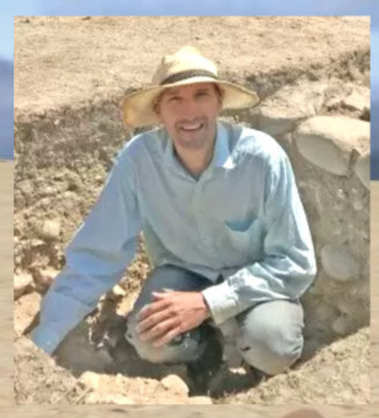
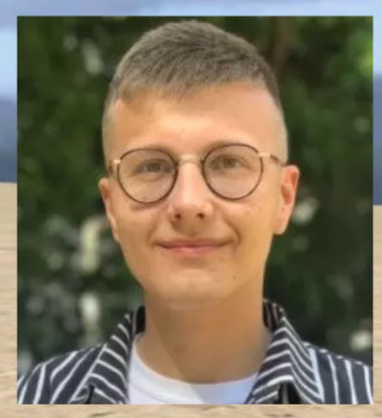
Spatially and Visually Learning about the Human Past with Extended Reality (XR)





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Authentic learning experiences do not only improve students' learning, engagement, and satisfaction, but they also equip students with essential '21st century skills' for their future professional life.

SPATIAL HUMANITIES

When trying to understand the human past, nothing beats 'being there' to authentically experience the places people lived and to see the remains of past societies. We also travel to museums to interact with the objects people used or to archives to read the documents they wrote. The human past additionally has a place within today's society, as communities live and work around the remnants of the past, and this effects our authentic design of spaces for the future. Studying the human condition is central to developing our modern societies and teaching students to become citizens in a global, increasingly digital world.

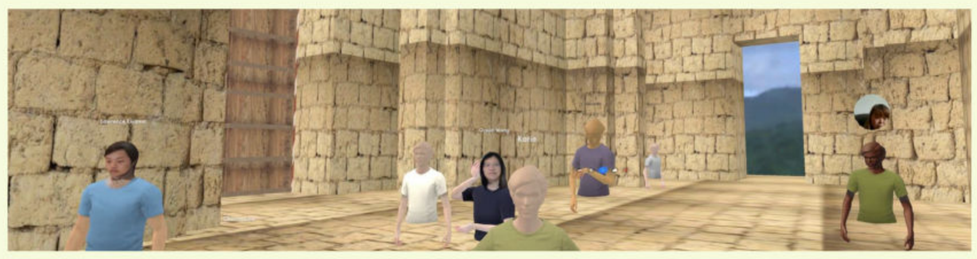
OBJECTIVES

1. Establish a framework for teaching about humanities using authentic, digital instruction and assessment design (e.g. 3D modeling and virtual immersion)
2. Develop higher education research literature by conducting an in-depth study about the implementation of such a design. In this project, we specifically use the study of the human past as our testbed for the development of educational methods and theories that would benefit any humanities field that engages with learning about space.

WHY WE DO THIS

Experiential learning represents an ideal pedagogical technique, however, opportunities to travel widely are very limited for most students and there are often restrictions to touching historical objects. Furthermore, much of the historical fabric of the world has disappeared and can no longer be visited. In addition, we also consider how we preserve and manage existing cultural heritage, and engage each local community in its built heritage into the future.

PROJECT OVERVIEW

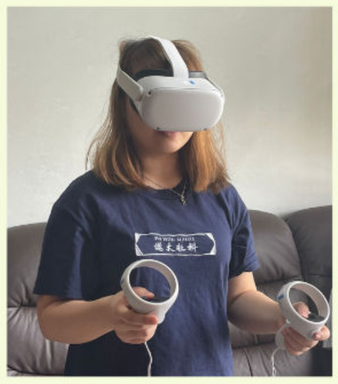


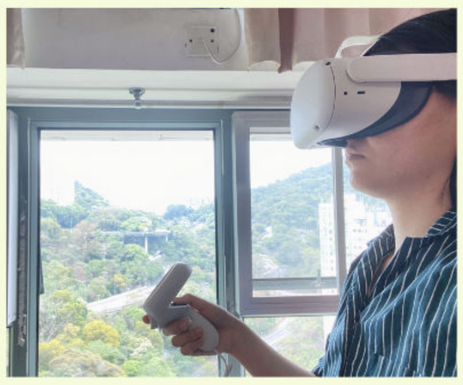
We see a great opportunity in authentic digital technologies in supporting meaningful learning. In our context of the humanities, 3D modeling and XR technologies are used as such authentic technologies, enabling students to deeply learn the spatial and visual characteristics of the past.

