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This report brings together all the activities of ARCHiVe Centre – Analysis and Recordings of Cultural Heritage in Venice – from 2018 to 2023 inclusive. The last chapter, entitled ‘The Future’, announces the activities ARCHiVe plans to carry out over the coming years in collaboration with Italian and international cultural bodies and institutions.

Thanks to a five-year grant awarded to the Fondazione Giorgio Cini of Venice by the Helen Hamlyn Trust of London, it has been possible to set up a partnership with the Digital Humanities Lab of the w and the Factum Foundation for Digital Technology in Preservation of Madrid in the framework of which projects have been carried out for the creation and digitisation of archives, providing professional training in the field of the latest technologies and promoting the research carried out by making it accessible to all and sundry, free of charge.

The Fondazione Giorgio Cini houses heritage of immense historical and cultural value, ranging from ancient and contemporary architecture on the Island of San Giorgio to book collections, works of art from the Vittorio Cini collections, and archives from donations or testamentary legacies. This impressive and rare cultural corpus is made ever more accessible every day to scholars, enthusiasts and researchers from all over the world thanks to the online publication and educational programming that make the ARCHiVe centre a reference model for sharing and dialogue between different cultures. This is faithful to what is expressed in Foundation’s own statute.

After its first five years of activity, now the Centro ARCHiVe is:

- an innovative digitisation and research workshop exploring the relationship between new technologies and cultural heritage, which today employs more than twenty people (including employees, fellows, researchers and collaborators);
- a reference point for training on digitisation practices and their international reach, thanks to the ARCHiVe Online/Onsite Academy teaching programme dedicated to young professionals and university students, laying claim to active partnerships with thirteen Italian and eleven foreign universities;
- a replicable model offering support for organizations wishing to undertake the activities of digital transition and the promotion of their collections and fonds;
- a centre for the elaboration of new forms of content interpretation and cultural forecasting, thanks to the elaboration of new forms of knowledge. At ARCHiVe, starting from the traditional practice of knowledge transmission, we have come up with operational models for the creation of new professional figures in the cultural sphere, including historians, restorers, programmers, photographers, digital archivists, digital researchers;
- home to the elaboration of sustainability projects for the implementation of the SDGs of Agenda 2030 in relation to building the conditions of accessibility to heritage for all audiences, working
towards the reduction of social differences (People), the safeguarding of common interests in collaboration projects (Partnerships), the reduction of the ecological footprint (Planet), offering remote access to large and growing sections of cultural heritage (Prosperity) and promoting of culture as soft power and a tool for dialogue between different populations (Peace).

Some data summarizing the last 5 years:

- More than 30 projects activated
- ARCHiVe Online Academy 2020–2023: 196 hours of high-level training accessible for free for everybody, everywhere (more than 3,000 attendees).
- A large selection of all ARCHiVe Online Academy courses are online on the AOA playlist of the FGC YouTube channel: 29 videos are public and offer more than 50 hours of training for free.
- A large number of communication and valorisation actions that have given interesting feedback for ARCHiVe in the press and digital communication.
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Designating documentation and enhancement of the Fondazione Giorgio Cini heritage as one of its main objectives, ARCHiVe has been collaborating since the beginning with Cini’s research Institutes and Centres, providing working tools and know-how for a proper digital acquisition and documents management. The immense quantity of documents that, thanks to acquisitions, testamentary bequests and donations, have gathered at San Giorgio in these first 70 years of activity, finds expression in objects of a heterogeneous nature. Not only books and photographs, but also paintings, early printed books, manuscripts, magnetic tapes, CDs, LPs, drawings, maps, etc... Following a specific planning in the activities of each Institute, the ARCHiVe centre assures both the development of digitiation projects (see “Projects” in detail), and the documentation of specific cores of collections and archives for preservation, dissemination, and communication. Nonetheless, ARCHiVe offers technical assistance for using the equipment in the laboratories and for managing new digital documents, taking care of all post-production activities necessary for display and publication of contents online. For the principle of sustainability in terms of timing and human resources that underlies project actions of ARCHiVe, digitisation activities are designed and developed in total synergy with the scientific referents of each individual project, with the aim of achieving results of quantitative and qualitative efficiency. The training provided to operators for the correct, autonomous and safe use of equipment guarantees constant updating on the tools, technologies and guidelines adopted.

As evidenced by the often eclectic composition of working groups for each project, ARCHiVe activities fully fit into the field of digital humanities, making digital skills dialogue with humanistic attitudes and knowledge.
ARCHiVe operations in support of the Fondazione Giorgio Cini scientific activities since 2018 have involved:

2D RECORDINGS AND SOUND DOCUMENTS RECORDINGS 2018-2023

INSTITUTE OF ART HISTORY
I. Iconographical archive photo library: 750,000 photographic positives recorded (Replica project).
II. Photo library of Bruno Aliferti: 2,072 images (as part of Replica project).
III. Photo library of Bernard Berenson: 30,275 images (as part of Replica project).
IV. Khamsa by Ilyâs ibn Yûsuf Nizâmî-i Ganjavî: around 200 images of decorated pages and details of the XVII Century persian manuscript also known as “Seven princesses” (photographic documentation after the restoration for the publication of the book).
V. Fondo Malabotta: around 100 images of the recently acquired sculptures by Arturo Martini (1889-1947), digitisation of the Still life by Martini (oil on cardboard), digitisation of 20 lithographic papers (Lirici Minorì); photographic documentation for the publication of the catalogue of the exhibition Malabotta (opening October 2021).
VI. Resurrezione di Lazzaro by Salvati: around 40 images of the oil on canvas by Giuseppe Porta, known as Salvati (1940-1945, Sala del Soffitto, Fondazione Giorgio Cini).
VII. The Glass Ark. Animals in the Pierre Rosenberg collection: 76 images taken from Martin Bradley, Ginny Ruffner, Pino Signoretto catalogues, and other collections of Centro Studi Vetro; iconographic material for the conference The Glass Ark (for Centro Studi Vetro).
VIII. Seguso Vetri d’Arte Archive: over 35,000 documents digitised at ARCHiVe by CSV and post-produced and prepared by ARCHiVe team.
IX. Ettore Sottsass jr.: almost 50,000 documents digitised and catalogued at ARCHiVe team.
X. Pauly Archive (Centro Studi del Vetro): drawings digitised and post-produced at ARCHiVe for a total of over 1,400 files.
XI. Rare Books Fund: recording of 35 early printed books and positive recorded (Replica project).
XII. Theatre Periodicals: “Il Teatro Illustrato” (12 volumes of about 180 pages each, each volume contains 12 issues of the Periodical) with OCR technique.

INSTITUTE OF MUSIC
I. Alfredo Casella Archive: digitisation of Correspondence, 2,200 units (15,500 images); digitisation of the music programmes, 1,000 units (17,000 images); downsizing and preparation of all the files for the online catalogue.
II. Gian Francesco Malipiero Archive: digitisation of the Music programmes, 700 units (15,600 images).
III. Photo Archive: 190 units (380 images), Newspaper cuttings: 220 units (4,400 images).
IV. Ottorino Respighi Archive: Music programmes, 320 units (9,400 images); downsizing and preparation of 5,825 files for the online catalogue.
V. Niccolò Castiglioni Archive: Music programmes, 200 units (2,270 images).
VI. Giacomo Manzoni Archive: Music programmes, 220 units (4,400 images).
VII. Egisto Macchi Archive: LP, 38 units.
VIII. Nino Rota Archive: digitisation and preparation of the files (12,480 files).

MANICA LUNGA LIBRARY
I. Rare Books Fund: recording of 25 early printed books and preparation of the files and metadata of 93 volumes for the new Digital Library publication.
II. EST. Storie italiane di viaggi, città e architetture: around 100 images of the 14 volumes from Fondazione Giorgio Cini lent for the exhibition EST. Storie italiane di viaggi, città e architetture. Photographic documentation for the publication of the catalogue of the exhibition (May 2021).
III. De Martinis Fund: 1,530 files created and post-produced by ARCHiVe.

CENTRE FOR COMPARATIVE STUDIES OF CIVILIZATIONS AND SPIRITUALITIES
I. Titiano Terzani Archive: over 26,000 documents digitised.
From July 2020, a team from Factum Foundation spent twelve days in Venice recording the Island of San Giorgio Maggiore in its entirety. After the acqua alta of November 2019 reached the highest recorded level in fifty years, ARCHiVe’s aim of efficiently and effectively aiding the preservation of Venice’s fragile cultural heritage acquired a new note of urgency. Swiftly convened discussions between the partner institutions led to this project being undertaken as soon as the COVID-19 emergency allowed for the respective teams to travel once again.

As part of the large-scale digitisation of the Island of San Giorgio Maggiore, during January 20th to 23rd 2022 a team from Factum Foundation spent 4 days in Venice recording the Teatro Verde and the Vatican Chapels in the woods of Fondazione Giorgio Cini. This ARCHiVe project, linked with EPFL’s Venice Time Machine, involved the collaboration of Factum Foundation and Fondazione Giorgio Cini. The aim of the project is to demonstrate that technologies such as aerial and ground-based photogrammetry and LiDAR recording could eventually be used to record the whole of Venice.

The first phase of the project in July 2020 involved recording the Basilica of San Giorgio Maggiore and the monumental area of Fondazione Cini. During January 2022, the team proceeded with the digitisation of the Teatro Verde and the Vatican Chapels, both for preservation and enhancement purposes. The technologies used were:

- LiDAR scanning (using a Leica RTC360)
- Ground-based photogrammetry (using a Sony A7Riv camera)
- Drone DJI Air 2S

The data acquired will be fundamental to create a 3D model of the collections and the buildings of Fondazione Cini, and of the whole island of San Giorgio Maggiore, both for research and preservation purposes and for the dissemination of the heritage.

Moreover, the creation of virtual tours based on this data will improve remote accessibility and would be useful for didactic purposes.

**ISLAND, FONDAZIONE GIORGIO CINI AND BASILICA OF SAN GIORGIO MAGGIORE**

The first day saw the recording of the interior of the Palladian church, the apse and the inside of the bell tower, while the following days were dedicated to the exterior of the church and the crypt. The island was then recorded from more than 600 different recording spots, from which a massive 60,000 million point cloud was generated. The data acquired through photogrammetry has recently been merged with the point-clouds - with the aim of creating a 3D model of the whole island.

“(…) The LiDAR has recorded inscriptions so high up they cannot be read from the ground. And when Factum will have recorded the roofs using a drone, the ground and the all-important relationship between the surface of the island and the rising and falling levels of the water, there will be a perfectly accurate record of the whole. But what is it for? The answer is that it will allow the encroachments of the water and the consequent damage to the island and buildings to be monitored precisely as the water level rises in the Adriatic and the lagoon. And this is a certainty, according to the highly authoritative IPCC (Intergovernmental Panel on Climate Change), although the levels it predicts vary according to various environmental scenarios, (…)”


Buildings and spaces of San Giorgio Maggiore Island recorded with LiDAR 3D scanning (2020):

- Main docks
- Basilica of San Giorgio Maggiore (interior and crypt)
- Conclave
- Campanile
- Chiostro Palladiano
- Scala di Longhena
- Presidenza of the Fondazione Giorgio Cini
- Cenacolo Palladiano
- Sala delle Fotografie
- Chiostro Cipressi
- Sala Carnelutti
- Manica Lunga
- Sale Convitto (exterior)
- Sala Arazzi
- Padiglione Capriate
- Piscina
- ARCHiVe (first floor)
- Auditorio Lo Squero

Architecture and sculptures on San Giorgio Maggiore Island recorded with photogrammetry (2020):

- Basilica di San Giorgio Maggiore: facade elements (niche sculpture, shield, text)
- Basilica di San Giorgio Maggiore: altar
- Basilica di San Giorgio Maggiore: choir seating
- Basilica di San Giorgio Maggiore: lectern
- Chiostro Palladiano: North wall
- Chiostro Palladiano: West wall
- Scala Longhena: niche sculpture and ground floor ling
- Chiostro Cipressi: well
- Miscellaneous pots (Secretary General’s office)
- Ezra Pound sculpture
- Miscellaneous sculptures in the gardens
- Painting of Costantin Léferve
- Manica Lunga
- Sala del Soffitto

VATICAN CHAPELS

In 2018 the Holy See took part for the first time in the 16th International Architecture Exhibition of La Biennale di Venezia, through the creation of the Vatican Chapels Pavilion on San Giorgio Maggiore Island. After the Biennale, the chapels have been left to the Fondazione Cini and it is possible to visit them as part of a guided tour of the Fondazione. While the chapels, through the use of various materials, shapes and concepts, show the different languages, generations and spiritual visions of the architects, the digitisation aimed to capture their macro and micro features. The team spent two days recording the chapels, inside, outside and from above.

After the first 3D recording carried out in late January 2022 (using LiDAR and aerial drone-based photogrammetry), a second 3D recording of the Teatro Verde was carried out in June 2022 to fill in missing data and to enable a better integration of the LiDAR and photogrammetry, but with the main intent of including the ten Vatican Chapels into the recording of the entire island of San Giorgio Maggiore. The recording and processing was undertaken by Imran Khan who joined Factum in 2022 on a special agreement sponsored by Suniel Setiya.
Vatican Chapels with LiDAR 3D scanning and photogrammetry (2022):
• Andrew Berman (LiDAR only)
• Carla Juacaba (3D modelled)
• Eduardo Souto de Moura
• Eva Prats & Ricardo Flores
• Francesco Cellini
• Javier Corvalan
• Norman Foster
• Sean Godsell
• Simljan Radic
• Teronobu Fujimori
• Francesco Magnani & Traudy Pelzel

TEATRO VERDE
The Teatro Verde was commissioned by Vittorio Cini to the architect Luigi Vietti (1903-1998) and inaugurated in 1954. In 2021 the theatre underwent a major restoration that brought its architecture back to life, highlighting all the qualities of the building materials, the surrounding greenery, the fascinating spaces and the extraordinary landscape views. Its restoration, strongly desired by Fondazione Cini, was possible thanks to the valuable contribution of Cartier in the continuity of its longstanding commitments towards arts and culture.

Concurrently with the restoration, in just 2 days Factum team digitised not only the entire area of the open-air amphitheatre (1,400 square metres with a seating capacity of 1,500 people), but also part of the understage area (twelve individual dressing rooms, eight rooms for minor actors or choirs, deposits and storerooms for equipment). Part of this data has been used by Mattia Casalegno for the project The Mask of Time.

Teatro Verde with LiDAR 3D scanning and photogrammetry (2022):
• Stage
• Cavea
• Planimetry
• Understage area (including dressing rooms)
• External Parts

TAPESTRIES AND PAINTINGS
Included in this ambitious project, is the documentation of the collections of Fondazione Cini (see projects on Tapestries and on the Digitisation of Palazzo Cini Gallery).

Franco-Flemish tapestry with Lucida and composite colour (2022, see focus in the next pages):
• 3D and colour recording of the front
• Colour recording of the back

Paintings at Palazzo Cini in San Vio with Lucida and composite colour (2023):
• 3D and colour recording of 47 paintings (see project on the Digitisation of Palazzo Cini Gallery).
CHIUSURA DELLA STAGIONE CONCERTISTICA

| O. RESPIGHI |
| "LAUDA PER LA NATIVITÀ DEL Signore" |

| B. BRITTEN |
| "SAN NICOLA" |

Piazza S. Angelo, 9 - MILANO - Teled. 637.13 - 65.67.48
I. Projects

- REPLICA PROJECT: BUILDING ARCHIVE
- SEGUSO VETRI D’ARTE ARCHIVE
- ESSLING LOD
- ATLAS OF RENAISSANCE ITALIAN WOODCUTS
- TIZIANO TERZANI ARCHIVE
- HERITAGE LAB ITALGAS
- ATLANTE LINGUISTICO MEDITERRANEO (ALM)
- ULDERICO ROLANDI COLLECTION
- HISTORICAL ARCHIVE OF FONDAZIONE GIORGIO CINI
- ETTORE SOTTAS JR. ARCHIVE
- RESEARCH PROJECT ON ALAIN DANIELOU
- VENICE LONG DATA
- CARLO AND GIOVANNI MORETTI ARCHIVE
- ENCHANCEMENT OF ORLANDO INNAMORATO
- PROJECT ON AESOP
- PROJECT “PONTI 4.0”
- THE MASK OF TIME
- MEFA: MIDDLE EAST FALCONRY ARCHIVE
- DIVIROD: MONITORING SAN GIORGIO MAGGIORE’S WATER LEVELS
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- DANTE 1491
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- THE BEHNA ARCHIVE PROJECT
- PROJECT ON THE REMOVAL OF PHYSICAL, COGNITIVE AND SENSORIAL BARRIERS OF FONDAZIONE GIORGIO CINI PARK
- ONLINE AND ON-SITE HERITAGE: NEW INTERGENERATIONAL DIALOGUES
- DIGITISATION OF PALAZZO CINI GALLERY
- NOZZE DI CANA APP
- DIGITISATION OF “IL GIORNALE DELL’ARTE”
This project gave birth to ARCHiVe, putting the collaboration of the three organisations to the test for the first time and setting an ambitious target, only possible with the synergy of all.

Fondazione Giorgio Cini preserves one of the most important iconographical archives concerning local and international art history, architecture, urbanistic and culture: about 730,000 photographic positives stored in the photo libraries of the Institute of Art History. Half of these positives form the Historic photo library of the Fondazione, a collection specialised in Veneto’s arts and culture.

The other half is the result of the gradual collation of the private photo libraries of eminent scholars, such as Giuseppe Fiocco, Rodolfo Pallucchini, and Raimond Van Marle, and prestigious donations and collections of images from public institutions, acquired by Fondazione Giorgio Cini and stored in the Biblioteca Manica Lunga. Replica project responds to two crucial issues:

- How to quickly digitise this incredibly large number of documents while respecting the original heritage and with optimal technological accuracy;
- How to make the resultant database rapidly searchable based on geometrical similarities between images without necessarily having to use a textual search.

Adam Lowe and his studio, Factum Arte, Madrid, which has already enjoyed a long, highly fruitful collaboration with the Fondazione Cini, have specifically created a circular scanner (Replica 360 recto/verso) to digitise the Historic photo library (at first) in the fastest way possible. Moreover, Factum provided Replica with a software that gives the possibility to store data and metadata (the file and its archival position, ID number, and other basic, necessary metadata) while digitising. This way Fondazione Giorgio Cini started to create a huge database of images and information: this vast amount of data was stored and analysed by the Digital Humanities Lab of École Polytechnique Fédérale de Lausanne.

In order to provide a geometrically based search engine for this database, DHLAB based its research on recognizing patterns of similarities in the pictures of the Historic photo archive. DHLAB has introduced to the process one of the most advanced technologies from artificial intelligence: “deep learning”.

**REFERENCE**

FGC / Institute of Art History
Factum Foundation
EPFL
2015 — 2017; 2018 — Ongoing

**CURRENT ÉQUIPE**

Costanza Blaskovic, Jorge Cano, Simone Guerriero, Adam Lowe
By activating a huge network of artificial neurons, only recently possible in the field of images, various forms of visual entities can be analysed simultaneously in a unified approach.

Experimenting in the field of machine learning, DHLAB has also created an automatic segmentation process whereby the text and image are separated and then annotated. In fact, the Historic photo library is made of thousands of photographic positives glued on cardboards: these cardboards show several additional information, such as the subject of the picture, the place depicted, the date, the author of the piece of art represented.

These new digitalization techniques mean that unprecedentedly large archives can go online and the calculation capacity, handling specific data, can cater for users’ searches at various, increasingly modulated levels. The Replica search engine will thus surely broaden the public traditionally interested in the heritage of the photo library as well as optimising searches and studies for specialists.

The aims of the project are the reorganisation, the inventory, the digitisation and enhancement of Fondazione Giorgio Cini’s photo libraries.

Andrea Barbon (Mindware), Remko Bigai, Giulia Clera, Simone Guerriero, Franco Novello, Costanza Blaskovic, Gaspare Frassetto, Ginevra Gioia, Martina Lughin, Erica Mariani, Tania Mio Bertolo, Jacopo Scarpa, Alice Vivian (Fondazione Giorgio Cini); Adam Lowe, Enrique Esteban, Dwight Perry, Pedro Miró Infante, Quinner Baird, Jorge Cano (Factum Foundation); Frédéric Kaplan, Isabella di Lenardo, Benoit Seguin, Lia Costiner, Carlotta Striolo (EPFL).

Documents + Equipment
Documents: Photographic positives on cardboard.
Equipment used for digitisation: Scanner Replica360 recto/verso (developed by Factum Foundation)

Methodology
I. Reorganisation of Historic photo library
II. Application of ID numbers on documents
III. Digitisation of Historic photo library (671,564 images)
IV. Digitisation of Bruno Alfieri photo library (2,073 images).
V. Digitisation of Bernard Berenson photo library (30,275 images).
VI. Post-processing and data analysis

Fondazione Giorgio Cini aims at continuing the project by digitising the other photo libraries stored in the Biblioteca Manica Lunga, and sharing the heritage online.
The historic Seguso glass furnace became a company in 1933, during a period of great innovation and manufacturing planning. During this period, in addition to artistic production, activities related to architectural projects also took off, both in the field of lighting and furnishing; glassworks became internationally recognised in the panorama of contemporary art. The Seguso Archive, on commodate at Fondazione Giorgio Cini from 2012 and destined for the Centro Studi del Vetro, contains thousands of projects attesting to the varied production of the artists and designers who collaborated with the glassworks from 1932 to 1973.

The acquired corpus consists of 22,479 executive drawings and sketches, 13,311 photographs and about thirty production catalogues divided between Showroom catalogues (7 volumes, 1939-1971) with drawings of individual hand-made models, Lighting production catalogues (19 volumes) and Barbier order catalogues (5 volumes).

The digitisation and cataloguing project of the Seguso Vetri d’Arte Archive aims to enhance the documentary heritage, scientific research and dissemination of materials, thus meeting the criteria of consultation and preservation of original materials. Objectives of the project are therefore the archival description and the online publication of the archive.


Andrea Barbon (ARCHiVe – Mind@ware): former Project Manager; Remko Bigai (ARCHiVe – Mind@ware): former IT Specialist; Giulia Clera (ARCHiVe – Fondazione Giorgio Cini): organisng, securing, cleaning, describing and recording materials; Joan Porcel Pascual, Irene Bigolin, Nicola Rigo (ARCHiVe – Fondazione Giorgio Cini): post-production; Federico Dassiè (ARCHiVe – Fondazione Giorgio Cini): IT Specialist for automatic post-production.

People involved


Andrea Barbon (ARCHiVe – Mind@ware): former Project Manager; Remko Bigai (ARCHiVe – Mind@ware): former IT Specialist; Giulia Clera (ARCHiVe – Fondazione Giorgio Cini): organisng, securing, cleaning, describing and recording materials; Joan Porcel Pascual, Irene Bigolin, Nicola Rigo (ARCHiVe – Fondazione Giorgio Cini): post-production; Federico Dassiè (ARCHiVe – Fondazione Giorgio Cini): IT Specialist for automatic post-production.

Noemi La Pera, Rosario Terranova (ARCHiVe – Fondazione Giorgio Cini): Photographers.
Methodology

Analysis of the archive and its documents

I. Creation of archival structure and description
II. Photographic positives on paper: reorganisation
III. Drawings: cleaning, securing, conditioning and labelling
IV. Digitisation

Documents + Equipment

Drawings, sketches, photographs, catalogues,
Scanner Replica 360 recto-verso: photographic positives
Vacuum Surface set: executive drawings and sketches.

Developments & Results

I. Analysis of the archive and its documents, including the state of preservation, the type of documents and the amounts: for the photographic positives on paper a general reorganisation was implemented, and for the drawings the cleaning, securing, conditioning and labelling was carried out. Then, the archival structure was created and the team proceeded with the inventory and first description of the documents.

II. Digitisation of the entire archive through different technologies developed at ARCHiVe: 13,311 printed photographs recorded fronte/retro for a total of 26,622 files; 22,479 large format drawings recorded double-sided for a total of 44,958 files - including 255 very large format drawings (up to 4 metres) digitised fronte/retro for a total of 510 files. The files have been post-processed with a set of experimental automatic algorithms.

III. Automatic post production of the series Illuminazione and Progetti Speciali and publishing: in 2022, ARCHiVe created a new script for automatic post production based on this new dataset. This step comprehends the export in .jpg for the upload on the cataloguing system (xDams) and the creation of a script for the automatic extraction of information, such as the dimension of the digitised documents. Therefore the final import of data descriptions, metadata and digital images was completed in 2023, which led to the online publication of the archive.

PUBLICATION

In 2023 post-production and archival description are completed and the documentation is freely accessible from the Fondazione Giorgio Cini website.
The project is named after Victor Massèna, Duke of Rivoli and later Prince of Essling (1836-1910), who was a scholar and collector of early printed books. As an author, among his many knowledgeable publications, emerges the monumental repertory *Les livres à figures vénitiens de la fin du XVe siècle et du commencement du XVIe* (Florence, Olschki - Paris, Leclerc, 1907-1914).

The work lists illustrated editions that were printed in Venice from the year of introduction of movable type printing (1469) to 1525 (with some exceptions of later editions). The list includes 2,585 numbered editions, 275 unnumbered editions and another 29 numbered editions in the Addenda. It is richly furnished with images reproducing the woodcuts that are featured in incunabula and cinquecentine.

Thanks to his in-depth studies, Essling compares the engravings and their frequent reuse in different editions and helps telling a history by images of the extraordinary period that was Venetian Renaissance. For this reason, the Essling repertory is not of exclusive interest to bibliographers or librarians but is also considered an important source for art historians and antiquarians. For each title, next to bibliographical description, the author provides reference of the copies that he was able to view in many European libraries or for personal concessions from collector friends. In case the copy described belongs to his personal library, it is marked with a star at the end of the title and today are almost entirely stored in the Manica Lunga library.

The persistent relevance of the Essling repertory and the exceptional presence of its collection among the Cini Library’s holdings has stimulated the conception and realization of the Essling LOD project, i.e. the transfer of the immense amount of bibliographic data from the original 6 volumes hard copy to a digital tool that exploits Linked Open Data (LOD) and Semantic web technology.

**Objectives**

The general objective of the project is the realization of a portal within which, on one hand, making the content of 6 volumes of Essling repertory easily accessible (also through interrogation) and, on the other hand, allowing visualization of the copies owned by the same author - those described in the repertory with stars.

