Valeria Carrillo Garza

ATRIUM Summer School on 3D Models in Archaeology: Report on Participation

Brno, Czech Republic, 15 - 19 September 2025

Introduction

I would like to sincerely thank the Archaeological Information System of the Czech Republic (AIS CR) research infrastructure at the Institute of Archaeology, Czech Academy of Sciences, Brno for organising and hosting the ATRIUM Summer School on 3D Models in Archaeology, and for giving me the opportunity to participate. This week-long programme brought together participants from across Europe and beyond to learn, practice, and critically discuss the role of 3D documentation in archaeology and heritage.

My motivation for applying was to strengthen my knowledge of 3D documentation workflows and, importantly, to bridge theory with practice. My interest was not only in learning how to capture 3D data, but also how to process, analyse, preserve, and reuse it. As a digital archivist at the Archaeology Data Service (ADS) in the UK, I am directly involved in preserving and providing access to digital data created by archaeologists and heritage professionals, including 3D models. This Summer School therefore represented a valuable opportunity to deepen my expertise and to better support depositors and users of such data.

Summary of the Programme

The programme was a well-structured balance of lectures, practical exercises, and discussion. Topics included:

- Principles and methods of 3D documentation (photogrammetry, laser scanning, structured-light scanning).

- Photography fundamentals and their impact on 3D modelling.

- Virtual archaeology and the use of 3D models in reconstruction, interpretation, and public engagement.

- Hands-on practice with tools such as RealityScan, Blender, CloudCompare, and RTI workflows.

- Broader debates around uncertainty, reproducibility, software ethics, and the role of digital technologies in heritage.

Sessions were delivered by ARUB staff alongside invited experts from Czechia, Ukraine, and other institutions, creating a diverse and stimulating learning environment.

Key Learnings and Professional Impact

The Summer School has already begun to impact my professional practice at ADS. Some key outcomes include:

- **Improved communication with depositors**: I now feel more confident in explaining why "more images" do not always result in a better photogrammetric model, and in advising on practical aspects such as resolution, alignment, and planning workflows with an intended outcome in mind.

- **Expanded technical knowledge**: Practical tips such as centering coordinate systems or cleaning meshes in Blender will allow me to make small edits to deposited models so that they display better in the ADS interface.

- **Awareness of reusability**: I am increasingly interested not just in how to create high-quality models, but in how raw data can be reprocessed, how models can be reused for different purposes, and how we can best preserve them for the long term.

- **Broader perspective**: The discussions on uncertainty, ethics of software choice, and the balance between physical and digital heritage have enriched my perspective and will inform how I engage with both depositors and users.

Practical sessions included photogrammetry with light boxes and turntables, and use of handheld scanners

Two hands-on experiences were especially memorable:

- At **Petrov Cathedral**, I worked closely with Katarína Hladíková and Barbara Ritterová from the Slovak National Museum to capture tombstones for photogrammetry. Together we practiced planning the capture, adjusting camera settings, and placing targets around the area. This collaboration helped me consolidate my technical knowledge while also learning from the approaches and experiences of colleagues.

Photogrammetry data capture at Petrov and processing in RealityScan.

- During the **RTI practice session**, I was responsible for handling the lighting. This gave me a unique perspective, as I could later see how mistakes in lighting placement directly affected the quality of the processed output in Relight and RTIViewer. Experiencing the workflow from capture through to processing reinforced the importance of precision and planning.

Image processing after the Reflectance Transformation Imaging practical session.

Overall, the training has given me a renewed sense of confidence and curiosity. I feel better equipped to support ADS depositors and to advocate for best practice in the archiving and use of 3D data.

Personal Reflections

Beyond the technical content, one of the most rewarding aspects of the Summer School was the opportunity to meet and work with colleagues from a wide range of countries, institutions, and backgrounds. Conversations with participants from Central and Eastern Europe, in particular, gave me new insights into the cultural, political, and ethical contexts that shape heritage practice in the region.

I also greatly appreciated the hospitality of the ARUB team. The combination of structured sessions, informal social gatherings, and cultural immersion made the week a very rich and memorable experience.

Constructive Feedback

While the programme was excellent overall, I would like to share a few reflections that might strengthen future editions:

- **Coordination between sessions**: At times there was overlap in content between lectures. A tighter link between speakers could reduce repetition and highlight different perspectives more clearly.

- **Balance of formats**: The online talks were informative but felt less engaging compared to in-person delivery. Where possible, prioritising in-person contributions would strengthen the impact.

- **Reproducibility and archiving**: Given the importance of sustainability and long-term value, I would have welcomed more dedicated time on topics such as metadata, reproducibility, and best practice in archiving.

These points are offered in the spirit of constructive feedback. The Summer School was very well conceived and delivered, and these refinements could make it even more impactful.

Conclusion

The ATRIUM Summer School was an invaluable professional and personal experience. I leave Brno with deeper knowledge, practical skills, and a renewed sense of purpose in my work with 3D data at the ADS and beyond. I am grateful to ARUB for the opportunity to participate and to learn alongside such a diverse and inspiring group of colleagues.

Thank you once again for this opportunity.