



54th International CAA Conference

*Building Digital Bridges: Computer Applications and Quantitative Methods in
Archaeology*

Universidad de Chile · Santiago, Chile

17 – 20 May 2027

2027.caaconference.org





CALL FOR PAPERS

Including Session Descriptions

You are invited to submit an abstract for a paper or poster on any aspect of computer applications or quantitative methods in archaeology for presentation at CAA's 54th conference to be held in Santiago, Chile.

Deadlines: 28 August - 16 October 2026

Deadline extended: submissions now close on 16 October 2026.

Authors of papers and posters will select from [35 sessions](#) being organised.

Each session will follow one of the following formats:

Standard – with a series of formal papers (normally 10-20 minutes in length + time for questions) addressing a theme presented in advance by the organisers. The precise duration of the talks varies from session to session and will be communicated to speakers by the session chairs.

Round Table – with a pre-conference position paper published by the organisers, followed by an invitation for researchers to submit a response in advance or to participate in open-forum discussion at the session. Please see the round table page for the abstracts and additional information.

Other – with the format decided by the organisers, exploring innovative and creative ways for participants to engage with the session.

Please check the format of each session carefully before submitting an abstract and see the guidelines below to learn more about the different requirements for each type.

If your presentation is applicable to more than one session, please indicate that during the submission process by selecting the one that best matches the topic of your paper as your primary subject area and up to four other related sessions as secondary options. If none of the sessions are appropriate for your paper, please mark the closest fit as your primary choice and then the "Advances in Computational Archaeology" as a secondary option.

Abstracts for posters should only be submitted to the *poster session*. Authors will be invited to make an optional short presentation about their poster during the session.

Please note that CAA conferences are running a double-blind review process, therefore authors' affiliation and/or any information within the text that may indicate who the author(s) should be omitted from the submission.

Submissions from Student and Early Career Researchers

Papers and posters from Students and Early Career Researchers are actively encouraged.

The [Nick Ryan Bursary](#) will be awarded to the best student paper at CAA2027 and the recipient will receive a bursary of up to € 1,000 to travel to the CAA2028 conference.

Students who wish to be considered for the Nick Ryan Bursary should review the [guidelines](#) and then check yes to **question 2** when submitting their abstract to a **standard/other format session**.

The CAA International Scientific Committee will shortlist the top student papers for participation in the Nick Ryan Bursary session during the abstract review process. Shortlisted authors will be asked to record and submit a video of their paper presentation approximately two to three weeks before the conference. During the conference, all Nick Ryan Bursary participants will present their papers in-person in the session for which they were accepted. The winner of the Nick Ryan Bursary award will be announced at the Annual General Meeting (AGM).

Recycle Award

Papers using legacy data can apply to the CAA Recycle Award, during the abstract submission process. More details on the conditions for applying to the award can be found [here](#).

Submitting an Abstract

To **submit your abstract** please go to [Conference Management Toolkit \(CMT\)](#)¹ (You will need to create an account if you have not previously submitted a proposal in CMT). Please review and follow the guidelines for authors below:

[CAA 2027 CMT Guidelines](#)

Note that this year, the abstract must be submitted as a PDF file. Filling the “abstract” field in the form is not enough.

¹ "The Microsoft CMT service was used for managing the peer-reviewing process for this conference. This service was provided for free by Microsoft and they bore all expenses, including costs for Azure cloud services as well as for software development and support."

*Individuals may only be the first named author on **one** standard paper or other format session requiring a full paper. Round tables, posters, lightning talks or similar short presentations are excluded from this limit.*

Abstracts should be broad enough to reach all interested researchers, regardless of affiliation or background. The official language of the conference is English, and all abstracts should be submitted in English. You will be required to endorse the [CAA ethics statement](#) as part of your submission.

The CAA2027 call for papers will stay open until **1 October 2026**. Any technical queries related to the [CAA2027 submission system](#) should be addressed to the chair of the scientific committee (SciComm_Chair@caa-international.org) or the acting conference officer (kelsey.pennanen1@ucalgary.ca). Any questions about the conference organisation or other logistical queries should be directed to 2027@caaconference.org. Any queries related to the scientific or review process should be sent to the scientific committee at: SciComm_Chair@caa-international.org

CAA membership is not required to submit a proposal. However, *all conference attendees, including speakers, will need to be a 2027 member prior to registering*. 2027 memberships will be available starting around 1 January 2027. For additional information about CAA's fees and categories, please visit the [Membership page](#).

Session Formats

1. Standard/Other Sessions

Extended abstracts (300 words minimum, 1200 words maximum, plus up to 5 bibliographic references) will be required for papers submitted to standard sessions. The content of your abstract should be appropriate for the nature of the paper you intend to present.

For standard and other scientific papers, your abstract should include:

- Introduction – an overview of the background to your research and the research questions that will be addressed by your paper;
- Methods and materials – a summary of the sources of data used and the methods employed in your research;
- Results – a description of the results of your research;
- Discussion – a discussion of the wider implications of your research;
- References – up to 5 citations (cited using the Chicago Manual of Style 17th Edition Author Date format, see below).

For discursive or theoretical papers, your abstract should include:

- Context – an overview of the current state of the art and the problems that will be addressed by your paper;
- Main argument – a summary of the key points in your argument;
- Applications or implications – a discussion of the wider implications of your paper for computer applications and quantitative methods in archaeology;

- References – up to 3 citations (cited using the Chicago Manual of Style 17th Edition Author Date format, see below).

For software papers, your abstract should include:

- Introduction – goals of the software/script & how it differs from existing solutions
- Implementation details – technical details about the script/software, algorithms/methods/packages used, etc.
- Usage –how to use the script/software; availability [GitHub, Zenodo, ...]; licence
- Case studies – if any
- Discussion
- References

Abstracts should contain sufficient information to allow the CAA Scientific Committee to evaluate the scientific content of your paper. You may include a single figure (see below) that shows the key results or main argument of your paper.

Lightning talks or similar contributions are excluded from the limit of one paper per first named author, i.e. a participant can submit an abstract for both a lightning talk and a 20-minute paper. Participants in other session formats will still have the opportunity to submit a paper for inclusion in the conference proceedings.

2. Round Tables

Round table sessions offer a more interactive format, and organisers are expected to nominate participants by the deadline for the Call for Papers. Nominated panelists do not need to submit abstracts through CMT. If you are interested in being a speaker in one of the accepted round table sessions, please email the chair using the email address listed on the abstract to discuss your potential contributions.

3. Posters

Abstracts (200-500 words, plus up to 3 citations) will be required for posters. Your abstract should include:

- Subject – a description of the methods used and key results (scientific posters), or main argument (discursive or theoretical posters);
- Background – a summary of the topic or research question addressed by the poster;
- Discussion – a discussion of the wider implications of your research for computer applications and quantitative methods in archaeology;
- References – up to 3 citations (cited using the Chicago Manual of Style 17th Edition Author Date format, see below).

Your abstract should contain sufficient information to allow the CAA Scientific Committee to evaluate the scientific content of your poster. You may include a single figure (see below) that shows the key results or main argument of your paper.

Accepted posters will be displayed during the conference. Posters should be only submitted to the dedicated poster [Session 36](#), directly on the [Conference Management Toolkit \(CMT\)](#).

Citations and Figures

Citations

Citations should use the Chicago Manual of Style 17th Edition Author Date style. It is recommended that you use a citation manager. Style files can be either installed directly from within your citation manager or downloaded from: [Endnote](#), [Mendeley](#), [Zotero](#).

If you do not use a citation manager, please make sure you carefully follow the examples for the Chicago Manual of Style 17th Edition Author Date style from the [Citation Quick Guide](#).

Figures

A single figure (optional) that shows the key results or main argument of your paper can be submitted with your abstract. Figures should be submitted in a format that can be displayed in a standard web browser and should have a minimum resolution of 300 DPI.

Useful Links

- **35 sessions:** <https://2027.caaconference.org/conference-sessions/>
- **Nick Ryan Bursary:** <https://caa-international.org/bursaries/nick-ryan-bursary/>
- **CAA Recycle Award:** <https://caa-international.org/conference/caa-recycle-award/>
- **CAA 2027 Conference Management Toolkit (CMT):** <https://cmt3.research.microsoft.com/CAA2027/>
- **CAA 2027 CMT Guidelines:** http://2027.caaconference.org/wp-content/uploads/sites/9/2026/08/CAA-2027_Author-submission-Guidelines.pdf
- **CAA Ethics Statement:** <https://2027.caaconference.org/caa-ethics-statement/>
- **Membership page:** <https://members.caa-international.org/>



Session Descriptions

Presenters are invited to submit session proposals for CAA 2027. Accepted sessions have been organised into eight thematic tracks, each bringing together sessions that address a shared set of themes. The tracks are outlined below, with the full list of sessions, formats, organisers and abstracts set out beneath each one.

- **Track 1: Spatial And Quantitative Studies** — Spatial and quantitative approaches to the archaeological record: settlement dynamics, networks, seafaring, funerary landscapes and built heritage.
- **Track 2: Artificial Intelligence** — Artificial intelligence and machine learning applied to archaeology, from responsible AI and remote sensing to agent-based modelling.
- **Track 3: Regional Aspects** — Regional perspectives: dialogues among CAA chapters across the Americas, LiDAR and digital archaeology in South America, Brazil and South/Southeast Asia, and archaeology in remote landscapes.
- **Track 4: Ethics, Cognition, And The Future Of Digital Archaeology** — Ethics, cognition and speculative futures in digital archaeology, including the reconstruction of past sensory worlds and community-centred practice.
- **Track 5: Imaging** — Imaging and shape analysis: geometric learning in 2D/3D, advances in 3D analysis, and digital methods for rock art research.
- **Track 6: Archiving, Linked Open Data, Fair Principles** — Archiving, Linked Open Data and FAIR principles: communicating research workflows, augmented reality with semantic ontologies, and the reuse of archival data.
- **Track 7: Games And Robots** — Games and robots in archaeology: archaeogaming as a research tool, Indigenous reconciliation, and robotics as a new research paradigm.
- **Track 8: General Session** — A general session open to computational archaeology papers that do not fit within the other thematic sessions.

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Track 1: Spatial And Quantitative Studies

Spatial and quantitative approaches to the archaeological record: settlement dynamics, networks, seafaring, funerary landscapes and built heritage.

S1: Digital approaches to long-term population patterns, settlement dynamics and movement systems

Session Organisers:

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Thibault Saintenoy (thibault.saintenoy@incipit.csic.es), Instituto de Ciencias del Patrimonio (Incipit), CSIC, Université des Antilles (UA)

Session Format: Standard

Description

The aim of this session is to explore and discuss the *longue durée* of population dynamics, settlement systems, and human mobility. Population dynamics and settlement patterns are inherently dynamic processes that reflect the interplay of social, cultural, economic, political, and environmental factors (Mendez-Quiros & Saintenoy 2021; Saintenoy 2016). Consequently, their study requires the integration of heterogeneous information and the use of different analytical methods (e.g., Bilotti et al. 2025; Saintenoy 2016). Processes such as settlement foundation, persistence, abandonment, interaction, and mobility emerge from these conditions and operate at multiple spatial scales, from local (micro) landscapes to macroregional systems, each influencing the others. These dynamics can be investigated empirically through the direct analysis and interpretation of the source data, or through hypothesis-driven modelling, where alternative scenarios can be developed, quantitatively compared to the data (and to each other) and evaluated. The availability of large databases of archaeological sites, palaeoclimatic and palaeoenvironmental reconstructions, high-resolution remote sensing data (satellite imagery, LiDAR, drones, etc.), together with advances in computational power and analytical methods, has fundamentally transformed the way archaeological data are collected, stored, analysed, interpreted, and shared. At the same time, the development of rigorous survey and recording methodologies, as well as of the necessary digital infrastructures to store and share data to enable these analyses, raise important questions on data accessibility, interoperability, ownership, sensitive information, and the implementation of Open Science and FAIR principles. These developments provide new opportunities to investigate long-term spatio-temporal processes in greater detail and with greater methodological rigour (e.g., Bevan, Wilson 2013; Bilotti et al. 2025; Cortell-Nicolau et al. 2025). The aim of this session is to address the following questions: how do population dynamics shape settlement and movement systems over the long term; how external conditions such as human interaction or the environment affect population dynamics and mobility; how can the integrated study of population dynamics and mobility improve our knowledge of the archaeological record. We welcome contributions focusing on regional or comparative studies, demographic reconstructions and population dynamics, settlement ecology and socioecological interaction systems, human mobility, territoriality and spatiality. Papers presenting advances in the use of quantitative and digital methods (e.g., spatial analysis, geostatistics, agent-based modelling, machine learning, GIS, etc.), theoretical perspectives, or applied case studies are equally welcome, regardless of the geographical region or period. Our goal is to provide a space for methodological and interdisciplinary exchange which will deepen our understanding of long-term population dynamics, settlement systems,

and human mobility, as interconnected (and complementary) components of long-term socio-spatial systems.

References

- Bevan, A., Wilson, A., 2013. Models of settlement hierarchy based on partial evidence. *Journal of Archaeological Science* 40 (5), 2415–2427. doi.org/10.1016/j.jas.2012.12.025.
- Bilotti, G., Reindel, M., Isla, J., Mader, C. 2025. Points, patterns, and predictions in archaeological settlement data: site-environment relationships of Paracas and Nasca communities in the Peruvian Andes. *Journal of Archaeological Science* 183: 106385. doi.org/10.1016/j.jas.2025.106385
- Cortell-Nicolau, A., Carrignon, S., Rodríguez-Palomo, I., Hromada, D., Kahlenberg, R., Mes, A., et al., 2025. Assessing quantitative methods in archaeology via simulated datasets: The Archaeoriddle challenge. Concept, project and motivations. *Journal of Archaeological Science*, 177. doi.org/10.1016/j.jas.2025.106179
- Mendez-Quiros, P., Saintenoy, T. 2021. Movimiento e imperialismo en los valles de Arica (Andes 18°s). *Latin American Antiquity* 32:331–349. doi:10.1017/laq.2020.100
- Saintenoy, T. 2016. Arqueología de las llaqta del valle del Apurímac: contribución al estudio de la territorialidad de las comunidades aldeanas serranas de los Andes prehispánicos. *Chungara, revista de antropología chilena* 48:147–172. dx.doi.org/10.4067/S0717-73562016005000014

S2: Sailing into the Horizon: New Challenges and Methods in Modeling Seafaring

Session Organisers:

Emma Slayton (eslayton@andrew.cmu.edu), Carnegie Mellon University

Katie Jarriel (kmjarrie@ncsu.edu), North Carolina State University

Session Format: Standard

Description

It has been ten years since Oslo 2016, the first CAA session (to our knowledge) about modeling past seafaring routes using computational methods and archaeological data. Since then there have been several sessions on this topic exploring case studies, applications of different methods, and bringing awareness to the topic at large. We have seen the field expand, not only with the number of researchers engaged in this type of modeling increasing exponentially but in terms of the types of methods used and the capacity of the technology with which we carry our research. Recent edited volumes such as García-Piquer, et al (2025) and Slayton, et al (2025a) as well as state-of-field papers such as Montenegro (2024), demonstrate not only growing interest from both researchers and seafaring practitioners in this subfield but also need to collectively address common challenges that have emerged. Some of these include: the use of AI and machine learning in modeling, data acquisition and management, and the combination of terrestrial and maritime models to understand past movement. In this session, we seek to understand how modelers have addressed challenges and innovated new methods in the field in order to map out our voyage for the next decade.

Given the state of the field discussion of challenges for computational seafaring modeling set out in Borreggine, et al (2025) and for methodological considerations in Slayton, et al. (2025b), this session aims to provoke discussion of how these challenges and methodological advancements have been addressed in the interim. The overall goal of the session is to promote collaborative discussion about how modelers from different regional specialities are tackling the great challenges of this unique subfield of computational archaeology. We seek not only examples of ongoing research, but practical examples of cutting-edge methods and theoretical explorations of where we should be heading as a field.