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**REFERENCE**

FGC / Manica Lunga Library

2016 — Ongoing

**CURRENT ÉQUIPE**

Ilaria Andreoli, Ilenia Maschietto
### Methodology

Pre-study and creation of the platform: pre-study phase, concerted and shared among the various actors, determined an analysis of the domain of intervention and the creation of the platform for data entry. The track was created specifically for this project, combining the needs of computer science with those typical of humanistic research. ARCHiVe, moreover, has borne the costs of the creation of the platform and supports its maintenance.


### Developments & Results

**CONFERENCES**


**PUBLICATIONS**

Ilenia Maschietto, *Il progetto Essling LOD alla Fondazione Giorgio Cini*, in Regesta.exe


Ilaria Andreoli, Ilenia Maschietto, *The Essling Project. Linked Open Data and copy specific information in the census of Venetian illustrated books of the Renaissance*, (forthcoming) [British Library conference proceedings].
The Atlas of Renaissance Italian Woodcuts is the result of a research project aimed at studying and cataloguing woodcuts and woodblocks made in Italy, from the earliest known examples up to about 1550.

The project focuses in particular on xylographic production of loose sheets, a theme of study that has been relatively sacrificed by specialist studies and that finds data and information in research contexts all over the world. Being able to bring together in a single database descriptions and previous studies on a specific woodcut means, on one hand, obviating dispersion of knowledge and, on the other hand, encouraging image comparisons and exchanges among scholars.

The results currently published encompass more than 1,300 records, surveying Italian woodcuts and matrices now preserved in the most important Italian and foreign collections and in many international institutions.

The aim of the project is making available, online, a database including a description of the xylographic objects and promoting interconnection between data related to engravings, loose sheets, xylographic plates and early printed illustrated books.

Laura Aldovini, David Landau, Silvia Urbini (Scientific Referees and Compilers), Maria Ludovica Piazzi, Laura Fiore, Elisa Lonigro, Andrea Meggiato (Compilers). Simone Guerriero, Ilaria Turetta, Monica Bassanello, Matteo Giro (Fondazione Giorgio Cini). Andrea Barbon (ARCHiVe – Mindware), Giulia Clera (ARCHiVe – Fondazione Giorgio Cini), Ilaria Barbanti, Simone Pasquini (Regesta.exe).

ARCHiVe intervened in the realization phases of the publication platform and research tools. In particular, extraction of the main information from the original cards has been carried out, transferring and organizing them within the xDams platform in a multi-level structure, with a hierarchical architecture of the data. Thus, it was possible to allow searching by fields and to establish new relationships between data.
Developments & Results

CONFERENCES


PUBLICATION
Link: https://archivi.cini.it/storiaarte/archive/IT SDA GU001-000058/atlante-xilografie-italiane-del-rinascimento.html

BIBLIOGRAPHY

Laura Aldovini, David Landau, Silvia Urbini, Rinascimento di carta e di legno. Artisti, forme e funzioni della xilografia italiana fra Quattrocento e Cinquecento, on Saggi e Memorie di Storia dell’Arte, January 2018.

Silvia Urbini, A Newly Identified Woodcut by Amico Aspertini, on Print Quarterly, 2, 2018, pp. 183-188.


WORKSHOP
Tiziano Terzani (Florence, 14/09/1938 - Orsigna, 28/07/2004) was an Italian journalist and writer. Deep connoisseur of the Asian continent, he arrived there for the first time in 1965, sent by Olivetti. He collaborated with several newspapers, including Der Spiegel, Il Giorno, L'Espresso, Il Messaggero, La Repubblica and Corriere della Sera. From his professional experience came the inspiration for his books, published all over the world.

After his death, first the personal library (2012) and then the archive (2014) were donated by the Terzani family to Fondazione Giorgio Cini.

The documentation of the archives arrived at the Fondazione Giorgio Cini in January 2017, gathered in 15 boxes, 53 folders, 5 binders and 80 boxes of photographs. It is mainly made up of preparatory writings for the publication of articles and works, handwritten and typewritten notes related to his activity as a journalist, notebooks, press clippings, personal and professional correspondence, postcards, photographs, maps, audiovisual material, as well as personal and school records. The archives also includes posthumous documentation, collected by his wife Angela Staude, related to events or writings dedicated to Terzani.

The Terzani archives presents itself not so much as an “orderly” archive, but rather as a collection of documents that the Florentine intellectual used during his activity as a journalist and writer. It was an archive “in use”, subject to constant implementations and removals, due to continuous movements linked to his activity as a reporter.

The current structure of the archives is the result of the successive and substantial reorganisation of the papers carried out at different times by the family and by the scholars who reorganised the materials.

Terzani's passports and press accreditations have been completely digitised and post-produced (890 files), as have the papers of the editorial project on Mao (274 files), together with 8,312 double-sided printed photographs for a total of approximately 16,600 files (Photographic Fund), segmented using algorithms. There are approximately 77,000 negatives in the archive, the digitisation of these materials will be evaluated in the next future.

Materials saved on other media such as floppy disks, VHS and CDs are also being digitised.
Objectives

Objectives of the project are reorganisation, archival description, securing and conditioning of all materials of the archive of the journalist and writer Tiziano Terzani, as well as the digitisation of all of them.

People involved

Andrea Barbon (ARCHiVe – Fondazione Giorgio Cini): former Project Manager; Giulia Clera (ARCHiVe – Mind@war): former Project Coordinator; Remko Bigai: IT Specialist for automatic post production; Álen Loreti: Official Biographer of Tiziano Terzani and Representative of the Terzani family, providing support for knowledge and understanding of the archive papers; Emanuela Mazzina (Regesta.exe): specialised in archival consulting for drafting project guidelines and defining the archival structure of documents. Costanza Blaskovic, Ricky Ciarfera, Martina Lughi, Eva Salvato, Jacopo Scarpa, Alice Vivian (Fondazione Giorgio Cini): reorganising, cataloguing and digitising materials.

Documents + Equipment

Printed materials, manuscripts, photographs, negatives, slides.
Scanner Replica360: photo positives
V-Scanner: passports
Reproduction stand: editorial project on Mao, passport photos, press accreditations.

Developments & Results

I. After the donation, Fondazione Giorgio Cini strengthened the relation with Terzani’s heirs and involved different specialists in order to carry out a preliminary study on the archive.

II. Organisation, reorganisation, archival description, creation of consultation tools were carried on between ARCHiVe and the Comparative Studies of Civilisations and Spiritualities.

III. Securing and conditioning: removal of the harmful elements or preservation (such as metal pins and rubber bands), and general evaluation of the state of preservation were constantly done.

IV. ARCHiVe completed the digitisation on a selection of materials of greatest interest and in a precarious condition for preservation. The files, including the photo collection of Terzani, are then uploaded on the online catalogue.

V. Optimization of the user experience of the online consultation tools (online archive catalogue) for the publication online. To ensure the dissemination of Terzani’s archive, ARCHiVe has also collaborated in the creation of two articles and editorial photo shoots published in ARCHIVIO magazine and dedicated to the archives of Ettore Sottsass and Tiziano Terzani.

PUBLICATION

The entire Tiziano Terzani Archive held by the Fondazione Cini Centre for Comparative Studies of Civilisations and Spiritualities is now accessible online. The celebrated reporter’s correspondence, passports, diaries, notes and thousands of photographs that he took during his countless long stays in Asia, can now be consulted on the Fondazione Giorgio Cini website:
The mission of the Italgas museum laboratory is to digitise the company’s historical heritage and make the most of the narrative potential of its officially recognised archive through continuous exchanges with local, national and international partners, and as part of the vast European Time Machine consortium network.

Digitising and enhancing the Company Historical Archive and renewing exhibition spaces and paths of Museo d’Impresa the Italgas Historical Archive is an ever-growing patrimony, the study of which makes possible to reconstruct not only the history of the Company and the people who worked there, but above all the links with the main events of the country and with the world of energy, the role Italgas played in the process of industrialization of Italy, urban development and public services. ARCHiVe carried out the project pre-study and drafting, in synergy with other project partners (in particular, Factum Foundation and Regesta.exe).

By nurturing positive relationships with business archives and institutions, such as universities and research centres, Heritage Lab intends to be a key player in the digital transformation, as a cultural player of reference for the valorisation and digitisation of industrial heritage, leading this evolution with innovation and continuous research.

Matteo Allasia, Katya Corvino, Daniela Marendino (Italgas Heritage Lab); Carlo Bruno, Giovanni Bruno, Chiara Casarin, Katya Corvino, Daniela Marendino, Ilenia Maschietto, Joan Porcel Pascual

The people involved in the project: 4 archivists, 2 paleographers and about 20 digitisation experts.
Today, Italgas Historical Archive consists of an original nucleus of more than 3,000 linear meters of documents, 6,000 volumes, pamphlets and magazines, 55,000 prints, photographs and posters, 350 vintage equipment and instruments declared of considerable historical interest by the Italian State and subject to notification and preservation restraint.

Using the Factum Foundation’s innovative equipment, which has technologically evolved from Fondazione Cini prototypes, Heritage Lab - thanks to the training dedicated to the work team coming from a social cooperative for job placement (see the project page in the ‘other educational project’ section) has collected 950,000 file recorded, postprocessed and partially online published, thanks to innovative technologies and automated processes.

Developments & Results

I. Analysis and project development organization (completed)
II. Sharing of Digitisation and Cultural Heritage Preservation tools and methods (ongoing)
III. Digital recording of the heritage with the machines of the Fondazione Cini and Factum Arte, automatic image processing, storage and filing on the xDams platform (ongoing)
IV. Training by ARCHiVe (ongoing)
V. Developments and maintenance of the digital photography laboratories by ARCHiVe (ongoing)
VI. Development of a website to explore Italgas’ archival heritage online (completed, https://heritagelab.italgas.it/)
VIII. Organisation at ARCHiVe of a Masterclass for Italgas “The Digitisation of Business Archives: the Italgas Heritage Lab model as a place for digital transformation”, on 13 November 2023.

FUTURE DEVELOPMENTS

The intention for the coming months is to reorganise and enhance the library’s bibliographic heritage. For this reason, specialised in-house training has already been scheduled for Heritage Lab (31 August – 1 September, held by Ilenia Maschietto and 12 – 15 September, held by Joan Porcel Pascual).
The Atlante Linguistico Mediterraneo (ALM) is an inter-university research project aimed at the representation of the maritime and fishing lexicon of the countries bordering the Mediterranean Sea by means of linguistic maps. One of the most important and complex dialectological and geolinguistic undertakings of the last century, the Atlante aims to represent “the heritage of maritime terminology living along the Mediterranean coasts” (Foreword to BALM, 1, 1959: 1) and to reconstruct, through a “methodical comparison of materials”, the “spread of individual voices”, their “historical stratification”, and the “unifying function of the sea” (Foreword to BALM, 1, 1959: 2). In contrast to dialect atlases, which assume linguistic unity in order to seek differentiation, the ALM, on the other hand, starts from a multiplicity of languages in order to seek what unites and what is common to them “Because the aim of a multilingual atlas is to particularly highlight interlingual unity as a result of exchanges and coexistence” (Deanović, 1969).

Launched in 1956 and continued until the Congress held in Palermo in October 1975, the project was finally resumed forty years later on a proposal from the Centro di studi filologici e linguistici siciliani (Centre for Sicilian Philological and Linguistic Studies), which was promptly accepted by the Fondazione Giorgio Cini, which conserves material collected over time and has sponsored the work since the project beginning.

Objectives of the project are reorganisation, conditioning, cataloguing and digitisation of materials. These actions are preparatory to the creation of a database containing digital copies of ALM documentation and its metadata, a fundamental tool for sector studies, part of the project objectives. All these preliminary actions and the creation of the database was taken care by AR-CHiVe. The following activities are also planned: recovery and completion of the editing of linguistic materials; completion of revision and normalisation of phonetic transcriptions for the purposes of consultation and publication of the work; elaboration of linguistic maps; preparation of publications to accompany the Atlante.

The Atlante Linguistico Mediterraneo (ALM) is an inter-university research project aimed at the representation of the maritime and fishing lexicon of the countries bordering the Mediterranean Sea by means of linguistic maps. One of the most important and complex dialectological and geolinguistic undertakings of the last century, the Atlante aims to represent “the heritage of maritime terminology living along the Mediterranean coasts” (Foreword to BALM, 1, 1959: 1) and to reconstruct, through a “methodical comparison of materials”, the “spread of individual voices”, their “historical stratification”, and the “unifying function of the sea” (Foreword to BALM, 1, 1959: 2). In contrast to dialect atlases, which assume linguistic unity in order to seek differentiation, the ALM, on the other hand, starts from a multiplicity of languages in order to seek what unites and what is common to them “Because the aim of a multilingual atlas is to particularly highlight interlingual unity as a result of exchanges and coexistence” (Deanović, 1969).

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People involved

Egidio Ivetic (Fondazione Cini – Director of the Institute for the History of the Venetian State and Society); Andrea Barbon (ARCHiVe – Mind@ware), Riccardo Contini (University of Naples “L’Orientale”), Franco Crevatin (University of Trieste), Giovanni Ruffino (University of Palermo, Centro di studi filologici e linguistici siciliani), Tullio Telmon (University of Turin); former Promoting Committee; Erica Mariani, Alice Vivian (ARCHiVe – Fondazione Giorgio Cini); in charge of a first analysis of materials and their census; Jacopo Scarpa (ARCHiVe – Fondazione Giorgio Cini); in charge of the reorganisation, conditioning, creation of the archival structure, description and digitisation of materials; Giulia Clera (ARCHiVe – Fondazione Giorgio Cini); in charge of archival description review; Remko Bigai (ARCHiVe – Mind@ware); developer of algorithms for data extraction and automatic post-production; José Enrique Gargallo Gil (University of Barcelona), Tullio Telmon (University of Turin), Nikola Vuletić (University of Zadar); Committee for Bollettino dell’Atlante linguistico Mediterraneo (BALM); Annalisa Nesi (University of Siena), Nikola Vuletić (University of Zadar): Committee for the drafting of Area Monographs; Giovanni Abele (University of Naples “Federico II”), Luca D’Anna (University of Naples “l’Orientale”), Vito Matranga (University of Palermo), Matteo Rivoira (University of Turin), Nikola Vuletić (University of Zadar); Committee for the revision and standardisation of phonetic transcriptions; Valentina Retaro (University of Naples “l’Orientale”): in charge of procedures for the revision and normalisation of phonetic transcriptions.

Methodology

I. Reconstitution of the ALM Committee and resumption of the project together with the Universities involved at the beginning of the project in the 50s and 70s: first a census of all materials stored at Fondazione Cini has been necessary. Then the digitisation of a first core of documents was carried out, together with the creation of algorithms for data extraction: Survey Notebooks, Albums, and Concept Schedules were recorded and post-processed at ARCHiVe. In the meantime, a data extraction script was tested within ARCHiVe in order to automatically obtain the information within the digitised documents.

II. Reorganisation, conditioning and securing of the materials: all documentation was placed in special storage containers (non-acidic cardboard folders and boxes) to protect it from dust and light and to avoid dispersion.

III. Digitisation of other materials: Concept Schedules, Photo Lexicon Archive, Survey Notes A and B, Bollettino dell’Atlante Linguistico Mediterraneo (BALM), Saggio delle carte, reels. In the meantime, archival descriptions and the creation of online consultation tools were completed.

IV. Procedures for standardisation of phonetic transcriptions: this phase is still ongoing, about 85% of the total is already standardised by the Universities’ linguistic departments.

Documents & Equipment

Photographic positives, slides and negatives, phonetic maps of the Mediterranean and other maps, magnetic tapes, correspondence, study and preparatory material, printed material.


Laboratory for magnetic tapes: reels.
Ulderico Rolandi Collection

Ulderico Rolandi (Roma, 23/07/1874 – 03/12/1951) was a gynaecologist by profession, but also a critic and collector, who was actively involved in music studies. In 1893, Rolandi bought a small nucleus of opera librettos, which formed the core of his vast collection, which he increased until his death to about 21,500 examples, printed, manuscript and typescript. It consists of: 16th-century librettos, librettos from the 17th to 19th century, special editions (librettos belonging to sovereigns, special formats, librettos written for theatre openings, censorships written by police and prefectures, bilingual volumes and ballet librettos). The Rolandi collection also includes a collection of musical scores and papers, musicology volumes, study materials, press reviews in the field of interest and theatrical iconographic material.

Over the years, the librettos collection has been the subject of various enhancement projects. From the 1970s until 1986 there was a collaboration with the Enciclopedia Italiana, founded by Giuseppe Treccani. The aim of the project was to catalogue the entire collection and publish the catalogue in several volumes. Only a specimen of the first volume was published in 1986, and no others followed. From 1987 to 1990 with A.CO.M. (Archivio Computerizzato Musicale Veneto) project, a special database was created to catalogue librettos. At the end of the project, the collection was almost entirely catalogued and all the cards produced were subsequently transferred to the Catalogue of the National Library Service (OPAC SBN). From 2005 to 2008, the Echo Project was carried out, whose aim was to digitise the entire collection and to reclaim all the A.CO.M. records on the SBN OPAC. At the end of the project, 1119 booklets were digitised and most of the SBN records were reclaimed.

Objectives of this project are digitisation, archival description and online publication of opera librettos.
Developments & Results

I. Preliminary study. In the first phase, from June to July 2018, the archival history of the Rolandi collection, its formation and evolution, its donation to the Fondazione Giorgio Cini and subsequent enhancement projects were studied by the team.

II. Digitisation of librettos with V Scanner (ongoing, stopped in 2020). A beta version of a digital tool to facilitate the recording of the librettos and the automatic extraction of data from the files was developed and tested (ScanApp).

III. Description and creation of consultation tools. At the same time as digitisation operations, the pre-existing inventory could be integrated with data on location, updated inventory numbers, description and SBN bid, state of preservation, presence of figured frontis and/or illustrations.

IV. Publications of librettos online on Cini’s Digital Library and inking of the digital images on the National Catalog OPAC SBN: this phase is partially completed.

PUBLICATION
Materials are ready for official publication. Digitised images are published in the Digital Library of Fondazione Giorgio Cini: http://dl.cini.it/collections/show/1560
The Fondazione Giorgio Cini was established in 1951 by Count Vittorio Cini, in memory of his son Giorgio, with the aim of restoring the Island of San Giorgio Maggiore, seriously degraded by almost 150 years of military occupation, and making it an international centre for cultural activities and important meetings.

Throughout its 70 years of activity, each Institute and Office of the Fondazione Giorgio Cini has preserved and organised its documentation autonomously, resulting in a situation of irregularity and fragmentation, combined with often precarious preservation conditions.

The need to reconstitute the unity of the archive and at the same time to protect it, make it accessible and enhance it, led the Fondazione Cini to start the project of establishing its own Historical Archive. Through it, it will be possible to retrace the growth and development of the foundation, which over the years has promoted culture and research nationally and internationally by bringing together artists, intellectuals and extremely important figures in culture, politics and economics in Italy, Europe and the world.

The first phase of the project took place between 2018 and 2021 and aimed at mapping the documentation stored at the Foundation and creating an archival structure on xDams platform for the virtual meeting of materials. The project also included the digitisation of material in a precarious state of conservation or of particular interest for consultation (some of the books of the General Council, the Steering Committee and the Centro di Cultura e Civiltà, the issues of the Notiziario di San Giorgio, around 200 photographs showing the restoration works on the Island of San Giorgio Maggiore and some magnetic tapes containing recordings of seminars and conferences held at the Fondazione Cini).

The current phase of the project, started in May 2022, is financially supported by Banca d’Italia and will run for the next 5-7 years. The objectives are the reorganisation of the archive, the creation of digital and accessible research tools, the securing and conditioning of documents, as well as the digitisation and dissemination of the Historical Archive. This long-term project also aims to mark a starting point for the proper management and archiving of present and future documentation.
People involved

Eurigio Tonetti (Fondazione Giorgio Cini): Project Coordinator; Valentina Venturi, Stefano Barzon (ARCHiVe – Fondazione Giorgio Cini): reordering and archival description.

Andrea Barbon (ARCHiVe – Mind@ware): former Project Manager; Giulia Clera (ARCHiVe – Fondazione Giorgio Cini): former Project Coordinator; Giacomo Brotto (ARCHiVe – Fondazione Giorgio Cini): first survey, virtual reordering, digitisation and archival description of materials; Matteo Allasia, Costanza Blaskovic, Guia Camarri, Jasmine Capovilla, Noemi La Pera, Carlo Mezzalira, Alice Vivian (ARCHiVe - Fondazione Giorgio Cini): support to the first survey, virtual reordering, digitisation and archival description of materials.

Andrea Barbon (ARCHiVe – Mind@ware): former Project Manager; Giulia Clera (ARCHiVe – Fondazione Giorgio Cini): former Project Coordinator; Giacomo Brotto (ARCHiVe – Fondazione Giorgio Cini): first survey, virtual reordering, digitisation and archival description of materials; Matteo Allasia, Costanza Blaskovic, Guia Camarri, Jasmine Capovilla, Noemi La Pera, Carlo Mezzalira, Alice Vivian (ARCHiVe - Fondazione Giorgio Cini): support to the first survey, virtual reordering, digitisation and archival description of materials.

Methodology

1. Research and census of materials
2. Analysis of documentation, reorganisation, archival description and creation of online consultation tools
3. Securing and conditioning
4. Digitisation

Documents + Equipment

Manuscripts, typescripts, correspondence, photographs, posters, magnetic tapes, audio cassettes.
Scanner Replica 360 recto/verso: photographic positives.
V-Scanner: minute books of General Council, Steering Committee and Culture and Civilisation Centre; the Notiziario di San Giorgio.
Magnetic tape laboratory: audio reels of magnetic tapes.

Developments & Results

Over the past year, the team has focused on the documentation produced by the General Secretariat of the Fondazione Cini, completing the reorganisation and archival description of: Vittore Branca Fund (distinguished Italianist and General Secretary of the Foundation for 35 years), materials relating to the Courses of High Culture (1958-2021), the Courses for Italianists (1964-2010) and the Early Music Seminars (1976-2003), and a selection of folders related to conferences and seminars promoted by the Fondazione Cini since the early 1960s.

Over the past few months, the team has coordinated the transfer of the remaining documentation produced by the General Secretariat and located in various repositories and offices of the Foundation.

The team is now in the process of analysing, reordering, and making an initial description of the documentation, which will be followed by a review of the archival structure and a more in-depth description of the archival units. Also, in the context of the Regional Civil Service programme, from August 2023 a database and synthetic timeline of the historical events of Fondazione Giorgio Cini (exhibitions, conferences, concerts, etc.) is being developed. These data are taken from the Fondazione’s periodicals “Notiziario di San Giorgio” and “Lettera da San Giorgio”, previously digitised and made searchable through OCR by ARCHiVe.

In the future, the same methodology will be applied to the documentation produced by the FGC Institutes.
Ettore Sottsass Jr. (Innsbruck, 14/9/1917 – Milan, 31/12/2007) was an Italian architect and designer. His professional activity has been characterised by continuous influences of his many fields of interest: from art to interior architecture, from urban planning to photography, from industrial design to design as a tool for social criticism - a research that has engaged him for decades.

He has collaborated with various Italian and international companies (Poltronova, Olivetti, Artemide, CIRVA, Venini, Kartell, Vitra, etc.) as well as with artisans and private individuals. One of the founders of the Memphis group in the early 1980s, he has gained the attention of the international design scene and has been invited to exhibit in numerous group and solo exhibitions throughout the world.

In 1979 Ettore Sottsass donated to CSAC a selection of materials - sketches, drafts and drawings - extracted from his professional files and personal papers from the period 1922-1978, testifying his visual and design research; some of his sculptures are also preserved.

This first donation was followed in 2013 by one destined for the Bibliothèque Kandinsky of Centre Pompidou, Paris at the behest of his wife, Barbara Radice. It consists of documentation dated between 1937 and 2010, including writings, photographs, posters, notebooks and notes, his personal library and the Olivetti sub-fund.

On 3 December 2018, Barbara Radice donated Sottsass’s professional archive to the Fondazione Giorgio Cini, including architecture, interior design and design projects, manuscripts and typescripts related to editorial projects, photographic material, catalogues, posters, graphic art, documents from the Memphis group, professional correspondence, publications by and about Sottsass, and a collection of baskets and other objects made of woven organic material.

Objectives of the project are the digitisation, archival description and online publication of the archive to enhance and disseminate its documents.
I. Preliminary Study

II. Acquisition and preliminary description of the fund

III. Digitisation, post-production

IV. Archival description and creation of consultation tools

Drawings, manuscripts, typescripts, photographic material, catalogues, posters, graphic art, correspondence, collection of baskets and other objects made of woven organic material.

Replica 360 recto/verso: Memphis, Dossiers, Book projects.

V-Scanner: Memphis, Dossiers, Book projects.

Vacuum surface: Graphics, Memphis, Posters, Dossier.

Developments & Results

I. After a preliminary study of the documents led by ARCHiVe, the donation of the archive was formalised in 2018. A preliminary description of the fund and an inventory control have been carried out, in order to plan the next steps.

II. Digitisation: recording completed until Dossier 1987. All previous Dossier files have been digitally recorded (35,524 files), as have the Correspondence, Writings, Graphics (80 files), Posters (98 files), Memphis (3,005 files), Book projects (9,096 files), Baskets series (428 files). Subsequent Dossiers will then be recorded in the coming months by ARCHiVe.

III. ARCHiVe developed a new script for automatic post production based on machine learning and taking into account the different types of documents in the Sottsass’ archive. Part of the recording has been automatically post-produced for a total of approximately 77,000 files: Correspondence, Writings, Graphics: completed; Posters, Memphis, Book projects (Dossier and Baskets series: in testing phase).

IV. Archival description and creation of consultation tools is ongoing. ARCHiVe has finished the description of Dossier series at the level of archival units (the individual envelopes of the Dossier, from 1923 to 2007), also describing their contents, investigating their specificities, types, and expressing their punctual dates. This will be followed by a general check. The Memphis series (1981-2002), which contains catalogues, invitations, professional and personal correspondence, photographs and other miscellaneous material relating to the collective of architects and designers founded by Sottsass, has also been fully described down to the level of archival units. ARCHiVe has also finished the description of the Posters series and the Memphis posters subseries, choosing to describe individual holdings (documentary units). In this regard, the structure of the catalogue is being revised so that it could be as responsive as possible to the needs of the materials in the fund. Finally, the description at the level of documentary units of the Graphics series, which includes lithographs, serigraphs and prints from the 1940s to 2006, has almost been completed.

