
21.04.2025

Online Workshop: Photogrammetry in Heritage Documentation 2025

07.06.2025, 14.06.2025, 21.06.2025, 28.06.2025, 05.07.2025, and 12.07.2025

Workshop Summary

The Factum Foundation, within the framework of the ARCHiVe Online Academy (AOA), cordially invites students worldwide to participate in an exclusive online workshop on photogrammetry, an advanced technique for creating detailed 3D models from photographs. This workshop is tailored for individuals passionate about cultural heritage preservation, historical exploration, or innovative technology.

Participants will engage in a hands-on learning experience, acquiring the skills to capture, process, and reconstruct heritage sites and artifacts with precision and creativity. Designed to accommodate diverse backgrounds—ranging from archaeology and architecture to history and digital arts—this workshop equips learners with practical tools to document and preserve cultural heritage for future generations.

Join a global community of learners, exchange unique perspectives, and contribute to the safeguarding of our shared heritage. The workshop is limited to 15 participants to ensure a focused and interactive experience. Conducted entirely online, the course is offered free of charge, with registration open to undergraduate, graduate and PhD students in universities and institutes in Central Asian, Middle Eastern and South Asian Countries. See Annex I for eligible countries list. Annex II and III for selection policy and data protection policy respectively and Annex IV for information about Factum Foundation and ARCHiVe.

For online registration please click [here](#): Alternatively, scan the following QR code:



After training students will be able to:

1. Proficiency in capturing photographs tailored for photogrammetric processing.
2. Expertise in processing images to generate high-fidelity 3D models.
3. Ability to produce accurate CAD drawings derived from these models.
4. Skills to disseminate 3D models via an online platform for collaboration and archiving.

Required Hardware and Software

Software

1. Reality Capture [Download link](#): (Free license)
2. Autodesk Autocad 2018 or later (education license)
3. CloudCompare (Open Source, Download link:
https://www.danielgm.net/cc/release/CloudCompare_v2.12.4_setup_x64.exe)
4. Adobe Photoshop
5. Autodesk Recap (education license)
6. Geomagic Wrap (optional, not free)

Hardware

1. DSLR camera (preferably fixed focal length Lense, 50mm)
2. Computer/ Laptop with 64bit machine with at least 8GB of RAM
 - 64bit Microsoft Windows version 7 / 8 / 8.1 / 10 / 11 or Windows Server version 2008+
 - NVIDIA graphics card with CUDA 3.0+ capabilities and 1GB VRAM
 - CUDA Toolkit 10.2, minimal driver version 441.22.

Important: Reality Capture does not run on non-CUDA graphic cards

Full information on hardware requirements can be checked [here](#):

3. Scale/ Measuring Tape

All the participants should have access to the hardware and software mentioned during the course.

Prerequisite

Applicants should possess a foundational understanding of mathematics and CAD software, and proficiency in using digital devices and managing data to maximize their learning experience in the workshop.

Content of the workshop

Day 1: Introduction and Photography

Date: Saturday, 07.06.2025

Time: 9:00 am – 4:00 pm

1. Introduction to Factum Foundation,
2. Introduction of students and instructor,
3. Photogrammetry: Definition, brief history and application with a focus of Cultural Heritage
4. General applications of photogrammetry
5. Basics of photography: Aperture, Shutter Speed, ISO, F-stops, Camera Resolution, Pixel size, Focal length, Exposure Triangle, Colour Correction

After session 1, participants are required to:

- *Propose an object or building facade,*
- *Finalize the selection with the instructor,*

Day 2: Photogrammetry Concepts and Principles:

Date: Saturday, 14.06.2025

Time: 9:00 am – 4:00 pm

6. Image Processing and Image Formats, Structure from Motion, Feature Detection, Intrinsic and Extrinsic Parameters, Distortions, Image Resolutions,
7. GSD, Scaling: Manual, Lidar and Georeferencing,
8. Mesh vs Point Cloud and their formats,
9. Orthophotos, DTM, DSM

Day 3: Photogrammetry Practice and Application:

Date: Saturday, 21.06.2025

Time: 9:00 am – 4:00 pm

10. Photogrammetry Equipment and Software,
11. Cross Polarisation, Focus Bracketing, Focus Stacking
12. Photography for photogrammetry for different objects, surfaces and buildings
13. Recording Process: Choosing Correct Equipment,

Day 4: Data Recording:

Date: Saturday, 28.06.2025

Time: 9:00 am – 4:00 pm

14. Using Coded Targets, Using Colour Checker,
15. Recording practice for different kinds of objects and structures
16. Best practices for recording objects of different scale, material and finish

After session 3 of training, students will be able to learn how to take photos and create models. There will be a gap of 6 days between the second and third session. In that time students are required to:

- *Record the data.*

Day 5: Data Processing

Date: Saturday, 05.07.2025

Time: 9:00 am – 4:00 pm

17. Data Management and Processing.
18. Alignment, scaling, meshing, texturing,
19. Exporting 3D and 2D data. Cleaning 3D and 2D data.
20. Visualization and Importing in CAD for drawings development.