As we move into the next decade of modeling, we want to hear from researchers and practitioners about:

Theme 1: Grand Challenges for Seafaring Modeling

- Interdisciplinarity
- AI/Machine learning
- Community-based archaeology and co-creation of knowledge
- Comparability of case studies
- Access to and decision making around climate data
- Theme 2: Innovations in Seafaring Modeling Methods
- Choosing the right model for your research question
- Incorporating human decision-making into computational models
- Data acquisition, processing, and management
- Combining terrestrial and maritime models

- Experimental archeology

We are also open to papers addressing challenges and modeling innovations more generally.

The computational modeling of seafaring has historically been a siloed sub-field (see Leidwanger et al. 2025), with researchers often “re-inventing the wheel” when it comes to methods. An outcome of this session is bringing together researchers and practitioners from an array of regional and temporal specializations to share solutions to common challenges as a means of promoting coherence in the field. It also seeks to set the bar for where we should be looking as a community to challenge ourselves and our models to ask new questions in the field.

References

Borreggine, M., E. Slayton, N. Bartos, et al. “State of the Field.” *Journal of Maritime Archaeology* 20 (2025): 557–578. <https://doi.org/10.1007/s11457-025-09454-6>.

García-Piquer, A., M. Fauvelle, and C. Grier, eds. *The Archaeology of Seafaring in Small-Scale Societies: Negotiating Watery Worlds*. Gainesville: University Press of Florida, 2025.

Leidwanger, J., M. Borreggine, H. Farr, et al. “Launching CAST.” *Journal of Maritime Archaeology* 20 (2025): 531–542. <https://doi.org/10.1007/s11457-025-09463-5>.

Montenegro, Alvaro. “Seafaring in Prehistory: Simulations and Experiments.” In *The Oxford Handbook of Island and Coastal Archaeology*, edited by Scott M. Fitzpatrick and Jon M. Erlandson. Oxford: Oxford University Press, 2024. <https://doi.org/10.1093/oxfordhb/9780192879637.013.23>.

Slayton, E., K. Jarriel, J. Leidwanger, M. Borreggine, and H. Farr, eds. *Computational Archaeology and Seafaring Theory*. Special issue, *Journal of Maritime Archaeology* 20 (2025).

Slayton, E., K. Jarriel, A. Montenegro, et al. “Seafaring and Modelling.” *Journal of Maritime Archaeology* 20 (2025): 601–628. <https://doi.org/10.1007/s11457-025-09455-5>.

S3: Computational approaches to archaeology of built heritage: a panorama of new applications.

Session Organisers:

Matteo Mariuzzo (matteo.mariuzzo@etu.ephe.psl.eu), Universita Tor Vergata – EPHE

Romane Desarbre (romane.desarbre@proton.me), Independant researcher

Session Format: Standard

Description

Archaeology of built heritage have made considerable strides in recent decades. More and more projects are turning to IT tools to preserve, enhance or better understand our heritage, culminating in major projects such as the one undertaken for the restoration of Notre-Dame Cathedral in Paris (De Luca 2024). In this context, IT is both an end in itself and a means of enhancement. Nevertheless, digital approaches, especially in archeology, sometimes find themselves trapped at the heart of the digital maelstrom, where the process often leads to the use of data without any in-depth analysis of it that could be used for further research.

This session aims to investigate the role of IT tools in the study of built heritage and seeks to highlight ways, especially non conventional ones, in which they have enabled the resolution of problems in architectural archaeology that were previously unsolvable or whose resolution required resources that were not available (including due to a lack of specific tools or funding).

The goal is to demonstrate how information technology can act as a bridge to overcome the gaps caused by a lack of data (inherent to archeological research with conservation biases, taphonomy and history of sites) and arrive at a more accurate understanding than was previously possible.

Starting from archaeological evidence of built heritage and considering it as something tangible but also planned and lived in, we immerse ourselves in it and get as much data as possible. This data is then reworked within a computational or mathematical space, enriched, given a new form and reinserted into the archaeological reality, enabling us to arrive at a new and more accurate interpretation of it.

Several areas of reflection have been identified for this session, with no chronological, spatial or cultural limitations. Please note that these areas are merely suggestions, as we encourage authors to submit papers dealing with architectural issues and creative computational or digital solutions.

- **Testing hypotheses.** This refers to the use of 3D tools at various levels: the use of reconstruction hypotheses and comparisons, the use of the model to test other variables, or three-dimensional surveys to highlight certain features (Cambi et al. 2025; Guber, Dobbins, 2010; Bertolino, Frontori, Mariuzzo 2026).

- **Standardising variables and facilitating manipulation.** Organising data sets and subjecting them to statistical analysis in order to reveal previously unseen links between data, and to gain a new perspective or a new avenue for application (Desarbre 2024).

- **Understanding actions and uses within spaces.** Using archaeological data and computational tools to gain a better understanding of actions or the configuration of space (Lauritsen 2011).

- **Facilitating data processing.** Using AI recognition, learning and computational capabilities to help understand construction processes and facilitate the processing of large amounts of data (Fornaciari 2025).

References

Bertolino, Frontori, Mariuzzo 2026: Giuseppe Bertolino, Ilaria Frontori, Matteo Mariuzzo, « Le Terme Centrali, ambiente To. Campagna di scavo 2025 », in Quaderni Norensi 11, 2026, in press.

Cambi, Mendolia, Sgromo 2025: Franco Cambi, Chiara Mendolia, Maria Teresa Sgromo, « Dallo scavo alla ricostruzione 3D: l'applicazione dell'Extended Matrix alla Villa di San Marco (Isola d'Elba) », AeC, 36.1, 2025, p. 217-234.

De Luca 2024: Livio De Luca, « A digital ecosystem for the multidisciplinary study of Notre-Dame de Paris », Journal of Cultural Heritage, 65, 2024, p. 206-209.

Desarbre 2024: Romane Desarbre, « On the utility of the database for the study of windows and landscapes in two villas from roman campania (villa of Diomedes, villa of Poppaea) », ArcheoLogica Data, 4, 2024, p147-155.

Dobbins, Gruber 2010: John Dobbins, Ethan Gruber, « Illuminating Historical Architecture: The House of the Drinking Contest at Antioch », CAA Proceedings, 2010, p. 71-76.

Fornaciari 2025: Lorenzo Fornaciari, « AI and Deep Learning for Image-Based Segmentation of Ancient Masonry: A Digital Methodology for Mensiochronology of Roman Brick », Heritage, 8.7, 2025, p. 241.

Lauritsen 2011: M. Taylor Lauritsen, « Doors in Domestic Space at Pompeii and Herculaneum: A Preliminary Study», Theoretical Roman Archaeology Journal, 0.2010, 2011, p. 59.

Keywords: Built heritage, tools, methodology, architecture, interdisciplinarity

S4: MuVAMoLa III: Multivariate Approaches to Mortuary Landscapes

Session Organisers:

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Timo Geitlinger (timo.geitlinger@uzh.ch), University of Zurich

Session Format: Other

Description

Other Session Type (details)

- Part one: pre-conference short summary submission added to StoryMap.
- Part two: paper workshop, ~10-12 min papers

Other session format details

The session is built to bring together scholars from diverse backgrounds who study burials through multivariate quantitative approaches who are interested in discussing qualitative implications, best (and worst) practices, and potential caveats for future scholarship. In this third iteration of MuVAMoLa, we again propose a two-part framework. Part one is in preparation for the conference and includes a submission approximately one month before the meeting of a short summary (this could simply be an adapted abstract) of your overall research and images to be added to the ongoing StoryMap (<https://arcg.is/eXTji1>). The intention is to create an interactive platform to provide conference-goers a prelude to the session with the further goal of turning it into a publishable format. Part two is the meeting itself which will be structurally akin to a traditional paper workshop of short presentations, creating an environment centered on questions and discussion. To accommodate for more flow and direct conversation, papers will be approximately 10–12 minutes long and the aim for each will be to focus on a specific method, question, or theoretical topic out of your larger research."

Session Description

Mortuary scholarship has perhaps one of the longest histories in archaeological research, but it is a history riddled with bias based on visibility, durability, and public interest. Often most evident in regions where burial practices were accompanied by the erection of monumental architecture, the inclusion of sensational objects, or carry imaginary cultural significance, mortuary contexts have drawn in significant amounts of research. Given the often closed contexts of tombs, the defined spaces in which they are positioned, and the spatiotemporal relationships they reveal, burials hold a special appeal for archaeologists. Early scientific endeavors yielded abundant contextual data on burial monuments, ritual behavior, and interred objects. Due to the quality of documentation, however, through locational, temporal, and financial predispositions, legacy datasets tend to be heterogeneous and noisy and have large gaps in the types of information collected and recorded (see Cooper et al. 2022). Despite these specific data-related challenges – the analysis of multiple variables in a single relationship or set thereof – have proven particularly suitable for deriving meaningful patterns from burial contexts.

How do we reconcile with this biased history of research while still utilizing the documented material and moving forward into more collaborative conversations within both computational and theoretical scholarship?

Likewise, the placement of tombs within specific environments reveals complexities of cultural expressions that permeate past landscapes. As integral parts of the world – both shaped by and shaping its dwellers – burials and mortuary monuments are striking manifestations of how people dwelled in and

moved through their landscapes in the past. The spatial significance of mortuary evidence in association with material culture, when placed under the scrutiny of quantitative analyses, can further enhance the theoretical and methodological approaches to archaeological landscapes as a whole.

While early pioneers of computational archaeology conducted quantitative analyses to study burial contexts within individual sites (Hodson 1968), more recent studies use network analysis (Bourgeois and Kroon 2017; Sosna 2023), and principal components and correspondence analyses (Kjeld Jensen and Højlund Nielson 1997; Kassabaum 2011), machine learning, amongst other multivariate methods (Nakoinz 2013), to study large scale landscape connections of mortuary contexts. The aim of this session is to bring together scholars from diverse backgrounds who study burials and their landscapes through multivariate quantitative approaches who are interested in discussing qualitative implications, best (and worst) practices, and potential caveats for future scholarship. Following a discussion in the 2026 session on the reliability and comparability of methods, we particularly invite scholars:

- Who work on innovative ways to conceptualize the results of multivariate analyses and develop methodological or theoretical frameworks for the successful application of multivariate and/or spatial methods to study burial contexts.
- Who conduct exploratory quantitative analyses and are also willing to present missteps, methodological dead ends, limits of methods, and things that didn't work for different kinds of datasets. After all, not all methods are appropriate for all datasets.

Previous Contributions: StoryMap of studies presented at the 2026 CAA in Vienna: <https://arcg.is/eXTji1>

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S5: Networks, Connections, and Interactions in Archaeology

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Session Format: Standard

Description

Relationships of all sorts are central in Archaeology: between people and places, settlements and landscapes, communities and material objects, and local practices and broader systems of mobility and exchange. Network science and spatial approaches provide increasingly sophisticated means of formalising, examining, and comparing these relationships. Nevertheless, their archaeological application continues to present important conceptual and methodological challenges. Networks are not simply discovered in archaeological datasets; they are concepts used to describe theorised past phenomena. Abstract network representations are constructed through decisions concerning the definition of nodes and ties, spatial and temporal aggregation, proxy selection, model parametrisation, and the treatment of uncertainty and incompleteness.

This session invites theoretically informed and methodologically explicit case studies that employ network science, spatial analysis, or integrated spatial-network approaches to investigate past connectivity through time. We particularly welcome contributions that move beyond static representations of archaeologically informed relations and examine how networks emerged, transformed, fragmented, or persisted across different temporal and geographical scales. Relevant subjects may include settlement interaction, mobility and transportation, exchange and circulation, migration, visibility and communication, political organisation, territoriality, technological transmission, social affiliation, and relationships between people, objects, practices, and environments.

A central objective of the session is to critically examine how networks as analytical tools relate to the social, political, and material processes they are intended to represent. What forms of interaction can legitimately be inferred from spatial proximity, material similarity, visibility, accessibility, or modelled flows? How should archaeologists distinguish potential connectivity from realised interaction? How do preservation, survey intensity, chronological uncertainty, and historically uneven datasets affect network structure? In what ways can qualitative, historical, ethnographic, or Indigenous knowledge contribute to the construction and interpretation of formal models?

By assembling case studies from different regions and periods, the session will explore both the analytical potential and the epistemological limits of network-based archaeological research. Rather than treating network analysis as a single technique, we approach it as a broad framework for investigating relational phenomena while making assumptions visible and open to evaluation. The session ultimately aims to promote dialogue between spatial analysts, network researchers, field archaeologists, material specialists, and simulation modellers, and to develop more transparent, historically sensitive, and archaeologically meaningful approaches to connecting people and things through time.

The session seeks to bring together research using diverse forms of evidence and analytical strategies. These may include archaeological sites, artefact distributions, ceramic or lithic assemblages, isotopic and bioarchaeological data, textual and historical sources, environmental information, or combinations of multiple datasets. Methodological contributions may engage with social network analysis, complexity science, geographical networks, least-cost and circuit-based connectivity, visibility networks, spatial interaction models, multilayer and bipartite networks, temporal or dynamic networks, agent-based

simulation, and probabilistic or uncertainty-sensitive approaches. Comparative studies examining the implications of alternative network constructions, spatial resolutions, parameter settings, or temporal schemes are especially encouraged.

S6: Across scales of evidence: computational archaeology from traces to historical processes

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Session Format: Standard

Description

Archaeological questions rarely operate at the same scale at which archaeological evidence is observed. A crop grain, potsherd, LiDAR return, satellite anomaly, historical place-name or radiocarbon determination is recorded as a situated and incomplete trace, yet we use such traces to investigate settlement systems, mobility, political economies, environmental adaptation and cultural transmission unfolding over centuries and across regions. The central challenge is therefore not simply how to process more archaeological data, but how to move responsibly between scales of observation, representation and explanation.

Computation can make these transitions possible, but never neutral. Digitisation selects, classification stabilises ambiguous categories; interpolation fills gaps, aggregation changes the unit of analysis, prediction redistributes absence and uncertainty, and simulation formalises assumptions about agency and causality. The transition from fragment to feature, from feature to landscape and from landscape to historical process is not a seamless pipeline. It is a chain of inferential decisions in which archaeological knowledge can be preserved, transformed or lost.

This session examines that chain. It asks how computational archaeology can gain scale without losing context, combine heterogeneous evidence without erasing differences in provenance, resolution and reliability, and translate uncertainty into explicit, testable historical propositions. Landscapes are approached not as passive backdrops or stacks of variables, but as evolving socioecological configurations in which mobility, production, power, memory, environmental change and perception continually interact. From this perspective, computational methods are valuable not primarily because they automate tasks, but because they create experimental spaces in which alternative representations and historical scenarios can be compared, challenged and revised.

We invite theoretical, methodological and case-based papers that connect at least two analytical scales or stages of inference. Contributions may investigate how multisource and multitemporal remote sensing, historical cartography, LiDAR, robotic survey, text-derived evidence or 3D morphometrics become archaeological observations; how those observations feed Bayesian chronological models, spatial prediction, settlement and distributional analyses, or models of access and inequality, and how probabilistic routes, circuit and network models, agent-based simulation, virtual reconstruction or immersive visualisation can move from pattern description towards the examination of historical processes. We particularly welcome contributions that expose the joins between stages: annotation and ground truth, representativeness and missingness, transfer across regions and sensor regimes, uncertainty propagation, sensitivity to parameters, validation against independent evidence, and the return of model outputs to field survey, heritage monitoring and protection.

Case studies may range from objects and micro-regions to continental or intercontinental systems, and from short episodes to long-duration transformations. What should unite them is not a particular software

or technique, but an explicit account of what changes when analytical scale changes: what becomes visible, what is lost, which assumptions enter the model, and which historical claims remain warranted. Successful applications are welcome, but so are negative results, model disagreements and analyses that establish the limits of inference. These are essential for distinguishing a method that scales computationally from an explanation that scales archaeologically.