V. Research on graphic and design projects with IUAV University of Venice is completed. The results of the study will be published online enriching the general description of the fund.
The Fondazione Giorgio Cini holds a substantial archive of Sanskrit treatises on Indian musicology donated on 19 August 1971 by Alain Daniélou, former co-director, with Omkarnath Thakur, of the College of Indian Music of Banaras Hindu University (BHU) in Varanasi and a passionate scholar of music, religion and culture of the Indian subcontinent. The archive consists of a collection of copies of manuscripts on Indian musicology, a set of about 250,000 micro index cards (Bristol half-cards) based on a classification work on musical terminology, and a library of secondary sources on Indian culture, musicology and Daniélou’s topics of study.

The preservation and systematisation of Daniélou’s Archive has been a constant commitment for Fondazione Giorgio Cini. Between 2001 and 2004, the Venice and the East Institute scanned all the files in the collection, thus taking a first step towards making these documents available to a wider public. In 2017, Nicola Biondi described 231 texts from the collection in A Descriptive Catalogue of Sanskrit Manuscripts in the Alain Daniélou’s Collection at the Fondazione Giorgio Cini. His catalogue also lists the manuscripts not included in his research, the Indian libraries from which they were copied, and the names of 43 people who worked on Daniélou’s project.

All manuscripts in the collection have been scanned and are available to the public through IIIF technology. In 2019, the ARCHiVe team at the Fondazione Giorgio Cini embarked on the ambitious project of digitising the collection’s materials through the latest Optical Character Recognition (OCR) technologies, investigating the possibility of making them machine-readable through a digital transcription of the text.

The primary objective of the project is to develop a manuscript text recognition (HTR) model for OCR transcription of the cards (in English, Sanskrit and Hindi) scanned by the Venice and the East Institute of the Fondazione Giorgio Cini between 2001 and 2004.

Further developments of the project include the OCR transcription of the Sanskrit manuscripts of the archive and the creation of a database of keywords from the collection, together with the development of a platform to make them available to the public.
I. Preliminary analysis of the archive
II. Exploring the feasibility of transcribing maps with Google Vision API.
III. Exploring the feasibility of transcribing the papers with Transkribus
IV. Creation through machine learning of HTR models for OCR and testing.

I. Re-digitisation of a sample of cards compared to 2001-2004 scans
II. Analysis of Google Vision API OCR transcription on a sample of index cards: Accuracy rate of 78.6% – 97.6% on the portion in Latin characters
III. Creation of a Transkribus template for OCR transcription of Sanskrit and Hindi portions of the cards
IV. Analysis of OCR Transkribus transcription on a sample of index cards at the end of February 2021, average accuracy rate of 91.52% on the portion in Devanagari characters
V. Together with Transkribus consortium and Eloisa Stuparich, organisation of a course dedicated to HTR and automatic transcription technologies for 2020 ARCHiVe Online Academy (with a specific focus on the Daniélou project).
VI. Organisation of the workshop “First assessment of the results of the project for Automatic Transcription of Sanskrit Manuscripts (Daniélou Collection)”, hosted on 06-07 June 2022 at the Hamlyn Conference Room of the ARCHiVe
VII. Test on a sample of manuscripts. Provisional results: 39.59% to 92.31% on the 10% of the archive. Automatic transcription of the manuscripts in the collection is expected, by implementing and using transcription models that have already been tested, as well as by exploiting and disseminating the results obtained. This part of the project is not completed yet.

184 manuscripts (in total about 22,000 files) have been digitised and are now published and accessible in the former Fondazione Cini Digital Library. In the next months, the materials will be moved to the new Digital Library and more features will be added.
Venice, with its many historical archives, libraries, museums and private collections, and due to its unique place in European and Mediterranean history, is the natural place where to start the systematic development of the new science of Long Data. In particular, the Venice State Archive (ASVe) and the Fondazione Giorgio Cini stand out, for the depth and length of the data they contain and for the quality of the conservation, as some of the most Long Data rich places in the entire World.

Venice Long Data (VLD) is an multi-disciplinary research project that aims to address the historical analysis from an integrated point of view, relying, in the Venetian context, on the historical database offered by the ASVe and the Fondazione Giorgio Cini (FGC), using techniques from Big Data, Machine Learning, Complex Networks and in general relating to quantitative modelling. The approach aims to study history from a MACRO perspective, complementary to the MICRO perspective usually conducted, always starting from the original sources and using the most modern techniques available to deal with the transcription and analysis of historical sources. The dual scope is to obtain a historical meta-database representing a fully searchable interconnected digital version of these archives and, above all, to create the basis for a quantitative study of the history of Venice, Europe and the Mediterranean.

Our objective is to introduce major innovations in the way we approach and study archives and the documental material they contain, with the final aim to furnish researchers of all disciplines and citizens with a completely novel way access the sources that encode our common history and cultural heritage.

The specific objectives include:
I. Mapping the Structure and Information content of Historical Archives (ASVe and FGC);
II. Digitalisation/Transcription & Validation/Extraction to create the Senato-Deliberazioni-Misti archival series database;

REFERENCE
Fondazione Giorgio Cini
UDELAR Universidad de la República
Ca’ Foscari University of Venice
University of Parma
Ateneo Veneto
EPFL
2020 — Ongoing

CURRENT ÉQUIPE
Sinem Aslam, Raffaella Burioni, Guido Caldarelli, Chiara Casarin, Alessandro Codello, Raffaele Santoro, Damiano Sgarbossa
III. Creation of the VLD Platform for search and analysis of the Senato-Deliberazioni-Misti database.

People involved
Guido Caldarelli (Ca’ Foscari University of Venice): Project Coordinator and Researcher; Chiara Casarin (ARCHiVe – Fondazione Giorgio Cini); Alessandro Codello (UDELAR); Raffaella Burioni (University of Parma): Project Coordinator and Researcher; Raffaele Santoro (Ateneo Veneto): Project Consultant; Sinem Aslan (Università Ca’ Foscari di Venezia and Ege University): Automatic Transcription; Damiano Sgarbossa (EPFL): Semantic Clustering and Analysis.

Methodology
I. Digitisation
II. Transcription and Validation
III. Extraction of information and Creation of the Database
IV. Search tools to explore the data

Documents + Equipment
- Transkribus
- Dispacci degli Ambasciatori (FGC — Microfilmoteca)
- Genealogie Barbaro (FGC — Microfilmoteca)
- SM37C to SM43C (A. Codello)

Developments & Results

COMPLETED TASKS
I. Creation of the Senato-Deliberazioni-Misti Database with a first substantial set of 19k deliberations from SM15 to SM32.
II. Creation of the preliminary version of the VLD Search Platform
III. Digitisation of SM37C-SM43C and preliminary transcription using Transkribus.
IV. Mapping of the ASVe and major fonds.
V. Savi alle Decime: case study of San Giacomo di Rialto (1740).

FUTURE DEVELOPMENTS
I. Creation of the VLD Search Platform for the general public.
II. Validation, Extraction and Summarisation (i.e. creation of regesti) of SM37 to SM45 (A. Codello).
III. Digitalisation of SM44C to SM53C at ASVe.
IV. Mapping and preliminary study of Dispacci degli Ambasciatori (FGC)
V. Sample study of automatic reconstruction of the genealogies from the Genealogie Barbaro corpus (FGC).
In October 2021, the Centro Studi del Vetro launched the project to catalogue and digitise the Carlo and Giovanni Moretti Archive, donated to the Fondazione Giorgio Cini in 2019. The fund is very heterogeneous and different types of documents dated between 1958 and 2013 are preserved: drawings, photographic documentation, plates of technical projects, sketches, albums, exhibition catalogues, advertising posters, and archival materials of great documentary value.

ARCHiVe collaborated on the project by working together with the Centro Studi del Vetro in the digitisation of a first core of drawings; for this project a different methodology of file acquisition and post-production was tested, using the Adobe Lightroom software.


I. Examination of the cores donated to the Fondazione Cini: the documents were originally stored in different archives and a first examination was needed also to evaluate the state of preservation of the materials.

II. Centro Studi del Vetro operated the dusting of the items and removed the harmful elements for preservation.

III. Definition of the archival series as follows:

· Carlo and Giovanni Moretti Drawings (archival series)
· Cappellin & C. Sub fund. Containing the archival series: drawings, photographs, other documentation, catalogues.
· Luigi Scarpa Croce Sub Fund. Containing the archival series: drawings, photographs, other documentation, catalogues
· Carlo Scarpa Sub Fund. Containing the archival series: drawings.
IV. Recording of a first core at ARChIVe: files acquired in RAW are, as usual, accompanied by related .xmp files that retain the necessary editing settings at the time of export; the export to .jpg was managed by the Centro Studi del Vetro later than the acquisition.

V. Post-processing of the files and testing of a new script for the automatic extraction of information, such as the dimension of the digitised documents.

VI. Setting of the methodology: the work will continue similarly on the other cores of the fund, with the final goal of the online publication of the documents.

The Adobe Lightroom program allowed the drawings to be captured with the camera and the live view tool providing an editing area on the produced file, speeding up the timeline in post-production. On such a core of assets, once an initial image is obtained, parameters are set not only for acquisition but also for basic post-production of the file, which would otherwise have to take place at a later time.

Having set these parameters (Canon EOS 5DR camera profile, white balance with Temperature at 4950 and Hue at +6, removal of lens aberrations), the program allows to automatically apply these settings to all images that you acquire in sequence. Then it is necessary to manually perform straightening and cropping, settings that can then be synchronized with other images requiring only a few adjustments.
Between 1476 and 1479 Matteo Maria Boiardo (1441-1494), Italian poet, man of letters and feudal lord of Scandiano, began to write Orlando Innamorato, a poem of chivalry in octave rhyme that enjoyed alternating fortunes. The work consists of three volumes divided into cantos and narrates the love affairs of Orlando, Rinaldo and Angelica against the backdrop of Carolingian exploits.

The first book contains 29 cantos, the second 31 and the third just 9; the poem is in fact unfinished due to the death of the author, who died at the age of 53 in 1494. Several poets came forward to continue Boiardo's work, including Venetian Nicolò degli Agostini and Veronese Raffaele Valcieco. The Venetian, who first began the continuation of the third and then the fourth book, was much more successful with the public, given the numerous editions printed in the sixteenth century (about forty), while of Raffaele Valcieco, author of the fifth book, only the Venetian 1514 edition (Giorgio Rusconi, at the instance of Niccolò Zoppino) and the Milanese 1518 edition were printed.

The scarce printed tradition of Raffaele Valcieco's continuation is accompanied by the rarity of the surviving sources currently known: one only copy, albeit mutilated, for the Venetian edition and three for the Milanese edition (Milano, Biblioteca Nazionale Braidense; Londra, British Library; Aargau - Svizzera, Biblioteca cantonale).


Before becoming part of the library's holdings in 1962, this volume belonged to Victor Masséna, Prince of Essling (1836-1910) who, at the turn of the 19th and 20th centuries, assembled one of the most extraordinary book collections of incunabula and illustrated sixteenth century editions. His preference was for Venetian production, but other printing centres, even minor ones, found their expression in editions that were often rare if not unique in the world.
The choice of digitising Orlando Innamorato, as well as meeting the research needs of two lecturers, is part of a broader project in which the Fondazione Giorgio Cini intends to progressively acquire its collections digitally and then share its documentary heritage with the relevant community, both the general public and specialists.

The volume and its digitisation are also part of the Essling LOD project, which aims to create a digital and searchable tool that uses Linked Open Data (LOD) and Semantic web technology to make bibliographic data collected by the Prince of Essling.

Digitisation and online publication of the volume, sharing of the fifth book together with Professor Maria Pavlova (University of Warwick) and Professor Marco Dorigatti (University of Oxford), together engaged in drafting of a critical edition of the Fifth Book of Valcieco.

Ilenia Maschietto, Claudia Favaron (Fondazione Giorgio Cini); librarians; Costanza Blaskovic, Noemi La Pera (ARCHiVe - Fondazione Giorgio Cini): digitisation and post-production; Marco Dorigatti (University of Oxford), Maria Pavlova (University of Warwick); critical edition.

Completed tasks:
I. Analysis of the state of preservation of the volume. The conservative analysis of the volume revealed a very tight binding and very narrow inner margins.
II. Preliminary study. Tests have been carried out to create a photographic set ad hoc for the volume: these digitisation tests will be used to plan modifications to be made to ARCHiVe equipment for a programmatic, safe and effective digitisation of early printed volumes in the Fondazione Giorgio Cini collections.
III. Digitisation and post-production.

PUBLICATION
Publication on Digital Library: to be published. The digital files of Orlando Innamorato are ready for publication on the Fondazione Giorgio Cini Digital Library to make the volume accessible to scholars and the general public via electronic catalogues.

The printing book with the critical edition for the Olschki types (Florence) by Prof. Dorigatti and Prof. Pavlova is scheduled for Spring 2024.

Developments & Results

Completed tasks:
I. Analysis of the state of preservation of the volume. The conservative analysis of the volume revealed a very tight binding and very narrow inner margins.
II. Preliminary study. Tests have been carried out to create a photographic set ad hoc for the volume: these digitisation tests will be used to plan modifications to be made to ARCHiVe equipment for a programmatic, safe and effective digitisation of early printed volumes in the Fondazione Giorgio Cini collections.
III. Digitisation and post-production.

Published 90 ENHANCEMENT OF ORLANDO INNAMORATO
The Fondazione Giorgio Cini library holds the world's only copy of an illustrated edition of Aesop's Fables, printed in Venice in the late 15th century. Unfortunately, several pages of the book are missing, but when one of them turned up as a folio with a woodcut on the antiquarian market, a conservation restoration project was drafted, approved, financed and implemented.

The aim of the project was to insert the rediscovered page in its correct original position in the book.

Having entered the library in 1962 together with the collection of Tammaro De Marinis (1878-1969), the Fables had been part of the collection of Charles Butler (1821-1910), whose library was sold by Sotheby, Wilkinson & Hodge in London in April 1911.

After analysing the copy and the edition, the objectives of the project are to insert the rediscovered paper, restore the volume, digitise and publish it online.

Giulia Barbero (cultural heritage restorer), Costanza Blaskovic, Noemi La Pera, Ilenia Maschietto (Fondazione Giorgio Cini – ARCHiVe)

Since the book is the only surviving copy of this particular edition from about 1490, no direct comparison with a similar copy could be made to see where to insert the folio (the book has no signature to indicate the proper sequence). For this reason, a very thorough analysis of the text had to be made, based on two other editions of Aesop's Fables published by the same printer and with the same translation by Accio Zucco: a 1487 edition, of which only a single copy survives at the Kupferstichkabinett, Berlin, and a 1491 edition, of which the only two surviving copies are in Siena and Foligno. Financed by the Veneto and Trentino-Alto Adige Archival and Bibliographic Superintendency and completed in November 2021, the restoration work initially involved the complete removal of the block of pages from the binding and its 19th-century stitching. The pages were restored by removing additions made in previous repairs with materials that had darkened over time, causing further stains.

The book was digitised by ARCHiVe using high-resolution colour photography. Given the rare opportunity of having the pages and booklets of a rare book unbound for a while, photographic documentation was also...
carried out, including with transmitted lighting, so that a comparative analysis of the restored unbound bifolios could be conducted. This brought out the watermarks of the paper and revealed other material aspects that have contributed to providing further information about a unique artefact.

Developments & Results

The results of the restoration project and digitisation allowed a very in-depth analysis of the entire volume, leading to new information on this unique copy in the world.

PUBLICATIONS


L’Esopo di De Marinis. L’esemplare unico, la carta ritrovata, il restauro, in ‘Multa renascentur’: Tammaro De Marinis studioso, bibliofilo, antiquario, collezionista, Venezia, Marsilio 2023
Sono il gallo solitario:

La sua piuma è pulita e liscia.

Donna notte: il sole il lapis la regine.

Sei povero e sola in loco ti villano.
Sel e bue le vin artificio sopranino.
Tragia di te sua vita poco stando.
Per me non so di te non curo.
Amarai più di te cosa men ricche.
Che di la fame in felle securio.
E così tempo lo ignora piecche.
Contrario di fortuna buce il curo.
De la spia povera che ognibox impieca.
Si come il gallo sprezza tal femenza.
E così disprezza il matto la scienza.

Sono il gallo rapsato.

Oestro, e l'obblo che in mortal peccato.
E che quando dal buen buon si consiglo.
Dice che gli ame più cercar tal tramato.
E sì peccati il doloroso strame.
E così contra dio sta figurato.
Al doloroso tristo e stiagurato.
Che non gli valera poi dir hobo.
Disprezza poi la misto.
Quella e scienza.
De la gola.
Fonti 4.0 project was set up to respond to the specific needs of the Creative Industries, proposing to create innovative tools for analysis, automatic transcription, use and valorisation of historical sound documents. The Fondazione Giorgio Cini oral sources selected for the project were digitised; then, automatic processes were developed for analysis, transcription and automatic extraction of information.

The project, funded by the European Social Fund, was selected as worthy of mention and was publicly presented on May 11, 2022 at the IUAV University of Venice, in the context of INVESTOR FAIR (Innovation and Research for a More Competitive Veneto).

**People involved**
Andrea Barbon (ARCHiVe – Mind@ware), Costanza Blaskovic, Giulia Clera, Ilenia Maschietto (ARCHiVe – Fondazione Giorgio Cini); Valentina Burini, Sergio Canazza, Roberta Luzietti, Alessandra Origani, Niccolò Pretto, Alessandro Russo (CSC – Centro di Sonologia Computazionale, University of Padua).
Developments & Results

I. Selection and sharing of original sound sources of FGC
II. Digitisation of selected oral sources from Cini’s Historical Archive and production of a video teaser with the voice of Vittorio Cini
III. Organization of the final seminar in the context of AOA, September 2021: a series of 8 meetings dedicated to new technologies for digitisation, automatic transcription and analysis of sound sources, with theoretical lectures and practical workshops.

PUBLICATION
Voci a San Giorgio: online publication of Vittorio Cini’s speech at the conference “Il problema di Venezia” (1962) with the testimony of his voice; the oral source has been supplemented with historical photos of Venice from the Foundation’s Photo Library (and, in particular, from the Replica project) https://www.youtube.com/watch?v=tFLVrXYLDk&t=30s
Designed in the 1950s by Milanese architect Luigi Vietti, the Teatro Verde was for a long time an important cultural and artistic centre staging memorable theatre productions. In recent years, the theatre has been in a critical condition but thanks to partnerships with prestigious companies, it has been restored and can now once more be opened to the public.

To make the most of this beautiful theatre and to revive its leading creative role, plans have been made to attract national and international attention through art events that will rekindle awareness about an extraordinary venue that has deeply influenced artistic and cultural life in Venice.

The first project to move in this direction was entrusted to Ennio Bianco, who identified Mattia Casalegno, an outstanding New York-based Italian digital artist, as the most suitable figure for the purpose. The artist then created an audiovisual work entitled The Mask of Time, divided into four chapters: History, Performances, the Present and the Future.

Casalegno’s work starts from the idea of theatre as a place of fiction and representation. Situated at the intersection between Nature and Culture, it explores the relationships and tensions that unite the natural environment, the human world and technologies.

The project starts from the notion that people interact with the world through multiple sensory streams: we see objects, hear sounds, read words, feel textures, taste flavours, combine information and form associations between the senses. Similarly, real world data is made up of various signals occurring simultaneously, such as video frames and audio tracks, web images, captions and voice tracks. Casalegno adopts this common logic in the creation of the multimodal work Mask of Time.

Chiara Casarin (Fondazione Giorgio Cini – Head of Cultural Development and Communications): Project Coordinator; Ennio Bianco: Curator; Mattia Casalegno: Artist; Maurizio Martusciello aka Martux_M: Musician and Sound Designer.

Images, sounds, videos and texts have been simultaneously generated through the creative use of the latest 3D animation software in symbiotic association with the musical and textual production.
The Institute of Theatre and Opera supplied the images of the costumes of the play about the Greek myth of the Minotaur and those of Goldoni productions with their stage designs and of Commedia dell’Arte. Factum Foundation provided a complete survey of the Teatro Verde by making expert use of drones for the photogrammetry as part of the 3D digitisation project of the Island of San Giorgio.

Mattia Casalegno was thus able to move some high-definition realistic human-digital actors within the space of the virtual Teatro Verde, created using the Unreal Engine MetaHuman and the Reallusion Character Creator. MetaHuman Creator is a software enabling the designer to create photorealistic digital human beings. The character is refined by sculpting tools and control guides to achieve infinite variations in facial and body features.

Character Creator 3 allows the designer to easily create and customise realistic subjects for use in the Unreal Engine and Unity platforms, combining 3D character generation, animation, rendering and interactive design in a single system. It thus allows 3D scanning technology, produced by Scanlab Photogrammetry and adopted from Hollywood game productions, to be applied to a stationary person to create a fully clothed speaking character moving freely in space.

These digital human actors, or hyper-real avatars, can thus move or be fixed in digital tableaux vivants within a virtual theatrical spatiality, made possible by Unity Technologies Unity software.

Developments & Results

In the future it will be possible to draw on all the materials used for this video, for example, to recreate paths inside the Teatro Verde enabling audiences to converse with characters generated in augmented reality, or to offer an interactive virtual tour experience of the Teatro Verde in a metaverse.
MEFA: Middle East Falconry Archive

At ARCHiVe, Carolina Gris is spearheading the prodigious Middle East Falconry Archive (MEFA) project. In June 2020, Factum signed a contract with the Mohammed Bin Zayed Raptor Conservation Fund (MBZRCF) to digitise 56 mediaeval and early modern manuscripts, all in Arabic and all relating to falconry, in libraries across Europe, the US, the Middle East and North Africa, and to make them accessible on.

The Middle East Falconry Archive (MEFA) is a non-profit, open-access project which aims to safeguard and share the cultural heritage of Arab falconry through the identification, exploration and digitisation of historical Arabic falconry literature. The history of falconry is a subject of great fascination globally with the first falconers believed to have been nomads living around two thousand years ago. But very little of the material culture has survived up to the present day.

Carolina Gris, Carlos Bayod Lucini, Osama Dawod (Factum Foundation): Project Coordination; Teresa Casado (Factum Foundation): Image Processing.

MEFA’s goal is to create a comprehensive digital archive of Arabic falconry literature from its beginnings in the 8th century to the late 16th century CE. Anna Akasoy, Professor of Islamic intellectual history at the Graduate Centre, City University of New York (CUNY) and a world expert on falconry in mediaeval Arabic literature, curates the MEFA bibliography and provides digital records of each manuscript including both technical information for academics and engaging educational information for all falconry heritage enthusiasts (here is an example).

Factum has been tasked with acquiring files and permissions of these manuscripts and publishing them on the MEFA website, using the archiving software CONTENTdm. Jorge Cano and Teresa Casado at Factum in Madrid also configured the digital archive for use with the International Image Interoperability Framework (IIIF) viewer Mirador, which, among other features, allows users to compare manuscripts from any digital library with an IIIF manifest. So far, Teresa Casado has processed and published many of the digitised manuscripts which have been acquired from various institutions.

REFERENCES

Factum Foundation
Middle East Falconry Archive (MEFA)
Mohammed Bin Zayed Raptor Conservation Fund (MBZRCF)
2021 — Ongoing

CURRENT ÉQUIPE

Carlos Bayod Lucini, Jorge Cano, Teresa Casado, Osama Dawod, Carolina Gris
Between September 2021 and August 2023, a total of 57 manuscripts were digitised. During 2023, the recording of manuscripts is carried out in the institutions which do not have in-house digitising facilities. The scope of this project is very ambitious and is therefore not limited to the MEFA digital archive. The Mohamed bin Zayed Raptor Conservation Fund (MBZRCF) has been working on the creation of the Sheik Zayed Falconry Library (SZFL), which will be an umbrella organisation covering many different falconry-related initiatives, including the MEFA digital archive. The SZFL is intended to begin as a virtual library, with the potential to open a physical space. It will become a worldwide reference for falconry scholars, enthusiasts, and practitioners. In April 2022, at the request of the MBZRCF, Factum Foundation provided strategic advice—both practical and curatorial—for the development of the SZFL. Factum has stressed that this library should build digital links with other libraries worldwide with strong holdings on the subject through the IIIF protocol.

Factum has suggested potential collaborations with the Fondazione Giorgio Cini (ARCHiVe), and the Bodleian Library (ARCHiOx). Furthermore, as part of the possible ancillary activities of the SZFL, Factum suggested holding an exhibition and/or a conference at the Fondazione Giorgio Cini, using the exhibition spaces, as well as the Helen Hamlyn Conference room at ARCHiVe. The Cini would be an ideal place as it was born to bridge the East and the West, and Venice itself is home to wonderful images of falconry (e.g. Carpaccio’s paintings, or the ceiling at Palazzo Grimani). Furthermore, the Teatro Verde of San Giorgio, would be an ideal places to host conferences and falconry demonstrations. The aim is for this collaboration to begin with a Symposium where Factum would play a key role as a partner, participant, and network builder.

Considering the potential of the new online archive, Factum Foundation was asked in 2023 to expand the MEFA digital archive into a larger archive, dedicated to communicating the importance of falconry not only through literature, but also imagery, and artefacts. The new scope of this archive consists in gathering material on falconry as both a cultural heritage and living practice, beyond the archiving and dissemination of manuscripts. For example, sculptures and other objects that witness the practice of falconry, or the symbolic importance of falcons in various parts of the world, as early as in the first millennium BCE. Research will also draw parallels between Arabic texts and European, Urdu and Persian texts on falconry.

CONFERENCES
A first public presentation of the project is held by Carolina Gris on 14 September 2023 to introduce the activities involved in MEFA project. The presentation is part of ARCHiVe Online Academy and it is organised by ARCHiVe.
During 2021, Factum Foundation was contacted by Divirod, an innovative company from Boulder, Colorado, founded by Javier Martí and dedicated to water infrastructures and water analytics. In the context of monitoring San Giorgio Island and its adjacent waters, ARCHiVe initiated a collaboration with Divirod and installed a Divirod sensor (DiviSense) to monitor water levels in relation to the island. Divirod has developed a passive radar sensor that uses satellites and locally recorded data to generate accurate hydrological models. The software uses harmonic recordings to create dynamic representations of tide, wave activity and wind speed to predict erosion and flooding. Divirod have provided various of their advanced sensors to monitor the relationship between land and water on the island, with the data being accessible in real-time on desktop and mobile devices. The installation of the first sensor in late August is part of ARCHiVe’s work to document and study both cultural heritage and natural changes on and around the island. The advanced sensor installed in Venice detects the unique signature of satellite signals bouncing off the water of the Lagoon. This provides a local, accurate and dynamic image of the relationship between a fixed point on the land and the water. The data is uploaded to the cloud in real-time, where a machine learning software developed by Divirod aggregates and processes it. The more sensors are installed, the greater our understanding of the relationship between the land and the water: a slow-moving but still dynamic body, versus a dynamic fluid that is animated by many forces, from gravity and the wind to the energy released by the passing of large boats. The accurate hydrological models generated from the harmonic recordings are used to create constantly up dating representations of tide, wave activity and wind speed, to predict erosion and flooding.

