

S15 Interpretations from digital sensations? Using the digital sensory turn to discover new things about the past

Stuart Eve, Catriona Cooper

We are at a turning point in development and thought about multi-sensorial engagement using digital mediation. From Oculus Rift VR goggles or noise-reducing headphones through to vibrating- haptic simulating gloves, smell generators and virtual treadmills, every week a new technology or software emerges that can be used to virtualise, augment or diminish our reality, across all of our senses. Digital archaeologists have always been at the forefront of using these new technologies and one glance at past proceedings of the CAA conferences show how enthusiastic and competent archaeologists are at deploying them in heritage applications.

These new technologies are very often used for the public presentation or exploration of archaeological sites. The technology is used as a way to broadcast interpretations, to present current thinking to an interested 'public' or to allow the sites to be experienced remotely. From the hundreds of virtual reconstructions of Rome, to the smelly galleries of the Jorvik centre multi-sensory applications are often used to simply evoke a feeling or to 'show' people what things looked like. Whilst this is, of course, an admirable and very important aim this session instead seeks to explore the projects and applications where a multi-sensory approach has enabled a fundamentally different interpretation of a site or artefact.

Examples might include an acoustic model that demonstrates a new use of the public space or landscape, an exploration of smell that challenges the current view of town planning, a haptic interface that can be used to experiment with pottery fabrics or a visual analysis of movement through a prehistoric village.

The current theoretical sensory turn in archaeology allied with the availability of new multi-sensory technologies is the start of an exciting physical/digital era - but only if we use the technology and theory together sensibly and are not just creating new things because we can. This session then welcomes papers and presentations that don't simply claim "here is a cool model of X that I made", but instead we encourage papers that shout firmly out loud, "here is something I made that tells us something new about my site and about the heritage and archaeology of the world".

Traditional papers are welcomed, but more novel forms of presentation and demonstration are actively encouraged.

S15-01 Auralization: What can acoustics tell us about digital lived experience?

Catriona Cooper

The process of auralization has been a focus of acousticians for many years. As with early years of visualisation cultural heritage sites have often been used as case studies for exploring how acoustics can be modelled. The work has mostly been either recording sites as they stand today (Martellotta, 2009), or beginning to model them using software packages such as CATT and Odeon (Farnetani, Prodi, & Pompoli, 2008). In recent years archaeologists have begun to engage with sound in more detail, some of these approaches have been theoretical (Hamilakis, 2011; Weiss, 2008) or exploratory (Reznikoff, 2008; Waller, 1999), while others more technologically based (Mlekuz, 2004). Unlike digital visualisation modelling acoustics has not been heavily critiqued and there has not been the drive for archaeologists to learn to undertake the work independently. Instead archaeologists to team up with acousticians (Till, Scarre, & Miguel Fazenda, 2013; Till, 2011; Watson & Keating, 1999; McBride, 2013). However, this does not foster a true understanding of the results, acousticians do not theoretically engage with space, while archaeologists do not understand the nuances of the technique. In this paper I present a methodology for discussing the acoustical properties of a closed space. Focussing on or case study of Ightham Mote in Kent this paper discusses

geometrical acoustic methods of auralizing the Great Hall. I will bring together the results of the survey to discuss the experience of sound in the place and how this can be used alongside our understanding of the experience of sound in a medieval household.

S15-02 From the largest to the smallest: The use of the latest technology in digitalization of the objects from the collection of the National Maritime Museum in Gdańsk

Piotr Dziewanowski, Janusz Różycki

In the collection of the National Maritime Museum in Gdańsk are both items that do not exceed 1 cm in length and objects measuring over 80 meters. With such diversity of objects sizes it becomes clear that there should be used different methods of documentation relevant to the object, data that we want to get and the way of later presentation. In April of 2015 began the process of 3D scanning of the largest object in the collection of National Maritime Museum in Gdańsk - the museum ship "Sołdek". Scanning the object, which is available on a daily basis to the public turned out to be quite a logistical challenge. The construction of the ship, narrow corridors and cramped engine room caused many problems both for scanning and later processing of data. On the other hand there are examples of tin bottle caps that have been collected in the current year while excavating the wreckage of F53.30 ship. On some of them are preserved tinker signs, and their correct reading was necessary to confirm the chronology of the artifacts and the place of their production. Correct reading of the information on the bottle caps, due to the small size of the objects and state of preservation, required the usage of different methods than in case of the museum ship "Sołdek". Equally important as data collection, their processing and interpretation is opportunity to present in attractive way the results of work on the objects from our museum collection. By using appropriate methods we can present in the virtual space both objects presented in the museum every day, and those which for technical reasons are never shown to the public.

S15-03 More than just a pretty picture: A review of the use of 3D printing, touch tables and virtual environments to engage the public with Lidar and the archaeology of the New Forest, U.K.

Lawrence Shaw, David John, Harry Manley, Gary Underwood

Over the last five years, the New Forest Higher Level Stewardship (HLS) scheme has utilised remotely sensed data, including Lidar, to identify and record lost and forgotten archaeological monuments. Traditional processing techniques of these data, such as hill shade and slope analysis, allow archaeologists to identify 'lumps and bumps' in the landscape, created by human activity over thousands of years. Whilst great for prospection when analysed by professionals, these processed rasters only represent the original three dimensional data as a flat image. Consequently, when viewed by the general public, these interesting and engaging images are often dismissed as just 'pretty pictures', with little thought as to how they were produced or what they actually show.

In September 2015, to mark the mid-point of the New Forest HLS, a temporary exhibition was produced to share what had been discovered through this 3D recording technique. As part of this exhibition, researchers based at the New Forest National Park Authority and Bournemouth University looked at different ways they could represent the Lidar data to help the public understand how it was recorded and what it represents. Using developing technologies such as 3D printing, gaming engines and interactive touch tables, researchers produced a number of outputs that allowed visitors to engage with and interpret the 3D Lidar data in a number of multi-sensory ways.

This paper documents the different techniques used to produce multi-sensory outputs to teach the public about Lidar and assesses how effective these approaches are in helping people understand and interpret what they see.