The session takes as its point of departure the research programme developed by the Computational Humanities Group and the Computational Research in Archaeology Group (CoRArch) at the Barcelona Supercomputing Center (BSC). Across projects addressing the large-scale detection and protection of archaeological sites, past settlement, mobility and connection, changing socioecological landscapes and the computational analysis of material evidence, our research shares a problem-led approach in which methods are developed around archaeological questions rather than adopted as ready-made technical solutions. Domain knowledge is retained throughout the analytical process, while scale, uncertainty, provenance, validation and reproducibility are treated as integral components of historical inference. By bringing together research conducted by the groups' postdoctoral researchers, the session will make these theoretical and methodological foundations explicit and demonstrate their practical application across diverse archaeological contexts. It is conceived not as a closed institutional showcase, but as an opportunity to expose this research programme to comparison, critical discussion and productive exchange with other traditions of computational archaeology.

Rather than offering another inventory of digital techniques, the session seeks to develop a comparative grammar of computational inference across scales. Its practical objective is to identify principles for research in which domain knowledge shapes every stage, uncertainty and provenance travel with the data, workflows remain reproducible, and computation functions neither as illustration nor oracle, but as a rigorous means of building and testing archaeological explanations.

Contributors: Sonia Carbonell, Jonas Gregorio, Iban Berganzo, Hector A. Orengo, Andrew McLean, Elena Scarsella, Faidon Moudopoulos, Max Fancourt, Willow Kolisnek, Javier Pantoja, Mariona Coll, Tatiana Vagramenko, Maria Ferrer, Clara Guasch, Mercè Crosas

S7: Revealing Understudied Social Landscapes Through Innovative Archaeological Technologies

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Session Format: Standard

Description

Remote sensing, computational modelling and landscape analysis have transformed archaeology over the last ten years, providing new perspectives on demography, spatial organisation and human/environment interactions (Davis and Lipo 2026). Despite these welcome developments, the archaeological focus and application of these approaches is not evenly distributed. Many disparities and biases exist whether in geographies (as exemplified by reviews of LiDAR by Vinci et al (2024) and geophysical survey by Magnavita (2016)), to types of archaeologies and environments (e.g. work on Mesolithic land use by Claeys et al (2024)), and access to open data and resources (e.g. Davis 2020).

The aim of this session is to present case studies that use scientific methods to explore the archaeological records of understudied cultural landscapes. These kinds of archaeologies may be more ephemeral and harder to resolve but offer a richness and depth that rewards more detailed exploration. Moreover, they present opportunities to engage with the oldest continuously living cultures in the world to deepen our understanding of how to use these cutting-edge technologies to understand the archaeological record and to drive positive heritage management outcomes for local communities (as exemplified by work in Alaska by Lim et al 2022).

The session organisers welcome submissions that explore the following themes and topics:

- Studies that use present new insights from underrepresented regions, periods, and/or environments.
- Methods or approaches that seek to enhance our understanding of ephemeral archaeologies of cultural landscapes.
- Work in challenging or less accessible environments.
- Research on these themes that actively engages with local communities.

We aim to foster a collaborative dialogue on these themes and to raise the profile of a wide range of understudied cultural landscapes. We warmly welcome all submissions and particularly encourage contributions from early career researchers and those working in regions that are less well represented within CAA membership.

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S8: Not-so-old approaches: new contexts, issues and methodologies in recent intra-site spatial and quantitative studies

Session Organisers:

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Session Format: Standard

Description

Spatial and quantitative approaches to artefact distribution are not new in the field of archaeology, and they have been widely applied at the intra-site scale, i.e. at the scale of the archaeological site, from the 1970s onwards. However, more than 50 years later, and despite the widespread development of digital and quantitative methods and methodologies, the representation of intra-site approaches seems to be declining in favor of landscape and regional studies. At CAA, no general session dedicated to this topic has appeared in the past years. Instead, sessions that opened up to intra-site approaches have been dedicated to survey contexts (CAA 2025), or to specific topics such as “mega-projects” (CAA 2024) and cities (CAA 2023), or to approaches such as point process models (CAA 2024), 3D spatial analysis (CAA 2023, 2022), or to visualization methods (CAA 2023). Yet, intra-site spatial and quantitative approaches are still used in recent research (Mielgo et al 2024; Moclán et al 2023; Magnin, Lynch, García Añino 2020; Hammond et al 2022) and studies show a renewal in the historiography of this field (Negre, Muñoz, Lancelotti 2016; Carrer et al 2021). This dynamism can also be witnessed in recent applications of such approaches to other subfields such as ethnoarchaeology (Lancelotti et al 2017; García-Piquer, Estévez-Escalera 2018), and to chrono-cultural contexts where they are still underrepresented, such as on medieval Islamic sites. The application of these “old” methods to new case studies inevitably raises new issues, problems and constraints, that can be linked to the archaeological context, excavation methodologies and choices, as well as recording techniques.

The aim of this session in welcoming a wide range of applications is to create a space for archaeologists to discuss feedback in experimenting with intra-site approaches on recent case studies. We encourage:

- methodological or theoretical papers touching upon spatial quantitative approaches for the analysis of spatial patterns or trends within archaeological data at the intrasite scale.

Papers may also reflect on:

- advances in intra-site spatial quantitative approaches,
- limits of the chosen techniques and methodology,
- issues and constraints in the application of intra-site approaches to the archaeological context, discussing their impact on the method used,
- the process of developing a method to your archaeological context and data
- excavation and recording strategies and their impact on your context and data,
- visualization and treatment methods and their suitability to your context and data,
- redefined research questions and methodologies, etc.

We welcome any processing and statistical methods implemented, for instance, in GIS or R. Research aims need to be clearly defined and the method should seek to help in answering these objectives. These may range from, but are not limited to, the understanding of artefact distribution, site organization, site or assemblage formation, occupational patterns, and time dynamics, in the context of commercial archaeology or research programs. We do not accept studies in the context of surface surveys which respond to specific research questions and recording methodologies which we deem outside of the scope of the present session.

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Keywords: intra-site spatial quantitative analysis, statistics, spatial statistics, geostatistics, geoprocessing methods

S9: Mapping Death, Memory and Territory: Digital Approaches to Funerary Architecture and Mortuary Landscapes

Session Organisers:

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Session Format: Standard

Description

Mortuary places were rarely isolated locations intended solely for the deposition of deceased individuals. Funerary architecture, cemeteries, burial caves, funerary platforms and other mortuary structures formed part of broader social, political and cultural landscapes. Through their construction, visibility, accessibility, repeated use and transformation, these places could materialise ancestral presence, social identity, memory, political authority and territorial organisation (Isbell 1997; Kesseli and Pärssinen 2005; Nielsen 2008). Their spatial relationships with settlements, routes, agricultural areas, water sources, natural landmarks and sacred places were therefore integral to their meaning rather than merely aspects of their physical setting.

Research on mortuary practices has often concentrated on individual burials, human remains, funerary architecture or associated objects. These approaches provide essential information, but the study of mortuary places at wider spatial and temporal scales can reveal relationships that remain difficult to identify within individual contexts. Recent research has demonstrated the value of combining architectural recording, spatial datasets, visibility and accessibility analyses, chronological evidence and comparative methods in funerary architecture and wider mortuary landscapes (Bongers, Arkush and Harrower 2012; Chyla 2022; González Rodríguez 2025). At the same time, digital approaches do not provide neutral or complete reconstructions of past landscapes. Their results depend on the character of the available evidence, the choices made during data collection and modelling, and the theoretical assumptions through which spatial patterns are interpreted (Llobera 2003; Gillings 2015, 2017).

The central question of this session is: How can digital tools and analytical methods transform and deepen our understanding of mortuary landscapes?

The session aims to bring together researchers applying digital methods to funerary architecture, mortuary places and landscapes. It welcomes studies of chullpas, cemeteries, burial caves, funerary platforms and other forms of mortuary evidence. It invites theoretically informed case studies, comparative research and methodological contributions that move between different analytical scales: from the study of deceased individuals, human remains and associated objects, through individual structures, funerary architecture and cemeteries, to routes, settlements and regional landscapes. We are particularly interested in research that asks how mortuary places participated in the production of memory, ancestry, identity, political authority and territory, and how these interpretations can be examined through diverse forms of digital evidence, including spatial, material, visual and computational datasets. Rather than treating digital techniques as ends in themselves, the session seeks to examine how they reshape archaeological questions, connect different categories of evidence and reveal relationships that might otherwise remain unrecognised.

The session welcomes contributions addressing:

- digital documentation and analysis of funerary architecture, including chullpas, burial chambers, funerary platforms, tombs and other built mortuary structures;

- spatial relationships among funerary structures, cemeteries, burial caves and other mortuary places;
- connections between mortuary places and settlements, routes, agricultural areas, water sources, natural landmarks, resources and territorial boundaries;
- visibility, intervisibility and visual prominence in the placement and experience of funerary architecture;
- movement, accessibility, processional routes and networks connecting mortuary places;
- spatial and statistical analyses of burials, deceased individuals, human remains and associated objects;
- the integration of archaeological, bioarchaeological, architectural, archaeometric, chronological, environmental and other complementary datasets;
- remote sensing and the interpretation of satellite and aerial imagery;
- UAV documentation, photogrammetry, 3D scanning and three-dimensional modelling;
- GIS, network analysis and other forms of computational modelling;
- digital visualization, virtual reconstruction and data sharing practices;
- the circulation of people, objects, materials and technological knowledge through mortuary landscapes;
- the construction, repeated access, reuse and transformation of mortuary places over time;
- digital monitoring of looting, destruction, urbanisation and environmental change;
- the methodological limits of digital tools and the influence of analytical parameters on archaeological interpretation;
- ethical questions surrounding the documentation, visualisation, publication and sharing of information about human remains and vulnerable mortuary places;
- data sharing, open-access dissemination of archaeological datasets, and the communication of archaeological knowledge with the public and local communities.

Contributions addressing different chronological periods are welcome, particularly where they examine the long-term use, transformation or reinterpretation of mortuary places. The goal of the session is to create a comparative and critical framework for assessing what digital methods contribute to the study of mortuary landscapes. Rather than organising contributions around particular software or technologies, the session will focus on the archaeological questions these methods allow researchers to ask, the relationships they make visible and the dimensions of mortuary practice they may simplify or obscure. The session will identify shared methodological challenges, opportunities for integrating heterogeneous datasets and areas in which greater transparency and comparability between studies are needed. It will also provide a space for developing responsible approaches to data ownership, access, visualisation and the dissemination of information concerning deceased individuals, human remains and vulnerable archaeological sites. A key aim is to promote best practices in digital visualization, virtual reconstruction, data sharing and open-access dissemination of archaeological datasets, as well as the ethical and collaborative communication of archaeological knowledge with local and descendant communities. By connecting research across different regions, chronological periods and disciplinary traditions, the session seeks to strengthen collaboration and establish directions for future comparative research on death, memory, mobility, political authority and territorial organisation.

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Track 2: Artificial Intelligence

Artificial intelligence and machine learning applied to archaeology, from responsible AI and remote sensing to agent-based modelling.

S10: Decentring Responsible AI in Archaeology: Global Perspectives on Bias, Power and Accountability

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Session Format: Standard

Description

Introduction

Artificial Intelligence is increasingly transforming archaeological practice, shaping how data are collected, classified, analysed, interpreted and communicated. While AI offers significant opportunities for addressing large, complex and heterogeneous datasets, its adoption also raises critical questions about bias, transparency, accountability, ownership and the distribution of decision-making authority. These concerns are often addressed through frameworks for responsible or trustworthy AI that, despite being presented as broadly applicable, have largely emerged within European and North American regulatory, institutional and academic environments, and may not adequately reflect the diverse geographical, political, institutional and epistemic contexts in which archaeological research is conducted worldwide.

This session is organised within the framework of MAIA (Managing Artificial Intelligence in Archaeology - CA23141) COST Action, which brings together archaeologists, digital specialists and computer scientists to examine the methodological, ethical and epistemological implications of AI in archaeology. Building on MAIA's commitment to broad international engagement, the session seeks to decentre discussions of responsible AI in archaeology by extending the debate beyond the Action itself and involving researchers and communities whose perspectives remain under-represented. It starts from the premise that principles such as fairness, transparency, explainability and accountability cannot be understood independently of the circumstances in which archaeological datasets and AI systems are created, governed and used.

Session Rationale and Objectives

Responsible AI cannot be reduced to a universal set of abstract ethical principles, to technical performance, or to an external assessment conducted after a system has been developed. It is shaped by access to data, computational infrastructure, funding, specialist expertise and institutional authority, and should inform every stage of the process, from dataset construction to model design, validation, documentation, deployment and governance. Existing inequalities may be reproduced or intensified through archaeological AI, particularly when datasets contain geographical, linguistic, cultural, gender or epistemic biases, or when researchers depend upon proprietary platforms, commercial services and externally controlled technical standards.

Within this framework, the session will explore how power operates throughout the archaeological AI lifecycle, from data creation, selection and ownership to model development, evaluation, interpretation, publication and reuse. Particular attention will be paid to digital colonialism: the risk that archaeological materials, data and knowledge originating in one region may be extracted, processed, interpreted or commercially exploited by institutions or companies located elsewhere, without equitable participation, authority or benefit-sharing, and, more broadly, to how colonial histories continue to shape archaeological classifications, collections and digital infrastructures, including whose categories and knowledge systems are represented in AI training data and computational models. The session will also consider the relevance of the CARE Principles as a framework for examining who controls archaeological data and AI systems, who benefits from their use, and to whom researchers, institutions and developers are accountable. These principles will be considered alongside approaches centred on accessibility, interoperability and reuse, while recognising their specific origins in Indigenous Data Sovereignty and self-determination.

The session has three principal objectives:

- To foreground perspectives from regions and research communities that remain under-represented in international discussions on responsible archaeological AI.
- To examine how bias, transparency, accountability and explainability are shaped by geographical, institutional, cultural and epistemic inequalities.
- To bring together theoretical perspectives, regional experiences and technical case studies, including successful applications, failures, negative results and unintended consequences.

Themes and Topics

We welcome theoretical contributions, empirical and regional studies, as well as technical papers that critically examine how datasets, models, infrastructures and computational choices shape responsible AI in archaeology. Relevant topics include, but are not limited to:

- Bias, geographical imbalance and cultural or linguistic under-representation in archaeological datasets, classifications and AI models;
- Methods for identifying, measuring and mitigating bias in archaeological AI;
- Model performance, transferability and dataset shift across different regions, languages and archaeological traditions;
- Transparency, explainability, documentation and reproducibility in the development and deployment of archaeological AI;
- Digital inequality, including unequal access to data, computational infrastructure, funding, training and technical expertise;
- Digital colonialism, cross-border data extraction and the political economy of archaeological data and AI; Indigenous, local and community-based knowledge, data governance and participatory approaches to dataset and model development;
- Technical and organisational alternatives, including open-source, low-resource, federated or locally controlled AI approaches;

- Unsuccessful applications, negative results, model failures, unintended consequences and practical ethical dilemmas; regional case studies and situated frameworks for more equitable international collaboration in archaeological AI;
- AI approaches to archaeological uncertainties, multiple archaeological ontologies and ways of knowing studies and theoretical reflections on how AI changes the relationships between archaeology experts, cultural heritage institutions and the public.

Expected Outcomes

The contributions are expected to identify shared challenges and significant differences in how bias, transparency, accountability, data governance and technical responsibility are understood and addressed across different contexts; transferable practices; and a clearer recognition of circumstances in which locally specific or community-controlled approaches are required. The session will also help reveal gaps in existing ethical and technical frameworks and examine how responsible practice can be incorporated into the design and evaluation of datasets, models and computational workflows.

