

Between Monday 15th and Friday 19th September 2025, I had the opportunity to attend the ATRIUM 3D Summer School at the Institute of Archaeology of the Czech Academy of Sciences in Brno, Czechia.

As a digital archivist at the Archaeology Data Service in the UK, I have previously received some training on processing 3D models and photogrammetry submitted to us by depositors for digital preservation – and I had some experience of 3D modeling as a hobbyist game developer. However, I originally applied for this training because I thought I could greatly benefit from consolidating my knowledge of 3D data specifically in the context of archaeology also from the point of view of its creation, which is something I have not experienced firsthand before.

So, after catching a flight from Leeds Bradford Airport to Prague and a subsequent coach trip from Prague to Brno in the afternoon/evening of Sunday 14th September, I checked into my accommodation in Brno city centre and got ready to start this new experience the next day.

Monday

On the first day I was welcomed at the Institute by David Spáčil and Zuzana Kopáčová and had the chance to briefly meet the other attendees before the first training session started. This consisted in an introduction to 3D for archaeology and heritage by Vojtěch Nosek from Masaryk University in the morning, and an introduction to photography by Tomáš Chlup from the Czech Academy of Sciences in the afternoon, with a focus on how to choose the correct manual settings for photogrammetry.



The Institute of Archaeology, Czech Academy of Sciences, Brno

The day ended with a keynote talk by Lenka Starková titled *Scanning the Past: Photogrammetry, LiDAR and HBIM in Archaeology and Heritage Care*, focused on exploring the current possibilities of 3D documentation of heritage sites by providing their experiences with doing photogrammetry and laser scanning on the Mahmud Agha Khan in Koya, Iraq.

Tuesday

The previous day ended with a social event at the Institute where both organisers and attendees had a chance to get to know each other a bit more. So it was great to regroup the next day in front of St. Peter and Paul's Cathedral in central Brno and team up with other two attendees to practice what we have learnt on Monday. In my case I worked with Martha Mosha from the University of Cologne and John Kanyingi from the British Institute in Eastern Africa, and we spent the morning photographing wall inscriptions on the outside wall of the Cathedral. We thought the first one we chose may have been a bit too ambitious, so we ended up photoscanning another two features as backups.



Photogrammetry dream team at work, Brno Cathedral

In the afternoon we returned to the Institute and processed the photos taken in the morning, which we turned into 3D models under the guidance of David, Vojtěch and Tomáš. The main tool used in this session was RealityScan, but some alternatives were also available (Agisoft Metashape and 3DF Zephyr) for those who did not have a graphics card on their laptop. Here are the results from my, John's and Martha's work:

<https://skfb.ly/pBvEG>

<https://skfb.ly/pBvVx>

<https://skfb.ly/pBwor>

Wednesday

While Tuesday was about doing photogrammetry on bigger outdoor objects, on Tuesday the focus was on creating 3D models of smaller-scale artefacts. Turns out indoor photogrammetry is quite different in terms of setup, such as due to different light conditions. We had the opportunity to try a more traditional approach with tripods, shadeless tents, turntables and measurements – but

also the lack thereof – as well as by using advanced tools such as the Artec Leo, a professional wireless 3D scanner.



Artec Leo in action

The day ended with a social event at the Institute, where we enjoyed local food and drinks as well as having the opportunity to continue both networking and having some down time after all the hard but inspiring work of the previous three days.

Thursday

After having had the chance to get hands-on experience with photogrammetry, Thursday followed with a series of lectures about what comes next: after creating, texturing and optimising 3D models originated from photogrammetry, we have been shown several practical examples of how these can be used for virtual archaeology – and their practical application in education, research and outreach.

In specific, Jiří Unger from the Institute of Archaeology in Prague introduced the topic with practical examples such as the reconstruction of the town of Slany in 1602, the hillfort in Libice nad Cidlinou and the celtic oppidum Zavist near Zbraslav. In the afternoon, Martin Košťál from Masaryk University provided a further example with the reconstruction of Castle Blansek in the 15th century based on photogrammetry and previous LiDAR data.

After that, a talk by Robert Shaw (Director of Discovery Programme in Ireland) covered how to make complex data of this type more accessible, best practices when it comes to diversify the use of single sources and the importance of archiving and preserving 3D data. Finally, Simon Radchenko presented Archaic, a Ukrainian project that helps local institutions by supporting with training, equipment and expertise in digitising archaeological heritage at risk.

Friday

The last day of the summer school saw a return to practical experience, leaving the participants the choice to further explore topics and techniques covered over the previous days. Some of us undertook the task of scanning objects with reflective surfaces (and overcame this challenge by

using AESUB spray), while others – including myself – decided to explore Reflectance Transformation Imaging (RTI).



ADS colleague Valeria Carrillo doing Reflectance Transform Imaging

The day and the week ended with some training by Vojtěch who showed us how to import our models in Blender and CloudCompare to perform specific tasks, such as how to correctly align them and create turnaround animations to be used in showcases and similar.

We wrapped up around lunchtime, at which point it was time to say goodbye. I kept hanging around Brno city centre with a few other attendees, now friends, for another couple of hours, on the sunniest day of the week. Around 5pm, it was time for me to say goodbye and head over to the train station and go to Bratislava, where I booked a flight back to Leeds in the early hours of the next day.

It is difficult for me to put into words how much of a positive experience this has been. Not only I came out of it with a much better understanding of the creation of 3D models and photogrammetry in the context of archaeology and digital heritage, which will help me performing my job a lot better. But I also had the opportunity of doing so in an inspiring environment where I met like-minded colleagues from across Europe and over the world. It has been a week of intense learning but also filled with meaningful social interactions, which created a great sense of community within our group and made working with everyone else in it a truly memorable experience.



Celebrating Oktoberfest on Thursday night