



PHOTOGRAMMETRY

Introduction to Photogrammetry and Its Uses in
Cultural Heritage Documentation and Analysis (04.01)

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ASOR TUTORIALS FOR CULTURAL HERITAGE DOCUMENTATION

ASOR and its partners have developed a series of tutorials and training modules aimed to help cultural heritage specialists perform surveys and condition assessments through open source tools and software, including QGIS, KoboToolbox, LibreCAD, and RealityCapture.

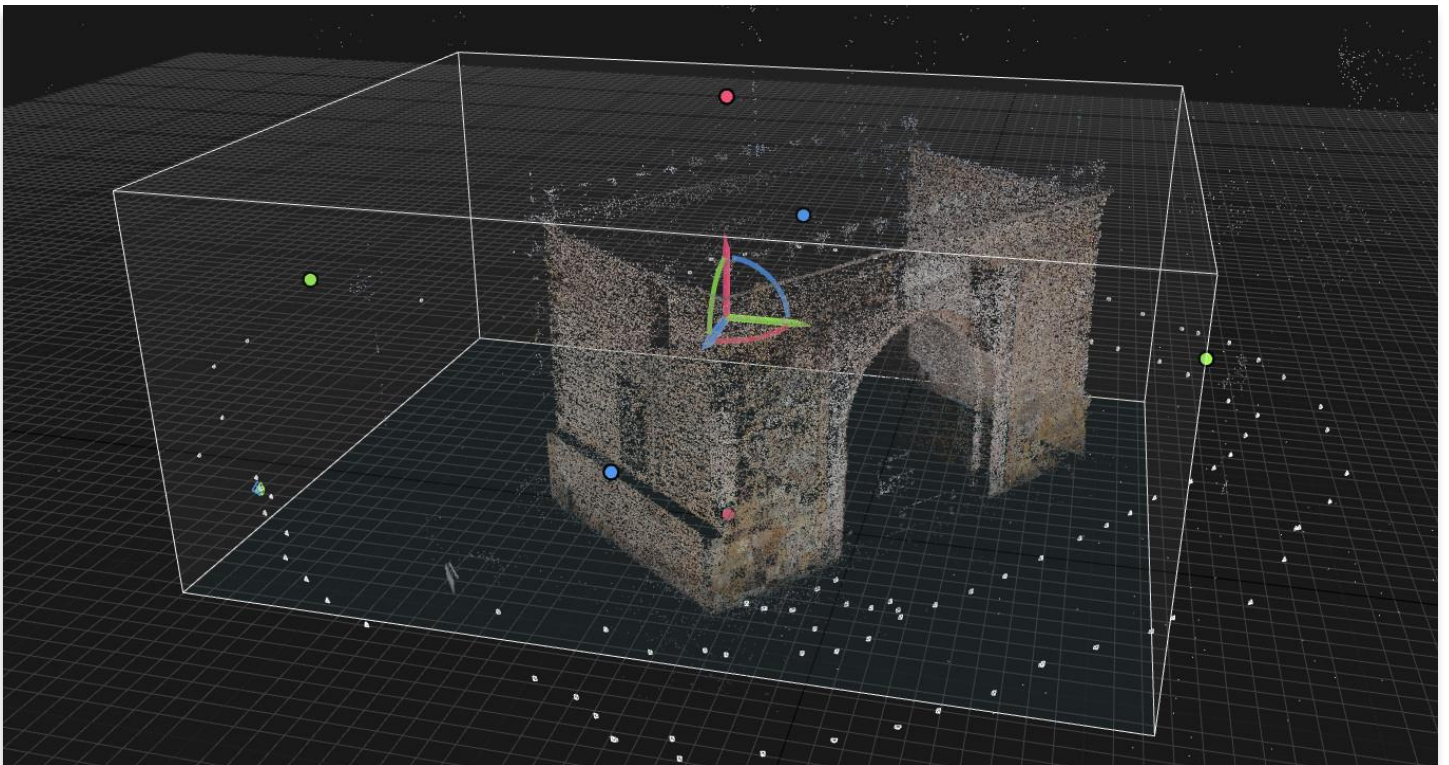
These modules provide step-by-step tutorials on how to download, install, and effectively use applications and software during data collection, analysis, and output. All tutorials can be found on ASOR's website: <https://www.asor.org/chi/chi-tutorials>.

WHAT IS PHOTOGRAMMETRY?

Photogrammetry is the use of two dimensional (2D) images to provide measurement data. Measurement data includes positions of objects and relationships between objects. Photogrammetry uses a procedure referred to as "Structure from Motion" (SfM) to solve feature positions within a defined coordinate system.

SfM refers to a set of algorithms from computer vision sciences that assist photogrammetry by automatically detecting and matching features (points) across multiple images, then triangulating positions.

The resulting calculations create point clouds that can be converted into surfaces or meshes. This process, known as spatial interpolation, creates continuous data layers (surfaces) from non-continuous data (points) that result in orthorectified photographs, 3D models of objects, and 3D surfaces of landscapes, facades, and architectural features.



PHOTOGRAMMETRY IN CULTURAL HERITAGE WORK

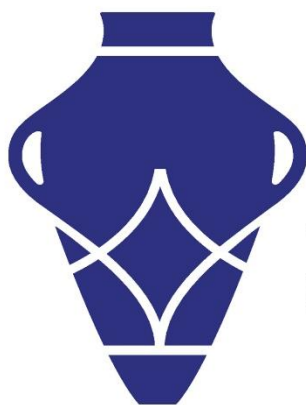
1. Documentation of architectural features, structures, and monuments
2. Cultural heritage site recording and mapping
3. Regional survey and analysis
4. 3D models of artifacts and portal objects
5. Texture analysis for inscriptions and petroglyphs
6. Excavation profile and layer rendering
7. Visualization, modeling, and simulation of heritage data for academic research and public education

ABOUT AGISOFT METASHAPE



Metashape

[Agisoft Metashape](#) is a stand-alone software product that performs photogrammetric processing of digital images and generates 3D spatial data to be used in GIS applications, cultural heritage documentation, and visual effects production as well as for indirect measurements of objects of various scales. This software provides a platform for cultural heritage specialists to create virtual reality scenes, textured 3D meshes, orthographic projections, geo-referenced maps and much more from images and/or laser scans completely automatically.



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CULTURAL HERITAGE INITIATIVES

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