Keywords: Artificial Intelligence; responsible AI; archaeology; bias; accountability; transparency; digital inequality; digital colonialism; data governance; global perspectives

Relevance to the CAA community

This session is relevant to the CAA community because it brings technical, methodological and ethical questions into direct dialogue. The session will invite contributions from under-represented regions to question who defines responsibility, whose categories and priorities shape AI systems, and which institutions and communities have the authority to govern archaeological data and knowledge, not only through empirical case studies, but also through theoretical, methodological and technical approaches. In this way, the session will broaden participation in archaeological AI research while encouraging more critical, inclusive and context-sensitive computational practice within the CAA community. This session is fully aligned with the SIG-ML initiative of CAA and the MAIA COST Action. As such, it also aims to sustain the momentum of these two communities by bringing new scholars into their scope.

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S11: Remote Sensing and AI in Archaeological Practice: Moving Beyond Novelty

Session Organisers:

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Session Format: Standard

Description

The application of machine learning approaches in archaeological investigation is increasingly common. This is particularly true with the tighter integration of high-resolution satellite imagery, LiDAR, multispectral data, and UAV photogrammetry, just to name a few. A growing body of case studies demonstrates its potential for identifying, mapping and examining archaeological features. The central challenge is therefore shifting from demonstrating technical capability to determining how machine learning can contribute to archaeological research and practice.

A recent review of machine learning practices in archaeology (see Bellat et al. 2025), brings to light the need for coherent and consistent methodologies designed to address archaeological research questions while taking into consideration project scale, data resources and available expertise. This session asks what happens when machine learning moves beyond methodological experimentation and becomes part of an archaeological workflow:

- What do we actually do with trained, fine-tuned and transferred models in practice?
- How is machine learning and AI embedded in survey design, fieldwork, heritage management, and interpretation?
- How are predictions validated, uncertainties communicated and limitations addressed?
- How do their outputs feed back into and advance archaeological practice?

Today it is increasingly clear that automation is not a replacement for expert judgement but a way to reallocate expert time toward validation and interpretation. Through these methods, the current era of computational archaeology is opening research avenues that were previously impractical and inaccessible (Argyrou and Agapiou 2022).

We invite contributions presenting new case studies that apply machine learning approaches to remotely sensed data with an explicit emphasis on practice. Rather than showcasing incremental methodological advances, papers should emphasize how models were integrated into real research workflows, the archaeological questions that motivated them, the survey and fieldwork contexts in which their outputs were validated, the handling of training data, and the consequences of results for interpretation, among others. We also welcome critical accounts of limited transferability, inconclusive results, and applications in which model outputs required substantial revision.

We particularly welcome studies that connect automated detection to subsequent stages of archaeological reasoning, standardisation, reproducibility, and FAIR data practices (Davis 2020; Bellat et al. 2025).

Through this critical examination of case studies that address remote sensing and AI in archaeological application, this session aims to move the conversation from demonstrating capability to consolidating good practice, and to sketch what a mature, “beyond-novelty” phase of AI-assisted archaeology looks like.

Supported by the CAA Special Interest Group on Machine Learning.

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S12: General AI in Archaeology: Work in Progress, Lightning Talks, and Lessons Learned

Session Organisers:

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Session Format: Other

Description

Description

The rapid growth of computational archaeology has transformed the discipline, from remote sensing and vision-based classification to the emerging integration of language models capable of interpreting visual and textual data with semantic awareness (Orengo et al., 2026a; Coll Ardanuy et al., 2025). As these applications mature, the community has rightly begun to demand more transparent, interpretable, and reproducible workflows (Berganzo-Besga et al., 2026), alongside critical reflection on the biases and ethical implications of adopting large language models more broadly (Berganzo-Besga and Orengo, 2025b). Yet not every worthwhile contribution fits neatly into a themed session, and not every piece of work is ready to be presented as a polished twenty-minute paper. Preliminary results, methods still being tested, false starts, and hard-won lessons often go unshared simply because there is no obvious home for them on the programme. This is equally true of AI and ML applications developed within large-scale infrastructure and commercial archaeology projects, where methods are often built under operational pressure and shaped by practical constraints rarely encountered in academic research settings, but which have just as much to offer the field's collective understanding of what does and doesn't work. This session, organised under the CAA International Special Interest Group on Machine Learning and AI, exists to provide that home. We invite short papers, work-in-progress updates, and lightning talks (7–10 minutes) on any application of AI or ML in archaeology that does not sit within one of the year's other AI-focused sessions. We are especially keen to hear about:

- ongoing projects at an early or intermediate stage, where feedback from the community would be valuable
- unsuccessful or inconclusive experiments, and what they revealed about the limitations of a method, dataset, or model
- small-scale or exploratory applications of AI that may not yet warrant a full paper
- AI and data-management approaches developed within large infrastructure or commercial projects, where scale and operational constraints shape what is practically achievable
- reflections on standardisation, reproducibility, and evaluation practice drawn from day-to-day project work
- cross-disciplinary lessons brought in from AI applications outside archaeology

As with previous SIG-organised sessions on this theme, our aim is dialogue rather than polished presentation. We will keep the format informal and leave ample time for discussion, so that presenters can get constructive feedback and the wider community can keep a finger on the pulse of what is actually being tried, and what is and isn't working, across the field.

Other session format

We invite short papers, work-in-progress updates, and lightning talks (7–10 minutes). Our aim is dialogue rather than polished presentation. We will keep the format informal and leave ample time for discussion.

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S13: Beyond the Case Study: Generalizing AI/ML for Cultural Heritage

Session Organisers:

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Session Format: Standard

Description

A SIG ML session

Artificial Intelligence and Machine Learning are increasingly applied across archaeology, heritage science, and cultural resource management (CRM), particularly in site detection, 3D reconstruction, condition monitoring, artefact classification, and the digitization of archives and collections (Harmanda et al. 2026). Yet much of this work follows a similar pattern: one model, one site, one collection, one workflow. The result is a growing but fragmented body of work, with many parallel, largely disconnected efforts each solving a version of the same problem from scratch, and few tools or findings that transfer cleanly from the project that produced them to the next site, archive, or institution.

This session asks what it would take to move past the individual case study toward AI/ML that serves cultural heritage more broadly. We invite papers that step back from a single application to consider transferability, reuse, and shared standards: models, frameworks, or evaluation methods designed to generalize across sites, collections, or institutions rather than solve one problem once. This includes research contributions that draw on datasets, open architectures, comparative evaluations, and methodological frameworks, alongside applied work that shows how such generalizable approaches perform when adopted by universities, CRM firms, museums, archives, and heritage organizations.

Heritage data raises its own version of this challenge. Collections are often small, unevenly digitized, held under restrictive access or intellectual property terms, or tied to specific cultural, community, or national contexts that limit how models trained on them can be shared or reused. Recent debate over generative AI and training-data provenance, and growing attention from bodies such as UNESCO to the ethical and cultural dimensions of AI, have sharpened the question of how heritage institutions document, license, and disclose the data and models behind their AI/ML work as well as what it takes for those practices to generalize across institutions rather than remain bespoke to a single project (Li et al. 2026).

Topics of interest

- Models, architectures, or evaluation frameworks designed for transferability across sites, regions, or collections, rather than a single case study
- Open datasets and shared resources for training or evaluating AI/ML in archaeology and heritage science
- Comparative studies evaluating multiple models, methods, or tools against common metrics or tasks
- Data provenance, licensing, and attribution for AI/ML trained on heritage collections, including community, Indigenous, or nationally restricted data
- Documentation and disclosure practices for AI/ML models and outputs that scale across institutions, from museums and archives to CRM firms
- Deployment and evaluation of generalizable tools within CRM, heritage management, museum, or archival workflows

- Communicating AI/ML methods, outputs, and uncertainty across academic, professional, and public audiences
- Barriers to reuse and generalization: data heterogeneity, restricted or proprietary access, infrastructure gaps, and lessons learned

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S14: Agent-based modelling in archaeological research

Session Organisers:

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Katherine Crawford (kathacrawford@gmail.com), Chronicle Heritage

Session Format: Standard

Description

Simulation, and archaeologists' favourite tool within that method - Agent-based modelling (ABM) has been a staple of the computational archaeology community for over a decade (Romanowska and Scherjon 2023). But despite it being the field's favourite causal reasoning method, a critical tool for answering the most important of archaeological questions, and even despite the steadfast enthusiasm of its proponents, the technique has not become a mainstream option in the digital archaeology toolbox. It would be hard to argue against the notion that ABM and simulation remain a niche pursuit in research on the past, despite its clear potential for advancing important archaeological questions.

The necessary technical skill of programming was always recognised as a major barrier for wider adoption of ABM - a barrier that is no longer there given the advances in AI-supported coding. As we are entering an era where code development becomes accelerated or even entirely outsourced to AI (Stack Overflow 2026), a new horizon of both potential and risks has emerged. On the one hand, AI-supported coding leaves us with more time and energy to focus on better model development, more thoughtful construction of the underlying models of the past and a tighter coupling with archaeological data. On the other hand, it holds a risk of unleashing a stream of poorly designed, buggy and incoherent models. Nevertheless, the current technological transition holds a promise of democratising the use of modelling and simulation techniques and thus their application to a wider set of topics, research contexts and cross-disciplinary collaborations.

The primary goals of this session, therefore, are to take stock of where we, archaeological modellers, are as a subfield of computational archaeology, learn about new and exciting applications and methodological advances and discuss together the potential of the paradigm-shifting force of AI for our line of work.

This session invites papers discussing:

- Novel case studies of archaeological ABM and simulation applications;
- Methodological and technical advances, including AI-assisted development;
- The role of archaeological data in constructing formal models of the past;
- Cross-disciplinary applications of ABM with a view of their potential in advancing archaeological questions;
- Other computational or formal modelling approaches (e.g. equation-based, network, or statistical models) with integrative potential;
- Views on the development and future of archaeological ABM and broader simulation methods.

The session will run as a Standard Session but also include a discussion slot open to all participants, presenting or not, to spark closer collaboration and alignment within the archaeological ABM community of practitioners.

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S15: New Trends in Machine Learning for Archaeology

Session Organisers:

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Session Format: Standard

Description

Computational archaeology, driven by advances in computer vision (Orengo et al., 2026a), has transformed landscape studies through the integration of remote sensing data with machine and deep learning pipelines (Menze and Ur, 2012; Orengo et al., 2020; Verschoof-van der Vaart et al., 2020; Davis et al., 2021; BerganzoBesga et al. 2021, Bulawka et al., 2026). This success has prompted the adoption of visionbased models across additional archaeological domains, including potsherds detection using drone imagery (Orengo et al., 2021), phytolith analysis (BerganzoBesga et al., 2022), stelae studies (Kayikci et al., 2026), and seed identification using 3D approaches (Orengo et al., 2026b). This rapid growth of artificial intelligence (AI) applications has led the archaeological community to increasingly demand more transparent, interpretable, and reproducible workflows (Berganzo-Besga et al., 2025a; Ramsey et al., 2026), which has driven the development of best practice guidelines for the application of computer vision-based machine learning in archaeology (Berganzo-Besga et al., 2026).

Concurrently, the parallel explosion of large language models known as LLMs is now reshaping how archaeological information is extracted and interpreted, from handwritten text recognition (Coll et al., 2025) to text-mining (Van den Dikkenberg and Brandsen, 2025). Moreover, these emerging deep learning technologies are redefining computer vision by integrating advanced language models capable of understanding complex visual contexts (Landauer and Klassen, 2025). These multimodal systems bridge the gap between images and text, allowing machines to interpret visual data with semantic awareness rather than relying solely on pixel-level patterns (Orengo et al., 2026a).

Among recent advances in this field, language-based approaches have expanded to site-location models that integrate text-based models with remote sensing imagery (Berganzo-Besga and Orengo, 2025b), thereby revisiting the earliest applications of machine learning in archaeology.

Having outlined the recent trends in machine learning for archaeology, clearly marked by the emergence of language models, this session will showcase work that:

- Applies the latest vision, hybrid and multimodal models to traditional archaeological approaches such as remote sensing and shape analysis.
- Transfers established machine and deep learning pipelines (e.g., CNN-based workflows) to previously unexplored archaeological contexts.
- Explores the use of foundational models to achieve zero-shot applications, overcoming the traditional archaeological scarcity of training data.
- Demonstrates languageonly and visionlanguage applications, ranging from automated transcription and text-mining to semantic siteprediction models.

- Assesses transferability, robustness and domain adaptation of vision and multimodal models across regions, periods, cultures and sensor types.
- Investigates the deployment of lightweight models on edge devices for fieldwork, optimizing the trade-off between model size, accuracy and practical usability.
- Critically reflects on the implications of the widespread adoption of LLMs (ChatGPT, Claude, etc.), examining bias, reproducibility, ethical use and the responsibilities of archaeologists when employing these models.

Supported by the CAA Special Interest Group on Machine Learning, the session aims to foster interdisciplinary dialogue, disseminate reproducible workflows, and chart a roadmap for responsible AI integration in archaeology.

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Track 3: Regional Aspects

Regional perspectives: dialogues among CAA chapters across the Americas, LiDAR and digital archaeology in South America, Brazil and South/Southeast Asia, and archaeology in remote landscapes.

S16: Connecting the Americas II: A Pan-Regional Dialogue among CAA Chapters

Session Organisers:

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Session Format: Round Table

Description

Based on the success of the panel organized in Vienna in 2026, we would like to continue the dialogue between the various CAA chapters in the Americas. To further open the dialogue to all participants, in this edition we would like to open the floor to all voices from the chapters, and for this we propose a round table format. We therefore invite all representatives from the CAA regional chapters across the Americas, including CAA North America, CAA Mexico, CAA Brazil, and CAA Latin America & the Caribbean, for an open dialogue on the shared challenges, research interests, and collaborative opportunities that define computational archaeology in the region.

As the global CAA community continues to grow, chapters in the Americas have emerged within diverse socio-political contexts, facing distinct but often overlapping issues such as uneven access to digital infrastructure and training, linguistic diversity, funding limitations, and the ongoing need to decolonize archaeological knowledge production and digital methods. While CAA chapters in Europe benefit from longer-established networks and more consistent inter-chapter collaboration, regional coordination in the Americas remains comparatively underdeveloped. This panel seeks to address that gap by fostering dialogue among American chapters and articulating the specific needs and priorities shaped by local conditions, including political instability, institutional fragmentation, and barriers to international cooperation.

The goal of the round table is to explore concrete opportunities for collaboration across American chapters, such as co-organized events, shared resources, and training initiatives, and to identify common research priorities that could benefit from sustained cross-regional engagement. These may include digital heritage management, open science practices, spatial and landscape analysis in diverse environments, community-based digital archaeology, and ethical considerations around data sovereignty and representation.

By convening this discussion among chapter members, other participants who do not belong to any chapter yet, and the session audience, the round table aims to lay the foundation for sustained inter-chapter collaboration that reflects the diversity, complexity, and potential of archaeological practice in the Americas. It represents both a recognition of ongoing efforts and a step toward a more connected, responsive, and regionally grounded CAA community.

S17: LiDAR and Archaeology in South America: Critical Approaches / LiDAR y arqueología en Sudamérica: Enfoques críticos / LiDAR e arqueologia na América do Sul: Abordagens críticas

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Session Format: Standard

Description

[Session offered in English, Spanish and Portuguese. English version below; Spanish and Portuguese versions with equivalent content were also submitted.]

This session brings together presentations on the use of LiDAR for archaeological research in South America, at the first CAA meetings to be held on the continent. While archaeology's LiDAR “revolution” in the 2010's was headlined by research conducted in Southeast Asia, Mesoamerica, Europe, and North America (Vinci et al. 2025), a diverse array of LiDAR sensors have recently been put to use in archaeological research in South America (e.g., Berquist et al. 2026; Bonomo et al. 2026; Garzón-Oechsle et al. 2025; Moralejo et al. 2022; Moralejo 2018; Osorio et al. 2023; Prümers 2025; Prümers et al. 2022; Risbøl et al. 2023; Rostain et al. 2024; Sánchez Polo and Álvarez Litben 2023; VanValkenburgh et al. 2020; Amazoniarevelada.Com.Br/ n.d.). Like our colleagues in other parts of the world, South Americanist archaeologists are still developing best practices for archaeological LiDAR surveys, data processing, and visualization, but many contributions have taken a more introspective turn than earlier work conducted beyond the continent. In the territory of El Dorado, rather than trading on the promise of discovering “lost” cities, many archaeologists using lidar have sought to adopt a more grounded approach, treating the technology not as a magic wand but as another topographic instrument with specific affordances and limitations.