After session 4, all participants are required to generate CAD drawings from orthophotos.

Day 6: Review

Date: Saturday, 12.07.2025

Time: 9:00 am – 4:00 pm

21. Review and presentation by participants.

Between Session 1 and Session 6, the instructor will be available by email to answer any question students have.

Important

Each group should have at least one computer with the above-mentioned configuration and software installed before the commencement of the workshop. For further clarification on software and hardware write an email on workshops@factumfoundation.org

Online workshops will be recorded, and the video recording will be made available on the websites of Factum Foundation and ARCHiVe Online Academy.

Important dates:

- **21.04.2025:** Registration opens
- **20.05.2025:** Registration closes
- **04.06.2025:** Decision on selection
- **07.06.2025:** Day 1 of the workshop; 9:00 am – 4:00 pm CET
- **14.06.2025** Day 2 of the workshop; 9:00 am – 4:00 pm CET
- **21.06.2025** Day 3 of the workshop; 9:00 am – 4:00 pm CET
- **24.06.2025** Day 4 of the workshop; 9:00 am – 4:00 pm CET
- **05.07.2025** Day 5 of the workshop; 9:00 am – 4:00 pm CET
- **12.07.2025** Day 6 of the workshop; 9:00 am – 4:00 pm CET

Annex I: Eligibility

1. Qualification

Undergraduate, graduate or PhD course students enrolled in any of the following courses are eligible

- a) Archaeology
- b) Architecture
- c) Museum Studies
- d) Heritage Conservation
- e) Heritage Studies
- f) History
- g) Or any other relevant course

2. List of eligible countries

Central Asian Countries:

1. Kazakhstan
2. Kyrgyzstan
3. Tajikistan
4. Turkmenistan
5. Uzbekistan

South Asian Countries:

1. Afghanistan
2. Bangladesh
3. Bhutan
4. India
5. Maldives
6. Nepal
7. Pakistan
8. Sri Lanka

Middle Eastern Countries:

1. Bahrain
2. Cyprus
3. Egypt
4. Iran
5. Iraq
6. Israel
7. Jordan
8. Kuwait
9. Lebanon
10. Oman
11. Palestine
12. Qatar
13. Saudi Arabia
14. Syria
15. Turkey
16. United Arab Emirates
17. Yemen

& Egypt and Turkey

Annex II

Acceptance and Rejection Policy

To ensure a high-quality and impactful experience, participants are selected based on a thorough evaluation of their application materials. The selection process is designed to identify individuals whose goals align with the workshop's objectives and who demonstrate a strong potential to contribute to and benefit from the program.

Selection Criteria

Applications will be assessed based on the following factors:

1. **Quality of Content in the Statement of Intent:** Applicants must provide a clear, compelling, and well-articulated statement outlining their motivation for joining the workshop and how it aligns with their personal or professional aspirations.
2. **Educational Background:** Relevant academic qualifications or equivalent learning experiences that demonstrate a foundational understanding of the workshop's subject matter.
3. **Relevant Experience:** Practical or professional experience that reflects the applicant's engagement with topics related to the workshop's focus.
4. **Goals:** A specific, achievable goal that the applicant aims to accomplish through participation, demonstrating clarity of purpose and potential for growth.

Acceptance Policy

Applicants who meet or exceed the standards set forth in the selection criteria will be considered for acceptance. Successful candidates will be notified via email with further instructions for participation. Acceptance is contingent upon the submission of a complete application and compliance with any additional requirements outlined in the workshop guidelines.

Rejection Policy

Due to limited capacity and the competitive nature of the selection process, not all applicants will be accepted. Applications may be rejected if they fail to meet the minimum standards of the selection criteria, are incomplete, or do not align with the workshop's objectives. Applicants will be notified of their rejection via email. Feedback on individual applications will not be provided unless otherwise specified.

Reservation of Rights

Factum Foundation reserves the right, at its sole discretion, to accept or reject any application, to modify the selection criteria, or to adjust the workshop's capacity and structure as deemed necessary. This includes the right to prioritize applicants based on additional factors, such as diversity of perspectives or alignment with Factum Foundation's mission, even if not explicitly stated. All decisions made by Factum Foundation regarding participant selection are final and not subject to appeal.