Methodology

Through GPS technology, DiviSense is a radar that collects data in order to create accurate hydrological models. The sensor takes advantage of the hundreds of satellites that are already up in the sky. Each satellite emits a signal that bounces on Earth and resonates differently from surface to surface, including water. Divirod uses a machine learning algorithm to decode this signal in order to obtain precise information about the percentage of water found by the signal.
In this way the radars on San Giorgio Island are creating a model of tides and water movements around the Fondazione, making past and live data accessible from desktop and mobile.

Massimo Altieri (Technical Department - Fondazione Giorgio Cini); Nicolas Béliard (Factum Foundation - Communication); Adam Lowe (Factum Foundation - Founder); Javier Marti (Divirod Inc. - Founder and CEO).

The collaboration with Divirod will continue with Factum’s AaltoSiilo project. The project’s aim is to preserve and document the cultural, natural, and industrial heritage using cutting edge digital techniques in the north of Finland. In February 2022, a second sensor was installed on the East tower at San Giorgio’s dock.
ARCHiVe is devoted to preserving Venice’s culture; its contemporary life as well as its historic past. Fondazione Giorgio Cini uses Thomas Mann (or Gustav Mahler’s) phrase “tradition is not the worship of ashes, but the preservation of fire” as inspiration.

The close proximity to the water of the graffiti by Banksy (facing the canal Rio dei Tolentini in Venice) and the recent floods have posed a threat to the long-term preservation of the ‘Migrant Child’. The recording was completed in 2019, but as of March this year, the Factum team has completed the data processing and reconstituted both the painting and a portion of the wall surrounding it.

Massimo Altieri (Technical Department – Fondazione Giorgio Cini); Nicolas Béliard (Factum Foundation): Project Coordination and Communication; Javier Martí (Divirod Inc. – Founder); Rafa Rachewsky (Factum Foundation): Re-materialization; Gabriel Scarpa (Factum Foundation): Recording and Processing.

The high-resolution photogrammetry was recorded by Gabriel Scarpa, operating from a distance in a boat in the canal, which was a significant challenge. However, the results have encouraged a study into the condition of the wall and will enable a detailed condition monitoring of the work.

VIEWER
https://www.highres.factum-arte.org/Banksy_Venezia/shared/viewer.html

**Facsimile of Banksy’s ‘Migrant Child’**

**REFERENCE**
Fondazione Giorgio Cini
Factum Foundation
March 2022 — Ongoing

**CURRENT ÉQUIPE**
Massimo Altieri, Nicolas Béliard, Javier Marti, Rafa Rachewsky, Gabriel Scarpa

**People involved**
Massimo Altieri (Technical Department – Fondazione Giorgio Cini); Nicolas Béliard (Factum Foundation): Project Coordination and Communication; Javier Martí (Divirod Inc. – Founder); Rafa Rachewsky (Factum Foundation): Re-materialization; Gabriel Scarpa (Factum Foundation): Recording and Processing.

**Methodology**
The high-resolution photogrammetry was recorded by Gabriel Scarpa, operating from a distance in a boat in the canal, which was a significant challenge. However, the results have encouraged a study into the condition of the wall and will enable a detailed condition monitoring of the work.

**VIEWER**
https://www.highres.factum-arte.org/Banksy_Venezia/shared/viewer.html
In November 2021 the Fondazione Giorgio Cini joined CERL (Consortium of European Research Libraries) as a Special Member. It thus became part of a European academic community made up of specialists and information professionals who promote Europe’s cultural heritage in print.

The aim of the initial successful practical collaboration between CERL and the Fondazione Cini was to celebrate some significant anniversaries marking the year in which the agreement was signed: the 7th centenary of Dante’s death, the 70th anniversary of the Fondazione Cini and 1,600 years of Venice.

The year 1491, on the other hand, was when the first illustrated Venetian edition of the *Divina Commedia* was published and Fondazione Giorgio Cini owns one of the 103 surviving copies in the world.

The “Dante 1491” project will rely on a scholarship and the supervision of internal staff to conduct an illustrated census of the surviving copies in 96 libraries worldwide by creating a network of links with national and international cultural institutions.

The main objective of the census is to collect, organise and analyse the marks left by users found on each copy. The information and images provided by the participating libraries will make it possible to identify the previous owners and so reveal and describe who Dante’s readers have been over the last five centuries.

**Objectives**

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**People involved**

Irene Bigolin, Federico Dassiè, Joan Porcel Pascual (ARCHiVe – Fondazione Giorgio Cini): Digitisation; Cristina Dondi (Secretary of CERL); Martyna Grzesiak (Keble College, Oxford University): Project researcher; Ilenia Maschietto (Fondazione Giorgio Cini): Project Manager.

**Methodology**

I. Digitisation of the copy of the *Divina Commedia* in the Fondazione Cini antique book collection and its publication in the Digital Library.

II. Search for contacts and request collaboration from the 96 libraries worldwide. Retrieval of ownership data from electronic and printed catalogues.
III. Reception of data and images from the libraries and their addition to the CERL databases (i.e. MEI - Material Evidence in Incunabula and PDA - Provenance Digital Archive). Data analysis.

IV. Production of an interactive map and a web page to show the results of the research project (by autumn 2023).

Developments & Results

Requests for collaboration have been sent and we have received initial positive feedback from the libraries concerned. The Fondazione’s copy of Dante has been digitised: its 302 pages have been digitally reproduced by an expert photographer using the ARCHiVe facility and equipment; the images will be linked to the metadata required for online publication in the new Digital Library (see the specific paragraph in the “Technical development” section).

As far handling the huge amount of data is concerned, before being transferred to the CERL databases, it will be organised on a worksheet created ad hoc for the specific project so that individual data can be grouped and ordered according to the contents and themes to be explored. Special emphasis will be given to the material evidences found on the various copies, trying to identify the temporal and geographical localisation of the former owners of the books.

The census of the Venetian edition of 1491 follows on from the illustrated census of the Florentine edition of 1481, coordinated by CERL with the support of the Polonsky Foundation.

PUBLICATION
In 2022, ARCHiVe completed the first high-resolution digital recording of one of the great tapestries owned by the Fondazione Giorgio Cini collection: The Entry into Palestine of the Army of Vespasian. Dated between 1470 and 1480, this Franco-Flemish tapestry created from cartoons by the Master of Coëtivy, is one of the two earliest and most significant works in the whole collection, and part of a series about the destruction of Jerusalem. The tapestry was recently identified as the right half of another textile work within the collection of the Musée des Arts Décoratifs in Lyon, making its recording, preservation and restoration a priority for the Fondazione Giorgio Cini. The digital documentation of the tapestry’s surface is an essential step towards understanding its material structure. ARCHiVe carried out the complete documentation of the tapestry’s shape, texture and colour, thanks to a combination of 3D and 2D non-contact scanning technology. The recording of the tapestries is part of ARCHiVe’s initiative to digitise the entire island of San Giorgio, from the architectural level to the precise sub-mm scanning of specific artworks and documents in the Fondazione Giorgio Cini collection. The goal of the project is to help the preservation, study and dissemination of the tapestries through digital technology. The digitisation has been carried out by the Factum Foundation team involved in ARCHiVe’s projects, in a space adequately prepared for the work, employing non-contact scanning systems, specifically composite colour photography and Lucida 3D Scanner. The digital recording will provide accurate documentation of the current preservation state of the tapestries, which will be essential to assess any restoration process to be carried out, to add new layers of information for research, and for monitoring change over time. The digitisation data will become part of the Fondazione Giorgio Cini archives, and could be made available for online viewing through a multi-layered browser developed by Factum.
The digitisation of the first historic tapestry from the Giorgio Cini collection required adapting the Lucida 3D Scanner’s structural frame to record large horizontal areas. The Lucida was mainly designed for scanning paintings vertically, mounted on an easel or on the wall. The conservation requirements of the Cini tapestry did not allow it to be positioned vertically, so the recording had to be done with the tapestry lying flat, on top of a cloth for protection. The Lucida components were re-designed and re-arranged to allow a usable span of 4.5m, enough for the tapestry’s width. The structure was then adapted to be used for the composite photography recording, varying the capture distance. A specially designed pulley system allowed the photographer to slide the camera (with its mounted flash unit) along the beam from one fixed position.

### Developments & Results

I. Evaluation of the tapestries’ state of preservation by the conservator and the restorer.

II. Moving of the selected tapestry to ARCHiVe and training of the team for the manipulation and unrolling of the piece.

III. High-resolution 3D and colour recording of the tapestries carried out with non-contact digital technology, specifically developed or Art and Heritage preservation (Lucida 3D Scanner and Composite photography).

IV. Image processing and creation of the visualisation browser to explore the tapestry - colour and texture in high resolution

**VIEWER**

https://www.highres.factum-arte.org/The_Entry_into_Palestine_Tapestry/shared/viewer.html
The project, launched in February 2022 with the establishment of a Scientific Committee sees the participation of several institutions and foundations active in Venice and elsewhere. The planned activity concerns the analysis, selection and digitisation of archival and bibliographic sources (15th-20th centuries) pertaining to global trades connected with Venice. This precious material owned by the different venetian institutions will be made easily usable for scholars worldwide through the online publication of the assets, including digital images and related metadata.

The rich documentary corpus, thanks to analysis, digitisation and cataloging, will be able to be analyzed online through keywords and images within a simple search tool. The research will thus allow us to deepen our knowledge of a fundamental aspect of Venice's history, while stimulating reflection on the present and future of the city.

The Scientific Committee, creator of the project, collaborates in the development stages of the project and is composed as follows: Luca Molà (University of Warwick); Donatella Calabi (IUAV University of Venice); Luciano Pezollo (Ca' Foscari University of Venice); Giorgio Busetto (Director of the Ugo and Olga Levi Foundation of Venice); Eurosia Zuccolo: Archival Coordinator of the project.

Ca' Foscari University, in close collaboration with the Scientific Committee has selected a researcher (dr. Simone Rauch) to identify, select and digitise part of the documents. The researcher will also catalog the materials, providing the metadata set necessary for digitisation and publication.

REFERENCES

Fondazione Giorgio Cini
Soprintendenza archivistica e bibliografica del Veneto e del Trentino Alto Adige
Ca' Foscari University in Venice
The University of Warwick
IUAV University of Venice
Fondazione Ugo e Olga Levi
Archivio di Stato di Venezia

CURRENT ÉQUIPE

Costanza Blaskovic, Chiara Casarin, Luca Dalvit, Ilenia Maschietto, Nadia Piazza, Simone Rauch, Scientific Committee

OBJECTIVES

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Ca’ Foscari University, in close collaboration with the Scientific Committee has selected a researcher (dr. Simone Rauch) to identify, select and digitise part of the documents. The researcher will also catalog the materials, providing the metadata set necessary for digitisation and publication.
ARCHiVe – Fondazione Giorgio Cini will provide the standards for digitisation and publication, studying together with the committee which management system should be adopted for the digital output and the workflow. Are involved: Costanza Blaskovic, Chiara Casarin, Ilenia Maschietto.

Intellectual property rights, the conditions of reuse of created resources by end users, and the rights arising from the creation, reproduction, adaptation, dissemination and repackaging of cultural content will also be discussed and studied in this context. In addition, ARCHiVe will be in charge of digitising part of the materials, supporting when necessary the archival choices and metadata of the various documents digitised by the Ca’ Foscari researcher. Moreover, ARCHiVe will provide cataloging and metadata for the documents and texts it owns or has custody of and intends to make available to the project for the purposes of study.

The Archival Superintendency has designated the archivist Nadia Piazza, as the archival technical director, who will take care of periodic reporting and report any problems to the Scientific Committee.

The project manager is Luca Dalvit, archivist officer of the Trento office.

The first phase of the research will privilege the thousands of letters exchanged between international merchants operating in Venice, Europe and the East between the late Middle Ages and the modern era, a fundamental tool for knowledge of the quality and prices of the goods traded, investment opportunities and the changing geo-political situation in which they acted. Then account books will be selected, to learn about the operational strategies of individual merchants and their companies. In addition, documentation on maritime insurance, which in Venice saw its first and full development in the 15th century, will also be investigated.

Also included in these selections will be company contracts for business voyages, treaties and trade manuals up to the entire eighteenth century, both printed and manuscript, pleadings and memorials submitted to the government to increase trade, civil and criminal cases between merchants adjudicated by the courts of the Doge’s Palace, and finally the decisions of state and corporate bodies that regulated duties and customs, maritime convoys, infrastructure, and the functioning of the port and market.

Analysis and selection of archival and bibliographic material located in different venetian institutions and foundations

I. Digital acquisition, storage, post production, metadata and cataloging (according to relevant national and international standards)

II. Study and implementation of the platform for the publication of the assets

III. Monitoring and reporting

IV. Uploading of the dataset for publication

V. Publication according to relevant national and international standards
Community Jameel, Factum Foundation, and Fondazione Giorgio Cini within the ARCHiVe project are working together to ensure the preservation and dissemination of The Behna Archive.

Towards the end of the 1920s, the Behna family began to import Charlie Chaplin and Laurel and Hardy films that were subtitled or dubbed. They started producing films in the 1930s and by then, the Behna Film Selection Company was one of Egypt’s most important cinema distribution companies (from the 1930s up until the beginning of the 1960’s). Being one of the biggest players in the Egyptian film scene, its archive is one of the earliest and most significant archives regarding film production in the country. The company was based in Alexandria where the archive is still stored, waiting to be shared publicly.

Currently, the archive is stored at Wekalet Behna, an art space in Alexandria that offers a platform for film screenings, visual media, and visual arts events in order to build various interactive participatory audiences. It also supports and builds the capacity of artists and others interested in working on archives and develops discussions, thoughts, and skills around cinema and visual arts.

The goals of the project are to generate knowledge about and allow access to The Behna Archive, for preservation, dissemination, and educational purposes, mainly through the digitisation of the archive, the storing of the data, the building and the launch of an online archive and website accessible to everyone.

Chiara Casarin, Costanza Blaskovic, Ilenia Maschietto (Fondazione Giorgio Cini) and Adam Lowe, Lucie Fournier, Nicolas Béliard (Factum Foundation); Operative Parties in the processes of digitisation and publication of document; George Richards, Cléa Daridan (Community Jameel) and Basile Behna, Omayma A. Shafy (Wekalet Behna): Project Partners.
Methodology

The priority of the project in its first phase is to research Behna archival heritage to establish what the requirements are both in terms of practical recording and the intended use of the data. Preparing the preliminary report based on the archive, the available space, and the studio requirements are the first steps of the project, including building the local team and understanding the skills and the equipment that are available. Factum Foundation prepared the equipment and train a local team in digital recording, ensuring that the quality of the recorded data responds to high professional standards, while the Fondazione Giorgio Cini will host the data and prepare for the launch of the online archive, working out the structure of the archive.

Developments & Results

I. Preliminary report
II. Preparation of the digitisation tools and methods, training of the digitisation team
III. Recording phase (and organization of the stored data): this phase is in process.
IV. Launch of the online archive database: to be able to complete this phase, the parts will have to complete the metadata and archival description, post-produce the files, enrich the portal and upload the materials.

The main expected result is the launch of an online archive database where The Behna Archive will be fully accessible.
أهلاً بنا

بالألفاظ الطيبة

صلاح الدين

اختيار

علي سالم النابلسي

أفنية الموم

بالساطع البساطة

مطوع صبح

علي الكحلاوي
## Project on the Removal of Physical, Cognitive and Sensorial Barriers of Fondazione Giorgio Cini Park

**Fondazione Giorgio Cini**

**2022 — Ongoing**

**Massimo Altieri, Costanza Blaskovic, Chiara Casarin, Renata Codello, Gloria Pasqualetto, Julie Giulia Pisu, Francesca Salatin**

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The Island of San Giorgio Maggiore represents the largest green space in the historic centre of Venice, with the Borges Labyrinth and a 4-hectare park with about 700 trees, of 32 different species, and 400 shrubs.

The 2,500-square-meter labyrinth was designed by R. Coate 25 years after L. Borges' death. Characterized by dense symbolism, the labyrinth was among the finalists for the 2019 ‘The Most Beautiful Park in Italy’ Award. In the park is the Teatro Verde (1954, arch. Vietti) for 1,500 spectators, made of stone and privet, which combines the tradition of the verzura theaters with the language of contemporary architecture; for about 10 years it has been unusable but from 2022 it is accessible for guided tours.

In 2018, the park was enriched by the Vatican Chapels, the Holy See’s first Pavilion at the Biennale, 10 chapels created by 10 international architects.

These are places, although central to the city’s History and topography, of decongestion of classic tourist routes, and that’s why the project of removal of physical, cognitive and sensorial barriers focused on these areas.

ARCHiVe’s team is collaborating to develop and realise this project, increasing the accessibility to the park of Fondazione Cini both mapping the area and giving a 3D tactile plan for blinds, but also improving other services such as video guides for hearing-impaired people. This project, partially financed by the Italian Ministry of Culture, also includes the use of high-resolution images for the production of video guides with explanations in Italian and English sign languages.

The team is also working on the website of Fondazione Giorgio Cini in order to facilitate the access and tending toward the WCAG guidelines for accessibility.

The first results will be achieved by the end of 2023, but the effort will be constant in the future, tending to a broader inclusivity and accessibility.
Objectives

Goals of the projects are facilitating the accessibility of the green areas of the Island of San Giorgio Maggiore and spreading inclusivity.

People involved

Renata Codello (Fondazione Giorgio Cini): Project Manager; Massimo Altieri, Chiara Casarin, Gloria Pasqualetto, Francesca Salatin (Fondazione Giorgio Cini): Project coordinator; Costanza Blaskovic, Julie Giulia Pisu (Fondazione Giorgio Cini): Support.

Methodology

I. Physical barrier-breaking solutions in Fondazione Giorgio Cini: inclusive services such as toilets, benches, accessible Gatehouse, restored paths and architectonic areas to improve accessible paths with ramps, equipped routes, tactile 3D maps, Braille and multi language signs.

II. Perceptive barrier-breaking solutions: web app guide of the Island with QR codes, audio-video contents in Sign Languages (Italian and English) and simplified subtitles for deaf people and people with cognitive impairments, audio orientation contents for blind people, tactile 3D maps and different tactile contents (Tactile Library, Tactile Booklets with Braille texts and contents, tactile Green Areas).

III. Training of the team of Fondazione Giorgio Cini and partners to facilitate the visit of the Island, the access to the Fondazione, and the discovery of the cultural and naturalistic heritage, both from home and on site.
Since last December 2022 the ARCHiVe Centre, which has always been committed to the valorisation and promotion of cultural heritage through the use of new technologies, along with the photographic campaigns and various digitisation projects, in partnership with the University of Padua, has organised a Regional civil service project entitled Online and On Site Heritage: New Intergenerational Dialogues.

According to recent ISTAT data (January 2021), the demographic indicators outlining the resident population in Italy suggest that an average of around 24% of the population is over 65; in the Venetian context, that figure rises to almost 50% of the total number of residents. Given the specific sphere of action of the ARCHiVe centre in the field of Digital Humanities and believing in the need for greater interaction between different generations, it was decided to create a specific collaborative network to train young people for the digitisation and enhancement of the Fondazione Giorgio Cini's bibliographic and archival Funds, as well as increasing inclusiveness with actions targeted at the over 65s, implemented by young people. The project therefore aims to reach not only the typical community of reference for the activities of the Foundation and ARCHiVe activities, but also that portion of the population who – due to the digital divide, worsened by inexperience, age or means, or because of difficulties in physically reaching the Foundation - do not have easy access to the heritage that may be consulted both in digital and physical form in the Foundation's libraries and exhibition spaces. Since its opening, the ARCHiVe centre has collaborated on the reorganisation, description and digitisation of archives and collections of the Foundation’s various Institutes and Centres to make sources available, often designing innovative systems to collect the data they contain, improve research and unveil unexpected or alternative possibilities for investigation. The three young people selected for the 2022-23 Regional civil service project (Stefano Barzon, Maria Teresa Ferrara, Sara Papa) therefore intend to pass on the results obtained and, at the same time, to launch a new challenge: to ensure that the experiments carried out and steps forward made by the ARCHiVe team over recent years may be better understood beyond the centre’s laboratories, aiming to disseminate knowledge, to compare cultures and disciplines and to raise awareness among a wide and heterogeneous target audience.
The project is intended to implement a new formula of public appreciation and involvement, both in person and – thanks to the use of new technologies – remotely. The design of new communication campaigns and the creation of didactic and thematic itineraries illustrating the bibliographic and documentary resources available will be conceived and implemented with particular care and regard for people of the third age. The project envisages the involvement of the Università della Terza Età of Venice, with which moments of exchange, workshops and operational interaction will be staged between the young people of the civil service and the elderly people enrolled in the training organisation.

Chiara Casarin (Head of Cultural Development and Communication FGC): Project Supervisor; Ilenia Maschietto, Costanza Blaskovic, Giovanna Pesaro, Eurigio Tonetti (Fondazione Giorgio Cini): Project Coordinator and Tutor; Stefano Barzon, Maria Teresa Ferrara and Sara Papa: volunteers.

A specific training programme is dedicated to the civil service volunteers who spend twelve months on the Island of San Giorgio Maggiore, the main topics of which are the history and cultural heritage of the Foundation, the technologies in use at the digitalisation centre, and the communication and graphic strategies useful for reaching the selected target. The training will consist of frontal lessons and activities alongside the staff already in service, in keeping with a learning by doing approach. This will allow the young operators to feed the online databases, which may then be visited on the website www.cini.it, as well as coming into close contact with various professionals from the world of Digital Humanities and with a number of local realities related to the project themes.

Developments & Results

I. Digitisation of documents and online publication (selected books from the Foundation’s antique collection, documents from other Foundation archives selected from the activities planned for 2023);

II. Development/communication of activities and heritage;

III. Creation of tools to ensure access to the online heritage also for nonexperts (such as an in-depth video or tutorial to facilitate navigation and searching);

IV. Sharing digital content with the community of senior citizens (remote searching with the Università della Terza Età, a university for senior citizens).
This project is part of the three- and two-dimensional recording plan of the collections of Fondazione Giorgio Cini in high resolution for preservation, dissemination and study purposes, increasing at the same time the knowledge of the heritage. Moreover, the outputs are intended to improve the accessibility of the heritage both for schools’ students and scholars and for a greater public.

In February 2023 Factum Foundation completed the recording of the paintings collection of Palazzo Cini Gallery (47 paintings), coordinating with the staff of the Technical Department of Fondazione Cini and the Institute of Art History, and based on the information provided by the director of the Institute, responsible for the Cini art collection. All used systems are non-contact, high resolution methods especially developed or adapted for the field of art documentation, completely safe for the original artworks. The recording systems include the following: Lucida 3D Scanner (for capturing the surface texture of paintings and other low-relief objects); panoramic composite photography (for capturing the colour).

When possible, paintings have been recorded unframed, placing the canvas or panels on an easel with the surface plane perpendicular to the floor (as both the Lucida 3D scanning and the panoramic photography processes require to operate). When it was not possible to remove the frames or to unhang a painting from the wall, the team recorded the painting and frame in their usual location, adapting as much as possible the system to the requirements of each piece. In all cases, it was necessary to remove any protective glass for high resolution recording.

In June 2023, Factum’s experts completed the post-processing of the data, giving as first result a multilayer viewer to inspect in depth both the colour surface and the 3D for each painting. The work provides an accurate database that will help monitor the preservation state of the paintings, study the works in detail both as images and physical objects and disseminate their artistic and historic value.

This will then lead to the creation of online virtual tours and didactic contents for people who are unable to come to Venice and for all scholars with disabilities. A ministerial grant application has been submitted to receive fundings to cover part of the costs of this project and to allow for further documentation.
Objectives

The 3D and colour recording of the paintings in the collection of Palazzo Cini Gallery (47 paintings), the post-processing and creation of dissemination tools for preservation and study purposes.

People involved

Luca Massimo Barbero (Fondazione Giorgio Cini – Director of the Institute of Art History); Carlos Bayod Lucini (Factum Foundation): Project Manager; Costanza Blaskovic, Chiara Casarin (ARCHiVe – Fondazione Giorgio Cini): Coordinator; Carolina Gris, Marina Luchetti (Factum Foundation): 3D recording and post-processing; Gabriel Scarpa (Factum Foundation): panoramic composite photography and post-processing.

Developments

Start of the project, handling of the works for the removal of frames and protective glass from the paintings, inspection and installation of photographic equipment.

Recording of the surface of paintings with the Lucida 3D Scanner and recording the colour of the painting with panoramic composite photography. Saving, optimization and post-processing of data for the creation of the multi layered viewer.

The activities carried out will be the subject of several lectures within the AOA ARCHiVe Online Academy and will be published on the new ARCHiVe website.

See Output section for the list and viewers of digitised works.
In 2007 the Fondazione Giorgio Cini presented the largest facsimile of a Renaissance work of art ever made. Not only the size was testimony to the amount of work that had been done, but also the complex conditions under which it had been carried out. The original painting that is now in the Musée du Louvre was digitised in 3D with two specially designed scanners (Cana3De and NUB 3D) to fill the gap that the removal by Napoleon’s troops had imposed on the Island of San Giorgio in Venice. The files collected from the scan, after dividing the painting into 37 columns and 43 horizontal rows, were saved in .tiff and .jpg at 600 dpi for a total of approximately 500 gigabytes. Also for the relief of colour (and the infinite nuances the painting contains), photographs were taken in sections using the light present in the room. The careful combination of the data collected, both in terms of colour and depth, the printing of the canvas portions and the subsequent assembly with manual retouching of the joints and gaps led to a final result that forced contemporary critics to intensively revise the concepts of authenticity. Paolo Veronese’s work, 445 years after its completion and 210 years after his departure for France, returned in all its integrity to the place for which it was intended.

In 2022, in collaboration with San Marco Group and with the involvement of iGuzzini, it was decided to include the facsimile in the project to expand accessibility to the Fondazione Giorgio Cini’s heritage. Through the creation of an App for mobile devices that makes use of beacons and 11 spotlights for pointing out details of the work, it is now possible to offer the public a more in-depth experience of the contents and a more user-friendly way of accessing the work for the public with reduced visual capacity. The app not only provides, via push notification, audio to support the observation, but also contains details of the work in high definition, thus ensuring close observation of what is painted and not visible from a great distance.
The Nozze di Cana App is based on an innovative push notification system that includes a lighting fixtures system pointing at the details of the Cana facsimile; via the Bluetooth components of the App, it is possible to enable location-based information services such as Beacons. This information will reach the visitor of the Refectory of San Giorgio Maggiore through push notifications containing audio file, image details and texts about the painting of Le Nozze di Cana (history, iconography, curiosities) and the facsimile.