This symposium asks: In what ways, if any, is LiDAR impacting the way that South Americanist archaeologists work in different parts of the continent? What archaeological research questions are being effectively addressed through the use of lidar sensors? Where is LiDAR survey mobilizing existing frameworks and research questions and where is it opening new lines of inquiry? What sensors, platforms, data processing workflows and analytical approaches are best suited for addressing those questions? How are the affordances of sensors and visualizations, as well as the contours of data processing workflows, shaping relationships between archaeologists, landscapes, and contemporary societies? How are we addressing questions of data sovereignty and open access? And centrally: what interesting and impactful research results has the application of lidar survey generated? We welcome presentations in Spanish, Portuguese and English alike.

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S18: Situated Digital Archaeologies: Latin American Contributions to a Global Debate

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Session Format: Standard

Description

Section 1: Introduction

Over the past few decades, digital archaeology has established itself as one of the discipline's most dynamic fields, driving profound transformations in the research, preservation, management, and communication of archaeological heritage. However, this development has not been homogeneous, and experiences produced in Latin America remain underrepresented in international debates. The Latin American case presents a context of distinct social and scientific demands, theoretical strands, and methodological traditions. Within this context, digital archaeology functions as a space for experimentation, critical reflection, and interdisciplinary dialogue (Alcalde & Méndez, 2025). The CAA meeting, taking place in South America for the first time, offers an exceptional opportunity to broaden these conversations, give visibility to the diversity of trajectories within the region, and foster a more plural dialogue on the challenges, practices, and contributions of contemporary digital archaeology.

Section 2: Session Rationale and Objectives

The digital archaeology agenda has developed largely within the academic, institutional, and technological conditions of the Global North. This region concentrates most of the field's resources and infrastructure and shapes the spaces where theory and practice are produced. We understand digital archaeology not merely as a set of technologies applied to the study of the past but as a contemporary way of producing and disseminating archaeological knowledge. This raises some questions, such as what is happening with digital archaeology in Latin America and what is the context in which our digital practice is produced. This session seeks to critically reflect on the tension between North and South, inverting the usual question of how to incorporate technologies developed in the North to ask instead what the South can contribute to the field of international digital archaeology. Latin America brings together a strong academic community closely connected to its territories, exceptional archaeological richness, and significant involvement from Indigenous communities, museums, public institutions, and other social actors. These conditions, far from being merely a limitation, produce distinctive agendas, questions, and ways of working. We therefore propose a space to exchange experiences, showcase the current state of the discipline in the region, and discuss the theoretical, methodological, ethical, and epistemological challenges raised by these practices in our territories.

Section 3: Themes and Topics

We invite contributions that critically reflect on digital archaeology, prioritizing experiences developed by Latin American institutions or in strategic partnership with them. Contributions may be organized around the following themes:

- Technological inequalities, the digital divide, and sovereignty over technology and data; dependence on commercial platforms, licensing costs, and infrastructural limitations.
- Digital humanities applied to archaeology; open science and open access; virtual reconstruction for research; ethical and methodological aspects of AI use; epistemological and political effects of digitization.
- Heritage and participation; participatory methodologies and local communities; public digital archaeology; virtual heritage.
- Data management and governance; digital repositories; academic and community governance of digital outputs.
- Situated theoretical perspectives; digitization and the co-construction of knowledge from diverse epistemological standpoints; and digital narratives.

Section 4: Expected Outcomes

This session seeks to contribute to the CAA community by highlighting the diversity of trajectories, problems, and solutions that characterize Latin American digital archaeology and by proposing agendas, methodologies, and theoretical frameworks generated from the Global South. We hope these discussions will enrich the international debate on digital archaeology and foster collaborative networks among researchers.

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S19: Digital Archaeology in Brazil: Methods, Practices, and Collaborative Networks

Session Organisers:

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Session Format: Standard

Description

1. Introduction

Digital technologies have become increasingly integrated into archaeological research, transforming practices that range from field recording, spatial analysis, and artefact documentation to data management, visualisation, publication, teaching, and public engagement. Digital archaeology, however, should not be understood simply as the application of new tools to established procedures. Digital methods also influence the questions archaeologists formulate, the evidence they produce, and the ways archaeological knowledge is organised, interpreted, and communicated. This session examines the development of digital archaeology in Brazil through projects developed by Brazil-based researchers and institutions across diverse geographical, chronological, and archaeological contexts. It seeks to bring together research involving different technologies, materials, and historical periods, while encouraging discussion of the methodological and interpretative choices that shape digital archaeological work.

2. Session Rationale and Objectives

The session emerges from exchanges among researchers associated with the Laboratory for Roman Provincial Archaeology (LARP), the Laboratory of Studies on the Ancient City (LABECA), and the Laboratory for Archaeology and Anthropology of Middle Eastern Populations (LAPOMED), at the University of São Paulo. Research developed within and around these environments encompasses spatial and landscape analysis, Geographic Information Systems, archaeological databases, data curation, Reflectance Transformation Imaging, photogrammetry, three-dimensional documentation, numismatics, cyberarchaeology, archaeogaming, and public engagement. These experiences constitute the starting point of the proposal, but not its geographical, institutional, or thematic boundary. While grounded in research developed by Brazil-based researchers and institutions, the session welcomes comparative and collaborative contributions from Latin America and beyond, including researchers based in universities, museums, heritage institutions, laboratories, and archaeological field projects. Its central objective is to examine how digital methods are incorporated into archaeological practice and how they affect the production, interpretation, preservation, and circulation of archaeological knowledge. The session also explores the role of collaborative networks in connecting different forms of expertise across fieldwork, laboratories, archives, museums, and digital environments. Rather than presenting technology as an end in itself, the session encourages contributions that demonstrate how digital approaches respond to specific archaeological questions and how methodological choices influence research results.

3. Session Themes and Topics

Contributions may address, but are not limited to:

- Geographic Information Systems, remote sensing, spatial analysis, and network analysis;

- digital field recording and the integration of field, laboratory, museum, and archival information;
- archaeological databases, metadata, interoperability, data curation, and long-term preservation;
- photogrammetry, Reflectance Transformation Imaging, three-dimensional documentation, and digital reconstruction;
- digital approaches to artefacts, coins, ceramics, inscriptions, architecture, and archaeological landscapes;
- cyberarchaeology, virtual environments, simulations, archaeogaming, and interactive applications;
- digital approaches to teaching, public archaeology, museums, and heritage communication;
- open science, open-source technologies, accessibility, and the publication of archaeological data;
- collaborative networks connecting institutions, laboratories, field projects, and different forms of technical expertise;
- ethical and critical approaches to digital heritage, data ownership, and knowledge circulation;
- methodological reflections on the possibilities and limitations of digital tools in archaeological interpretation.

4. Expected Outcomes

The session aims to establish a forum for comparing digital methods, research practices, and collaborative experiences across different archaeological contexts. It will encourage dialogue between technically oriented contributions and studies concerned with the interpretative, institutional, ethical, and educational dimensions of digital archaeology. By bringing together researchers working with different materials, regions, and technologies, the session seeks to identify shared methodological challenges and opportunities for collaboration. Particular attention will be given to how digital practices connect people, institutions, datasets, archaeological contexts, and forms of knowledge often treated separately. The broader objective is to strengthen the visibility of digital archaeology developed in Brazil while placing it in dialogue with research conducted elsewhere. Innovation is understood not only as the adoption of new technologies, but also as their capacity to generate meaningful archaeological questions, transparent research practices, sustainable documentation, and productive collaborative networks.

Keywords: Digital Archaeology; Archaeological Methods; Digital Documentation; Data Curation; Collaborative Networks; Digital Heritage; Brazil.

S20: Building Bridges or Reinforcing Borders? Digital Innovation and Decolonial Practice in South and Southeast Asian Archaeological Heritage

Session Organisers:

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Session Format: Standard

Description

Section 1: Introduction

South and Southeast Asia's archaeological and heritage landscape (prehistoric rock art, ancient urban centres, religious monuments, inscriptions, and intangible heritage) is increasingly documented, analysed, and reconstructed through digital technologies: Structure-from-Motion photogrammetry, GIS and viewshed modelling, LiDAR, DStretch and other image-enhancement software, AI-assisted classification, 3D scanning, and platform-based heritage communication. These tools have transformed what can be recorded and how quickly it can be shared. They have not, however, arrived neutrally. Most were developed within Western computational and institutional traditions and are applied in a region where more than 80% of built heritage remains formally unprotected, and where the categories through which archaeological knowledge is produced continue to bear the shape of colonial-era antiquarian and bureaucratic practice (Holtorf, 2023; DeSilvey, 2017).

Decolonising computational archaeology, as this session uses the term, is not a synonym for 'archaeology conducted in a formerly colonised country', nor a call to abandon digital methods. It names three specific commitments. First, interrogating the epistemological assumptions built into a tool's design, that is, the typological categories a classification algorithm inherits, the assumptions about landscape and territory embedded in a viewshed model, rather than treating software as a neutral instrument (Huggett, 2015, 2017). Second, treating control of the resulting data infrastructure, from repository hosting to metadata standards, as a question of sovereignty rather than mere interoperability (Mignolo, 2011). Third, asking whether a given digital method extends the colonial-era logic of extraction and export, or instead enables co-authorship with the communities whose heritage is documented (Atalay, 2012; Tuhiwai Smith, 1999). Under this definition, a tool is not decolonial or colonial in itself; its politics are set by who designs it, who controls its outputs, and who it is answerable to.

The 'Building Digital Bridges' theme of CAA 2027 asks what those bridges connect, and on whose terms. This session takes up that question directly, asking whether the expanding toolkit of digital heritage technology in South and Southeast Asia (GIS and remote sensing for landscape and settlement archaeology, 3D scanning and digital twins for conservation and reconstruction, AI and machine learning for classification and pattern recognition, and platform-based communication for public engagement) constitutes a genuinely decolonial shift in archaeological practice, or a more efficient means of reproducing existing hierarchies of who gets to interpret, own, and narrate the past.

Section 2: Session Rationale and Objectives

Session Rationale

Technical and critical work on digital heritage in South and Southeast Asia are usually conducted separately, to the detriment of both. Papers on GIS methodology, 3D documentation, or repository

infrastructure are frequently presented without engagement with the politics of knowledge they enact; papers on decolonial theory are frequently presented without close technical engagement with the tools they critique, leaving the critique abstract. This session brings these conversations together, closing the gap in both directions.

Digital heritage practice in the region faces genuine infrastructural pressure: fragmented digital infrastructure, inconsistent documentation standards, uneven interoperability, and cybersecurity risk to born-digital archaeological data all constrain what can be preserved and accessed (Iniyan, 2025). These are not merely technical problems. Where repositories are hosted, which metadata standards are adopted, and who is resourced to meet FAIR data requirements are, in practice, questions of infrastructural sovereignty of whether South and Southeast Asian institutions set the terms of their own digital heritage ecosystems, or adopt terms set elsewhere. Addressing them adequately requires the same critical apparatus this session brings to documentation and classification: an insistence that infrastructure, like method, is not neutral.

Objectives

The session aims to:

- Examine the epistemological and infrastructural assumptions embedded in digital documentation, classification, and repository technologies used in South and Southeast Asian archaeology (Huggett, 2015, 2017; Iniyan, 2025)
- Present technical and methodological innovation in GIS and spatial analysis, Structure-from-Motion photogrammetry, LiDAR, 3D scanning, and AI-assisted classification alongside sustained engagement with its politics of use (He et al., 2017)
- Interrogate questions of data sovereignty, infrastructural control, and epistemic authority in the production and dissemination of digital heritage data (Mignolo, 2011)
- Foreground community-based and participatory digital methodologies, and research conducted with, by, and for local and Indigenous communities rather than on them (Atalay, 2012; Moser et al., 2002; Gnecco & Lippert, 2015)
- Evaluate platform-based heritage communication, including public-facing digital storytelling and VR/AR interpretation, as a site of both outreach and epistemic gatekeeping
- Assess whether specific case studies constitute decolonial practice by the definition set out above, or technological modernisation without structural change

Section 3: Session Themes and Topics

Papers are invited that engage digital method and decolonial critique together, including but not limited to:

- Structure-from-Motion photogrammetry, DStretch, and other documentation technologies, and the classificatory assumptions embedded in their design and application to rock art, inscriptions, and architectural heritage
- GIS, remote sensing, LiDAR, and viewshed analysis, and the assumptions about landscape, territory, and settlement embedded in spatial-analytical method
- AI and machine learning for artefact and motif classification, and the provenance, training data, and taxonomic assumptions on which such systems depend

- Digital repository design, metadata standards, and FAIR data practice as questions of infrastructural sovereignty, access, and long-term institutional control (Iniyan, 2025)
- Cybersecurity, risk, and long-term preservation of born-digital archaeological data, and their disproportionate impact on under-resourced regional institutions
- Community ownership, participatory documentation, and citizen archaeology, including research conducted with, by, and for local and Indigenous communities (Atalay, 2012)
- Platform-based heritage communication, VR/AR interpretation, and digital public archaeology, and their politics of visibility, access, and narrative authority
- 3D reconstruction, digital twins, and conservation-planning technologies (Zhang, 2024), and questions of whose heritage is prioritised for digital resourcing
- Cross-regional and comparative digital heritage practice within South and Southeast Asia
- Positionality, access, and epistemic justice in digital fieldwork, authorship, and publication

Section 4: Expected Outcomes

This session aims to generate sustained dialogue between technical and critical approaches to digital heritage in South and Southeast Asia, producing outcomes on both registers rather than treating them as separate tracks. We anticipate that accepted papers will collectively:

- Produce methodological frameworks for digital documentation and infrastructure design that build in critical and community accountability from the outset, rather than as a later addition
- Generate a working vocabulary for what decolonial practice means in specifically computational and technical terms, tested against concrete regional case studies
- Demonstrate the productive tension between digital innovation and decolonial critique named in this session's title
- Strengthen practical and institutional capacity for digital heritage work led from within South and Southeast Asian institutions, including the infrastructural and data-sovereignty questions raised by cybersecurity, preservation, and FAIR data practice

Session outputs may include a post-conference edited volume or special journal issue bringing together technical and critical contributions on digital method and decolonial heritage practice in South and Southeast Asia and the wider Global South.

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S21: Blank Landscapes and Digital Resources: Data Management, digital outputs and Computational Archaeology in Remote Regions

Session Organisers:

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Session Format: Standard

Description

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Melisa Salerno, IMHICIHU-CONICET

Keywords: Computational Archaeology, GIS, Spatial Analysis, Extreme Environments, LEACH-UFMG, FAIR Data

Archaeological research in remote, isolated, and environmentally extreme regions—such as arid deserts, high-altitude alpine zones, and polar or sub-polar territories—faces severe analytical challenges. Historically conceptualized as "blank landscapes," these territories hosted dynamic human occupations, seasonal adaptations, and resource exploitation strategies. However, their material record is characterized by low physical visibility, spatial fragmentation, high environmental vulnerability, and severe logistical constraints that hinder continuous systematic survey, dig activities and long-term monitoring.

This session addresses how digital issues and computational archaeology can overcome these analytical barriers rather than merely serving as a technical solution. We focus on how digital workflows—including multiscale 3D modeling, VR, AR, high-resolution databanks of evidences, SfM, STL, LiDAR, and interoperable data infrastructures— can mitigate sampling biases, capture highly perishable site structures, and integrate fragmented multidata across harsh geographic and climatic barriers.

