

ATRIUM 3D Models Training School, Brno 2025

One week since the end of the ATRIUM 3D models training school at the Institute of Archaeology of the Czech Academy of Sciences in Brno and this experience remains a sweet memory. All people working there were so nice, Zuzana Kopáčová, who helped us with the paperwork, David Spáčil, who was next to us, helping us at every step, and of course our main teacher Vojtěch Nosek, who explained everything in a simple and clear way, made our week in Brno a unique experience of learning. This summer school also would not have been the same without all those different and interesting participants. People from different backgrounds, who are working in different institutes and museums and who are coming from different countries, brought a nice vibe of collaboration to the workshop.

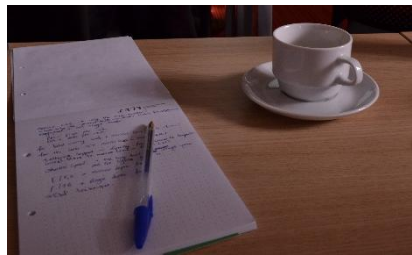
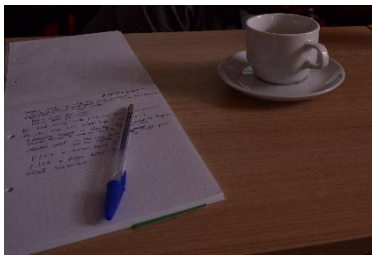


Day one,

The first day of the workshop was an introduction to how we can create 3D models. Different techniques were mentioned during the presentation, such as 3D scanning, computed tomography, 3D printing, with a highlight on photogrammetry, which is the cheapest and most

flexible technique. The presentation focused not only on the 3D modeling of small artefacts but also on the process of creating models of bigger structures.

In the afternoon of the same day, we had the presentation of Tomáš Chlup about the principles of photography. His passion for his work and his willingness to teach us how to use our cameras and take photos with the correct settings was a nice surprise during the workshop. We moved away from AUTO focus by trying and experimenting with different ISO settings, focal length values, and shutter speeds.



In the evening, we had the talk *“Scanning the Past: Photogrammetry, Lidar and HBIM in Archaeology and Heritage”* by Dr. Lenka Starková. This talk was a real project presentation from the Iraqi Kurdistan region, where different methods, such as laser scanning, aerial and ground photogrammetry, have been used for the documentation of the historical built environment. This lovely first day closed with a warm welcome with beer and snacks at the terrace of the Archaeological Institute, where we had the opportunity to get to know each other better.

Day two,



The second day began in front of the Cathedral of Saints Peter and Paul, in the historical center of Brno. I loved this morning’s practical session.

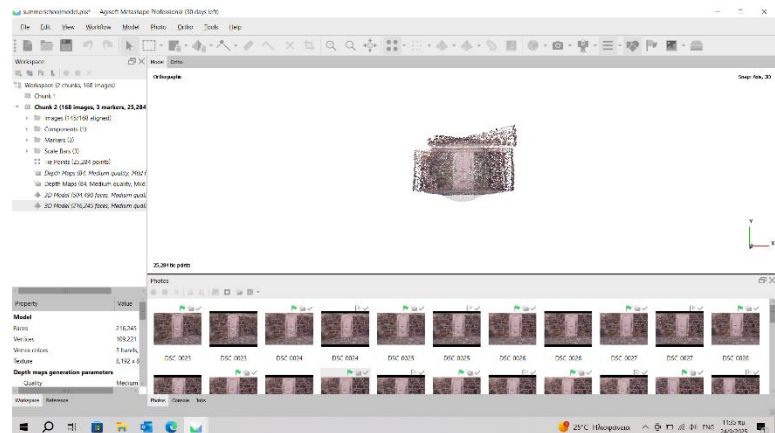
After David and Vojtěch showed us how to do the outdoors set up when we have to capture a flat surface, we created smaller groups.

Each group chose a different part of the outside decoration of the walls of the Cathedral in order to capture photos and create a 3D model. This practical was a nice example of facing the problems

that sometimes weather conditions, light, or the general setup can cause in the final model, teaching us the importance of being careful during the process.



In the afternoon of this day, we learned how to process those photos. The teachers showed us how to use RealityScan and Agisoft Metashape, and they were next to us, helping and answering all of our questions at each step. In the end, we were so happy that we were able to create our 3D models and to have the first result after all the theoretical part.



Day three,



The next morning, we had a revision of the 3D modeling methods and we focused on the 3D documentation of smaller artefacts. This time we had the opportunity to work again in teams and try to capture photos of smaller artefacts in indoor conditions. The challenge in this situation was the limited light, the objects in the room, and the different settings on the camera. That same

afternoon, we worked again with RealityScan and learned how to process photos from different positions in order to have a good final model. We also had a sneak peek of how the RTI method works and how we can process photos in the Relight software. The day ended in the best way, with dinner at the Institute.

Day four,

On Thursday, we had the opportunity to hear inspiring talks by multiple researchers. Jan Unger presented the concept of Virtual Archaeology and showed us the challenges and developments through different case studies. We saw animated reconstructions which also combined 3D scans. The main focus of the talk was how archaeologists can create narratives that can engage the public with the archaeological findings. In the afternoon session, we had more talks from other researchers. Martin Košťál presented the suitable software for modeling humans, artefacts, or vegetation.

Day five,

On the last day of the workshop, we had an RTI session with Vojtěch. We saw how we can create the setup: a dark room with a stable camera, a sphere that captures the position of the light source, a scale, and a color corrector. Then we continued by redoing the process of capturing photos of small artefacts in order to reflect on what we had learned and to better understand our errors and how to correct them. In the end, we also had a brief introduction to how to use Blender and CloudCompare for editing the models and creating animations.

To do a weekly recap, the summer school of 3D training in Brno was an amazing experience. The simple and clear presentations and the friendly environment from both the teachers and the colleagues made this week a great and unique learning experience.