Methodology

Developments & Results

I. Design and development of the Application Nozze di Cana App to highlight the crucial details of the painting and narrate the complex iconography and its rich history.

II. Launch on the App within 2023 and unveiling of the App and light installation through a Cini Ambassador special event organised in the Refectory of Fondazione Giorgio Cini.

III. ARCHiVe Online Academy course (mid 2024) dedicated to the Nozze di Cana history, from Veronese to the creation of the facsimile in the Refectory and the latest project of the Nozze di Cana App.
In April 2023, ARCHiVe conducted specific digitisation tests to initiate a large-scale digitisation project involving 79 copies of the “Il Giornale dell’Arte” magazine (published by Allemandi Editore). “Il Giornale dell’Arte” is part of a network of four interconnected newspapers, constituting one of the most comprehensive and authoritative global systems for artistic information. This network includes the Italian “Il Giornale dell’Arte,” the Anglo-American “The Art Newspaper,” the French “Journal des Arts,” and the Greek “Ta Nea Tes Technis.

The aim of this project is to commemorate the 40th anniversary of the newspaper, founded by Umberto Allemandi in 1983. It aims to provide the general public with the opportunity to access and read the magazine’s issues online, free of charge, along with digitally transcribed text.


I. Preliminary study and analysis of materials. Assessment of the state of the newspapers preservation and evaluation of the total number of pages in order to estimate time for the digitisation process;

II. Digitisation of the newspaper copies using the V-scanner for the ones being in a good state of preservation and the Vacuum Surface for the ones needing particular attention due to deterioration of the paper and/or folding problems;

III. File renaming and Post-production (white balance, correction of optical distortion, chromatic aberration, and additional step required to apply masks for tonal adjustments and local corrections on pages shot by using two V-Scanner cameras);

IV. Exportation of .jpgs and creation of .pdf files combining both “Il Giornale dell’Arte” digital copies and all its additional issues,
V. OCR (Optical Character Recognition) to make .pdfs searchable and compression of .pdf documents in order to reduce files size and obtain optimised images for the web.

Equipment used for digitisation: V-Scanner and Vacuum Surface, using in both cases Canon EOS 5DS R cameras.

Developments & Results

79 copies of the newspaper and their 220 additional issues have been digitised using high-resolution colour photography. The images obtained have been post-produced and all the digital files have been organised in folders and subfolders based on different file formats: high quality jpg, lower quality jpg, cr2 (raw photo files), high quality pdf and compressed pdf. An OCR function has been added to each pdf file so that the texts will be searchable and easily analysable. The final check performed on these pdf files revealed that OCR wasn’t successful on a small number of images. The particular error has been detected on pages with significant contrast between light text colour and darker background colour.
Education
Identifying research and training as two of the core values of the ARCHiVe Centre, since its creation in 2018, we have been committed to organizing training and refresher courses, not only for employees and collaborators of the Fondazione Giorgio Cini, but also for students and external professionals.

During 2019, the ARCHiVe Centre organised and hosted 8 cycles of lectures and workshops; held by professors of international universities and by ARCHiVe staff, the courses covered topics related to the activities of the Centre and its partners, Factum Foundation and EPFL. With the aim of training and updating participants in a specialist way, theoretical courses and workshops were designed to develop skills that can be used in professional practice.

AOA | ARCHiVe ONLINE ACADEMY

From the spring of 2020, we have all been hit by the Covid-19 pandemic, which has forced everyone to consider new ways to continue their work. By that time, the training programme had already been defined and the speakers confirmed. In a very short time, the ARCHiVe team was able to move the entire programme remotely, achieving the goal of delivering the agreed training, launching the format AOA | ARCHiVe Online Academy; this meant giving a larger number of learners the opportunity to follow the courses organised by ARCHiVe. The lessons proved to be a very useful tool for knowledge and comparison, both for learners – professionals and scholars in the field of cultural heritage – and for teachers and organisers.

ARCHiVe Online Academy is structured as a series of thematic courses, classes and talks, delivered online, live on the Zoom platform and streamed on YouTube; participation is free but attendance is selected, to ensure a high quality experience to individual learners.

TOPICS

By opening up online participation to a wider audience, we wanted to share methods and tools behind many of the Fondazione Giorgio Cini and partners projects, in order to establish a dialogue with other professionals and scholars. The reason for this choice lies in the intention to share experience on practices that have proved successful for our projects, trusting that we can be useful to others - be it private individuals or institutions and companies, promulgating the growth of digital in the cultural heritage sector. More recently, we have also offered the possibility of submitting through AOA some projects that are close to those normally developed by ARCHiVe, putting us in contact with Italian and International libraries and institutions operating in the same fields.
This course focuses on photography applied to digitisation with a special emphasis on photographing documentation. The first module deals with the rudiments of digital photography and will include a brief examination of the fundamental elements of the camera. The second offers an overview of studio photography, including the characteristics of light and its management, while the basics of digital post-production and the rules for correct digitisation are tackled in the last module. The course is curated by Rosario Terranova and Noemi La Pera, final-year students in photography at the Istituto Superiore per le Industrie Artistiche (ISIA), Urbino, and ARCHiVe collaborators.

Class 1 | 5 May 2020
Introduction to digital photography

Class 2 | 7 May 2020
Studio photography: how to manage the light

Class 3 | 12 May 2020
Digital post-production fundamentals; Principles for proper digitisation
This ARCHiVe Online Academy course, in four lessons, analyses some aspects of the main legal issues and possible solutions involved in the digitisation of cultural heritage. The topics include the impact of copyright on digitisation and making cultural heritage available to the public, and the intersection between personality rights and digitisation and making cultural heritage available to the public. Lastly, the rights to privacy, image and the protection of personal data are explored in relation to the management of correspondence archives, pictures and documentation of a historical and historiographical nature.

People involved: Roberto Caso, associate professor at the University of Trento, lecturer in comparative law and delegate for Open Access and anti-plagiarism policies; Paolo Guarda, researcher at the University of Trento, lecturer in comparative law.

Class 1 | 18 May 2020
Digitisation and intellectual property: The digitisation of cultural heritage and copyright
Roberto Caso

Class 2 | 19 May 2020
Digitisation and intellectual property: Open access to cultural heritage
Roberto Caso

Class 3 | 20 May 2020
The digitisation of cultural heritage and personality rights
Paolo Guarda

Class 4 | 21 May 2020
Records management in public interest and data protection
Paolo Guarda

This course explores the notions for a correct post-production of images to be used in digitisation. This involves providing the theoretical tools for the management, development and archiving of image files, as well as illustrating the automatic post-production algorithms produced within ARCHiVe. People involved: Rosario Terranova and Noemi La Pera, final-year students in photography at the Istituto Superiore per le Industrie Artistiche (ISIA), Urbino, and ARCHiVe collaborators; Remko Bigai, web project manager, Mind@ware and ARCHiVe.

Class 1 | 26 May 2020
Serial post-production using softwares;
This workshop is devoted to Transkribus, a software for the automatic recognition and transcription of handwritten texts, based on the use of machine learning algorithms. Already employed by the Fondazione Giorgio Cini. Transkribus is the result of a project funded by the European Commission and hosted within the University of Innsbruck Digitisation and Digital Preservation Group (DEA). During the workshop, the potential of the software is explored not only from a theoretical point of view, but also by providing the opportunity for practical experience and case studies, such as the use of Transkribus in the Alain Daniélou Archive project at the Fondazione Cini. The teachers also guide participants step by step in the practical use of the software, from downloading the programme to the training model, the basis for the automatic recognition and transcription of texts.

People involved: Transkribus team members; Dr Eloisa Stuparich, ARCHiVe researcher for the Alain Daniélou Archive.

Class 1 | 5 November 2020
Introduction to Transkribus;
Operating systems and use of the software;
Workflow example

Class 2 | 6 November 2020
Projects successfully implemented in international archives (National Archive Netherlands, National Archive Finland and newspaper projects): case studies;
Training a model for recognition and transcription

Class 3 | 10 November 2020
Transkribus community projects and other online projects;
The Transkribus web interface;
Challenges and future projects

Class 4 | 16 November 2020
Daniélou project case study: presentation of the work on the archive with Transkribus technology (methods and results)
### AOA 2020 | Lecture

**Italian Design’s Archives Enhancement: Ettore Sottsass jr. Fund**

10 December 2020

**LECTURERS**

Andrea Barbon, Costanza Blaskovic, Marco Scotti, Alice Vivian

In December 2018, the Fondazione Giorgio Cini received, as a gift from Barbara Radice, part of the archive of her husband, the architect and designer Ettore Sottsass jr. In this meeting the work in progress on the Sottsass fund is presented, highlighting the shared experiences of those who took part in the project, the result of the collaboration between the Fondazione Giorgio Cini and the IUAV University of Venice. The lecture deals with the challenges faced in the context of digitisation, archival description and archive study, using specific examples and referring to the techniques and tools in use at ARCHiVe.

### AOA 2020 | Course

**Three-dimensional Materials: the Digitisation**

15, 18 December 2020

**LECTURERS**

Carlos Bayod Lucini, Guendalina Damone

This course deals with the digitisation techniques of three-dimensional materials tested and used by Factum Foundation. The first two meetings are theoretical lessons on tools and on the digitisation and development process; these are followed by a photogrammetry workshop applied to cultural heritage. This second part allows users to become familiar with photogrammetric survey techniques through the use of digital cameras (professional and otherwise).

People involved: Carlos Bayod Lucini, architect, Factum Foundation project director; Guendalina Damone, Factum Foundation Italy project manager

- **Class 1** | 15 December 2020
  - Lucida 3D Scanner: understanding an artwork through its surface

- **Class 2** | 18 December 2020
  - Digital technology and facsimiles: a non contact approach to Heritage preservation

### AOA 2021 | Course

**Fonti 4.0: Preservation, Transcription, and Access of Analog Oral Sources**

1, 8, 16, 17, 22, 23, 30 September 2021

**LECTURERS**

Valentina Burini, Silvia Calamai, Alain Dufaux, Roberta Bianca Luzietti, Alessandra Origani, Niccolò Pretto, Alessandro Russo

A series of eight meetings dedicated to oral sources and to the new technologies for the digitisation, automatic transcription, analysis and valorization of this specific documentary typology. The theoretical lessons are accompanied by practical workshops; the meetings are held in Italian and English. The first thematic area deals with sound sources and new technologies for the digitisation, automatic transcription, analysis and valorization of this specific documentary typology. The course has been curated by the Centro di Sonologia Computazionale of the University of Padua and the partners of Fonti 4.0, a research project in the field of automatic transcription of sound sources, carried out with resources from the Regional Operational Program and co-financed with the European Social Fund 2014-2020 of the Veneto Region. The first meeting (September 1) introduces the project Fonti 4.0 and presents other case studies and techniques for the valorization of oral sources thanks to new technologies in the context of Digital Humanities.

During the month of September, there have been seven meetings dedicated to digitisation, metadata, restoration, transcription and preservation of audio recordings; lectures involved also thematic workshops. People involved: Valentina Burini, Alain Dufaux, Roberta Bianca Luzietti, Alessandra Origani, Niccolò Pretto, Alessandro Russo, Università degli Studi di Padova, Centre for Computational Sonology. Silvia Calamai, Associate Professor at University of Siena; Sergio Canazza, Department of Information Engineering, University of Padua, Scientific Director of CSC, CEO of AudioInnova srl; Renata Codello, Secretary General of Fondazione Giorgio Cini; Chiara Casarin, Communication and Cultural Development at Fondazione Giorgio Cini; Frédéric Kaplan, Chair of EPFL DHLab; Monica Monachini, National Research Council - Institute of Computational Linguistics “Antonio Zampolli” - ILC Arjan van Hessen, University of Twente.
From 6th to 17th July 2020, a team from Factum Foundation spent twelve days in Venice recording the Island of San Giorgio Maggiore. This groundbreaking ARCHiVe project, linked with EPFL’s DHLab/Venice Time Machine, involved the collaboration of Factum Foundation, the Fondazione Giorgio Cini and École Polytechnique Fédérale de Lausanne (EPFL). The aim was to demonstrate that technologies such as aerial and ground-based photogrammetry and LiDAR recording could eventually be used to record the whole of Venice at millimetric and sub millimetric accuracy. After the acqua alta in November 2019 reached the highest recorded level in fifty years, ARCHiVe’s aim was to efficiently and effectively record the island and its nearby waters to aid the preservation of Venice’s fragile cultural and natural heritage.

During July 2020, Factum’s team worked alongside three graduates from EPFL sharing information and comparing results. The selected focused areas for recording include: Basilica of San Giorgio Maggiore, Longhena Staircase and Refectory, Library and Presidential Rooms, Cloisters, Borges Labyrinth and Gardens.

In 2021, the company Divirod joined the partner institutions, to focus on the monitoring of the Island’s environment. Divirod, a US company based in Boulder, Colorado and founded by Javier Martí, has developed a radar sensor that uses satellites and locally recorded data to generate accurate hydrological models. In this case, a model of the tidal trends and movement of the water that surrounds the Island of San Giorgio, producing data accessible in real time on desktop computers and mobile devices.

People involved: Renata Codello, Secretary General of the Fondazione Giorgio Cini; Adam Lowe, founder of Factum Foundation for Digital Technology; École Polytechnique Fédérale de Lausanne; Frédéric Kaplan, chair of Digital Humanities Laboratory of École Polytechnique Fédérale de Lausanne

Participating in the celebrations for the 70th birthday of Fondazione Giorgio Cini, on September 27th Adam Lowe and Frédéric Kaplan presented the methods and technologies in use for the monitoring and recording of the Island of San Giorgio Maggiore. This presentation explained the 3D recording methods and the data processing actions to the audience in the context of ARCHiVe Online Academy 2021 programme, introducing the possibilities offered by these innovative techniques. https://youtu.be/48Q8ue_JEUk

### DIGITAL COPYRIGHT BETWEEN ART, SOCIETY AND MARKET

This course focuses on copyright in the digital age (including the most recent updates of the law), on systems for copyright protection such as Blockchain technology and new digital technologies for cultural heritage.

Lessons are held in Italian. People involved: Roberto Caso, associate professor at Università di Trento, comparative law professor and president of AISA (Associazione Italiana per la promozione della Scienza Aperta); Ennio Bianco, art critic and curator, expert in Artificial Intelligence Art; Domenico Quaranta, art critic, curator, professor of Interactive Systems at Accademia di Belle Arti di Carrara.

Class 1 and 2 | 7, 8 October 2021
Copyright in the digital era between market and society: updates on European copyright law
Roberto Caso

Class 3 | 19 October 2021
Artificial intelligence: newest frontier in creativity
Ennio Bianco
https://www.youtube.com/live/V9DSwvfnIpw?feature=share

Class 4 | 22 October 2021
Copyright and Blockchain: present and future of NFT in contemporary art
Domenico Quaranta
https://www.youtube.com/watch?v=rm6dkaq5rMM

### HANDLING, DIGITISATION AND PUBLICATION OF BOOK AND DOCUMENTARY HERITAGE

The thematic area of this course is dedicated to book and documentary assets, with a view to their proper manipulation both in the case of exhibition set ups as well as during activities related to the digitisation of assets.

Five lectures dedicated to the manipulation of book and documentary heritage for display and digitisation, with a view to the proper manipulation both in the case of exhibition set ups as well as during activities related to the digitisation of assets.

### THREE-DIMENSIONAL DIGITISATION

The course is curated by Factum Foundation, partner of Fondazione Giorgio Cini, expanded and deepened into the concepts and practices of 3D digitisation for Cultural Heritage. Two types of lessons are presented: classes focusing on theoretical aspects and case studies, workshops demonstrating the application of a particular technology that has been discussed in the previous class. Twelve hours entirely dedicated to the digitisation of three-dimensional materials, with the presentation of several case studies. Lecturers discuss techniques, tools and purposes of digitisation of cultural heritage such as paintings, sculptures, architecture, and archaeological sites, but not only.
People involved: Giulia Barbero, Cultural heritage restorer: book and archival heritage, paper artefacts and photographic material; Miriam Rampazzo, Cultural heritage restorer: book and archival heritage, paper artefacts and photographic material; Gaia Petrella – Cultural heritage restorer: book and archival heritage and paper artefacts; Fiammetta Sabba, Associate Professor of Bibliography and Librarianship at Alma Mater Studiorum, University of Bologna, President of Master in Library and Archive Science; Anna Busa, Professor at Department of Cultural Heritage at Alma Mater Studiorum, University of Bologna; Alberto Campagnolo, Postdoctoral research fellow, Université catholique de Louvain (Louvain-la-Neuve, Belgium).

Manipulation of documents and books documents for digitisation and exhibition. The two classes will address the main issues related to the correct handling in an exhibition set-ups and throughout the digitisation phase, with examples from recent experiences in the field.

Class 1 | 1 December 2021
Handling for exhibiting
Giulia Barbero, Alessandro Martoni, Miriam Rampazzo

Class 2 | 3 December 2021
Handling for digitising
Giulia Barbero, Miriam Rampazzo, Gaia Petrella

Digital Libraries’ evolution and the application of IIIF protocol
By analyzing the peculiarities, the problems and opportunities of Digital Libraries will be given emphasis to different digitisation projects based on the IIIF protocol (International Image Interoperability Framework).

Class 3 | 16 December 2021
The evolution of the Digital Library
Fiammetta Sabha

Class 4 | 17 December 2021
Field experiences and reflections on the aspects of communication
Anna Busa

Transmediation of the materiality of the book into the digital

Class 5 | 20 December 2021
The lesson analyzes several examples of digital reproductions: the focus will be on innovative technologies capable of giving back the physical and material aspects of the volumes, supporting remote codicological observations.
Alberto Campagnolo
https://www.youtube.com/live/fg2Ik3KoZbA?feature=share

AoA 2022 | Lecture
Digital and Museum Communication. The New Professions for Cultural Heritage
26 June 2022

LECTURERS
Cristina Barbiani

Cristina Barbiani, scientific coordinator of the Master in Digital Exhibit at the IUAV University of Venice, introduce the new possibilities of the digital for the creation of multimedia and interactive systems, combining knowledge and technologies related to computer vision and aimed at the creation of museum displays, for design, architecture and multimedia and performing arts.
https://www.youtube.com/live/qka_Ne8tp2c?feature=share

AoA 2022 | Lecture
Venice Long Data: A New Platform for the Consultation and Analysis of (Long) Historical Data
28 June 2022

LECTURERS
Guido Caldarelli, Alessandro Codello

Guido Caldarelli and Alessandro Codello present Venice Long Data (VLD), a multidisciplinary research project that aims to address historical analysis from an integrated point of view, in the Venetian context, based on the historical database of the State Archives of Venice and the Fondazione Giorgio Cini, using the techniques of Big Data, Machine Learning, Complex Networks and generally related to quantitative modelling.
https://www.youtube.com/live/PwCpzHnFyY?feature=share

AoA 2022 | Lecture
On Digital Creativity. The Mask of Time
29 September 2022

LECTURERS
Ennio Bianco, Mattia Casalegno, Maurizio Martusciello aka Martux_m

The Mask of Time (La Maschera del Tempo) is the first digital artwork commissioned by Fondazione Giorgio Cini elaborated from the three-dimensional digitisations of the Teatro Verde (Island of San Giorgio Maggiore) and the documents of the Iconographic Archive made available by the Institute for Theatre and Melodrama. Experimental technologies were
used to create the film, such as Midjourney, an image-to-text generator derived from Open AI's DALL-E and Unreal Engine 5. Mattia Casalegno and Maurizio Martucciello aka Martux_m, authors of The Mask of Time, dialogue with curator Ennio Bianco following the preview screening. https://www.youtube.com/watch?v=RoWKMJuT6kA

Class 4 | 18 October 2022
Digital exhibit. Dispositivi multimediali e interattivi per il patrimonio culturale
Cristina Barbiani

Cristina Barbiani, scientific head of the Master Digital Exhibit at the Iuav University of Venice, delves into the different technologies behind multimedia and interactive installations that allow, through a work of visual "translation," to narrate and return scientific investigations, historical research data and archaeological survey results. https://youtu.be/B0J9aJDOnXc

AOA 2022 | Lecture
Art as a Method of Experimental Preservation
7 October 2022

LECTurers
Jorge Otero-Pailos

Director of Historic Preservation at Columbia University’s Graduate School of Architecture, Planning, and Preservation, Jorge Otero-Pailos is an architect, artist, and theorist specializing in experimental forms of preservation. During the talk, Otero-Pailos presents a series of recent works in which he employs material residues of buildings and sites – including airborne atmospheric dust, waterways, traces of sweat, and body sounds – to render their invisible meanings visible. https://youtu.be/jpqvYKEOCSo

Class 5 | 15 October 2022
New tools, new ideas. Interactivity between the digital and the physical
Klaus Obermaier

The appointment with artist Klaus Obermaier investigates in what nests digital tools can be used as exploratory mediums of artistic research and how new technologies are able to generate forms of interactivity that reconnect the physical dimension of the body with the digital dimension of the creative act. https://youtu.be/DkFSaNo951c

Class 1 | 6 October 2022
Navigating art archives
Matteo Cellini (CamerAnebbia, Milano)

Matteo Cellini, part of the CamerAnebbia collective in Milan, illustrates the ways in which some of the many interactive installations designed from museum archival materials, iconographic and documentary sources and artworks from some of Italy’s most important collections are produced. The lecture delves into the technologies used to generate visual landscapes, through the techniques of retouching, post-production and real-time rendering, usable through touch screens and large-scale video projections. https://youtu.be/hWiAGj4h338

Class 2 | 11 October 2022
Dall’Arte classica all’Arte digitale. Nuove forme di narrazione
Rino Stefano Tagliaferro (Karmachina, Milano)

Rino Stefano Tagliaferro’s lecture focuses on the presentation of a number of multimedia works-short films, commercial projects and video installations-in which, through the use of digitally reworked works of classical figurative art, a new form of storytelling is told. All stages of production, from project conception to final realization, are then addressed and explored. https://youtu.be/FkkJA3JvdLs

Class 3 | 13 October 2022
New tools, new ideas. Interactivity between the digital and the physical
Klaus Obermaier

The appointment with artist Klaus Obermaier investigates in what nests digital tools can be used as exploratory mediums of artistic research and how new technologies are able to generate forms of interactivity that reconnect the physical dimension of the body with the digital dimension of the creative act. https://youtu.be/DkFSaNo951c

Class 4 | 18 October 2022
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Cristina Barbiani

Cristina Barbiani, scientific head of the Master Digital Exhibit at the Iuav University of Venice, delves into the different technologies behind multimedia and interactive installations that allow, through a work of visual "translation," to narrate and return scientific investigations, historical research data and archaeological survey results. https://youtu.be/B0J9aJDOnXc

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The appointment with artist Klaus Obermaier investigates in what nests digital tools can be used as exploratory mediums of artistic research and how new technologies are able to generate forms of interactivity that reconnect the physical dimension of the body with the digital dimension of the creative act. https://youtu.be/DkFSaNo951c
The present research reflects on the possibilities that the technologies of data acquisition and three-dimensional reproduction of artistic objects offer for the generation of never produced artworks through two case studies based on projects by Piranesi and Canova.  

https://youtu.be/xBGXyH84ua8

Mosaics are artworks whose fragmentary nature has resulted in great damages due to the loss of tassels. This conference offers the first outcomes of the new tools in AI such as DALL.E2, able to interpret the missing parts and offer interesting, although debatable, outcomes.

https://youtu.be/xBGXyH84ua8?feature=shared&t=3302

Giacomo Verde (Cimitile, 1956- Lucca, 2020) in forty years of artistic activity has dealt with different languages such as street theatre, video art, painting, drawing, performance and Net Art with the idea of investigating contaminations between media to create works in which different artistic techniques coexist in an “artivist” spirit. The meetings aim to show the working method with which the unpublished materials from the multimedia archive have become a volume for Milano University Press and an interactive exhibition, offering ideas for a film to come. The course is curated by Annamaria Monteverdi (Università Statale di Milano).

Class 1 | 9 November 2022
The archive of an artivist. Giacomo Verde (1956-2020)
Anna Maria Monteverdi (Università Statale, Milano)

https://youtu.be/HLhrleVeGrI

Class 2 | 16 November 2022
Crossings: the ultra-scenes of Giacomo Verde
Flavia Dalila D'Amico (Università di Roma La Sapienza)

https://youtu.be/hj7qGVjM3Mk

Giacomo Verde: the telereconcert and its doubles; The reinvention of a video theatre technique for children
Vincenzo Sansone (Università Statale, Milano)

https://youtu.be/-zczO8eGikw

Class 3 | 23 November 2022
Giacomo Verde: the telereconcert and its doubles; The reinvention of a video theatre technique for children
Vincenzo Sansone (Università Statale, Milano)

https://youtu.be/-zczO8eGikw

Class 4 | 30 November 2022
From archive to film
Raffaella Rivi (Film-maker)

https://youtu.be/-zczO8eGikw

Quayola employs technology as a lens to explore the tensions and equilibriums between seemingly opposing forces: the real and artificial, figurative and abstract, old and new. Constructing immersive installations, he engages with and re imagines canonical imagery through contemporary technology. Landscape painting, classical sculpture and iconography are some of the historical aesthetics that serve as a point of departure for Quayola’s hybrid compositions. His varied practice, all deriving from custom computer software, also includes audiovisual performance, immersive video installations, sculpture, and works on paper.

https://youtu.be/5RmaPol6NU0
The seminar, held by the Fondazione Giorgio Cini ARCHiVe Centre and the Italgas Heritage Lab, stems from the desire to promote a wide-ranging exchange on potential new approaches to the issues of digitalising company archives. The day will include talks by professors from Ca’ Foscari University of Venice, the director of the College of Humanities of the Swiss Federal Institute of Technology in Lausanne (EPFL), representatives of the Italian Ministry of Culture, the ICAR (Central Archive Institute) and PARER (Archive Hub of Emilia Romagna), with a focus on the case studies of the historical archives of Intesa San Paolo, the Emilia Romagna Region and the Heritage Lab of Italgas: the new centre that deals with the digitalisation and enhancement of the archives of the historic Turin-based company.

