

Session at CAA International Conference (Vienna, 31 Mar–4 April 26)

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Louise Tharandt

Unlocking Hidden Treasures: Digital Methods as the Key to Open Archaeological Collections for Research and Teaching.

53rd Computer Applications in Archaeology International Conference: It's All About People, Standard Session (S6).

University and museum collections represent a rich and diverse array of archaeological objects, assembled over decades through research, excavations, donations and looting. These collections often contain unique and significant objects that have the potential to greatly enhance our understanding of past and recent cultures and societies (Wissenschaftsrat, 2011). However, the full research potential of these collections often remains untapped for various reasons. Besides funding, university and museum collections face a multitude of obstacles that hinder their accessibility and usability. This can make it difficult for researchers to discover and access sufficient and relevant material. The dispersal of objects across different locations can lead to the fragmentation of assemblages and the loss of contextual information. Unknown origins and bias in data limit our understanding of history. Furthermore, the lack of dedicated resources and expertise for collections management can result in inadequate preservation and documentation, further exacerbating these issues. Digital methods and tools can make a significant contribution to addressing these issues. Through the digitisation of objects or data and the use of semantic databases up to machine learning algorithms it is possible to (re)discover hidden or inaccessible data, and reunite dispersed objects across different locations and institutions. Ethical and legal aspects of collection objects can be addressed more effectively. The potential of collection objects as teaching resources could be utilised and expanded upon.

This session aims to explore new approaches in which researchers, educators, and collection managers are leveraging university and museum collections to advance archaeological knowledge and practice. By bringing together a diverse range of perspectives and experiences, we hope to stimulate a productive dialogue on the role of university and museum collections in archaeology, enhancing their use in a way that is appropriate to their significance. We also seek to showcase creative and effective strategies for working with collections (Andraschke & Wagner, 2020). We invite contributors to share their experiences and insights on how to leverage digital methods, to unlock the hidden treasures within these collections and maximise their potential for research, teaching, and public engagement.

We welcome papers addressing (but not limited to) the following topics:

1. Revealing Collections: Efforts to create or enhance digital catalogues, databases, and 3D reposi-

tories to increase accessibility and preserve objects virtually. This can include discussions on the use of digital methods such as photogrammetry, laser scanning, or linked opened data and open data infrastructures (Wagner et al., 2019) to create immersive and interactive experiences with collections.

2. Unearthing Data: Data science methods to uncover, integrate, analyse, publish and long-term archive previously hidden, inaccessible or new data from collections. This can include open science practices, the use of advanced data mining techniques, machine learning algorithms (Brandsen et al., 2020), 3D digitisation and crowdsourcing initiatives to extract valuable information from unstructured or poorly documented datasets and to permanently archive the data.

3. Considering Ethical Aspects and Repatriation: Addressing the ethical dimensions of archaeological collections, including the provenance, display, and description of objects, using digital tools (Shad et al., 2024). This involves provenance research, supporting repatriation efforts (Krupa & Grimm, 2021), and fostering collaboration with descendant, Indigenous, and local communities. We particularly welcome submissions on decolonising collection practices and co-creating knowledge through inclusive, dialogue-based approaches that honour cultural sovereignty and lived heritage.

4. Reuniting Dispersed Collections: Strategies to bridge gaps between objects split across different locations, institutions, or databases, recontextualise scattered finds and recombine or reconstruct fragmented objects (Roßberger et al., 2018). This can involve collaborative efforts between universities, museums, and other cultural institutions to share data and resources (Galanakis & Nowak-Kemp, 2013).

5. Teaching (with objects): Case studies demonstrating how scientific collections have been employed through digital methods in archaeological research projects or as teaching tools, fostering hands-on learning and research-led teaching. This can include innovative pedagogical approaches that integrate digital or tangible collections into the curriculum (Callieri et al., 2023), as well as student-led research projects that utilise university collections.

6. Engaging, Collaborating, Transforming: Initiatives that connect collections with local communities, museums, and other institutions via digital means, encouraging public engagement and interdisciplinary collaboration (Wessman et al., 2019). This can include 3D visualisations, outreach programs, exhibitions, citizen science projects and public lectures that showcase the significance of university or museum collections and their relevance to contemporary issues. Contributions on how collections can be improved or expanded accordingly are equally welcome.

We encourage submissions from researchers, educators, and collection managers at all career stages. By sharing best practices, success stories, and lessons learned, we hope to inspire more effective use of university and museum collections and foster a network of scholars dedicated to their study and preservation.

References

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An overview of the individual sessions is available here: <https://2026.caaconference.org/conference-sessions/>

Abstracts can be submitted by 26 October 2025 via the CAA: <https://2026.caaconference.org/call-for-papers-and-posters/>

Reference:

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