While initiatives such as the long-term *Paisagens em Branco* (Blank Landscapes) project in Antarctica (LEACH-UFMG) provide one illustrative exemplar of these methodologies, this session aims to bring together a broader international audience working in diverse remote environments worldwide (e.g., Atacama, Sahara deserts, Andean and Himalayan high-altitude zones, Circumpolar Arctic Region).

We invite 20-minute presentations exploring, but not limited to, the following topics:

- **Analytical spatial modeling in adverse contexts:** Addressing spatial discontinuity, visibility, and site-formation processes in extreme terrains.
- **Landscape and intra-site analytics:** Spatial analysis and Geostatistic, 3D recording of fragile features and temporary encampments sites.
- **Open spatial data & FAIR principles:** Designing interoperable e-repositories, datalakes, and long-term digital preservation strategies for vulnerable heritage.
- **Digital workflows for remote sensing:** RPAS, satellite imagery, and predictive modeling in challenging field conditions.
- **Virtual outputs:** Videogames and immersive experiences over these cultural heritage.

Expected Outcomes

This session will establish an international collaborative network of researchers specializing in digital workflows for archaeology in extreme places. It will promote best practices for open-data sharing and high-resolution dig methodologies and digital pipeline.

Track 4: Ethics, Cognition, And The Future Of Digital Archaeology

Ethics, cognition and speculative futures in digital archaeology, including the reconstruction of past sensory worlds and community-centred practice.

S22: Exploring Past Senses II: Digital Approaches to Reconstructing Ancient Sensory Worlds

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Session Format: Standard

Description

How did people in the past experience the spaces they inhabited? Beyond architecture and material culture, past environments were perceived through sight, sound, smell, touch, and movement, shaping memory, emotion, communication, and social interaction. While these sensory dimensions are inherently ephemeral, recent advances in digital archaeology have created unprecedented opportunities to investigate and reconstruct past sensory experiences.

Computational methods – including GIS-based spatial analysis, 3D reconstruction, photogrammetry, laser scanning, virtual and augmented reality, acoustic simulations, auralization, and lighting simulations, visibility studies, agent-based modelling (ABM), artificial intelligence, and digital twins – are increasingly being employed to model ancient sensory environments (sensory landscapes or sensoryscapes). These approaches not only enable more sophisticated reconstructions but also provide new perspectives on how sensory stimuli influenced human behaviour, ritual practices, movement, decision-making, and the experience of built and natural environments. Increasingly, these digital approaches are also being integrated with empirical field data, including acoustic measurements, spatial surveys, and experimental archaeology, allowing for more robust and reproducible reconstructions of past sensory environments.

This session aims to bring together researchers working at the intersection of digital archaeology and sensory archaeology to explore both methodological innovation and theoretical reflection. We particularly welcome contributions addressing questions such as:

- Modelling: How can computational methods and digital tools reconstruct past sensory environments and experiences, including soundscapes, smellscape, and multisensory interactions?
- Interpretation: How can digitally reconstructed sensory environments improve our understanding of social interaction, cognition, ritual, memory, identity, and human–environment relationships?
- Evaluation: What are the methodological, epistemological, and ethical challenges of reconstructing sensory experiences, and how can we critically assess the reliability and interpretative value of digital sensory models?

We invite papers presenting methodological advances, interdisciplinary case studies, experimental approaches, and critical discussions from all chronological periods and geographical regions. Contributions employing emerging technologies – including AI-assisted analyses, immersive environments, and computational simulations – as well as studies integrating empirical measurements

with digital modelling are especially encouraged. We also welcome contributions exploring applications in cultural heritage interpretation, conservation, museum experiences, and public engagement.

By fostering dialogue between computational innovation and archaeological theory, this session seeks to advance sensory archaeology as a dynamic field within digital archaeology and to stimulate discussion on future directions for reconstructing and interpreting the lived experiences of past societies across diverse cultural traditions and archaeological contexts.

S23: Cognition Computing

Session Organisers:

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Session Format: Standard

Description

a) Background of this session

This proposed session is a continuous development of the "Cognitive Mind" session organized and held at CAA 2025 and the subsequent cognitive cultural property session at CAA 2026. The discussions in these sessions considered archaeological and cultural objects not only as relics of the past, but also as objects that stimulate modern people's perception, sensibility, and meaning-making. In CAA 2026, the scope was further extended by adding EEG/ERPs to the use of VR/MR, eye tracking, Semantic Differential (SD) methods, and deep learning, with the aim of better understanding body and brain reactions to archaeological stimuli.

For CAA 2027, we propose to develop this discussion into a broader methodological framework called "Cognition Computing". The purpose is not to claim that the cognition of ancient people can be directly measured. Rather, the session investigates how computational methods can measure, represent, compare, and model observable aspects of modern human cognition when people encounter archaeological artifacts and sites, and how these observations may contribute to the interpretation of past human experience.

b) Research questions and scope of Cognition Computing

The central question of this session is: How can computational methods be used to investigate human perceptual and cognitive responses to archaeological objects, and how can different measurements of these responses be integrated to obtain a more detailed understanding of cognition?

In this session, "Cognition Computing" refers to the use of computational methods together with experimental and psychological approaches to investigate human cognition in response to archaeological and cultural materials. The scope therefore includes the acquisition of behavioral, perceptual, physiological, and brain-response data; computational representation and visualization of these data; statistical comparison of individual and cultural differences; and machine learning or deep learning approaches for classification, prediction, and modeling of cognitive responses.

This approach can connect several levels of observation. For example, gaze data indicate where and for how long an observer looks at an artifact, SD scores describe sensory impressions and mental images, spoken responses provide more open-ended descriptions of experience, and EEG/ERP measurements provide temporal information about brain responses to visual stimuli. Combining these measurements may make it possible to examine not only what people report, but also how their attention and brain responses change during the viewing of archaeological objects.

c) VR and MR: from instant 3D view to eye fixation experiments with emotion and impression

VR (Virtual Reality) and MR (Mixed Reality) represent a significant advancement by enabling viewers to see and simulate things that are not normally visible. Artefacts converted to 3D can be easily viewed using VR/MR equipment, and one can therefore obtain an instant experience of viewing ancient artifacts.

Microsoft HoloLens2 is capable of capturing the viewer's gaze data using its built-in cameras and sensors. This data includes the 3D coordinates of the fixation point, the direction of the gaze, and the fixation duration, including saccades and fixations. These measurements can serve as indicators of where a person's potential cognition is directed on an object. By projecting the duration of gaze fixation on the surface of an object as color-graded information, the distribution of visual attention can be visualized as a 3D heatmap.

The session welcomes studies that extend this approach from simple 3D viewing to systematic investigations of perception, emotion, impression, attention, and meaning-making in VR/MR environments.

d) Measuring cognition using the Semantic Differential method

As an experimental method for extracting the mental images people have when viewing objects, the Semantic Differential (SD) method is widely used in psychological testing. This method involves providing pairs of simple sensory impression adjectives, such as "beautiful-ugly", for subjects to rate on a scale. The SD method serves as crucial information for analyzing how people perceive objects as stimuli through many simple sensory impression adjectives.

A research paper using this method has already been published as CAA proceedings [1]. The present session seeks contributions that use SD data not only as descriptive evaluation, but also as computational data that can be compared with gaze, speech, EEG/ERP, or other measurements. Such combinations may help clarify relationships between reported impressions and other observable responses.

e) EEG and Event-Related Potentials for cognitive and emotional response analysis

Event-related potentials (ERPs), which capture the temporal responses of the brain to visual stimuli, contain features that reflect differences in stimulus categories and cognitive processing, serving as key indicators for emotion classification and semantic comprehension. For visually presented object groups, such as Jōmon pottery and clay figurines, that differ in shape and semantic interpretation, repeated ERP measurements make it possible to investigate whether EEG responses can distinguish different categories of emotional or cognitive responses.

In July 2025, emotional label measurements were conducted with a total of 306 participants in Japan and Malaysia. Many participants recorded gaze trajectories associated with a single emotional label. This observation led to the possibility that ERPs extracted from EEG measurements synchronized with such single emotional labels could be used to develop models capable of predicting emotional response categories [2] [3].

For CAA 2027, we would like to extend this work from the proposal of EEG/ERP-based prediction toward a more general question of how brain responses can be combined with gaze behavior, SD evaluations, and verbal responses. Contributions may address EEG/ERP measurement itself, synchronization of EEG with VR/MR presentation and gaze data, temporal analysis of brain responses, cross-participant comparison, or computational models for classifying and predicting responses to archaeological objects.

f) Development from the CAA 2025 and 2026 sessions

The proposed session develops the previous discussions in two stages. The CAA 2025 "Cognitive Mind" session established the basic direction of investigating cognition in relation to archaeological materials. The CAA 2026 session developed this approach by reframing cultural properties as "Objects that Stimulate Modern People's Perception, Sensibility, and Meaning-Making" and by adding EEG/ERPs to VR/MR, gaze tracking, SD methods, and computational approaches.

CAA 2027 therefore does not simply repeat these previous sessions. It proposes "Cognition Computing" as a methodological framework in which these approaches can be connected. The new focus is on integration: how visual attention, subjective impression, verbal expression, physiological or brain responses, and computational models can be treated as complementary observations of cognition. The session also asks how these data can be compared across individuals, languages, cultures, artifact types, and viewing conditions.

The session seeks to move from the question of whether archaeological objects stimulate cognition to the more specific questions of how cognition can be measured computationally, how different measurements correspond to one another, and what kinds of archaeological interpretation can be supported by such evidence.

g) Theoretical scope and possible contributions

The session is intended to be interdisciplinary and welcomes contributions from archaeology, cognitive archaeology, experimental psychology, neuroscience, computer science, information science, digital heritage, museum studies, and related fields. We especially welcome studies that use archaeological or cultural objects as stimuli and investigate modern human responses through quantitative or computational methods.

Possible contributions include: • 3D views of artifacts by VR/MR equipment and investigations of observers' perception • VR/MR practices for regional historical education • VR/MR exhibitions as digital museums • Eye and gaze tracking methodologies for cognitive investigations • Electroencephalographic (EEG) / Event-Related Potentials (ERPs) studies • Synchronization of gaze, behavioral, verbal, and EEG/ERP data • Semantic Differential and other psychological measurement methods • Comparative studies of individual, linguistic, or cultural differences in responses to archaeological objects • Machine learning, deep learning, and deep generative models for cognition-related data • Computational visualization and representation of cognitive responses • Any other cognition-related investigations and methodologies relevant to archaeology and cultural heritage.

h) Need for a Cognition Computing Session

Cognition Computing, deeply intertwined with experimental psychology and cognitive information processing, is a crucial field for exploring human psychology and cognition through archaeological artifacts and sites. Archaeologists cannot directly investigate the cognition of ancient people. However, it is considered feasible to reconstruct aspects of their cognition and mental images under the assumption of some commonality with modern human cognition, as proposed by Burner and Matsumoto.

The increasing availability of 3D archaeological data, MR/VR technologies, eye tracking, EEG/ERP measurement, and computational analysis creates an opportunity to develop this approach beyond individual case studies. The proposed session provides a place where researchers using different measurements and computational methods can discuss their common research questions and methodological limitations.

We therefore propose a continuing CAA session that brings together archaeological interpretation and quantitative investigation of human responses. By linking the discussions from CAA 2025 and 2026 with new EEG/ERP and multimodal computational approaches, the CAA 2027 "Cognition Computing" session aims to establish a broader discussion on how computational evidence can contribute to the study of cognition in archaeology.

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S24: Ethical and community-centred digital archaeology in a changing world

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Session Format: Round Table

Description

Our archaeological research is situated within an ever-changing world shaped by social, political, and technological change. Digital archaeology is no longer defined solely by the technologies we use. Instead, digital methods shape how archaeological knowledge is produced, shared, and governed, creating new relationships and ethical responsibilities among researchers, communities, institutions, and data. In this landscape, our digital technologies must support ethical research practices, and ethical practices must be embedded into our digital methods. What constitutes ethical research can vary depending on context and the values of researchers, communities, and stakeholders (Gnecco 2015; Londoño 2021). Ethical principles exist to help us navigate the challenges in working with digital technologies; however, they are often critiqued as being too universal (Fernández, 2015), lacking the nuance needed to guide research among diverse communities with shared or conflicting values. This becomes particularly visible when different ethical frameworks prioritize different responsibilities. For example, tensions can arise when trying to implement both the FAIR data principles and the CARE principles for Indigenous Data Governance (Carroll et al. 2020; Gupta et al 2023). While FAIR prioritizes the openness and reusability of data, the CARE principles emphasize who benefits from the data, ensuring that data management is grounded in the rights and interests of Indigenous and local communities.

The CAA Ethics Policy also provides guidelines for working with digital technologies and thinking reflexively, but like all policies, it requires updating over time. Our current policy outlines the necessity for engagement and accountability to the public and affected communities. Recent research has emphasized the need for a shift away from simply informing affected communities towards meaningful consultation, co-creation, and shared decision-making in digital archaeology and heritage projects (Dawon et al. 2026; Gupta et al. 2023; Herrera Malatesta 2026). As ethical practice continues to evolve, the CAA Ethics Committee is committed to ensuring that its guidance remains responsive to emerging technologies, changing research contexts, and the experiences of its membership.

To inform this ongoing work, we are interested in hearing examples of how participants have engaged with these topics or navigated these issues in practice, including both how they have strengthened the research process and the challenges they have created. This roundtable provides a space for sharing experiences and ethical dilemmas encountered while navigating the diverse and sometimes conflicting values of researchers, communities, and other stakeholders. We welcome contributions that foster an international and transdisciplinary exchange to explore how ethics and engagement look globally.

We are particularly interested in practical research experiences and case studies related to:

- Community-led or co-created digital heritage projects: examples of working with affected communities and the unique role this plays in the research process
- Geopolitical conflicts: positions on the ethical provenance of research and community engagement in conflict zones

- Indigenous contexts: case studies of research in First Nation and Indigenous contexts to inform upcoming policy updates
- Implementation tensions: real-world examples of implementing the FAIR and CARE principles or navigating other ethical guidelines, and institutional or structural challenges to carrying out ethical work

Session format

This session will begin with 5-minute “pitches” by panellists to provide case studies and ethical positions that anchor the conversation. This will be followed by an open, moderated discussion between co-chairs, panellists and the audience.

Expected outcomes

This roundtable offers an opportunity for open dialogue on the challenges and opportunities of community-led practice and collaborative digital archaeology. The insights shared will help inform future CAA policy development and ethical guidance while fostering broader international dialogue on responsible digital archaeological practice. By exchanging experiences, challenges, failures and solutions, we aim to support future decision-making, ensure socially responsible research, and strengthen our collective relationships with communities.

S25: Designing Tomorrow's Archaeology: Speculative Futures, Reflexive Critique, Digital Methods, and Heritage

Session Organisers:

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Session Format: Standard

Description

1. Introduction

Archaeology is increasingly shaped by rapidly evolving technologies, computational methods, artificial intelligence, immersive environments, and new forms of collaborative data infrastructures. At the same time, archaeological practice continues to operate within practical, institutional, ethical, and political constraints that influence not only what research can be undertaken, but also which futures are imaginable.

Recent work by Ribeiro and Wollentz (2026) in “Archaeologies of the Future or the Future of Archaeology” argues that discussions of archaeological futures have largely presumed that current conditions will continue and have focused on sustainability, resilience, degrowth, or other responses to contemporary societal challenges. Instead, the authors advocate for a futures-oriented perspective that does not assume the permanence of present-day conditions and explores how archaeology itself may fundamentally evolve, or even disappear, under radically different circumstances.

Building on this perspective, this session proposes speculative imagination as a legitimate, critical, and reflexive research strategy for examining the future development of archaeology and its digital methods, which then prompts questioning of power dynamics, institutional structures, and the role of individuals or small collectives in shaping futures. Rather than asking participants to predict future trajectories, we invite them to construct critical, plausible, provocative, or aspirational scenarios that reveal how technological innovation, methodological change, and shifting social values could or should transform archaeological research and heritage practice.