Session 1 | 1 March 2023
The new humanities frontier for the management of Big Data from the future
Carlo Bagnoli

Session 1 | 1 March 2023
Image systems: from local collections to global computing
Frédéric Kaplan

Session 1 | 1 March 2023
Introduction to the National Plan for the Digitisation of Cultural Heritage and its Guidelines
Tiziana Mancinelli

Session 2 | 1 March 2023
Roundtable: Managing sensitive data: between compliance (GDPR) and historical responsibility. The Intesa Sanpaolo and Emilia Romagna Region case studies.
Speakers: Renata Codello (Giorgio Cini Foundation), Katya Corvino (Heritage Lab Italgas), Giovanni Bruno (Regesta.exe), Giovanni Michetti (La Sapienza University Rome), Federica Brambilla (Intesa Sanpaolo Historical Archive), Gabriele Bezzi (Polo Archivistico Emilia Romagna PARER)
Managing sensitive data: between compliance (GDPR) and historical responsibility.
Two days workshop dedicated to the digital image and its role in the contemporary world, through the work method of photographer and artist Ljubodrag Andric. His research investigates the relationship between space and architecture and revolves around the re-contextualisation of the urban landscape.

The very latest 3D recording technology conceived and developed by the Factum Foundation in Oxford – is a collaborative project which has united Oxford University’s Bodleian Libraries and the Factum Foundation. Based in Madrid, the Factum Foundation specialises in high-resolution 3D imaging and has worked in cultural heritage institutions throughout the world, producing exceptional, three-dimensional facsimiles of artworks and artefacts. The very latest 3D recording technology conceived and developed by the Factum Foundation has, for the last year, been piloted at the Bodleian and has been used to reveal near-invisible text and artwork from originals in the Bodleian’s collections. The ARCHiOx recordings serve two purposes: data can be used to create renders which show the 3D surface of an original in order to reveal what is difficult or impossible to record through conventional photography, or for the purposes of creating incredibly accurate 3D facsimiles. The collaboration between ARCHiOx and researchers who have used the recordings in their studies has been of equal importance. Their suggestions have resulted in numerous exciting discoveries being recorded.

**Session 1 | 24 May 2023**

Recording and dissemination of 3D data, captured using the Selene Photometric Stereo Recording System.

In this session, the Bodleian’s Senior Photographer, John Barrett presents a collection of incredible new recordings made using the Factum Foundation’s latest 3D recording system, the Selene. The recordings have been made from originals from a broad range of the Bodleian Libraries’ world-class collections. Jorge Cano, Head of Technology at the Factum Foundation and designer of the Selene, explains the philosophy behind the Selene and discusses the technology and specifications of the system. Richard Allen, Software Engineer for Bodleian Digital Library Systems and Services demonstrates online viewers for dissemination of 3D recordings, and newly developed tools which will allow users to interact with them.

https://youtu.be/YVDwikuJPs

**Session 2 | 17 June 2023**

Analysis and interpretation: How 3D recordings and other technological innovations are supporting research.

In this session, John Barrett will introduces a panel of experts who explain how 3D recording and other technological innovations have assisted with their research. Professor of Early Medieval History, Jo Story and PhD candidate Jessica Hodgkinson from the University of Leicester discuss how photometric stereo recordings and other technologies have aided their research into Anglo-Saxon manuscripts and medieval book culture. Manager of the Bodleian Japanese Library, and curator of the Bodleian collection of Japanese rare books and manuscripts, Alessandro Bianchi explores how 3D recording may hold the key to understanding how Japanese prints were made, and how 3D renders can be used for assessing their condition. The session begins with a description of how ARCHiOx was established and structured, by the Bodleian Libraries Head of Imaging, Elaine Anstee.

https://youtu.be/oxS82W1wTKo
missioned by the International Fund for Houbara Conservation (IFHC), is centred on bringing all known medieval Arabic manuscripts on Falconry together online in a single digital location facilitating an in-depth study of the art and science of Falconry. The first phase of this work, carried out by Factum Foundation based within ARCHiVe, was completed in June 2023. The second phase of the work, focused on looking at the influence of these manuscripts in the East and the West, will start in September. Carolina Gris (Factum Foundation, Madrid-Venezia) presents a summary of the first two years work and discuss the role of IIIF and inter-library sharing to make specialist areas of interest available to a wider audience of both scholars and general interest users. This approach to the creation of specialised repositories of knowledge is paving the way to a new future for libraries and library users.

**FORMAT**

AOA 2023 | Workshop
Analysis and Recording of Cultural Heritage in Venice
9, 10, 11, 12, 13 October 2023

**LECTURERS**

Carlos Bayod Lucini, Irene Bigolin, Costanza Blaskovic, Osama Dawod, Carolina Gris, Ilenia Maschietto, Joan Porcel Pascual

Curated by Fondazione Giorgio Cini and Factum Foundation, this training initiative is focused on the application of non-contact, high-resolution digital technology to document a selection of art, archival and architectural elements of great historical interest. With a duration of 20 hours, the workshop will introduce participants to specific 2D and 3D digitisation techniques and methods that ARCHiVe has been pioneering in the last years through a number of cutting-edge projects, in Venice and abroad. The workshop will be presental and based on a learning-by-doing approach which will include theoretical and practical training. It is open to a selected group of participants (both students and professionals with diverse backgrounds) who will learn directly from the experts of Factum Foundation and Fondazione Giorgio Cini.

The Theory and Processing sessions will be taught to all participants at the same time. For the Practical recording, the participants will be divided in 4 groups so everyone gets to practice with all recording systems during the week, on a rotary basis.

The systems and methodologies to be used in the workshop are usually employed by Factum Foundation and Fondazione Giorgio Cini for most digitization projects. They range from planar 2D recording of books, documents or photographs, to the 3D recording of shape and surface of painting, sculpture or architecture elements.

Under the guidance of a team of experts, participants will learn to operate the following systems at a basic level, from capturing to processing the information:

I. **Replica 360 Recto/Verso Scanner; V-Scanner; Piano aspirato:** 2D photographic sets specifically created for different types of documents and collections, from phototypes to maps, from rare books to design drawings

II. **Lucida 3D Scanner:** bespoke system for recording the surface of paintings and low-relief objects

III. **Photogrammetry:** the emphasis will be put on close-range capturing, for highly detailed information

IV. **LiDAR 3D scanning:** system for obtaining accurate 3D data of interior and exterior spaces
Biblioteca Marciana preserves the matrix of the Ottoman-Venetian map of the world dated to the second half of the 16th century, called Mappa Turchesca. In February 2019, the Factum Foundation team collaborated with two students from IUAV University to record the map. The recording was part of an initiative led by ARCHiVe, and was framed as a comparative study designed to assess the merits of three recording techniques: photogrammetry, laser scanning, and the Lucida 3D Scanner. Moreover, the scan data should be used by Biblioteca Marciana as a base for digital restoration.

2 IUAV MA students

Five-days workshop focusing on non-contact recording technologies for cultural heritage to a small group of selected students from the Digital Photography MA course of the Design University ISIA Urbino. The theory classes took place at ARCHiVe’s Centre, while the fieldwork recordings have been taken at Palazzo Grimani and at Abbazia San Gregorio in Venice.

10 students

Five-days workshop focusing on recording elements of the Prioral Palace and Church of the Order of Malta in Venice and processing the resulting data at the ARCHiVe headquarters, benefitting from the teaching and processing facilities available. The participants used the Lucida 3D scanner, photogrammetry, panoramic composite photography and LiDAR scanners to document a series of artworks and architectural elements on site.

10 students
The course of Global Humanities contextualizes the European printing revolution with sessions on printing in South, Southeast, and Inner (Tibet and Uyghur) Asia, East Asia, South and North America, then printing in Greek, in Hebrew, in Glagolitic, Armenian, and Arabic, and manuscript production in Africa. To look at 15th-century printed books in person, Cristina Dondi organised a study trip involving the Fondazione Cini rare books collection.

45 students

As part of the residential module of the intensive study program “A Sustainable Serenissima: Water and the Future of Venice” (Faculty of Liberal Arts of Warwick University), set at Fondazione Cini, ARCHiVe team collaborated with Bryan Brazeau (Associate Professor and Director of Postgraduate Teaching of the Faculty) for the training of 20 enrolled students and Cini’s interns.

20 students

The issue of climate change, considered in the technological solutions adopted for the restoration.

50 students

Lecture about adaptive reuse, the fraught role of the original vs reproductions (via some Benjamin lessons), thought about the sustainable implications of a future Virtual Venice, got to touch a Veronese painting and conducted archival research in the Cini Photo Library collections.

28 students
## Photogrammetric training session in Venice

### 2018

Workshop on survey techniques useful for the creation of three-dimensional models (photogrammetry). The theoretical training and data processing held by EPFL took place at the Fondazione Giorgio Cini, using resources and technologies of the ARCHiVe Centre, while the recordings were carried out on some buildings on the Island of San Giorgio Maggiore and in the area of Dorsoduro, Venice.

6 people

## Elements of post-production with Photoshop

### 2019

The course introduces the basics of post-production for cultural heritage and communication on Photoshop and Adobe Bridge curated by Marianna Santoni.

21 people

## Elements of archiving and functioning of xDams platform

### 2019

The course introduces the basics of archiving in the context of digital humanities and with reference to the projects of the ARCHiVe Centre. An in-depth study is dedicated to the functioning of xDams, an archival and XML document management platform used within the Fondazione Giorgio Cini.

21 people

## Production of audiovisual documentation of events

### 2019

The course was organised for the benefit of all those who need to document through video cultural events organised or hosted by the Fondazione; theoretical lessons were accompanied by practical exercises of audiovisual production.

21 people
**Digitisation of magnetic tapes**

2019

Cycle of five lessons dedicated to safety, preservation and digitisation of sound documents on magnetic tape.

25 people

**Audiovisual documentation of events: editing**

2020

Cycle of four lessons concerning the basic theoretical notions of editing in the audiovisual documentation of events, the use of non-linear editing (NLE) DaVinci Resolve (Blackmagic Design) software, and the practical skills required for doing simple audiovisual editing with one or two audio and video sources.

25 people

**Online and On-Site Heritage: New Intergenerational Dialogues**

November 2022 - July 2023

Specific training programme (74 hours) is dedicated to the civil service volunteers who spend twelve months on the Island of San Giorgio Maggiore, the main topics of which are the history and cultural heritage of the Foundation, the technologies in use at the digitalisation centre, and the communication and graphic strategies useful for reaching the selected target.

3 volunteers

**Digitisation for Cultural Heritage**

2023

Specific training programme (15 hours) on cultural heritage digitisation in 2D, concerning best practice when handling, recording and post-processing archival material, books, art collections.

10 people

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**Heritage Lab - Italgas**

**Digital Photography and Cultural Heritage Digitisation**

2021 — Ongoing

As part of the Italgas Heritage Lab project in Turin, a selection of Cini’s team gave a 32 hours training course on Digital Photography and Cultural Heritage Digitisation. In 2023 further training will be provided for library management topics.

20 people

**Fondazione Querini Stampalia**

**Digital Photography and Project Managing**

2021

ARCHiVe presented 24 hours of training on Digital Photography, Digitisation, Project Managing and enhancement of cultural heritage. The training was intended as a professional course for 4 employees of Fondazione Querini Stampalia in Venezia, in the context of the “WOMEN IN PROGRESS SKILLS” project of Regione del Veneto.

4 people

**Fondazione Palazzo Te**

**Fare Arte: Conservazione Digitale**

12, 13, 14, 15, 16 September 2022

Organised by Factum Foundation and ARCHiVe as part of the programme “Fare Arte” conceived by the Scuola di Palazzo Te, the workshop “Recording Giulio Romano: Shape & Surface” introduced students and professionals to the techniques and methods of digital preservation.

12 students
## III. Technologies

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One of ARCHiVe’s goals is the design and implementation of tools for massive digitisation. The huge amount of data coming from the archives and collections of the Fondazione Giorgio Cini made it immediately necessary to automate some time-consuming processes. Among these, first of all, processing of images, texts and documents. The typology of elaborations identified as necessary are: graphics, data extraction and file reprocessing.

In the digitising process a RAW image format called ‘master’ is acquired. This was chosen instead of TIFF for greater flexibility and for better performance in the later stages of adjustment and development. The derived file obtained from this initial format is a high quality jpeg file, particularly suitable for online publishing and sharing. This process of adjusting, converting, optimising and developing the derivative is called post production. Such processing applied to large amounts of images is generally a time-consuming process. It would require many people and many hours of work to prepare the scanned images for online publication and use.

Firstly, we explored the possibility of realising massive graphic post processing scripts of RAW images obtained from various types of photographic sets realised within ARCHiVe. The first goal was to create a script that would autonomously perform the following operations on a large collection of images from the Replica scanner:

I. Format conversion from RAW to jpeg at maximum quality
II. Colour palette removal
III. Rotation
IV. Extraction of document from background
V. Tilt correction
VI. Brightness calibration

After 6 months of design, development, testing and refinement, a first script was obtained that now allows a drastic reduction in production time. It has been estimated that 10,000 images would have required the work of one person for 15-20 working days, whereas with this automatic tool, only 35 hours of machine calculation are needed with an achieved reliability of about 96%.

Evolutions of the original script have made it suitable for use in processing images from other types of scanners developed internally at ARCHiVe, such as the V Scanner and the Vacuum Plane. In addition to graphic processing, it was necessary to design and implement scripts for processing and extracting data and files such as:

I. Text extraction from images using OCR
II. Automatic creation (from folders and images structure) of files that would be populated with metadata for subsequent importation on web publishing platform
III. Automatic creation of shared processing port outcome review files.
The design and implementation, in ARCHiVe, of other types of document scanners (such as the V Scanner and Vacuum Plane) posed further challenges and required the evolution of the original post processing script. The work requested and carried out by Ana Catarina Dos Santos Martins during her scholarship was oriented in this perspective.

In her final report, “Algorithms for Humanities report”, objectives and final results obtained are illustrated. Of particular relevance were the studies on Image Filtering and Colour Palette Detection. On these two topics, Ana Martins managed to obtain two important results.

The first is that, through the application of mathematical functions and computer vision, she was able to improve identification of the digitised document, making automatic post processing script able to remove the real content of the document from its background even in circumstances where the difference in colour between the document itself and the background of the image was not very evident. The second objective obtained was to make the processing script able to identify the colour palette wherever it was and however it was oriented.

Realising scripts was only the first step of a wider vision on massive data processing. In fact, these scripts are not easily usable by users who have little confidence in the execution of commands from terminal. Thanks to the contribution of Valentine Bernasconi, we designed and built a system that would be easier to use by any type of users. In fact, we have designed and developed a software with a user-friendly web interface that allows any user to request post production processes by simply indicating an input and an output folder. “Attività di studio nell’ambito dei progetti di digitalizzazione - PPApp and PPServerApp” by Valentine Bernasconi illustrates what has been planned and implemented in this regard.

Another aspect we have turned our attention to is the strengthening of the online publication platform of the archives (Digital Library). We wanted to enrich this tool, based on the Omeka platform, with searchable annotations associated with the images that make up the published collections. The chosen way was to use API Google Vision for the extraction of OCR from images, to create a software to convert the obtained OCR files into open annotations format and to develop a script to import these files in the Omeka platform.

The design and development of these tools have been assigned again to Valentine Bernasconi who in the document “Mirador Viewer integration” reports the challenges encountered and the results obtained.

From 2022, Federico Dassiè developed another script for images post-production: see the focus in “The post-production script”.

### Equipment

The equipment in the ARCHiVe laboratories undergoes routine maintenance, both because the machines suffer from wear and tear caused by frequent use and because we aim to constantly improve the digitisation sets from a functional and technological point of view.

Since 2021, there has been a greater focus on the maintenance of photographic laboratories, where digitisation is pursued through photographic acquisition, crucial for completing the projects scheduled for 2022 and 2023. For example, the fabric that forms the neutral background of the vacuum table work surface has been regularly cleaned or replaced, whereas the plexiglasses of the Scanner Replica and the VScanner have only been sporadically replaced.

#### 2D TECHNOLOGIES

**REPRODUCTION STAND**

The reproduction stand is a system for acquiring two-dimensional material in a small format (approx. 20x30 cm) created within Fondazione Cini.

In response to the need to digitise photographic negatives and slides, it was decided to implement the setup with a backlit blackboard for tracings, avoiding the purchase of a special scanner. This solution was adopted to respect the principles of efficiency and effectiveness, favouring the reuse of resources and instrumentation already in possession.

The equipment used consists of:

- a Canon EOS 750D camera with a SIGMA 50 mm F1.4 DG or 35 mm lens mounted on a small format adjustable stand (with a maximum height of 85 cm). The camera used has a 50.6 megapixel sensor that allows you to capture high definition images;
- a MedaLight LP-400 cold cathode backlit whiteboard (20x30 cm);
- two Yongnuo YN-600L LED spotlights positioned on the sides of the work surface, which have been substituted in 2023 by two new Neewer RGB168 spotlights, which guarantee a softer and more diffused light.

**Technical Specification**

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| ÉQUIPE       | Costanza Blaskovic, Irene Bigolin, Jorge Cano, Federico Dassiè, Maria Teresa Ferrara, Joan Porcel Pascual |

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The acquisition operations are managed using the Canon EOS Utility 3 software which allows you to use the camera remotely: the setting of the shooting parameters, the focus and the recovery are controlled and set directly from the computer.

Once the documentation has been placed on the surface, the shot has been defined, the parameters have been adjusted according to the type of lighting used (LED spotlights or backlit blackboard) and the focus has been adjusted, the photograph is taken using the connected software. By saving the file you get raw files (uncompressed images) in CR2 format.

In the case of digitisation of negatives, slides or other transparent material, it is advisable to use the backlit whiteboard avoiding the illumination of the side lights.

VACUUM TABLE

The vacuum table is a system for acquiring two-dimensional documents created within Fondazione Cini in response to the need to digitise large format documents or those with creases that compromise their legibility.

This tool consists of a perforated wooden box which forms the work surface for digitisations (approx. 224x124 cm); it is covered with a special fabric and allows the passage of air during the suction phase. In fact, an electric vacuum cleaner is connected to this structure which, when activated, sucks in the air and flattens the documents positioned on the surface. The motor is equipped with an intensity regulator that allows you to adapt the suction force according to the peculiarities of the material.

Shooting is performed by a Canon EOS 5DS R camera with a Canon 35mm, 50mm or 100mm lens, mounted on a stand in a zenithal position with respect to the plane. The height of the camera and the lens are chosen based on the size and type of material.

The Canon EOS 5DS R camera has a 50.6 megapixel sensor that allows you to capture high definition images.

The acquisition operations are managed using the Canon EOS Utility 3 software which allows you to use the camera remotely: the setting of the shooting parameters, the focus and the recovery are controlled and set directly from the connected computer.

In case it is necessary to digitise particularly large documents, a second camera can be mounted on a horizontal arm of the stand to frame a larger surface. The acquisition operations will be managed using the DSLR Remote Pro Multi-Camera software, which allows remote control and therefore the simultaneous release of the two cameras. The two photographs thus obtained will be joined in post-production.

The scanner should not be used for any other purpose than the recording of the original. The rotary table is driven by a motor at a controlled speed. A sensor system calculates the position and detects when a document is placed on the glass surface. The ‘capture’ is done with two identical high resolution cameras with specially designed lighting units for instant capture. The original units have been designed, wired, 3D printed, and assembled in Factum Arte. They provide the lowest level of light required to achieve high quality focused images without glare or shine from the glass. A camera tethering system Smart-Shooter downloads the images from the camera to the computer ready processing and archiving. The Replica 360 Recto/Verso records both sides of a document, and has been designed to digitise 12 documents per minute at 400 DPI. The scanner is also equipped with an automatic object detection system, a controlled light source and an instant visualisation of the images as they are recorded.

Two operators, working in tandem, place and remove the objects during the scanning process, reducing the manipulation time per document. The rotary table is driven by a motor at a controlled speed. A sensor system calculates the position and detects when a document is placed on the glass surface. The ‘capture’ is done with two identical high resolution cameras with specially designed lighting units for instant capture. The original units have been designed, wired, 3D printed, and assembled in Factum Arte. They provide the lowest level of light required to achieve high quality focused images without glare or shine from the glass. A camera tethering system Smart-Shooter downloads the images from the camera to the computer ready processing and archiving. The Replica 360 Recto/Verso records both sides of a document, and has been designed to digitise 12 documents per minute at 400 DPI. The scanner is also equipped with an automatic object detection system, a controlled light source and an instant visualisation of the images as they are recorded.

The scanner should not be used for any other purpose than the recording of paper-based documents and images. Objects heavier than those stated could damage the machine and cause safety issues. The Factum Foundation and the Fondazione Cini Technical Department are jointly carrying out special maintenance work on the machine, because its constant use and ageing hardware and software components meant it was no longer completely reliable. For this purpose, a detailed analysis of the problems was made and presented to engineer Jorge Cano (Factum Foundation) during an initial inspection in Venice. The design of the improvements and replacements then continued in the Madrid workshops, where Cano and Matt Marshall (Factum Foundation) designed and built the following elements:

- a structure to cover the area of the Replica camera back with a black cloth;
- new flash units (to change the non-functioning units);
- four new flash boxes.

In April 2022, the Replica Scanner was refurbished by Factum Foundation by assembling the new covering structure, adjusting the position of the flash
boxes, replacing the cameras and connection cables and changing the position of the document detection sensor (webcam).

In April 2023, a new Replica update included significant hardware and software improvements.

- Main features of the upgrade developed by Canon and Marshall:
  - The system uses two Canon R5 mirrorless cameras;
  - The electronic system for straight/verse sequencing and camera triggering is much more robust: one microcontroller centralises the communication between the computer and the rotation/speed sensor and two other microcontrollers trigger the cameras;
  - The computer hardware was upgraded to a latest generation i5 processor, with 16GB of RAM and a NVIDIA RTX 2060 graphics card;
  - The operating system was changed from Linux to Windows;
  - Now the system uses SmartShooter Pro as the tethering application.

This change simplifies the use of the machine and also allows for greater customisation in terms of image post-processing. SmartShooter has a Python API that allows numerous operations to be performed and events to be registered;

- Concerning the machine setup or any potential misalignments due to usage, the calibration of the camera trigger timings have been updated. A method that greatly simplifies the way adjustments are made to the delay times for triggering each camera have been implemented, ensuring efficient and accurate performance;

- Finally, a feature request that has been made some time ago: the camera now controls the flash trigger system synchronisation. This offers two key benefits: the ability to use faster shutter speeds to reduce ambient light interference, and compatibility with various studio or professional flashes for increased versatility.

**Technical Specification**

**Panoramic Composite Photography**

Panoramic Composite Photography is a 2D non-contact method for recording the colour surface of objects such as works of art. In order to capture both accurate and high-resolution colour of a flat or gently curved surface such as painting or a mural, Factum employs a specialist version of the technique known as panoramic photography.

Using a static telephoto lens, several portions of the same work are shot, thus creating overlapping high-resolution images of the surface and colour. In post production, the photographs are merged with the free software PTGui to create one large image file. PTGui is used to correct geometric distortions resulting from the fact that the camera is usually positioned in the centre of the painting, whose corners are therefore further away from the lens than the centre. This distortion can be corrected by accurately mapping the colour onto a 3D scale model to create a layered information store.

The use of specific lighting and tricks such as polarised filters, together with the ‘mosaic’ shooting technique, allow as much data as possible to be recorded and thus be able, in post production, to cancel out reflections - frequent in tempera and oil paintings – and ensure that the colour is faithful to the original.

**New Digitisation Techniques and Solutions**

The digitisation of cultural heritage and the use of digital techniques for studies and enquiries are increasingly important not only to preserve and publicise cultural heritage, but also for the scientific study of the material supports. Since October 2021, ARCHiVe has been able to further such studies on antique bibliographic items, using the technique of transmitted light to obtain a more precise view of watermarks, embossed stamps, and the wires and ribs of laid paper.

**UV Recording Technology**

For the purpose of examining any notes, erasures or abrasions found on supports, UV lamps were purchased in December 2021. This means that more specific acquisitions can be carried out and used for studies in even greater depth.

Due to the numerous requests from scholars and institutions to consult digital copies of antique books, we are also conducting a digitisation campaign of the antique collection in the Manica Lunga Library (see the ARCHiVe for Institutes section). In some cases, however, because of the unusual nature of a book’s binding or its fragility, the available tools and methods are inadequate. We have thus begun to seek new solutions for the digitisation of antique books. To this end, ARCHiVe will receive professional guidance from the cultural heritage photographer Joan Porcel Pascual, who will work alongside Fondazione Cini staff over the next few months. The collaboration with the photographer will also help us in purchasing specialist instruments (for example, a decentrable lens) and provide a sharp learning curve for the internal staff and the scholarship holders in further developing the ARCHiVe method.

**Additional Tools**

In 2023, ARCHiVe also managed to purchase more hardware and software for the photo labs to guarantee precise image acquisitions and facilitate the work of the photographers and operators.

Photographing cultural heritage is a scientific operation and the right tools are required to ensure that an acquisition is as accurate as possible. Enabling photographers and operators to do this means being able to rely on several tools, of which the following have been assessed as the most urgently required:

- Four PCs have been upgraded, providing them with a more powerful hardware setup. This includes the addition of new monitors to improve the quality of post-production;
- New cables and connectors (USB 3.0 to USB micro-B cables, USB 3.0 hub);
- Power supply adapter for the cameras (Canon DR-E6 DC Coupler and Canon AC-E6N AC Adapter);
- Monitor colour calibrator to calibrate monitors for accurate colour vision in post-production;
- Incident light metre for precise exposure metering of flash and continuous lighting;
- Grey balance card A4 format for exposure metering of continuous lighting;
- BST 13 colour chart and Grey Scale to replace worn ones (for all sets).

**3D Technologies**

**Photogrammetry**

Photogrammetry is a 3D recording technique that employs 2D images to create a 3D model of an object or surface. In this context it is used to document sculptures, architectures or other three-dimensional objects in detail.

The technique involves taking hundreds of overlapping photographs of an object from many different angles and processing them using specialised software improvements.
The technique has a number of advantages over traditional 3D scanning technologies, including the possibility of recording colour information at the same time as 3D data. Photogrammetry is also inherently ‘portable’ – in most cases the equipment (camera, tripod, flashes) can fit into a small camera bag, making it a particularly useful tool for recording at remote or dangerous sites.

Photogrammetry software works by identifying common features on an object’s surface across multiple images. Each of these ‘features’ can be described in 3D space by a series of coordinates (x, y, z). A grouping of such points is called a ‘point cloud’. During post-processing, the points are also triangulated (connected to one another by lines) and conjoined with flat planes to produce a 3D model – a ‘geometric mesh’ composed of vertices, edges and flat planes. By applying digital colour management methods during a recording session, it also becomes possible to simultaneously obtain both 3D and accurate colour information about the surface of an object.