We appreciate the time and effort invested by all applicants and encourage those not selected to explore future opportunities with Factum Foundation.

Annex III

User Data Protection Policy

Factum Foundation is committed to protecting the privacy and security of all personal information provided by applicants and participants in the workshop. This User Data Protection Policy outlines how we collect, use, store, and safeguard your data.

Data Collection

We collect only the information necessary to evaluate applications and facilitate participation in the workshop. This may include your name, email address, educational background, professional experience, statement of intent, and any additional details voluntarily provided in your application.

Use of Data

Your data will be used solely for the following purposes:

- Evaluating your application for the workshop.
- Communicating with you regarding your application status, workshop details, or related opportunities.

Data Storage and Security

All personal information is stored securely on encrypted servers accessible only to authorized Factum Foundation personnel involved in the selection and workshop coordination process. We implement industry-standard security measures to protect your data from unauthorized access, loss, or misuse.

Data Sharing

Factum Foundation will not share, sell, or disclose your personal information to third parties, except as required by law or with your explicit consent. In cases where workshop activities involve collaboration with partners, only the minimum necessary data will be shared, and only with your prior approval.

Data Retention

We will retain your data only for as long as necessary to fulfill the purposes outlined above or as required by applicable regulations. If your application is unsuccessful, your data will be deleted within 6 months of the workshop's conclusion, unless you opt-in to remain informed about future opportunities.

Your Rights

You have the right to request access to, correction of, or deletion of your personal data at any time by contacting us at workshops@factumfoundation.org. You may also withdraw your consent for us to process your data, though this may affect your ability to participate in the workshop.

Reservation of Rights

Factum Foundation reserves the right to update this User Data Protection Policy as needed to comply with legal requirements or enhance our data protection practices. Any changes will be communicated to applicants and participants promptly.

If you have any questions or concerns about how your data is handled, please reach out to workshops@factumfoundation.org. Your trust is important to us, and we are dedicated to maintaining the highest standards of data privacy.

Annex IV

The Factum Foundation for Digital Technology in Preservation

The Factum Foundation for Digital Technology in Preservation is a not-for-profit organization, founded in 2009 in Madrid. It works alongside its sister company, Factum Arte: a multi-disciplinary workshop dedicated to digital mediation in contemporary art and the production of facsimiles. Factum Foundation was established to actively demonstrate the importance of documenting, monitoring, studying, recreating and disseminating the World's cultural heritage through the rigorous development of high-resolution recording and re-materialisation techniques.

Factum Foundation's areas of interest and expertise are essentially diverse, and include the following lines:

1. **Development of technology** for capturing and reproducing the complex nature of artworks and other cultural artifacts.
2. **Digital documentation and archiving** of cultural heritage information of all kinds (2D, 3D, video, sound...) and scales, with the aim of contributing to their long-term protection, study and dissemination.
3. **Production of facsimiles** as a way to help the preservation of original artifacts. Digital data can be re-materialized as exact replicas, thanks to a combination of digital technologies and craft skills.
4. **Training and dissemination** to transfer expertise to a new generation of cultural managers and preservationists.
5. **Producing, curating and designing exhibitions** to demonstrate the potential of digital technology to engage a wide audience with our shared material culture.
6. **Digital restoration** initiatives propose alternative hypotheses of reconstruction without altering the original artifact.
7. **Publication of books, articles and video documentaries** for the dissemination of projects and ideas around digital preservation.

Factum Foundation has an active global presence, having worked in all ranges of projects worldwide in countries including Spain, United Kingdom, Italy, Portugal, France, Germany, Austria, Netherlands, Denmark, Belgium, Switzerland, Greece, Norway, Denmark, Finland, Russia, Egypt, Kingdom of Saudi Arabia, Iraq, Lebanon, UAE, Nigeria, Somaliland, Chad, United States, Canada, Mexico, Chile, Brazil, Japan, China, Pakistan.

More information on the projects can be found on www.factumfoundation.org

ARCHiVe - Analysis and Recording of Cultural Heritage in Venice

In October 2018, Factum Foundation, Fondazione Giorgio Cini, and the Digital Humanities Laboratory of Ecole Polytechnique Fédérale de Lausanne (DHLAB-EPFL) launched ARCHiVe - Analysis and Recording of Cultural Heritage in Venice, a new initiative dedicated to the use, study and transmission of cultural heritage through digital technologies. More information on ARCHiVe can be found on:

<https://www.archive-venice.org/>

For queries related to the workshop please contact:

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FOR DIGITAL TECHNOLOGY
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