2. Session Rationale and Objectives

This session provides a forum for critically exploring the archaeological futures that researchers would pursue if conventional constraints, including funding, technology, institutional structures, access, legislation, or disciplinary traditions, were temporarily suspended. By centering the role of individuals and their aspirations, we aim to uncover whose visions are prioritized and whose are marginalized in the construction of these futures.

The objective is not to produce science fiction or technological utopias, but to employ inherently critical and creative speculative thinking as a methodological tool for identifying unmet research needs, exposing hidden assumptions in current practice, and envisioning alternative trajectories for archaeological knowledge production.

Contributors are encouraged to present their own archaeological vision or provocation: a transformative research question, methodology, technological innovation, infrastructure, and/or heritage practice. These visions should be grounded in current archaeological debates while exploring how emerging technologies like AI, digital twins, robotics, simulation, immersive environments, large-scale data integration,

computational modelling, or future digital infrastructures, could or should reshape future archaeological practice.

The session also welcomes critical perspectives that question technological optimism. Future scenarios may explore unintended consequences, ethical tensions, new inequalities, failures of digital systems, or transformations in professional roles and responsibilities. By juxtaposing optimistic and critical visions, the session seeks to stimulate discussion on the values, assumptions, ethics, and priorities that shape contemporary archaeology and what values and priorities contributors seek to advocate for in the future.

3. Themes and Topics

In presenting an archaeological future, contributions may address, but are not limited to, the following themes:

- Speculative and/or critical archaeological futures as a methodological research approach
- Emerging or speculative digital technologies and their transformative potential for archaeology
- Advancements in artificial intelligence and autonomous systems in archaeological research
- Power dynamics, inequalities, and exclusions in the adoption of digital technologies
- Digital twins, virtual environments, and immersive heritage experiences
- Computational archaeology, simulation, and predictive modelling
- Future archaeological data infrastructures and interoperable digital ecosystems
- Robotics, automation, and remote archaeological fieldwork
- New approaches to archaeological recording, documentation, and knowledge production
- Radical rethinking of archaeological collections, archives, and data accessibility
- Futures of physical or digital repatriation, restitution, and heritage governance
- Critical examination of ethical implications of future archaeological technologies
- Alternative models of archaeological education, public engagement, and dissemination
- Future professional identities and changing roles of archaeologists
- Critical, dystopian, or cautionary visions of future archaeological practice
- Heritage futures and speculative approaches to long-term cultural stewardship

4. Expected Outcomes

The session aims to foster transformative interdisciplinary dialogue on the future directions of archaeological research by bringing together speculative, methodological, technological, and critical perspectives, with a focus on digital methods. Rather than forecasting what archaeology will become, contributors will use imagined futures to illuminate the assumptions, limitations, and opportunities that characterize archaeological practice today and tomorrow.

By encouraging participants to articulate ambitious yet radical visions, the session seeks to identify emerging research priorities, highlight methodological innovations, and stimulate discussion about the infrastructures, technologies, ethical frameworks, and institutional transformations that may shape archaeology in the future. Ultimately, the session will demonstrate how speculative thinking can function

as a productive research methodology and tool for critique, towards envisioning the future of archaeology and reflecting upon the present conditions from which those futures emerge.

Track 5: Imaging

Imaging and shape analysis: geometric learning in 2D/3D, advances in 3D analysis, and digital methods for rock art research.

S26: Getting into Shape: Geometric Learning for 2D and 3D Shape Analysis in Archaeology

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Session Format: Standard

Description

Introduction

Shape is one of the most fundamental sources of archaeological information. From the earliest typological studies to the latest computational approaches, archaeologists have relied on the analysis of shape to classify artefacts, reconstruct technological traditions, identify cultural affiliations, investigate standardisation, detect wear trajectories and object deformation, and understand processes of production and use. Whether studying lithics, ceramics, metal objects, bones, or organic artefacts, shape analysis therefore provides an important link between measurable object properties and archaeological interpretation.

In recent years, the rapid growth of digital documentation has fundamentally transformed the field. Advances in photogrammetry, structured-light and laser scanning, CT imaging, and other imaging techniques have led to an unprecedented increase in the availability of high-quality digital twins of archaeological objects. In parallel, museum digitisation programmes and research archives are producing extensive collections of photographs, drawings, profiles, and other two-dimensional records. Together, these resources support comparative shape analyses across larger and more diverse collections than were previously feasible (Wyatt-Spratt 2022).

However, the availability of digital data alone does not automatically translate into archaeological knowledge. As datasets continue to grow, archaeologists face an increasingly important challenge: how can we efficiently, reproducibly, and meaningfully analyse shape across thousands—or even millions—of digital objects?

Session Rationale and Objectives

The community now requires robust, transparent, and accessible computational approaches that move beyond individual case studies. Methods must be capable of handling both 2D and 3D data, accommodate varying data quality and acquisition techniques, and remain usable for archaeologists who are not specialists in computer vision or machine learning. Reproducible workflows, interoperable data formats, transparent evaluation procedures, and sustainable software are equally important if analytical results are to remain comparable and reusable across projects and institutions.

This session brings together researchers who develop, evaluate, or apply computational methods for archaeological shape analysis across different periods, regions, and material categories. We welcome contributions that address methodological developments, practical applications, software and data infrastructure, benchmarking, and critical reflections on current approaches. Our goal is to create a forum where archaeologists, computer scientists, mathematicians, and digital heritage researchers can exchange ideas, compare methodologies, and discuss future directions for shape-based archaeological research.

Themes and Topics

We particularly encourage contributions that explore topics such as the following:

Methods and representations

- geometric morphometrics and statistical shape analysis;
- geometric machine learning for point clouds, meshes, graphs, images, outlines, and volumetric data;
- marker-based, marker-free, contour-based, surface-based, and image-based methods;
- registration, alignment, segmentation, and feature extraction;
- machine learning and artificial intelligence for shape-based interpretation;
- integration and comparison of 2D and 3D datasets.

Archaeological applications

- automated artefact recognition, retrieval, and identification;
- clustering and classification based on geometric or learned features;
- quantitative studies of standardisation and variability;
- analyses of production, use, wear, repair, deformation, and object biographies;
- comparative studies across materials, regions, periods, or collections.

Evaluation, infrastructure, and research practice

- uncertainty quantification, explainability, bias, and domain-specific limitations;
- software frameworks, open-source tools, and reproducible workflows;
- FAIR data practices and large-scale digital repositories;
- benchmarking methods and comparative evaluation of analytical pipelines.

Expected Outcomes

Importantly, this session is not intended solely as a venue for presenting finished solutions. We equally welcome contributions that discuss current challenges, limitations, negative results, or emerging ideas. Many researchers face similar methodological questions that often remain hidden in publication-oriented research. By bringing these experiences together, we hope to strengthen collaboration and accelerate the development of reliable and reusable approaches for the archaeological community.

The session also seeks to highlight software and workflows that are practical, transparent, and accessible. Discussion will focus on requirements for shared benchmark datasets, transparent reporting and validation standards, interoperable data and software, and documentation that supports reuse beyond

individual projects (Wilkinson et. al 2016). The session is also expected to strengthen connections between currently dispersed research groups and to provide a basis for future exchanges on datasets, tools, and methodological guidance.

By linking methodological innovation with substantive archaeological questions, the session aims to advance approaches that are not only technically effective but also interpretable, reproducible, and usable in archaeological practice. It invites contributions from researchers at all career stages and from both methodological and applied perspectives. In this way, the session will support a broader and more connected community working to turn expanding collections of digital archaeological data into well-founded archaeological knowledge.

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S27: What comes after the Model? Strategies and Advances in 3D Analysis

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Session Format: Standard

Description

With the ongoing development of 3D recording technologies, the rise of 3D data in archaeology has reached a point where 3D data and models are ubiquitous and form an integral part of archaeological research. Technologies such as image-based modelling, LiDAR, structured-light scanning, reflectance transformation imaging, gaussian splatting, and 3D modelling in general can now produce various types of 3D data and models. The focus, however, largely lies on capture and visualisation, rather than further refinement and analysis of the data.

As the CAA 3D Analysis Special Interest Group (SIG) we aim to go further and to explore and expand the capabilities of 3D analysis in archaeology. This goal led us to our first roundtable at CAA 2026 in Vienna, “S41 New Advances and Directions of 3D Analysis in Archaeology”, which helped initiate a great exchange and discussion regarding where 3D fits in the field currently and where we would like it to go in the future. To help continue these discussions and to provide some concrete examples, we want to follow up with a full session at CAA 2027 in Santiago.

We understand 3D Analysis to mean the exploration and interrogation of three-dimensional datasets through established or innovative computational techniques, whether that data is derived from image-based modelling, LiDAR, structured light scanning, 3D modelling, or other methods. These processes may occur within 3D GIS, 3D modelling software, or other environments capable of handling complex spatial, volumetric, or morphological data.

With this session, we would like to offer a centralized platform to discuss these specific topics:

- Defining 3D Analysis
- Analytical Methods
- Integration into practice and established workflows
- Data Management and Infrastructure
- New Advances and emerging technologies

We look forward to further shaping and discussing how 3D results are interpreted and integrated, queried, archived, and reused. We're also interested in the infrastructure that helps enable these processes including handling accessibility and storage formats, enabling reproducibility, and facilitating community-appropriate science communication.

We welcome case studies, theoretical and methodological papers, and papers presenting critical or negative results. From acquisition and storage pipelines to analyses, best practices and streamlined, easy-to-use tools, there is a lot happening with respect to the question: “What comes after the Model?”

S28: Digital Methods in Rock Art Research III. Bridging the gap between past and present to understand visual communication systems

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Building on previous years, this session's focus is on digital explorations of the creation, perception, and social circumstances surrounding the production and consumption of past visual communication systems.

The formation and use of visual communication systems, such as rock art (including petroglyphs and paintings), wall art, or graffiti, are analysed through formal methods of interpretation [1]. During the last decade, these formal methods have shifted to digital and computational methods [2,3]. These methods cover well-established (geo)spatial analysis of the context of rock art [4–7], computational analysis (including AI approaches) of rock art production [8,9], and extended reality (XR) applications for cultural heritage and engagement [10,11]. At both the local and large scales, digital and computational methods play an important role in understanding visual communication systems and the people who created them.

This session aims to explore all aspects of social engagement with rock art from its creation to its consumption – How? Where? Why? While we refer to rock art as an example of a visual communication system, we embrace all expressions of semantic visuality, such as graffiti, visual marking systems, and wall art. We welcome contributions on methods, new insights and results from digital methods, and dissemination in rock art research, broadly including:

- Digital methods for visualising and analysing the production and formation of rock art
- Inclusion of legacy data in computational analyses
- Spatial analysis and contextualisation of rock art
- AI in the analysis of rock art
- Management and dissemination of rock art documentation

Contributions from early career researchers and interdisciplinary projects are encouraged.

By engaging with an international research community, this session aims to advance the dialogues around computational methods in visual communication systems research and on handling the complexities of these systems. These discussions will contribute to the evolution of tools and methods for documenting, interpreting, and disseminating visual communication systems.

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Track 6: Archiving, Linked Open Data, Fair Principles

Archiving, Linked Open Data and FAIR principles: communicating research workflows, augmented reality with semantic ontologies, and the reuse of archival data.

S29: Building Digital Bridges Between Minds: Reflecting, Communicating and Reviewing Research Workflows

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Session Format: Other

Description

Other Session Type (details)

- Presentations for accepted submissions (15-20min incl Q&A)
- 15-20min Menti-supported survey results
- 1 hour open discussion

Other session format details

In our 2026 session we learned that we need a dedicated discussion part, which is not a consequence of overly shortening presentations, therefore we aim to shape the session as follows: Presentations for accepted submissions (15-20min, including short Q&A on the respective talk); 15-20min for Menti-supported survey results; 1 hour of extra time for open discussion with organizers, presenters and the whole audience in the room

Session Description

FAIR research data and FAIR research software are progressively established agendas in archaeology and digital humanities, and recent work has begun to extend the same principles to computational workflows as digital objects in their own right (Wilkinson et al. 2025). Yet the methodology connecting the two - the sequence of decisions and transformations that turns raw data into interpretable results - remains comparatively under-addressed, often buried in running text or left implicit in a code implementation. Archaeology's computational fields draw on increasingly heterogeneous toolkits, and reviewers are regularly asked to evaluate methodologies outside their own training, often from nothing more than a prose description. Text alone is a narrow channel for transferring how something was done, as opposed to what and why. Graphical abstracts, workflow diagrams, and structured process representations are used unevenly, and rarely discussed as a topic in their own right.

This session asks: What about your methodology? How do you make it visible and understandable to collaborators, reviewers, and colleagues within and outside your domain? In keeping with this year's theme of Building Digital Bridges, we treat workflow communication as a digital bridge in its own right, connecting people as much as data and software. This session steps back from any single tool or

framework to ask how researchers actually reflect on, document, and share their workflows in practice — and where current means fall short.

Established representations and process reference models such as the research data lifecycle, for instance, clarify stages but have been shown to mask much of the complexity of real research, frequently constructing it as purposive, serial, uni-directional, and occurring in a closed system (Cox and Tam 2018). The goal is not to converge on one method, but to compare practices across subfields and surface what would make workflow communication easier for authors, reviewers, and readers alike. Contributions may draw on any methodological tradition, and we particularly welcome perspectives from outside archaeology's more computational subfields, as well as from colleagues across different career stages and regions.

Contributions could present case-specific workflows or cross-project insights, addressing selected aspects such as (but not limited to) the following:

- How do you represent workflows to people in your project and/or to audiences on the outside?
- Boundaries and limitations: What stops you from representing your research workflow to full extent? Which aspects are usually relevant, but hard to represent?
- Which part of the research (data) lifecycle is represented in your workflow?

Proposed as an Other Format session, we plan to have sufficient space for an open discussion after presentations, inviting the audience to participate and share additional experiences or sketch ideas of managing the complexity of methodological approaches in scientific publications and other outputs. Based on positive feedback of former sessions, we plan to use live polling (e.g. Mentimeter) to get feedback on some topic-related questions, which can be part of the discussion. The session aims to work towards a shared, informal inventory of practices and representational strategies for communicating research workflows across archaeological subfields, including a candid account of current shortcomings. We aim to consolidate the discussion into a joint position paper or short report, including interested parties in the paper writing and publication. The session is intentionally framework-agnostic: specific approaches to structured methodology representation may come up as examples, but the aim is to compare practice, not to promote any one of them exclusively.

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S30: Augmented Reality and Semantic Ontologies: Towards Interoperable and Sustainable AR Experiences in Archaeology

Session Organisers:

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Session Format: Standard

Description

Augmented Reality (AR) has become an increasingly common medium through which archaeological data, interpretations, and reconstructions are communicated to both specialist and public audiences. As AR applications proliferate across museums, heritage sites, and research contexts, questions of data provenance, interoperability, and long-term sustainability have grown more pressing. Semantic ontologies, and in particular the CIDOC Conceptual Reference Model (CRM) and its extended family of compatible models, offer a well-established framework for addressing these concerns, providing a shared conceptual structure through which heterogeneous archaeological and cultural heritage data can be formally described, linked, and exchanged.

This session invites contributions that explore the interplay between AR and semantic ontologies from two complementary perspectives. The first concerns the use of semantically marked-up open data as a source for AR experiences. Here we welcome papers examining how ontologically structured datasets—whether drawn from excavation archives, museum collections, or linked open data initiatives—are used as the basis for AR systems. We see today a move from the use of historical evidence as an inspiration for AR systems (a human reads sources and expresses their interpretation as an AR system) to a transformative method where datasets can be queried, integrated, and rendered to generate AR content that is transparent in its provenance and responsive to updates in the underlying data. Of particular interest are approaches that demonstrate how semantic annotation supports the dynamic generation of AR experiences, rather than treating AR content as a static, pre-authored product. This includes theoretical discussions of the translation/transformation processes from a media material or device centred point of view.

