

Report on Participation in 3D Training, Brno, 15–19 September 2025

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From 15 to 19 September 2025, I had the opportunity to attend the ATRIUM 3D training school in Brno. The training provided an intensive, hands-on introduction to 3D technologies in archaeology and heritage, combining theoretical lectures, practical exercises, and social activities that fostered collaboration and exchange among participants.

Training Experience

The training covered the principles and applications of 3D technologies in archaeology, emphasizing not only presentation purposes but also educational, archival, and exhibition uses.

We explored the fundamentals of 3D scanning and discussed the importance of capturing both the morphology and texture of objects. Emphasis was placed on selecting the appropriate resolution and polygon count depending on the intended purpose of the 3D model, as well as methods for capturing the internal structures of vessels and other complex objects. The training stressed meticulous documentation and calibration, careful control of lighting conditions, and the importance of using the right equipment for specific objects. We also examined the challenges posed by reflective, transparent, or delicate materials, and explored techniques such as CT imaging, digital unwrapping, and 3D printing. Through multiple scans and controlled lighting, we learned how subtle details, including scratches, inscriptions, and internal structures, can be captured accurately.

Around the cathedral in Brno, we practiced photogrammetry, taking photographs of architectural features and outdoor objects. It was exciting to apply the already gained concepts in a real-world context. Back at the institute, we focused on the use of RealityScan for photogrammetry and mesh modeling. We practiced importing images, aligning them, defining distances, creating 3D meshes, and texturing the models. We also explored advanced scanning techniques, including Structure from Motion (SfM), laser scanning, and SLAM (Simultaneous Localization and Mapping).

Additional lectures covered virtual archaeology, 3D digital storytelling, and archaeological reconstruction. We discussed how 3D reconstructions can effectively communicate archaeological contexts to the public and create immersive, visually engaging, and educational experiences. We also explored the distinction between visualization and reconstruction, and the importance of transparency and authenticity in 3D models. The final sessions focused on the pipeline of 3D documentation, from point clouds to textured high-poly models, best practices for preserving and disseminating complex archaeological datasets, and the use of RTI, Blender, and other programs to process images, align models, apply textures, and create 3D reconstructions.

Social and Collaborative Experience

The social aspect of the training was equally enriching.

Even before the official training began, some of us met informally on Sunday to explore local sites, such as the cellar under the New Town Hall and the ossuary, followed by drinks. This pre-training gathering set a positive tone for the week and fostered a sense of camaraderie that carried through all the sessions. On Wednesday, a special dinner was organized at the institute, providing an opportunity to discuss ideas, share experiences, and network in a relaxed atmosphere. It was a perfect moment to get to know the other participants better. On Thursday, we visited the Capuchin Crypt and in the evening we unexpectedly discovered an Oktoberfest event in one of Brno's squares, where the group enjoyed singing, dancing, and celebrating together. Throughout the week, we also explored different cuisines during lunch breaks, trying Indian, Nepalese, traditional Czech, and Italian food. These moments were small but important, giving us time to exchange ideas and discuss the morning's lessons in an informal setting.

The group dynamic was outstanding; participants were collaborative, supportive, and open to exchanging ideas. This environment fostered mutual learning, discussion of challenges encountered during practical exercises, and the development of solutions together.

Conclusion

Overall, this 3D training provided an excellent opportunity to deepen my understanding of modern 3D technologies in archaeology and heritage. It allowed me to acquire practical skills in scanning, photogrammetry, 3D modeling, and virtual reconstruction while experiencing a collaborative and inspiring environment. The knowledge gained will directly benefit my research and professional practice, as well as contribute to future projects in archaeological documentation and digital heritage dissemination. Beyond the technical knowledge, the supportive group atmosphere and social events made the week truly memorable. The combination of professional training and informal social interactions significantly enhanced both the learning experience and the sense of community within the group.

I am grateful to ATRIUM and the Brno-Team for providing the opportunity and support to participate in this enriching training.