

A 3D CULTURAL HERITAGE AND VISUALISATION DEPOSITORY FOR AUSTRALIA

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ABSTRACT

A group of academics and partners are proposing to UNESCO to run a project to survey, collate and develop tools for heritage sites and related built environments, focusing initially on Australia. We intend to consolidate and disseminate 3D models and virtual environments of world heritage sites, host virtual heritage examples, tutorials, tools and technologies so heritage groups and classrooms could learn to develop and maintain 3D models and virtual environments, and act as adviser on policy formulation for the use, evaluation and application of these 3D digital environments and digital models for use in the classroom and for general visualisation projects.

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We propose to create a *Cultural Heritage and Visualisation* network, we would use and advise on 3D models of World Heritage Sites, how 3D models can be employed in teaching and research, investigate ways to host both the digital models and related paradata and publications, and transfer formats (for desktop use, mobile computing etc.), ideally with UNESCO, and we will leverage research facilities at Curtin and at partner institutes like the HIVE (Figure 1).

This project will collate create and extend educational material and working examples for using and designing virtual heritage sites and models, so all of the above priorities are relevant especially the first, and fifth. The primary aim is to help educate the public in the area of world heritage sites via interactive digital media, with an emphasis on free and open source software. The Chair will also integrate and extend existing and new infrastructure to support this learning material and the integration of scholarly publications, publicly available media and online directories and repositories of digital 3D models of world heritage sites and related artefacts.

Provide workshops on 3D tools and software that allow communities, heritage groups and classrooms to learn from developing their own models and artefacts using free and open source game engines and 3D modelling tools.



Figure 1: Jeffrey Jacobson of PublicVR.org demonstrates the Virtual Egyptian Temple running inside a game engine, on the Cylindrical Screen of the HIVE, Curtin University.

Why is this necessary? Professor Hal Thwaites, long-time President of VSMM, wrote in “Chapter 17: Digital Heritage: What Happens When We Digitize Everything” [1]:

In the very near future some critical issues will need to be addressed; increased accessibility to (and sharing of) heritage data, consistent interface design for widespread public use and re-presentations of work, the formalization of a digital heritage database, establishment of a global infrastructure, institutionalized, archival standards for digital heritage and most importantly the on-going curation, of work forward in time as the technology evolves so that our current digital,

*heritage projects will not be lost to future generations. We cannot afford to have our digital heritage disappearing faster than the real heritage or the sites it seeks to 'preserve' otherwise all of our technological advances, creative interpretations, visualizations and efforts will have been in vain.*¹

Recent European trends are to create archives and digital humanities infrastructures but 3D models have been left behind. For example, a major EU project, CARARE, created a common library format of 3D models but they were trapped inside PDF format so people could not modify and develop their own content, and the model did not dynamically link to the scholarly information that made the model possible. In Australian and in the Pacific there are very few accessible 3D models of heritage sites that use a common, stable format.

This project would make free online introduction to the field of virtual heritage, provide free online 3D models for use by the public, and create policies and guidelines for integrating digital heritage sites and models with library and community media and related information infrastructures

Our objectives are to

1. Collate and archive using available institutes a range of online virtual heritage resources (they are currently scattered).
2. Provide training material that can be developed and expanded by others.
3. Recommend ways in which 3D models can be better linked to scholarly articles and related digital material.

Our particular focus in the first instance is to create list and host online available 3D heritage models, concentrate on Australia and the Pacific region. We will provide introductory material to show classrooms and community groups how they can use the online virtual heritage models and sites in their educational programmes. Given the requisite funding and industry support we also intend to create, collate and host training model on 3D software and provide introductory material to show classrooms and community groups how they can develop and modify their own online virtual heritage models and sites.

We will take and give advice on long-term archive guidelines for 3D models, recommend ways of linking 3D models to scholarly publications and related scholarly resources and infrastructures, and test the above through workshops and via courses at Curtin and partners. Where possible we will use and recommend FOSS-Free and Open Source Software.

Our advisory board includes Professor Angelina Russo, co-founder and Director of Museum3 (<http://www.museum3.net>), Associate Dean Research and inaugural Professor of Cultural Practice in the Faculty of Arts and Design at the University of Canberra, Professor Jo McDonald, Archaeology, Rio Tinto Chair of Rock Art Studies/Director, Centre for Rock Art Research and Management, University of Western Australia, Dr. Arianna Traviglia, Visiting Professor University of Venice, Italy and CAA executive member (<http://caa-international.org/>), Dr. Laia Tost, formerly Senior Researcher, the Acropolis Museum Greece, and current Marie Curie IEF fellow, Barcelona, and Professor Sambit Datta, CAADRIA executive member, School of Built Environment, Curtin University.

We have linkages and ongoing relationships with other relevant universities in Australia and the wider Asian area and organisations in Europe like DARIAH, NeDiMAH and Europeana Cloud and have an understanding from iVEC Curtin for storage of the initial models and related assets, but we are interested in talking to organisations about longer term storage.

REFERENCES

1. Thwaites, Harold. "Digital Heritage: What Happens When We Digitize Everything?" *Visual Heritage in the Digital Age*. Springer London, 2013. 327-348.

ABOUT THE AUTHOR

Erik Champion is Professor of Cultural Visualisation at Curtin University, Australia. He is currently working on a book for Ashgate's Digital Humanities series, entitled *Critical Gaming and Digital Humanities*. He is the author of *Playing With the Past* (Springer, 2011) and the editor of *Game Mods: Design Theory and Criticism* (ETC Press, 2012). Previously he was Project Leader of DIGHUMLAB Denmark and DARIAH VCC2 co-leader. He is currently on the board of Directors of VSMM, on the editorial board of Digital Research Tools (DiRT: <http://dirt.projectbamboo.org/>), and leader of the Digital Heritage program of Curtin's CCAT (Culture and Technology network).