From Roman Castulo to the Alhambra

> 3D models of fragments of Roman cornices

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[Factum Foundation for Digital Technology in Preservation](#), a not-for-profit organisation based in Madrid, collaborated on the PhD thesis carried out by Ana Carrasco Huertas at the University of Granada, co-supervised by Víctor Medina (University of Granada) and Carlos Bayod Lucini (Factum Foundation). The research was defended on 30 January 2026 and focuses on the study, digitisation, and virtual reconstruction of three groups of decorative architectural surfaces from different contexts and periods: fragments of Roman cornices made in lime mortar from the archaeological site of Castulo (1st?2nd centuries AD); decorative reliefs carved in bone discovered in the ancient city of Isturgi (1st?3rd centuries AD); and a 14th-century façade of plasterwork and wood in the Islamic tradition, located within the Alhambra Monumental Complex. In all three cases, these decorative surfaces have been heavily affected by the passage of time, which makes them difficult to read, understand, and interpret.

As part of the project, Ana completed a training and research placement at Factum Foundation in Madrid (May?July 2022), followed by work with the ARCHiOx project at the Bodleian Library, University of Oxford (June?September 2023). The aim of both stays was to learn and apply high-resolution 3D recording methods and the associated workflows used to support the virtual reconstruction of cultural heritage.

For the study and digitisation of the material, Factum's Lucida 3D Scanner and Selene PSS were used. This made it possible to capture the micro-topography of the Roman reliefs (both lime-mortar elements and carved bone) and the plasterwork with great precision, enabling detailed analysis of the manufacturing marks and tools involved (such as moulds, profiling tools, lathes, and carving gouges). The work also produced highly accurate digital twins suitable for material and technical study, which will serve as the foundation for the subsequent virtual restitution.

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