## THE EUROPEAN COLLABORATIVE CLOUD FOR CULTURAL HERITAGE (ECCCH)

**AUTOMATA** is part of the **European Collaborative Cloud for Cultural Heritage** (**ECCCH**), an EU-funded platform providing heritage professionals and researchers with data, resources, training, and digital tools.

Developed by **ECHOES** (**European Cloud for Heritage OpEn Science**), ECCCH unites Cultural Heritage communities around the Digital Commons. **ECHOES** enables knowledge digitisation and collaborative analysis, allowing humans and AI to enrich cultural heritage understanding.
Users can interact with and enhance Digital Twins, fostering new, shared scientific knowledge.

More info on **www.echoes-eccch.eu**

## CONNECT WITH US

**AUTOMATA on the web**

**www.automata-eccch.eu**

**@automata.eccch**

**AUTOMATA_ECCCH**

**@AUTOMATA_ECCCH**

**For questions or inquiries**
**contact@automata-eccch.eu**

Funded by the European Union

AUTOMATA is a project funded by the European Commission under Grant Agreement n.101158046 – AUTOMATA. The views and opinions expressed in this document are the sole responsibility of the author and do not necessarily reflect the views of the European Union.

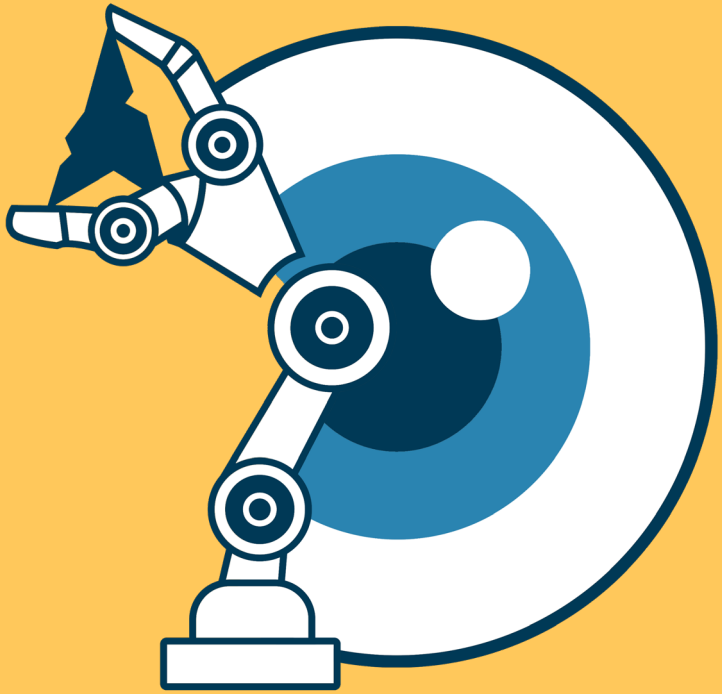
UK Research and Innovation

Funded by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee n.10110150 & n.10139794.

AUTOMATA is part of the ECCCH Cultural Heritage Cloud initiative, managed by the ECHOES project.

# AUTOMATA

**(AUTOMated enriched digitisation of Archaeological liThics and cerAmics)**



## *REVISITING* ARCHAEOLOGY *WITH* AI-POWERED 3D ROBOTICS

## WHAT IS AUTOMATA ?

Using AI-augmented robotics and sensors, the EU-funded **AUTOMATA** project will create 3D models enriched with archaeometry data, providing a practical and cost-effective solution for digitisation.

Robotic tools with newly developed AI methodologies will improve the digitisation process of visible and non-visible properties of archaeological finds, enhance the robustness and efficiency of 3D digitisation, improve surface appearance acquisition, and integrate 2D representations.
This approach streamlines data acquisition, aided by human - AI collaboration, and, in turn, the collection of big, well-identified data will empower the development of AI models.

This cost-effective technology will democratise access to digitisation, benefiting the Cultural Heritage community at large, including public and private organisations dealing with culture, education, ICT, museums, creative companies and media, aid preservation methods and restorers' work, and foster inclusive knowledge - sharing via a dedicated crowdsourcing platform.

## AUTOMATA'S FOCUS AREAS

The **AUTOMATA** project aims to revolutionise archaeological documentation and preservation through an innovative blend of artificial intelligence, robotics, and advanced digitisation technologies.
It is based on seven main focus areas:

### DIGITISING ARCHAEOLOGICAL FINDS
Transforming the documentation and analysis of cultural heritage objects.

### CREATING 3D MODELS
Developing detailed 3D representations of archaeological objects enriched with new scientific data.

### ENABLING BIG DATA COLLECTION
Addressing historical gaps in large-scale archaeological datasets.

### ENHANCING AI-BASED CLASSIFICATION
Advancing learning algorithms for the classification of archaeological artefacts based on shape, material, and archaeometry data.

### ARCHIVING AND PRESERVING DATA
Ensuring that data is managed in accordance with the FAIR (Findable, Accessible, Interoperable, and Reusable) principles.

### UPSKILLING PROFESSIONALS
Training cultural heritage experts in advanced digitisation technologies.

### ENGAGING AUDIENCES
Making digitised artefacts accessible to both academic researchers and the general public.

## THE AUTOMATA CONSORTIUM

**AUTOMATA** is implemented by a network of excellence composed of 13 academic and non-academic organisations from 7 countries (Italy, France, Croatia, Israel, Spain, Belgium and the United Kingdom), placed under the coordination of the University of Pisa.

Università di Pisa
Dipartimento di Civiltà e Forme del Sapere
mappa
Université Bordeaux Montaigne
Archéosciences Bordeaux
Inria
Inrap — Institut national de recherches archéologiques préventives
amz
qb robotics
האוניברסיטה העברית בירושלים
The Hebrew University of Jerusalem
الجامعة العبرية في أورشليم القدس
Miningful
iit SoftBots — Istituto Italiano di Tecnologia
Universitat de Barcelona
culturelab
ads Archaeology Data Service
University of York
King's College London