HOW WE DO THIS

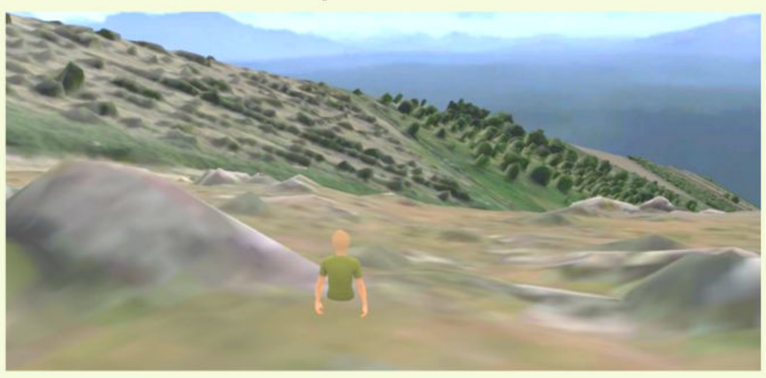
Today's digital and virtual technologies provide new innovative ways for students to authentically interact with and learn about the past and design for the future. It is now possible to quickly 3D scan existing ancient spaces and objects and build digital 3D models of past spaces and 3D designs for future spaces. Students can then interact with those models through high-quality digital immersive experiences, what we here call extended reality (XR) – the spectrum spanning virtual (VR), augmented (AR), and mixed (MR) realities.

OCULUS QUEST 2 VR IN CLASS

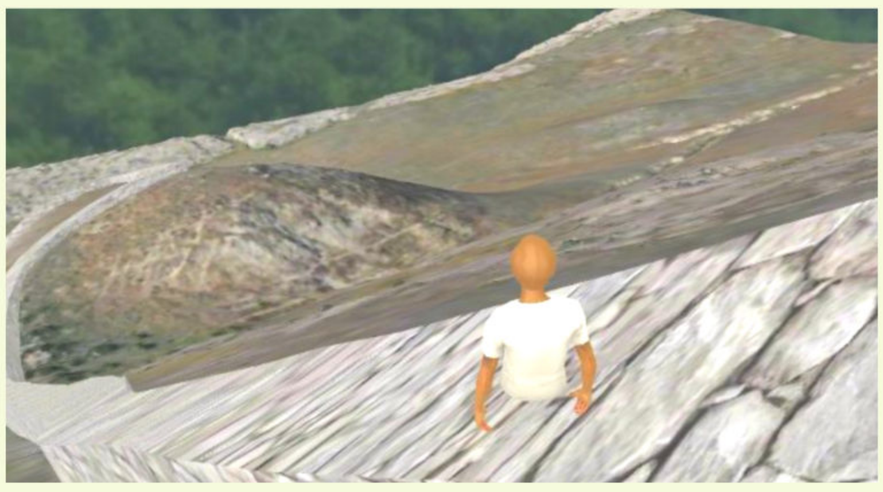




In the second semester of 2021-22, students in the course ARTH2108 Introduction to Mesopotamian Archaeology, taught by Peter Cobb, are already learning how to create 3D models and are experiencing VR immersive instruction about ancient places.



We partnered with the HKU Libraries and the TELI group to send Oculus Quest 2 VR headsets to student homes. In this way, we can simulate a group learning experiment while remaining socially distanced. One could also imagine engaging with students in other parts of the world in these 3D group tours.



For authentic assessment project, students are creating 3D models of ancient sites in Iraq, where they learn how to do the research to use an evidence-based approach to reconstructing ancient buildings and objects.