**LUCIDA 3D SCANNER**

The Lucida 3D Scanner is a close-range, non-contact laser recording system that captures high-resolution surface texture data for low-relief surfaces such as paintings or bas-reliefs. The Lucida hardware and software were conceived and developed by artist and engineer Manuel Franquelo together with a team of artists, conservators and engineers at Factum Arte. Logistical support was provided by Factum Foundation.

The Lucida is unique in that it records the 3D surfaces of low-relief objects without being affected by their colour or material properties – the texture of a gold object can be recorded to the same degree of accuracy as the surface of marble relief.

Lucida records 3D data in 48 cm x 48 cm ‘tiles’ by projecting a moving strip of red light onto the surface of an artwork. The distortions in the light as a result of the surface relief are captured by two video cameras positioned at 45° to the laser. The black and white video is automatically processed by the integrated scanner software to produce a 3D file and its associated render – an ‘image’ of the 3D data. The video files can also be stored in raw formats for re-processing at higher resolutions should new software become available in the future.

The scanner was designed for art conservation: the system is entirely non-contact and the scanning head remains 10 cm away from the surface of the artwork at all times. The scanner can be packed into compact cases for travel and is easy to transport and assemble, which enables recording around the world, whether in museums or more logistically complex situations. It is a flexible system that can be built to record very large works (such as the Raphael Cartoons at the V&A), fragile works on paper that require horizontal scanning (for example, Michelangelo’s Epifania at the British Museum), or entire tombs in the Valley of the Kings.

Scanning is controlled from a laptop through a simple, intuitive user interface that was developed with practising conservators and leading cultural heritage specialists. The application allows an operator to control the intensity of the laser light, which can be increased or decreased from within the application depending on the nature of the material being recorded – dark surfaces require stronger laser intensities. This feature, together with the Lucida’s specialised hardware and software applications, enables recording of both dark and light colours within one object.

The Lucida can also capture glossy and even reflective materials like gold, which many commercial systems struggle to record in 3D.

**LiDAR SCANNING**

LiDAR (Light Detection and Ranging) is a medium- to long-range 3D recording method that uses laser pulses to measure the distance from a scanner sensor to a target surface. This technique is used in cultural heritage documentation to produce accurate metrological recordings of large interior or exterior spaces.

The distance is calculated by determining the time it takes for a reflected pulse to be read back into the sensor. LiDAR scanners turn this information into a series of xyz coordinates that are plotted in 3D space as a ‘point cloud’ with often millions of points. This data can be turned into a 3D model – also known as a ‘geometric mesh’ – in further post processing to join the points (vertices) to each other using edges and planes. However, the data does not provide detailed information about the texture (the fine detail) of a surface. Instead, Factum employs LiDAR as a surveying technique that complements other recording methods such as photogrammetry or panoramic photography. The LiDAR data acts as a scaled (accurately measured) digital ‘canvas’ onto which higher resolution 3D or colour scans of the surface can be mounted. When used together with panoramic photogrammetry, the LiDAR data from DAR is used to rectify the geometric distortion present in the high-resolution images that are the ‘raw’ output of this particular colour recording technique.

**SELENE**

Since 2017, Factum Foundation has been developing a new surface scanning system and workflow designed specifically for the fine surface texture of flat or semi-flat surfaces such as paintings, murals or sculptural bas-reliefs. While the Lucida 3D Scanner still produces the highest level of detail, the Photometric Stereo Scanner has the additional advantage of acquiring both surface information and colour at the same time.

The scanner is based on a technique known as photometric stereo: by using 2D images taken under several different lighting angles, it is possible to extract very detailed information about the surface of an object.

It integrates various inputs from non-contact recording technologies, such as photogrammetry, and Factum Arte’s expertise in the field of innovation. The four flashes are the same type conceived by Manuel Franquelo for the Veronica Chorographic Scanner and synchronised via a custom electronic board (designed by our engineering team) to a mirrorless camera. The motorised unit is capable of adjusting the position of the scanner over the object, creating a fast and portable device that is easy to operate.
The project was designed to meet the need to improve and simplify the long and complex process of the post-production of image files stemming from the acquisition of Fondazione Giorgio Cini's heritage. The huge number of images and the transitions they have to undergo in the post-production phase before being exported in files suitable for remote reading has gradually led to automatic systems being introduced to reduce manual work to a minimum.

The language used for the post-production script and automatic cropping is Python, while the development of the algorithms is mainly based on the use of libraries dedicated to image manipulation, such as OpenCV and Pillow.

PYCROP

A first application, which have been called “PyCrop”, was developed through the following steps:
- Acquiring information and analysis of requests;
- Defining the logic;
- Creating experimental models to improve image acquisition;
- Creating a user-friendly interface;
- Refining phase and addition of final features.

The application logic is based on the following procedures:
- Conversion of images from RAW format (.CR2) to JPG and/or TIFF;
- Recognition of the main object of the image and customized cropping of the digitised item;
- Further customized precision cropping;
- Rotation of the image according to the shooting tool (procedures vary depending on whether the image comes from an acquisition campaign carried out on the vacuum table, VScanner, Replica, or small imager stand);
- Application of the color profile (adjustment of image colors);
- Customized compression of images;
- Export of metadata.
The use of Artificial Intelligence

Starting in early 2023, the additional use of internally developed AI tools made possible reaching new heights. Growing research and the recent explosion in the world of artificial intelligence has made it increasingly possible to think and experiment with the most disparate solutions, in every field and in every way. This path has been followed since the instruments used by Fondazione Giorgio Cini must keep pace with the times and adapt to change, staying avant garde and capable of facing future challenges.

Further decisions were taken: part of the imaging post-production would have been managed using Adobe Photoshop as a better way to standardize the work across multiple workstations, and since the image acquisition part in the meanwhile has been changed, developed from scratch standardize the work across multiple workstations, and since the image acquisition part in the meanwhile has been changed, developed from scratch and becoming intelligent, PyCrop was no longer needed. The logic behind the applications, however, remained the same, meeting at the same time some improvements in the workflow.

DEVELOPING A NEURAL NETWORK

Machine learning is a subfield of artificial intelligence that uses data to detect various patterns in a given dataset. Neural networks are a type of machine learning that are modeled after the human brain. They are designed to recognize patterns and learn from them. They are used in a wide range of applications such as image recognition, speech recognition, natural language processing, and more.

In simple terms, neural networks are like a black box that takes in data and produces an output. The network is trained on a set of data and, using algorithms, can recognize hidden patterns and correlations in raw data, cluster and classify it, and – over time – continuously learn and improve.

Once the network is trained, it can be used to make predictions on new data. Neural networks can also improve decision-making processes in many areas by providing accurate predictions based on data analysis.

In our case, the network has been trained on plenty of images from different sources and projects, allowing it to have some degrees of flexibility given different circumstances. However, it’s not perfect. The generated network has to fully understand the meaning of its existence, serving correctly its purpose, which is not always so easy. The training process gives space to a larger machine interpretation, which sometimes can drive results in a different way compared to our expectations.

Conclusions

In conclusion, the project aimed to simplify and improve the post-production process of image files acquired by Fondazione Giorgio Cini. Python, along with libraries like OpenCV and Pillow, was used for scripting and automatic cropping. The development of the initial application, PyCrop, went through several steps to enhance image acquisition, create a user-friendly interface, and refine the features. The project incorporated AI tools in 2023, leveraging machine learning and neural networks to detect patterns and improve decision-making. The usability of physical image acquisition tools was considered, and Adobe Photoshop was used for standardization before applying custom scripting. The general scripting process, including color chart removal, deskewing, and final cropping, was considered more “mechanical” as it operates at a low level with pixels and colors identified in the images.
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per sanitari

cartiere
Reconditioning and updating the APIS (Advanced Paper Imaging System)

Ian Christie Millar’s Advanced Paper Imaging System (APIS) was used by Factum in 2003 to record the Beato de Liebano at the Biblioteca Nacional in Madrid. ARCHIVE’s recording initiative to digitise the Divine Comedy printed in Venice in 1491 in Cini’s Collection and other rare books in the collection at the Fondazione Giorgio Cini resulted in the reconditioning and updating of the system. It was originally used with a Phase One H25 22mpx medium format camera but when revising the system we decided to replace the old Phase One with a full frame camera and 40mm lens setup. These decisions are detailed and rely on research, testing and analysing results. Financial common-sense, practicality, longevity and the quality of the results are central to the decisions.

The first point of consideration was the value for money of the camera setup. The latest model of the Phase One, the IQ4 150mpx camera, costs €50,000. By comparison a 45mpx Canon R5 with a 40mm lens can be acquired for €5,000. Similarly, a 100mpx medium format Fujifilm GFX 100 can be bought, with a lens for under €10,000. The question then becomes; is the €40,000 price difference justified?

Comparative research and in-depth questioning and analysis are an ongoing part of the work. For many people in the digital imaging community the PhaseOne is the default camera for heritage recording. The resolution of the camera is only part of the subject. PhaseOne has a very good marketing strategy with teams visiting professional services and conferences communicating the positive side of their product. Can an objective difference be found between a 150mpx, 100mpx, or 45mpx. The obvious answer is yes, but is that difference worth a factor of 10 difference in price? Unless one is pixel-peeping (looking at individual pixels on a monitor) we were unable to establish any appreciable difference in image quality.

The quality of the lenses then became the focus of attention. Canon, Sony and Fuji lenses are all independently tested and their MTF charts outline their benefits and limitations. A camera sensor is only capable of recording the information fed to it by the lens. What use is a 150mpx sensor if the lens is only capable of rendering 40mpx of information. Since the resolution of the PhaseOne lenses is hard to independently quantify without doing research in practice (which typically involves buying a camera system), it is a far safer bet to work with other camera companies where these things are more clearly documented.
PhaseOne claims to have the most accurate colour rendition. This is an area which needs further investigation. Evidence and test results are hard to find. Colour is a complex subject with significant levels of subjectivity and strongly held opinions. By shooting with a colour chart, you can rectify the colour. If it is viewed on screen, the colour will change from screen to screen, and when printed there are a host of other considerations that determine our perception of colour. When blind tested, most experts struggle to tell the difference between the colour sciences of the major camera brands. Canon usually wins but all the images can be adjusted in post-processing.

After significant discussion it was decided that it was better value for money to replace the PhaseOne with a 55 mm full frame Canon R5. We will continue to access the results and research into better options but with all the factors being taken into account this is currently considered to be the most versatile and practical approach – with the great advantage that it is significantly cheaper.

The development and application of specially designed equipment is central to the work in ARCHiVe. To date this work has been carried out in Madrid and supported by Factum’s team, but APIS is now active in the photography laboratory of ARCHiVe.

One of the objectives of the “Dante 1491” project involved digitising the copy preserved in the Fondazione Giorgio Cini library of the Divine Comedy printed in Venice in 1491 by Bernardino Benali and Matteo Capcasa. This is the first fully illustrated edition of Dante’s poem and, specifically, the copy that belonged to Victor Masséna, Prince of Essling, the famous French collector preferred to have the rare volumes covered with new leather bindings, with the family arms stamped in gold on the plates. These new bindings, made by the best Parisian bookbinders in the late 19th century, while of the highest quality, were often exaggeratedly tight, sometimes preventing the text from being read properly.

Faced with the challenge of digitising the volume to make it available online, the need emerged to find a method of digitisation that would be efficient (for this and numerous other books) and at the same time not jeopardize the preservation status of the work.

The artifact has two main critical issues: the first is related to the small internal margin of the papers. In fact, there are a few millimeters between the edge of the printed part and the binding. The second critical issue concerns the opening angle of the volume, which cannot exceed 90 degrees since the stiffness of the tight binding is aggravated by the presence of a glued spine. This combination of factors prevented capturing the entire page with the tools normally in use, such as V-scanners or column scanner. V-scanners are unsuitable because the plexiglass that flattens the pages before the shot has a thickness that is greater than the white inner margin; column scanners, on the other hand, by providing for the orthogonal position of the camera above the object to be digitised, allow for a shot with partial loss of the text.

The first initiative put in place was to analyze the problem and investigate how it had been solved in different fields. We found that photography in the architectural field has the same problem when, for example, it wants to photograph a tall building in its entirety. To do so, one has to tilt the camera, but in doing so, perspective alterations necessarily appear. To avoid them, the focal plane (the place where the film or digital sensor is housed) must remain parallel to the subject, but in this way the top of the building would disappear. This happens because, being part of the same camera body, the lens and the focal plane move at the same time, so tilting the lens tilts the focal plane.
In the past this problem could be solved with “bellows” machines. Those machines have a folding fabric connecting the focal plane and the lens, so they can be oriented independently. This way the focal plane stays parallel to the building and the lens is raised just enough to see the whole building.

Modern architectural photography has solved this problem by introducing off-Centre lenses. These lenses have a ring that allows the optical element to slide independently of the focal plane. Although the sliding is only 12 millimeters, this is sufficient to change the framing and show the top of the building without tilting the camera.

Implemented Solution

At this point we tried to adapt existing solutions in architectural photography in the context of digitising old books. The commercially available de-Centred lenses are two wide-angle (17mm and 24mm), one normal (45mm) and one telephoto (90mm). All lenses have a deCentreing range of 11/12mm. After testing the Canon TS-E 24mm f 3.5, with a vertical field of 55 degrees, we found that, even at its maximum deCentreing (12mm), it did not solve the problem completely and page reproduction was not integral (fig. 2 and fig. 3). A subsequent test using the Canon TS-E 17mm f 4 revealed that the vertical field angle of 70 degrees, combined with off-Centre, allowed the entire page to be digitised with a volume aperture of less than 90 degrees. Since off-Centre causes a loss of sharpness and chromatic aberration near the edges, we tried to use as little off-Centre as possible in each situation, going so far as to use the full 12 mm travel only in places where it was most difficult to reach the inner edge.

Conclusions

At the initial stage of problem analysis, other solutions, such as digital backs, were discarded for reasons of expediency: the high cost of the tool (ranging between 20,000 and 50,000 euros) coupled with its lack of multifunctionality (useful only for volumes with reduced opening angle and poor internal margins) did not seem an appropriate choice. Added to this, the conspicuous and non-immediate training required for digitisation operators would be complex and delayed results. In addition, digital backs, which are necessary to capture the image, have not yet reached such high quality standards as to justify the abandonment of digital SLR cameras.

The use of decentralized lenses streamlines staff training processes, reduces purchase costs (moreover, they are compatible with the SLR bodies already existing in the ARCHiVe’s digital lab).

During the post-production phase, some problems were encountered, mainly due to the fact that as the degree of lens shift varies, the space occupied by the page shot within the photograph also varies, making it impossible to apply a single clipping mask that is the same for all files. The post-production operator therefore had to manually intervene on each page to adjust these differences and make the clipping uniform between right and left pages, from the beginning to the end of the book. It therefore remains to be developed a method that can make the post-production phase more systematic and less arbitrary.

Today we can say that the Divine Comedy of 1491 has been fully digitised without compromising the integrity of the volume and will soon be available for everyone to consult through the Fondazione Giorgio Cini’s new Digital Library.

REFERENCE

Fondazione Giorgio Cini
OCLC (Online Computer Library Centre)
Multiplo

CURRENT ÉQUIPE

Irene Bigolin, Costanza Blaskovic, Federico Dassiè, Carlo D’Este, Simone Falteri (OCLC), Maria Teresa Ferrara, Elena Mascihetto, Remo Romano (Multiplo)

One of the recent challenges that the ARCHiVe Centre has set for the coming months is the creation of the new digital library of the Fondazione Giorgio Cini. Due to the enormous and heterogeneous cultural heritage preserved at San Giorgio (consisting of paper documents, ancient and modern books, images, sound documents, etc.) and the goals of knowledge dissemination and collections enhancement, the new digital portal will not be able to behave as a mere container but must be able to integrate and connect cultural objects that are separate and distinct in the analogic reality.

The recent market survey led to the choice of a product that would satisfy some main needs:
- possibility of integration of previous photographic campaigns
- with current and future ones
- current and updated catalographic, descriptive and metadata standards
- accessibility and interoperability.

The choice fell on CONTENTdm (by OCLC), which allows digital collections to be organized, preserved and presented on customized websites making them more easily visible to a worldwide audience. In addition, the Mirador viewer with IIIF standards and APIs ensures document and information sharing with other digital libraries with similar features.

At first, the ARCHiVe and OCLC teams (Florence agency), after reciprocal introductions and a summary description of the Cini’s collections, have decided to focus on the architecture and hierarchy of the data, key operations to be organized, preserved and presented to other digital libraries with similar features. The team has focused on the architecture and hierarchy of the data, key operations to be organized, preserved and presented to other digital libraries with similar features. The team has focused on

The New Digital Library

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The Lucida 3D Scanner is a close-range, non-contact laser recording system that captures high-resolution surface texture data for low-relief surfaces such as paintings or bas-reliefs. The scanner is a portable, versatile system that produces high-resolution data with close correspondence to the original surface. It is also easy to operate, a factor that has encouraged us to use it in training programmes for cultural heritage digitisation.

Lucida is the result of a collaboration between artist Manuel Franquelo and the team from Factum Foundation. The in-house development of the Lucida, which began in 2011, was a response to the growing needs of both Factum Arte and Factum Foundation for high-resolution surface data of paintings, as well as for ongoing recording and facsimile projects in the tombs of the Valley of the Kings, Luxor. Commercial 3D scanning technologies, which find dark colours and glossy surfaces problematic, were no longer a viable option to capture the quality we needed for both facsimile production and research. High-resolution relief data is essential to facsimile production. When used in conjunction with colour data from panoramic photography, it allows us to ‘rematerialise’ an object as a replica of the original. Colour information ‘mapped’ very precisely onto 3D data can also be visualised in diverse ways – from projections to layered browsers.

The subtle surface relief of paintings and other objects also represents a growing area of interest in heritage preservation. Lucida data enables researchers to ‘remove’ the colour from the surface of an object in order to study, for instance, a painter’s brush strokes or the pounce marks on a cartoon that was once used to weave a tapestry. Changes to the surface of a painting, for example as a result of restoration processes, can also be monitored by comparing Lucida scans taken at different times.

Since 2011, the Lucida has been used to record paintings and other objects at institutions such as the National Gallery (London), the Prado Museum (Madrid), the Louvre (Paris), the Victoria & Albert Museum (London), the Pinacoteca di Brera (Milan), Casa Pilatos (Seville), the National Gallery of Art (Washington), the Vatican Museum (Rome), the Mauritshuis (The Hague), and the Tretyakov Gallery (Moscow). Projects realised with the Lucida 3D Laser Scanner have been shown at the Cini Foundation (Venice), Strawberry Hill House (London), Waddesdon Manor, and the Antikenmuseum...
um Basel, amongst many others. Recently the Lucida 3D scanner has been used to record the paintings collection of Palazzo Cini Gallery (February 2023, 47 paintings) and the following artworks:

I. The large Franco Flemish Tapestry from the Cini collection that was recorded in ARCHiVe (March 2022);

II. The Portrait of Andrea Doria by Tintoretto and the Portrait of Maria Rosa Spinola by Rubens, Private collection, Genoa (October 2022);

III. The Portrait of Federico II, 1st Duke of Mantua by Titian, Museo del Prado, and The Ecstasy of St Gregory the Great by Rubens, Musée de Grenoble (March 24 – June 25, 2023);

IV. Rogier van der Weyden’s Beaune Altarpiece, Hôtel-Dieu Museum (January 2023);

V. The St Peter Polyptych by Nicolò da Voltri at the Castello di Gabiano for a private collector (March 2023);

VI. The Creation of Animals by Tintoretto at the Gallerie dell’Accademia, Venice (March 2023).
Over the last months of 2022, the efforts of the EPFL DHLAB researchers have focused on enriching still the platform for Venetian urban information. The development of the platform was presented in previous reports. This report will detail the addition of sources to the platform, as well as the first analyses conducted on the gathered information. This research was conducted by Paul Guhennec, PhD Student in Digital Humanities, EPFL; Isabella di Lenardo, EPFL; Frédéric Kaplan, EPFL.

PART ONE
DATA ENRICHMENT:
CINI PHOTOGRAPHS AND TEXTUAL DESCRIPTIONS

Research on the construction of an integrated platform for the collection, access, and visualisation of documents on the architectural history of Venice has continued. The previous report detailed the extraction of individual buildings from a city-wide photogrammetric survey of Venice. These individual point clouds were made accessible in a Web interface: by clicking on footprints, one could interact with the 3D scan, as well as visualise information extracted from Wikipedia, Wikidata, and OpenStreetMap.

This interface was improved to also include photographs of Venetian architecture from the Cini Fototeca collection. The spatial linking was done by combining a first match through the drawer dividers (when a specific place name was specified), and secondly through an alignment with the already digitised metadata.

Additionally, catalogues of textual description of Venetian architecture were digitised, and automatically processed, so that descriptive paragraphs (often specifying architects, construction dates, and styles) are attached to buildings. The match is done through the numero civici, which typically serves as entry identifier for those catalogues.

PART TWO
LARGE-SCALE FACADE EXTRACTIONS

The core subject of ongoing research is how this integrated dataset can be leveraged by comparing visual representations of the facades (given by the point cloud) to non-formal information (dates, styles, names).
An algorithmic method of automatically producing orthophotos (otherwise, a time-consuming effort) from the point cloud was devised. To summarise, the points of each facade are projected into two-dimensions through the Principal Component Analysis of their 3D position. This abstracted planimetric representation allows the extraction of the constitutive elements of an architectural grammar (proportions, forometry and rhythm, colour) as well as to identify local specificities.

The developed platform permits to cross-interrogate different sources, covering different pieces of information and time frames. The 3-dimensional nature of facades is also under consideration. Several are the analyses made possible by DHLAB facade extraction method: by measuring the distance between each point of the photogrammetry and the footprint segment, a cartography of the “plasticity” of the facade (in other words, its depth variations) is obtained. This further opens up the typological studies and classification of the architectural grammar of Venice that are currently being worked on.
The Fondazione Giorgio Cini enriches its publishing tradition through the creation of a new project consisting of a series of publications of interdisciplinary publications entitled “ARCHiPub. On Cultural and Digital Matters”.

This series of publications involves ARCHiVe’s projects and all research areas of the Fondazione, collecting unpublished contributions from specialists, researchers, scientists, artists and scholars who have carried out or are carrying out their studies on the heritage preserved here, on digitisation processes and on the dialogue between arts and sciences; some proposals will be selected from the lectures of ARCHiVe Online Academy programme and from the work of the resident fellows of the Vittore Branca Centre project.

The volumes will also include essays and articles by scholars from other international academic, institutional and research backgrounds.

This series of publications has started within a one year fellowship conducted in ARCHiVe and supported by the Helen Hamlyn Trust.

ARCHiPub is an institutional series of monographic publications aimed at creating a publishing platform to collect the researches, archival studies and digitisation projects conducted at ARCHiVe on the Island of San Giorgio Maggiore. Through collaboration with Universities and Centres related to the themes of publications, the goal is to consolidate a network of cultural exchange with other young scholars on digitisation processes, on the dialogue between arts and sciences but, most of all, to let everyone from all over the world to access the new form of culture we share.

The thematic volumes will be periodically disseminated in Open Access on ARCHiVe official website and the Fondazione Giorgio Cini website. Each publication has its own subject and reference topic. Each volume has the structure of a collection of essays, monographic publications, proceedings of conferences, lectures, workshops or meetings.

ARCHiPub will provide for a “Call for proposal” active on the website and oriented to research proposals that are in line with the collections, archives and activities of the Fondazione Giorgio Cini.
Methodology

In recent months, the first five contributions have been collected and, in parallel, work is being done on the graphic aspects of the series. The publication of the contributions is planned to coincide with the publication of the new ARCHiVe website.

Workflow:

- Identification of editorial criteria
- Definition of the thematic issues
- Editing
- Design and online publication

Focus Research

In 2023 was conceived the first focus research of the series: *Venice Material* as the starting point. Venice as a city, as an environment in which history has formed the present civilization and as a fertile humus of ever-new cultural sap, Venice as a bridge between worlds that were sometimes created, sometimes destroyed and still a bridge between ways of producing culture as a primary good. Venice is made out of matter, stone, painting, poetry, a rich and sensitive work, layered materially and immaterially like no other city in the world. Venice as a launching pad for new experimental horizons, as a landing place for new generations of scientists and creative people. But Venice is also considered as a subject of study, a focus of scientific and humanistic research, endowed with the persuasive force of authentic insights that seem to multiply rather than run out. Venice as an object to be investigated, disassembled and reconstructed, digitised and disseminated, curated.

LIST OF ESSAYS

Chiara Casarin

*Introduction to Venice Material*

Guido Caldarelli

*Venice: the Issue of Sustainability*

Bryan Brazeau

*And If Venice is Sinking: A Case Study of Material Pedagogy Using Place – and Problem – Based Learning on “A Sustainable Serenissima”*

Alessandro Codello

*The New Science of Long Data*

Mara Radaelli

*Preserving Media Art: an analysis of MediaArtLab’s media library*

Communication on YouTube, Website, Social Media and Wikidata

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<td>A large selection of all ARCHiVe Online Academy courses are online on the AOA playlist of the Fondazione Giorgio Cini YouTube channel: 29 videos are public and offer more than 50 hours of training for free. From 2020 to 2023, ARCHiVe Online Academy produced 160 hours of high-level training accessible for free for everybody, everywhere. All courses and lectures that have been offered to young people have been recorded and form a benchmark for digitisation training in line with the most up-to-date and correct standards for historical and artistic heritage. The courses were mainly attended by young students and this represents a new target group for the Foundation’s activities, which are generally attended by adults and specialists.</td>
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<td>ARCHiVe and the Communication team at Fondazione Giorgio Cini are working on the development of the NEW website dedicated to ARCHiVe Centre and its activities. The project is the result of a collaboration between the Cini and Multiplo staff (a creative direction and design studio in Padua), who are committed to researching and creating a digital platform that can effectively disseminate the projects, technologies, research, and educational opportunities of ARCHiVe and its partners to the relevant community. It is scheduled for release in Autumn 2023. In the meantime ARCHiVe is also working on its Instagram profile due within April 2023, with the same aim of reaching more and more people to be involved in research projects and educational and cultural activities.</td>
</tr>
<tr>
<td></td>
<td><a href="https://www.archive-venice.org/IGacentroarchive">https://www.archive-venice.org/IGacentroarchive</a></td>
</tr>
</tbody>
</table>
Representation in Wikidata

Fondazione Giorgio Cini

Representation in Wikidata of the historical-artistic context of the architectural complex of the island San Giorgio Maggiore, the basilica, and the historical archival, photographic and library holdings preserved at the Fondazione Giorgio Cini.