The second concerns the reciprocal relationship: the use of semantic ontologies to record the AR experience itself, so that the experience—its content, design choices, interpretative assumptions, and technical implementation—can be documented in a reusable and machine-actionable form. Papers addressing this theme might consider how CIDOC CRM-compatible models can capture the provenance, authorship, and interpretative framing of AR reconstructions, thereby enabling other researchers or practitioners to understand, critique, adapt, or build upon existing AR work rather than beginning anew. This raises broader questions concerning the documentation of digital heritage outputs as first-class research artefacts, worthy of the same standards of accountability and reuse that we now expect of archaeological data more generally. This also includes an integration of AR systems into larger linked data networks and the consequences thereof for use, interpretation, and update.

By bringing together these two strands—data as a source for AR, and AR as a source of documented, reusable knowledge—this session aims to foster discussion of how semantic technologies can support a more sustainable, transparent, and cumulative approach to augmented reality in archaeological practice. We welcome theoretical contributions, technical case studies, and critical reflections on the challenges of formalising interpretative and experiential content within ontological frameworks.

S31: The re-return of archival data: context and reuse in archaeology

Session Organisers:

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Jane Jansen (Jane.Jansen@arkeologerna.com), Arkeologerna/Intrasis, Sweden

Session Format: Standard

Description

This session focuses on how archaeological archive data is reused in practise. Over many years large quantities of archaeological documentation has been created and archived. This includes excavation records, reports, drawings and in a few cases oral history and local tradition. Much effort has gone to preserving this material and making it accessible. However, access does not automatically mean that data can easily be reused. Archive staff and data custodians often face practical problems when data is reused. Documentation may be incomplete, inconsistent, or created using older methods and systems. Important context may be missing, unclear or difficult to understand. These problems become even greater when different types of material are combined such as excavation archives and oral history linked to sites or landscapes.

While the FAIR principles are often cited as good data practise, the reuse of archival data also depends heavily on how archives are organised, described and managed over time. These archival practises and the decisions made during deposition and curation strongly affect what future users can understand and do with the data and is the key area we want to focus on in this session. Standards and models such as CIDOC CRM and CRMarchaeo can help, but they also require time, resources and expertise, and they are probably not the only solutions that have been explored in the custodial landscape and we want to hear about these solutions in this session.

This session invites presentations that show concrete examples of reuse from an archival perspective. We are especially interested in critical and practical contributions from archives, museums and heritage organisations that work with long-term archaeological documentation. Topics may include:

- Reuse of older excavation or survey archives to generate new insights
- Examples of practical problems with legacy data and how to overcome them
- Combining archive data with oral history or local knowledge
- Real examples of how archival decisions have affected later reuse
- Experiences of supporting researchers who are reusing archive material

The aim of the session is to share practical experience through sharing case studies and applied solutions.

Target audience: Archive professionals, museum and heritage staff, archaeologists responsible for documentation and researchers who work with archived archaeological data

Keywords: Archaeological data, data reuse, legacy data, documentation, oral history, FAIR, CIDOC CRM

Track 7: Games And Robots

Games and robots in archaeology: archaeogaming as a research tool, Indigenous reconciliation, and robotics as a new research paradigm.

S32: Games for care: can videogames assist Indigenous resurgence and reconciliation practices?

Session Organisers:

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Session Format: Standard

Description

Indigenous resurgence refers to practices of Indigenous self-determination and cultural renewal (Asch et al. 2018). It seeks to restore the relationships between Indigenous people and their land to heal their colonial wounds and ensure that future generations are strongly anchored to their land in the challenges to come (Coulthard 2014, Simpson 2017). Reconciliation is about transforming relationships between Indigenous and settler nations to forge a new reality, new norms and rules based on mutual responsibility, benefit and respect, and on an act of remembrance of settler and Indigenous shared history and of nation-to-nation relationships (Ladner 2018). In this context, archaeology has become an important focal point for numerous Indigenous communities, as a way of protecting their land, reclaiming their history, and intensifying their relationships to their ancestors through important places that archaeologists uncover and excavate (Atalay 2012, Julien et al. 2008).

Digital archaeology has developed as a means of advancing heritage management, actively restoring ties between communities, belongings, and land while strengthening restitution claims and prompting new restitution practices (Martin-Moya et al 2020). The creation of online museums and catalogs has become relatively common, and various examples abound (Reciprocal Research Network 2014, Wemigwans 2018). Digital archaeology has also branched out toward archaeogaming, defined as archaeology both in and of digital games (Graham 2020, Mol et al 2017, Reinhard 2018, 2021, 2024). This field draws onto games' ability to create immersive spaces where players can engage with other realities and fictional worlds, and whose gameplay allows them to challenge dominant narratives and knowledges as well as to carve a space of their own. Archaeogaming can also restore the kind of context that traditional museums and catalogs deprive possessions/artefacts of (Martin-Moya and Kolhatkar 2025).

Prior scholarship has critically examined how colonial tropes and historical essentialism are frequently reproduced through videogames (Mol et al 2023, Mukherjee 2017). Yet, how much of archaeogaming's transformative potential has materialized in practice has been questioned (Politopoulos and Mol 2023). Concrete Indigenous-led projects offer a useful counterpoint to this critique: Elizabeth LaPensée's *Thunderbird Strike* (2017) and the work produced through AbTeC show how Indigenous game-makers themselves, rather than archaeologists studying games from the outside, have used the medium to narrate land, story, and history on their own terms (see also Helland 2024, Laiti 2021, LaPensée et al. 2021). For these reasons, the potential that archaeogaming holds for decolonizing archaeological practice needs to receive more sustained attention.

We would like to invite contributors to explore the following umbrella question: can archaeogaming open the kinds of "spaces for care" needed for decolonizing the practice? We are particularly interested in the

potential as well as the limitations imposed by this medium in the specific task of decolonizing archaeology. We welcome contributions grounded in concrete examples, which can include but are not limited to:

- Analyses of videogames or archaeogames that explore alternative, Indigenous-led narratives of the past;
- Specific, community-based projects through which videogames were designed, developed, or co-created with Indigenous communities;
- Studies of whether and how videogames can be a tool for exploring and transforming cross-cultural relationships, particularly between Indigenous and non-Indigenous individuals and communities;
- Critical or reflexive accounts of the limits, risks, or unintended harms of using games in this way, including questions of data sovereignty, representation, and who holds authorship over Indigenous pasts and futures in this digital form.

All in all, we would like participants and the audience to come out of this session with newfound ideas on the political and theoretical potential of archaeogaming, as much as with concrete tools with which they can return home to explore the topic further.

Keywords Archaeogaming, Decolonization, Resurgence, Reconciliation, Care.

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S33: Beyond Automation: Robotics as a New Research Paradigm for Archaeology and Cultural Heritage

Session Organisers:

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Session Format: Standard

Description

Section 1: Introduction

Robotics has progressively moved from being a technological curiosity in archaeology to becoming an increasingly mature research domain capable of addressing questions that were previously beyond reach. Earlier and recent applications focused primarily on automating repetitive tasks, documentation workflows, and remote inspection of inaccessible environments (Babini et al. 2025; De Stefano et al. 2016; Santos et al. 2025; Shao et al. 2025; Wang et al. 2021). Today, advances in autonomous systems, soft robotics, bio-inspired locomotion, embodied AI, digital twins, and human–robot collaboration are reshaping the role of robots from passive tools into active scientific instruments capable of acquiring, analysing, and interacting with archaeological contexts.

The rapid convergence of robotics with computer vision, photogrammetry, artificial intelligence, digital modelling, and sensor technologies is opening entirely new possibilities for archaeological research and cultural heritage management. Robots are no longer confined to laboratory demonstrations or isolated case studies: they are beginning to operate in complex field environments, underwater sites, fragile architectural spaces, museums, and conservation laboratories.

At the same time, many of the most transformative applications remain largely unexplored. Future robotic systems may fundamentally change how archaeological investigations are designed, how inaccessible or fragile heritage is documented, how conservation decisions are supported, and how cultural heritage is monitored over decades rather than individual projects.

This session aims to provide a forum for discussing not only current achievements but also the next generation of robotic technologies that may redefine archaeological practice over the coming decades. Rather than focusing exclusively on technological performance, contributions are encouraged to critically reflect on how robotics may transform archaeological questions, methodologies, and professional practice, and what this transformation may entail in terms of ethics, sustainability, and community engagement (Ribeiro & Wollentz 2025).

Section 2: Session Rationale and Objectives

CAA has historically played a central role in introducing emerging digital technologies into archaeological research. Robotics is now reaching a level of maturity that deserves a broader discussion extending beyond individual technological developments.

Although robotic applications are becoming increasingly visible within archaeology and cultural heritage, they often remain presented as isolated case studies. This session proposes instead to examine robotics as an evolving research ecosystem in which sensing technologies, artificial intelligence, digital documentation, autonomous navigation, material interaction, and human expertise converge.

The objective is not to speculate about distant futures, but rather to examine technological trajectories that are already emerging today, in archaeology and beyond, and to discuss how they may shape

archaeological research during the next decade. Contributions should address both practical implementations and visionary perspectives grounded in current scientific developments.

The session particularly welcomes interdisciplinary contributions that bridge archaeology, computer science, robotics, engineering, conservation science, and heritage management.

Section 3: Themes and Topics

Contributions may address, but are not limited to, the following topics:

- Autonomous robotic systems for archaeological survey and excavation
- Robotic inspection of inaccessible archaeological environments
- Bio-inspired and soft robotics for fragile heritage contexts and materials
- Human–robot collaboration during excavation and conservation
- AI-assisted robotic perception for archaeological interpretation
- Robotics integrated with photogrammetry, laser scanning, and digital twins
- Underwater and maritime archaeological robotics
- Aerial, terrestrial, and climbing robots for heritage documentation
- Robotic systems for preventive conservation and structural monitoring
- Multi-robot cooperation (including swarm robotics) in archaeological documentation
- Growth robotics and continuum robots for confined heritage environments
- Robotic manipulation for conservation and restoration
- Robotic platforms for museum collections and storage facilities
- Ethical implications of robotic autonomy in archaeological practice
- Energetics and sustainability of robotic applications
- Robotics for long-term monitoring of archaeological and heritage sites at risk (environmental hazards, climate change, conflicts etc.)
- Autonomous sensing and environmental monitoring
- Future robotic infrastructures for archaeological fieldwork
- Emerging technologies likely to redefine archaeological practice in the next decade
- Lessons learned from existing robotic deployments in archaeology and cultural heritage.

Section 4: Expected Outcomes

The session seeks to bring together researchers from disciplines that rarely interact despite working on complementary challenges. By combining archaeological case studies with advances in robotics and artificial intelligence, the discussion aims to identify common research priorities and future technological directions.

Rather than producing speculative visions detached from current practice, the session intends to explore realistic pathways through which robotics may become an integral component of archaeological research,

conservation, and heritage management. Particular attention will be given to identifying technological gaps, methodological challenges, interdisciplinary collaborations, ethical dimensions, and emerging research questions that deserve attention within the CAA community.

Ultimately, the session aims to stimulate collaborations between archaeologists, engineers, computer scientists, and heritage professionals, fostering a shared vision of robotics not simply as another digital tool, but as a transformative research methodology capable of expanding the scope of archaeological inquiry.

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Relevance to the CAA Community

Robotics is rapidly becoming one of the most significant emerging areas at the intersection of archaeology, computer science, artificial intelligence, and digital heritage. As robotic systems become increasingly capable of autonomous sensing, navigation, inspection, and interaction with complex archaeological environments, they are beginning to complement, and in some cases redefine, the digital workflows that have traditionally been central to the CAA community.

This session aligns closely with CAA's long-standing mission of exploring innovative computational methods for archaeological research. It provides a venue for researchers working across digital documentation, computer vision, AI, geomatics, robotics, and archaeological practice to discuss both current applications and future research directions. By bringing together case studies, methodological advances, and interdisciplinary perspectives, the session aims to stimulate new collaborations and encourage the integration of robotics into the broader landscape of computer applications in archaeology.

Rather than focusing solely on technological innovation, the session will examine how robotic systems can enable new forms of archaeological inquiry, expand access to previously inaccessible contexts, improve conservation and monitoring practices, and generate new research questions for the next generation of digital and computational archaeology.

S34: Knowing the world through play: Archaeogaming as a mode of research and learning

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Session Format: Standard

Description

Archaeogaming is increasingly becoming an established field within digital archaeology. Over the last years, in a series of CAA sessions (in 2019, 2023, 2025, 2026), we have: explored the past and future of archaeogaming; critically assessed the value of archaeogaming and play in digital archaeology and heritage; and explored what lies beyond the field of archaeogaming. In this year's session we will focus on the principle that play is a mode by which we know the world (Sutton-Smith 1970), and explore how archaeogaming enables us to get to know past worlds through play. As such, this session is interested in how play and games enable us to learn, formally or informally, about the past.

We invite contributions that explore interactive, playful media as a mode of knowing and exploring the past. These include:

- Video games (this includes applications of video games in archaeological research, archaeological education, outreach projects etc.)
- Analogue games and play (this includes the study of ancient board games, analogue play design in the classroom, ancient or contemporary board game design for outreach etc.)
- Interactive or VR applications (this includes virtual applications for the classroom, interactive or VR applications for museums and other heritage institutions etc.)
- Game engines and game-based models (simulation and other forms of playful modelling for research, game engines for archaeological modelling etc.)
- Any other playful activity that relates to exploring the past

Presentations in this setting will ask: how can play and games help people, whether researchers, students or members of the public, come to know about the past? How do we learn, in both formal and informal education settings, about the past through playing? How can play and games shape our research about the past? How can play and games help us create new ways of sharing and communicating what we know about the past?

A major theme of this year's session is bridging the perceived divide between playful media as 'serious' and as 'entertaining', recognising that both can be scaffolded by both knowledge and fun. Central to this is the concept of *resonant design*: designing games in which engagements with the past connect with players' lives, values, and experiences while remaining grounded in scholarly and other knowledge systems and practices. Such resonance can make historical games more meaningful and impactful, while also strengthening their potential as learning environments (Klopfer et al. 2018; Pina 2025).

The beneficial role that play and games can have in teaching archaeology has been demonstrated in various courses and reviews both in academic (e.g. Hageneuer 2025; Mol et al. in press) and non-academic settings (e.g. Pina 2025). Whether teaching using existing games, creating new games for classrooms and other education settings, or creating games as a course output, educators have identified ways to create resonance with the past, and develop meaningful experiences both inside and outside of the classroom. At the same time, however, teaching with games is not easy, resonance can be slippery, and the use of games asks us to leave a lot of the 'traditional' ways of teaching to the side. For this session we are asking educators to approach the use of play and games in teaching critically, and offer new perspectives on the use of play in teaching about the past. We are also looking for presentations that experiment with playful methods and research practices to create new knowledge about the past.

So, how can we know the past through play? We welcome archaeologists, playmakers, and players to share their experiences, methods, and practices of playfully learning about the past.

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Track 8: General Session

A general session open to computational archaeology papers that do not fit within the other thematic sessions.

S35: Advances in Computational Archaeology (General Session)

Session Organisers:

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Timo Geitlinger (timo.geitlinger@uzh.ch), CAA Secretary, University of Zurich

Session Format: Standard

Description

Do you have a computational archaeology topic or project to present outside of the scope of one of the existing sessions? Are you engaged in cutting-edge research on geophysics, data management, visualization techniques, semantic web, or another digital archaeology topic that you would like to share? For the ease of the review process, please select the most closely related topical session as your primary choice when uploading in the CMT submission system. Then select this session as the secondary option to indicate that you feel that your paper is not a strong fit for the primary one chosen. Papers accepted into the “Advances in Computational Archaeology” session for the final program will be grouped thematically, as practical, to create related blocks of papers.