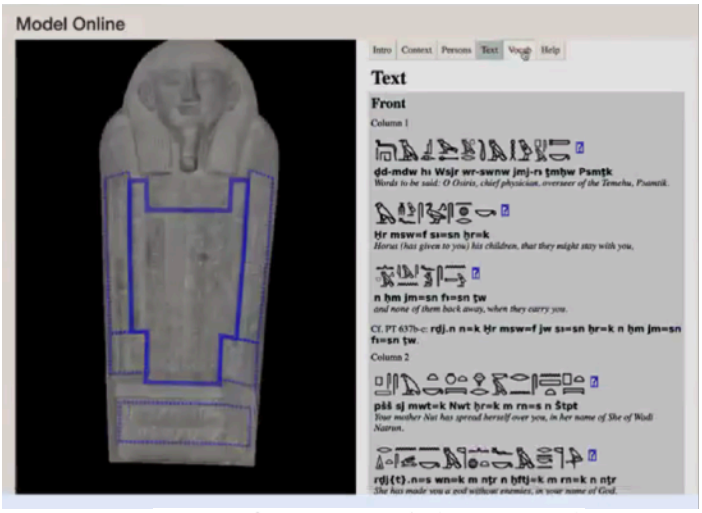

Image © courtesy of Rita Lucarelli

The 'Model Online' project at Berkeley enables a coffin such as Iwefaa's to be viewed three-dimensionally from all angles, Different tabs can be selected to show the coffin's context: history, provenance, excavation, the deceased's family, and the text as hieroglyphs, their transliteration and translation related to different parts of the coffin. Vocabulary and help sections are also provided.

Another Book of the Dead in 3D project grew out of UC Berkeley's possession of a 26th Dynasty Late Period sarcophagus lid of Psamtek (known as 'The Doctor') and the tomb where Padinese was buried at Saqqara. Brought out of storage, the sarcophagus lid was scanned. A 3D computer model was created of the 'Padinese' tomb. As Psamtek had died elsewhere and was never buried in his sarcophagus at his intended tomb, the project's goal was to bring him together virtually, place the sarcophagus in a virtual version of the Saqqara tomb, and set this in the landscape context of the Saqqara necropolis. The student team who helped realise this included Computer Science as well as Egyptology specialists.

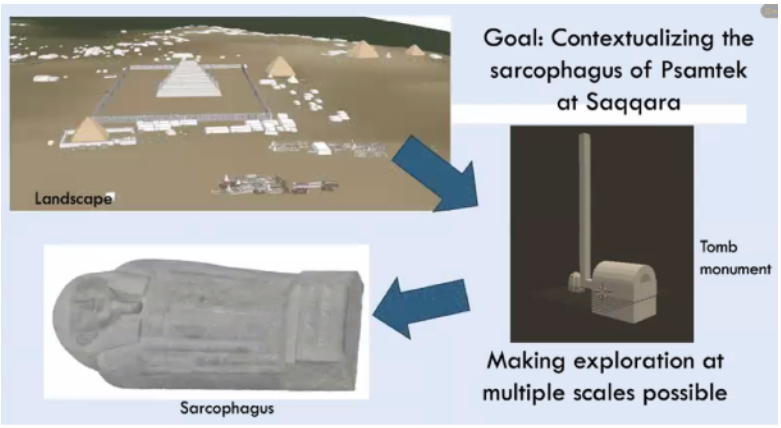

Image © courtesy of Rita Lucarelli

As virtual reality headsets are becoming obsolete, technologists are working towards creating VR without the use of headsets to create an authentic visual approximation of the ancient Egyptian past.

https://3dcoffins.berkeley.edu/

https://www.facebook.com/3dcoffins

https://sketchfab.com/bookofthedead3d

Q&A

- *Tilly - How would VR work without a headset?*

It would work on your smart device. Google glasses, for instance, already have a record function (potential ethical issues?)

- *Alison - What effect has the use of this technology had on student engagement?*

Students love it, those who've never studied Egyptology before e.g. Millennials were much less engaged with traditional learning. Only a tiny minority will read a book on e.g. coffin production, whereas 3D modelling is much more engaging.

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Michael Tweddle
15 April 2026
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