



# INTERNATIONAL WORKSHOP IN CULTURAL HERITAGE CONSERVATION

„ Multispectral Imaging and 3D  
Photogrammetric monitoring in Wall  
Painting Conservation”

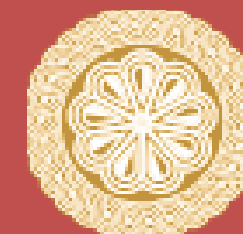
**Programme**

**Gelati Monastery Complex**

**3<sup>rd</sup> – 6<sup>th</sup> of October  
2024**



LEPL INTERNATIONAL EDUCATION  
CENTER OF GEORGIA



გელათის რეაბილიტაციის კომიტეტი  
GELATI REHABILITATION COMMITTEE

**EKA** Eesti  
Kunstiakadeemia

# About Programme

The international educational and research programme aims to contribute towards development of cultural heritage conservation field in Georgia.

The programme helps to address the current challenges in research and monitoring of cultural heritage monuments in Georgia.

The programme assists in enhancing the qualifications of local personnel working in wall painting conservation.

The programme enhances long-term international professional relationships between local (Georgian) and international experts and institutions from UK, USA, EU.

# Objectives

- Providing training for Georgian wall painting experts and representatives from partner institutions in multispectral imaging and 3D photogrammetric monitoring
- Non-invasive investigation of the technology and condition of wall paintings at the Gelati Monastery Complex, a UNESCO World Heritage site, using multispectral imaging techniques.
- Development of the 3D photogrammetric monitoring system for the wall paintings at the Gelati Monastery Complex, a UNESCO World Heritage site. The system will monitor salt activity, condition phenomena and treatment effectiveness on the wall painting surface.
- Upgrading and acquiring additional technical equipment for wall painting conservation, enabling local experts to conduct investigations and monitoring of wall paintings not only at Gelati but also at other cultural heritage sites.

# Workshop aims

- Developing 3D photogrammetric imaging skills for monitoring cultural heritage monuments.
- Developing multispectral imaging skills for the non-invasive investigation of the technology and condition of paintings.
- Familiarizing with the processing of multispectral imaging (MSI) and 3D photogrammetric images.
- Contributing to the wall painting conservation research programme at the Gelati Monastery Complex.

# CORE CONTENT

The workshop provides theoretical and practical sessions on the following themes:

 Topic 1: 3D Photogrammetric monitoring for wall paintings

 Topic 2: Multispectral imaging (MSI) for wall paintings

Practical and theoretical sessions will be led by international experts:

- Wendy Rose (USA)
- Joshua Hill (UK)
- Andres Uueni (EST)

The project provides:

- Reading materials
- Software for processing multispectral and 3D images
- Imaging equipment for MSI and 3D photogrammetry for in-situ use

# INTERNATIONAL MENTORS



**JOSHUA HILL**

**National Gallery London, UK**

Joshua Hill is a wall painting conservator and conservation scientist based in the UK. Following undergraduate and doctoral degrees in Chemistry (Oxford), he trained in the conservation of wall paintings (Courtauld Institute of Art). Joshua is currently Aldama Scientific Fellow at the National Gallery, London and a Visiting Fellow at Nottingham Trent University with broad research interests in the use of analytical investigations in conservation decision-making and technical analysis of paintings.



**WENDY ROSE**

**Consultant at GCI and SAAM, USA**

Wendy Rose is a wall painting conservator with expertise in photogrammetric documentation. She holds an M.A. in Conservation of wall paintings from The Courtauld Institute of Art in London where she researched and developed a 3D digital monitoring technique for wall painting in situ.

Wendy has worked as a freelance cultural photogrammetry consultant, providing instruction and assistance on the application of photogrammetry for cultural heritage conservation for the National Park Service, community groups, and the Lunder Conservation Centre. She currently works as freelance wall painting conservator out of Algiers, Algeria and consults for the Smithsonian American Art Museum and the Getty Conservation Institute on digital documentation and interpretation projects.



**ANDRES UUENI**

**Head of MUKOLA, EST**

Andres has worked in various memory institutions and private companies, during which he has developed, implemented, and managed several large-scale research and documentation projects. Focusing on technical research and analysis of heritage and related methods (e.g. 3D documentation methods, multispectral photography, RTI etc.). Andres has given lectures, written scientific articles, made presentations and developed imaging technique solutions. He is a co-founder and co-manager of Archaeovision LLC and in addition, Andres is engaged in doctoral studies at the Estonian Academy of Arts and is the head of the MUKOLA laboratory there.

# Project management team



## MARIAM SAGARADZE

Head of the project

Co-supervisor of Gelati wall painting conservation programme

Mariam Sagaradze is a wall painting conservation specialist. She holds an MA Degree in Wall Painting Conservation from the University of London, Courtauld Institute of Art. She is currently a PhD Candidate at the Estonian Academy of Art. She works as a research scientist at the Scientific Research Center for Conservation, Tbilisi State Academy of Art. She is co-supervisor of the wall painting conservation programme at UNESCO World Heritage Site, Gelati Monastery Complex, Georgia.

Mariam's interest is to build international educational collaborations for early-career built heritage conservators in Georgia. Since 2023, she has started co-organising educational programmes, particularly international workshops in collaboration with European, American and British institutions and independent experts. A wider objective of establishing long-term collaborations between Georgia and international institutions and individuals is capacity building for the Georgian conservation field.



## NINO KOBERIDZE

Project manager

Freelance conservator

Nino Koberidze is a fine art conservation specialist. She perused her bachelor's and master's degrees in Tbilisi State Academy of Art in Georgia.

As a freelance conservator she has been involved in local and international cultural heritage conservation projects. Her particular interest is in research and monitoring of the immovable and movable fine art objects.



## ASMAT TKESHELASHVILI

Project manager

Paper conservator at Tbilisi State Academy of Art

Asmat Tkeshelashvili is a paper conservation specialist. She holds a BA in Fine Art Restoration from the Tbilisi State Academy of Art. She has completed a Master's degree at the Institute for Art and Restoration, specializing in paper conservation.

Currently, she teaches theoretical and practical courses in paper conservation at the Tbilisi State Academy of Art. She organizes educational projects in the conservation field.

As an independent restorer, she works on the conservation of paper-based art objects in galleries and private collections. She also works on the conservation of wall paintings (including wallpaper) in the interiors of 19th- and 20th-century houses in Tbilisi.

# Gelati wall painting conservation team



The Gelati Wall Painting Conservation Programme is conducted by a Georgian wall painting conservation team and is led by international experts Lisa Shekede and Stephen Rickerby.

Since April 2023, the conservation team has been engaged in non-invasive and invasive investigations, monitoring of wall paintings, salt activity, and environmental conditions. They have been developing remedial treatment strategies and methodologies to preserve the Gelati Monastery Complex, a UNESCO World Heritage site.

The team members will participate in a workshop to enhance their qualifications, knowledge, and skills in multispectral imaging and 3D photogrammetric monitoring.

More information about undertaken activities:

<https://gelatirehabilitation.ge/ka/painting>

# Workshop programme

**03/10**

OPENING DAY

- ✓ **Opening ceremony**  
**Head of the project:** Mariam Sagaradze
- ✓ **Lecture:** Introduction to photogrammetric monitoring cultural heritage field  
**Mentors:** Wendy Rose and Andres Uueni
- ✓ **Lecture:** Introduction to multispectral imaging (MSI) in cultural heritage field  
**Mentors:** Joshua Hill and Andres Uueni
- ✓ **Lecture:** Introduction to the MSI equipment and programming  
**Mentor:** Joshua Hill

**04/10**

Practical sessions

- ✓ **Activity:** Decision-making with photogrammetric monitoring  
**Mentor:** Wendy Rose
- ✓ **Activity:** Photogrammetric imaging (1)  
**Mentors:** Wendy Rose, Joshua Hill, Andres Uueni
- ✓ **Activity:** Photogrammetric imaging (2)  
**Mentors:** Wendy Rose, Joshua Hill, Andres Uueni
- ✓ **Activity:** Multispectral imaging (1)  
**Mentors:** Wendy Rose, Joshua Hill, Andres Uueni

**05/10**

Theoretical and practical sessions

- ✓ **Lecture and activity:** Photogrammetric image processing  
**Mentor:** Wendy Rose
- ✓ **Activity:** Photogrammetric data comparison and recapturing  
**Mentor:** Wendy Rose
- ✓ **Lecture and activity:** MSI image processing  
**Mentors:** Joshua Hill and Andres Uueni
- ✓ **Activity:** Multispectral imaging (2)  
**Mentors:** Wendy Rose, Joshua Hill, Andres Uueni

**06/10**

CLOSING CEREMONY

- ✓ **Lecture:** File management  
**Mentor:** Wendy Rose
- ✓ **Lecture:** MSI image processing and presentation  
**Mentors:** Joshua Hill and Andres Uueni
- ✓ **Closing ceremony**  
**Head of the project:** Mariam Sagaradze

# WORKSHOP

## LOCATION AND DATE



### Location:

Gelati Monastery  
Complex, Gelati,  
Georgia

<https://maps.app.goo.gl/rs332gsN6CkwSwJNA>

### Date:

3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>  
of October  
2024



Image: Dmitri Ivanovich Yermakov (1846-1916)

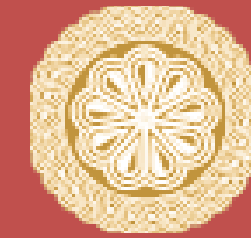
Source: <https://gelatirehabilitation.ge/uploads/documents/docs/ERMAKOV-ARCHITECTURE-1880-1916.pdf>



# FUNDING AND SUPPORTING ORGANIZATIONS



Host organization:  
Gelati Rehabilitation Committee



გელათის რეაბილიტაციის კომიტეტი  
GELATI REHABILITATION COMMITTEE



Guest organization:  
Estonian Academy of Art

**EKA** Eesti  
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Funder:  
LEPL International Education Center of Georgia



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