During February and March 2023, ARCHiVe tutored Alessio Ionna in his scholar granted project with the Centro Branca’s Scholarships dedicated to deepening, cleaning, and reorganizing data regarding the Fondazione Giorgio Cini on Wikidata, Wikimedia, and Wikipedia (the most consulted digital encyclopaedia in the world). Starting from the existing data created by external users, we generated new contents and new images have been published in open access licence, readable by computers to aggregate new data and generate new knowledge; for human readers, a new Wikipedia page has been created to share the information and heritage of the Palazzo Cini Gallery.

The final goal is the broad dissemination of controlled and freely reusable data and images for study and education.

Fondazione Giorgio Cini on Wikidata
https://www.wikidata.org/wiki/Q1435690

Palazzo Cini Gallery on Wikidata
https://www.wikidata.org/wiki/Q112174201

Palazzo Cini heritage on Wikimedia Commons
https://commons.wikimedia.org/wiki/Category:Palazzo_Cini_Gallery

Palazzo Cini on Wikipedia
https://it.wikipedia.org/wiki/Galleria_di_Palazzo_Cini

Short film with interviews about ARCHiVe

Factum Foundation

Fondazione Cini and Factum Foundation worked on a short documentary that shows the ongoing projects on the collections, experimental work, collaborations, spaces, methods, and protagonists of ARCHiVe projects.

In the Spring of 2022, coinciding with the recording of the tapestry and other works in progress, Factum Foundation began a video documentary about ARCHiVe to help define, clarify and communicate happening within the centre. Interviews with some of the key individuals start to clarify the philosophy and aims. They are combined with scenes of some of the projects that are being carried out on the island of San Giorgio and hint at some of the areas that are currently being developed.

The resulting 10-minute film by Oscar Parasiego is a good communication tool that raises many questions. It will be followed by a series of interviews and training films, initially for internal use that will seek to identify how ARCHiVe should be developed.

https://youtu.be/d-4QU4DINQ
21.08.2023  “AOA - ARCHiVe Online Academy 2023-2024”  GdMed

30.04.2023  “Labirinto di passioni”  Elle Decor

07.04.2023  “Un mese di conferenze e lezioni per appassionati”  Il Gazzettino Venezia Mestre - Venezia Mestre

04.04.2023  “La terza cosa. Sulla fotografia digitale. Workshop con Ljubodrag Andric”  arte.go.it

28.03.2023  “Chi sono i giornalisti di cui si può rintracciare un archivio digitale”  Giornalismo.com

16.03.2023  “Patrimonio musicale e big data: al via il #LeviDigiLab”  regesta.com

28.02.2023  “Belloni, Mantovano e Guerini a Palazzo Dante, I Com al Senato, Fondazione Cini, Hilton Molino Stucky”  thewatcherpost.it

22.02.2023  “Tg Mondo Hi-Tech, edizione del 22 febbraio 2023 Archivi Impresa Digitali, seminario con Heritage Lab Italgas”  dire.it

20.02.2023  “Archivi digitali e big data, le prospettive del futuro”  La Nuova di Venezia e Mestre

20.02.2023  “Italgas e Fondazione Cini per gli archivi di impresa”  Il Gazzettino Venezia Mestre - Venezia Mestre

06.02.2023  “Le donne più creative tra Europa e Russia”  Il Gazzettino Venezia Mestre - Venezia Mestre

02.01.2023  “VENEZIA Fondazione Cini: attività 2023”  deartex.cloud

12.12.2022  “Due straordinari appuntamenti chiudono l'anno ad ARCHiVe”  www.puntozip.net
09.12.2022  “Fondazione Cini | INCONTRI”
Il Gazzettino Venezia Mestre - Venezia Mestre

09.12.2022  “Nuvola di libri, Ivrea, film di Ettore Scola e Fondazione Cini”
thewatcherpost.it

09.12.2022  “Due straordinari appuntamenti chiudono l’anno ad ARCHiVe”
lulop.com

08.12.2022  “Lo storico banchiere Bazoli si dedica alla veneziana Fondazione Cini”
veritaeaffari.it

07.12.2022  “Il programma della Fondazione Cini per il 2023. Un calendario di 60 incontri”
Il Gazzettino Venezia Mestre - Venezia Mestre

07.12.2022  “Fondazione Giorgio Cini, il programma delle attività per il 2023”
Artemagazine.it

30.11.2022  “Valorizzare un territorio attraverso i progetti di digitalizzazione”
regesta.com

04.11.2022  “Online il sito di Heritage Lab Italgas. La partnership con regesta.exe. Il sito. La parola a Italgas”
regesta.com

07.10.2022  “Venezia, Fondazione Giorgio Cini: visioni del futuro nel Teatro Verde”
laverita.info

07.10.2022  “Il progetto 3D ispirato al Teatro Verde di Venezia”
Artribune.com

01.10.2022  “ArchiVe Online Academy 2022”
arte.go.it

29.09.2022  “Tecnologia e tradizione, per il Teatro Verde un ritorno al futuro”
Il Gazzettino Venezia Mestre - Venezia Mestre

29.09.2022  “La Maschera del Tempo Dal Teatro Verde un video omaggio sci-fi”
Corriere del Veneto Venezia e Mestre - Venezia e Mestre

28.08.2022  “La maschera del tempo. Il progetto”
Artribune.com

30.07.2022  “Visioni del futuro nel Teatro Verde”
gmed.it

11.06.2022  “Presentazione del programma di formazione ArchiVe Online Academy”
arte.go.it

10.06.2022  “Fondazione Giorgio Cini, riprendono i corsi di formazione gratuiti sui temi della digitalizzazione”
Artemagazine.it

27.05.2022  “È online l'archivio del grande giornalista italiano Tiziano Terzani”
www.redazionecultura.it.sport

29.03.2022  “Riapre il Teatro Verde della Fondazione Giorgio Cini”
gmed.it

28.03.2022  “Nuove piante e strutture restaurate A San Giorgio rinasce il Teatro Verde”
La Tribuna Di Treviso

07.03.2022  “Sguardi musicali: progetti di etnomusicologia visiva”
cidim.it

19.02.2022  “Home faber, Beuys, il fuoco primavera di mostre alla Cini”
Il Giornale Di Vicenza

22.01.2022  “Cultura ed arte alla Fondazione Giorgio Cini”
lavocedelnordest.it

02.01.2022  “L'attività della Fondazione Cini”
Il Gazzettino Venezia Mestre - Venezia Mestre

Il Gazzettino Venezia Mestre - Venezia Mestre

27.12.2021  “Venezia, Fondazione Giorgio Cini - programma 2022”
dearxes.cloud

26.12.2021  “La Fondazione Cini chiude il 2021 con una favola di Esopo... a lieto fine”
gmed.it

09.12.2021  “Fondazione Giorgio Cini, il programma per il 2022”
Artemagazine.it

07.12.2021  “Fondazione Cini, un 2022 tra convegni e concerti”
Il Gazzettino Venezia Mestre - Venezia Mestre

regesta.com

12.10.2021  “Digitalizzazione beni culturali”
La Nuova di Venezia e Mestre

12.10.2021  “Dal 13 ottobre il nuovo corso di formazione sulla digitalizzazione 3D dei beni culturali”
lulop.com

27.09.2021  “L'isola di San Giorgio diventa un libro. Il patrimonio culturale digitalizzato in 3D”
La Nuova di Venezia e Mestre
<table>
<thead>
<tr>
<th>Data</th>
<th>Titolo</th>
<th>Fonte</th>
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<tr>
<td>01.05.2020</td>
<td>“ARCHiVe Online Academy”</td>
<td>Venezia News</td>
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<td>30.04.2020</td>
<td>“Congressi, Corsi Universitari e di Alta Formazione Didattica: ARCHiVe Online Academy”</td>
<td>Blogfoolk_Accademia</td>
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<td>30.04.2020</td>
<td>“Archivi digitalizzati, un progetto della Fondazione Cini”</td>
<td>Il Gazzettino</td>
</tr>
<tr>
<td>30.04.2020</td>
<td>“Fondazione Cini: corsi di formazione beni cultural”</td>
<td>Gazzetta di Parma</td>
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<td>29.04.2020</td>
<td>“Fondazione Cini di Venezia lancia corsi archiviazione in web”</td>
<td>ANSA</td>
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<tr>
<td>08.02.2019</td>
<td>“Rompete le scatole c’è tutto Sottsass”</td>
<td>Il Venerdì La Repubblica</td>
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<td>23.01.2019</td>
<td>“L’archivio Sottsass a Venezia”</td>
<td>La Repubblica</td>
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<td>1.01.2019</td>
<td>“L’archivio Sottsass si trasferisce in Laguna”</td>
<td>Arte</td>
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<td>1.01.2019</td>
<td>“Ettore Sottsass: il suo archivio alla Fondazione Cini di Venezia”</td>
<td>Metropolitano.it -</td>
</tr>
<tr>
<td>1.12.2018</td>
<td>“L’archivio di Ettore Sottsass alla Fondazione Cini”</td>
<td>Il Sole24Ore</td>
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<td>25.10.2018</td>
<td>“ARCHiVe: la conservazione digitale del patrimonio culturale”</td>
<td>Amadeus</td>
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<tr>
<td>25.10.2018</td>
<td>“Nell’Archivio Cini cinque milioni di documenti dalla carta alla rete”</td>
<td>La Nuova Venezia</td>
</tr>
<tr>
<td>25.10.2018</td>
<td>“ARCHiVe. La Cini in un clic”</td>
<td>Il Gazzettino</td>
</tr>
<tr>
<td>25.10.2018</td>
<td>“L’algoritmo della memoria. Il progetto della Fondazione Cini ‘ARCHiVe’ per digitalizzare i documenti dei sette istituti”</td>
<td>Corriere del Veneto (Verona, Padova e Rovigo)</td>
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<td>24.10.2018</td>
<td>“Archive, digitalizzare con sostenibilità”</td>
<td>ANSA</td>
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<tr>
<td>22.09.2018</td>
<td>“Patrimonio culturale digitalizzato. Un centro alla Fondazione Cini”</td>
<td>La Nuova Venezia</td>
</tr>
</tbody>
</table>
One of the crucial points of ARCHiVe's activity is the involvement of young researchers and students. Every year, ARCHiVe welcomes interns from Italian and foreign Universities. This exchange is usually very fruitful, both for the students, that have the opportunity of learning methods and praxis by being directly involved in digitisation projects, and for ARCHiVe, that gets to know young students that - at the end of the internship - can then be involved in ARCHiVe projects of the Fondazione Cini, starting new fellowships and collaborations.

All interns and fellows follow a training program appropriate to their respective abilities and the projects in which they will be involved. The heterogeneous team is trained to be independent and to benefit from different and individual skills, viewpoints and experiences. In addition to that, ARCHiVe seeks the collaboration of professionals in different fields, such as photography, sound digitisation, or management of institutional archives, to have a deeper analysis and confrontation.
### University Internships

<table>
<thead>
<tr>
<th>Period</th>
<th>Name</th>
<th>University, Location</th>
<th>Degree/Program</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>02.2020 — 09.2020</td>
<td>Francesca Scattolin</td>
<td>Ca' Foscari University, IT</td>
<td>MA student in Digital and public humanities</td>
<td>“Researching relationships and authentication issues”</td>
</tr>
<tr>
<td>02.2022 — 03.2022</td>
<td>Federico Dassié*</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA student in Digital and public humanities</td>
<td>“Technical development of ARCHiVe’s digital infrastructure”</td>
</tr>
<tr>
<td>04.2022 — 05.2022</td>
<td>Irene Bigolin*</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA student in Economics and Management of Arts and Cultural Activities</td>
<td>“Cultural Heritage digitisation projects”</td>
</tr>
<tr>
<td>04.2022 — 07.2022</td>
<td>Gabriel Doyen</td>
<td>University of Franche-Comté, Besançon, FR</td>
<td>MA student in Rare books and digital humanities</td>
<td>“Cultural Heritage digitisation projects”</td>
</tr>
<tr>
<td>06.2022 — 07.2022</td>
<td>Rachele Alba</td>
<td>Ca' Foscari University, Venice IT</td>
<td>MA student in Digital and public humanities</td>
<td>“Cultural Heritage digitisation projects”</td>
</tr>
<tr>
<td>07.2022 — 09.2022</td>
<td>Angelo Redaelli</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA student in Economics and Management of Arts and Cultural Activities</td>
<td>“Cultural Heritage digitisation projects”</td>
</tr>
<tr>
<td>09.2022 — 12.2022</td>
<td>Nicola Rigo</td>
<td>IUAV, University of Venice, IT</td>
<td>MA student in Photography</td>
<td>“Cultural Heritage digitisation projects”</td>
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</tbody>
</table>

*Thanks to their skills, they are now or have been part of the ARCHiVe Fellowship Programme

### Fellows

<table>
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<tr>
<th>Period</th>
<th>Name</th>
<th>University, Location</th>
<th>Degree/Program</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>01.2018 — 03.2018</td>
<td>Jacopo Scarpa</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>BA in History</td>
<td>“ARCHiVe Digitisation Projects: Replica Project, Tiziano Terzani, Atlante Linguistico Mediterraneo”</td>
</tr>
<tr>
<td>01.2018 — 12.2020</td>
<td>Alice Vivian</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA in Digital and public humanities</td>
<td>“ARCHiVe Digitisation Projects: Replica Project, Tiziano Terzani, Atlante Linguistico Mediterraneo”</td>
</tr>
<tr>
<td>06.2018 — 01.2020</td>
<td>Giacomo Broto</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA in Digital and public humanities</td>
<td>“ARCHiVe Digitisation Projects: Historical Archive”</td>
</tr>
<tr>
<td>06.2018 — 07.2019</td>
<td>Ricky Clareira</td>
<td>Conservatorio Benedetto Marcello, Venice, IT</td>
<td>MA student in Rare books and digital humanities</td>
<td>“ARCHiVe Digitisation Projects: Historical Archive”</td>
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<tr>
<td>06.2018 — 12.2019</td>
<td>Annalisa Stefan</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA student in Economics and Management of Arts and Cultural Activities</td>
<td>“Cultural Heritage Digitisation Projects: Ulderico Rolandi Collection”</td>
</tr>
<tr>
<td>07.2018 — 12.2018</td>
<td>Ginevra Gioia</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA student in Digital and public humanities</td>
<td>“Cultural Heritage Digitisation Projects: Music Archives digitisation and Archival description”</td>
</tr>
<tr>
<td>12.2018 — 07.2019</td>
<td>Mauro Masiero</td>
<td>Ca' Foscari University, Venice, IT</td>
<td>MA in Musicology/Cultural Heritage</td>
<td>“Digitisation projects: Music Programmes Archive”</td>
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<tr>
<td>Fellowship Year</td>
<td>Name</td>
<td>Institution</td>
<td>Degree</td>
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<tr>
<td>03.2019 — 07.2019</td>
<td>Rashmi Gajare</td>
<td>Cornell University, NY, USA</td>
<td>PhD</td>
<td>“Researcher for Daniélou project automatic transcription of Sanskrit manuscript”</td>
</tr>
<tr>
<td>08.2019 — 09.2022</td>
<td>Eloisa Stuparich</td>
<td>Cornell University, NY, USA</td>
<td>PhD</td>
<td>“Researcher for Daniélou project automatic transcription of Sanskrit manuscript”</td>
</tr>
<tr>
<td>09.2019 — 03.2021</td>
<td>Jasmine Capovilla</td>
<td>Ca’ Foscari University, Venice, IT</td>
<td>MA</td>
<td>“ARCHiVe Digitisation Projects: Historical Archive, Music Programmes Archive Digitisation”</td>
</tr>
<tr>
<td>10.2019 — 06.2020</td>
<td>Rosario Terranova</td>
<td>ISIA, Urbino, IT</td>
<td>MA</td>
<td>“Archivist; Digitisation, archival description and securing of archival records of the Fondazione Giorgio Cini, particularly the Sottsass Fund and the Historical archive”</td>
</tr>
<tr>
<td>10.2019 — 12.2021</td>
<td>Noemi La Pera</td>
<td>ISIA, Urbino, IT</td>
<td>MA</td>
<td>“Photographer; ARCHiVe digitisation project and development of the photographic laboratories”</td>
</tr>
<tr>
<td>01.2020 — 12.2020</td>
<td>Carlo Mezzalira</td>
<td>Student at Conservatorio Benedetto Marcello, Venice, IT</td>
<td>MA</td>
<td>“ARCHiVe Digitisation Projects and video output creator, Historical Archive, videos for ARCHiVe communication”</td>
</tr>
<tr>
<td>03.2020 — 02.2021</td>
<td>Guia Camarri</td>
<td>University of Siena, IT</td>
<td>MA (II level) in Rare books and Library Studies</td>
<td>“ARCHiVe Digitisation Projects: Historical Archive, Ettore Sottsass jr.”</td>
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<tr>
<td>07.2020 — 01.2021</td>
<td>Valentina Retaro</td>
<td>University of Napoli “L’Orienteale”, IT</td>
<td>MA (II level) in Italian Studies</td>
<td>“ARCHiVe Digitisation Projects: Atlante Linguistico Mediterraneo”</td>
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<tr>
<td>09.2020 — 04.2022</td>
<td>Matteo Allasia</td>
<td>Ca’ Foscari University, Venice, IT</td>
<td>MA</td>
<td>“Digital operator and Coordinator of digitisation project in Heritage Lab; Ettore Sottsass jr. Archive, Cini Historical Archive, Heritage Lab Italias”</td>
</tr>
<tr>
<td>10.2020 — 10.2021</td>
<td>Marco Scotti</td>
<td>University of Parma, IT / IUAV, Venice, IT</td>
<td>PhD in Art History</td>
<td>“IUAV and ARCHiVe temporary research fellow “Ettore Sottsa’s Archive””</td>
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<tr>
<td>02.2022 — 04.2022</td>
<td>Martyna Grzesiak</td>
<td>University of Parma, IT</td>
<td>PhD</td>
<td>“Researcher for Dante 1491 census”</td>
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<tr>
<td>02.2022 — 07.2022</td>
<td>Francesca Occhi</td>
<td>ISIA, Urbino, IT</td>
<td>MA</td>
<td>“Photographer and ARCHiVe digitisation projects”</td>
</tr>
<tr>
<td>03.2022 — Ongoing</td>
<td>Claudio Piscopo</td>
<td>MA in Visual Arts and Fashion IUAV, Venice, IT</td>
<td>MA</td>
<td>“Digital Communicator; Publishing, communication, social media and public programs, including ARCHiVe Online Academy”</td>
</tr>
<tr>
<td>03.2022 — Ongoing</td>
<td>Valentina Venturi</td>
<td>Macerata University, IT</td>
<td>MA</td>
<td>“MA student in Creation, Management and Preservation of Digital Archive &quot;Archivist; Digitisation, archival description and securing of archival records of the Fondazione Giorgio Cini, particularly the Sottsass Fund and the Historical archive”</td>
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<tr>
<td>03.2022 — Ongoing</td>
<td>Federico Dassié</td>
<td>Ca’ Foscari University, Venice, IT</td>
<td>MA</td>
<td>“Programmer; technical development of ARCHiVe’s digital infrastructure Development of scripts for automatic image post production”</td>
</tr>
<tr>
<td>09.2022 — Ongoing</td>
<td>Irene Bigolin</td>
<td>Ca’ Foscari University, Venice, IT</td>
<td>MA</td>
<td>“MA student in Economics and Management of Arts and Cultural ActivitiesARCHiVe Digitisation projects and ARCHiVe Online Academy support ARCHiVe digitisation and training projects”</td>
</tr>
<tr>
<td>02 — 03.2023</td>
<td>Alessio Ionna</td>
<td>University of Macerata, IT</td>
<td>MA</td>
<td>“Representation in Wikidata of the historical-artistic context of the island San Giorgio Maggiore, the basilica, and the historical archival, photographic and library holdings preserved at the Fondazione Cini”</td>
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### Volunteers of Regional Civil Service

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<th>Period</th>
<th>Name</th>
<th>University/Institution</th>
<th>Field of Study</th>
<th>Project/Role</th>
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<tbody>
<tr>
<td>11.2022 — 11.2023</td>
<td>Stefano Barzon</td>
<td>University of Bologna, IT</td>
<td>MA in Music and Theater Studies</td>
<td>“Fondazione Giorgio Cini Historical Archive”</td>
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<tr>
<td>11.2022 — 11.2023</td>
<td>Maria Teresa Ferrara</td>
<td>University of Padua, IT</td>
<td>MA in Art History</td>
<td>“ARCHiVe digitisation projects”</td>
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### Professional Collaborations

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<th>Period</th>
<th>Name</th>
<th>Organization</th>
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<tbody>
<tr>
<td>2018 — 2021</td>
<td>Andrea Barbon</td>
<td>Mind@Ware</td>
<td>IT Specialist</td>
<td>“ARCHiVe Analysis and Recording of Cultural Heritage in Venice”</td>
</tr>
<tr>
<td>2018 — 2021</td>
<td>Remko Bigai</td>
<td>Mind@Ware</td>
<td>Programmer</td>
<td>“ARCHiVe Analysis and Recording of Cultural Heritage in Venice”</td>
</tr>
<tr>
<td>2021 — Ongoing</td>
<td>Carolina Gris</td>
<td>Project Manager for Factum Foundation</td>
<td>Project Manager</td>
<td>“MEFA: Middle East Falconary Archive”</td>
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<tr>
<td>2022 — Ongoing</td>
<td>Marina Luchetti</td>
<td>Project Coordinator for Factum Foundation</td>
<td>Project Coordinator</td>
<td>“3D Recording Projects”</td>
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<tr>
<td>2022 — Ongoing</td>
<td>Joan Porcel Pascual</td>
<td>Photographer</td>
<td>Photographer</td>
<td>“Technical development of ARCHiVe laboratories and professional training”</td>
</tr>
<tr>
<td>2022 — 2023</td>
<td>Lucie Fournier</td>
<td>Coordinator and digitisation supervisor for Factum Foundation</td>
<td>Coordinator and digitisation supervisor</td>
<td>“The Behna Archive Project”</td>
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</table>
Expanding operations: The launch of ARCHiOx

Early 2022, ARCHiOx (Analysing and Recording Cultural Heritage in Oxford) was launched at the Bodleian Library in Oxford as an extension of ARCHiVe. This new partnership between the University of Oxford and the Factum Foundation, funded by The Helen Hamlyn Trust aims at enabling the practical transfer of knowledge and technology from the Factum Foundation to the Bodleian, including the permanent transfer of equipment and software to the Bodleian’s Imaging Services.

The Bodleian Libraries, the integrated research libraries of the University of Oxford, are world-renowned among the leading repositories of the written record of civilisation. Founded in 1602 by Sir Thomas Bodley, the Bodleian has acted as a library of legal deposit for over 400 years, and its collections form one of the world’s most important coherent bodies of documentary heritage, including items inscribed on the UNESCO Memory of the World register. The Bodleian Libraries are committed to enabling access to these rich collections through digitisation and delivery of collections information via Digital Bodleian.

ARCHiOx provides a free exchange of knowledge and approaches between the academic and technical team at the Bodleian and the Factum Foundation experts. It initially focused on the recording the surface of selected items from the Bodleian Libraries’ unique collections, using a prototype version of the Photometric Stereo photographic system called Selene Photometric Scanner (developed by Jorge Cano, Matt Marshall and the team at Factum Arte), as well as 3D scanning of relief surfaces using the Lucida 3D Scanner (conceived and developed by artist-engineer Manuel Franquelo with Factum Arte).

In addition to providing new research material for scholars and identifying future avenues for investigation, the aim is also to explore the delivery of the 3D data outputs via IIIF protocols. The use of ‘depthmaps’ that cross between image and form has facilitated the sharing of 3D information thereby creating new pathways for delivering previously unstudied content. Research at ARCHiOx includes high-resolution recording in 3D and colour, investigations into digital restoration, data management and storage, research into the inclusion of 3D data in the IIIF framework, and the sharing of data and online engagement with 3D information.

REFERENCE
Factum Foundation
Bodleian Libraries
University of Oxford
February 2022 — ongoing
Bodleian Library, Oxford

CURRENT ÉQUIPE
Jorge Cano, Matt Marshall
REVEALING MORE THAN THE EYE CAN SEE: RAWLINSON COPPER PLATES COLLECTIONS

Over the first months, the focus of the work at ARCHiOx has been on the Rawlinson collection of copper plates. The results on the front of the copper plates reveal every incision and variation in the surface as the engraver creates images with extraordinary manual skill. The backs, however, tell a different story of accidental decay, informal experimentation and doodling.

An 8th-century manuscript on parchment was also recorded with the Selene, revealing marginal notations indented into the sheet’s surface; an ukiyo-e print showed that the Japanese printmaker was producing embossed textures to change the character of the blocks. This engagement with the subtle details of surface information is bringing new insights into focus revealing both the intuitive and trained sensibilities of previous generations of artists and craftsmen skilled in visual mediation.

RECORDING WITH AGNEW GALLERY

In April 2022 a recently discovered drawing attributed to Albrecht Dürer, The Virgin and Child with a Flower on a grassy Bench, was recorded at ARCHiOx using the Selene Scanner. The drawing has been authenticated by Agnew’s Gallery in 2019 after years of exhaustive research and will be included in the 2022/23 forthcoming catalogue raisonné of Albrecht Dürer’s drawings, written by Dr. Christof Metzger, Chief Curator of the Albertina Museum, Vienna. The aim of this digital recording was to help researchers to access and study in great detail one of the most important Old Master drawings to surface in living memory. The recording provides valuable information about both the surface and drawing in ink.

On the same day, a small portrait by Rembrandt was also recorded using the Selene Scanner and the Lucida 3D Scanner. Both front and back of the small wooden panel were recorded in high-resolution, allowing an in-depth study of the surface and colour.

INNOVATION

A 2500-year-old cache of letters and seals sent from Aršāma, Persian Sa-trap of Egypt, have recently been recorded for the ARCHiOx project. These relics from the Achaemenid Empire have been captured using photometric stereo, focus-stacking, and close-range laser recording. The research is currently focused on the output of the recordings in 3D to see how the information contained in the seals can be enhanced.

The relationship between noise to information in critical in all 3D recording, but especially so when working with something the size of a seal. The elevated printing technology by Canon has the potential to change how subtle surface information is analysed and studied.

After printing the 3D recording captured with the Selene, the information was also mapped onto the Lucida data at 1:1, and printed with and without colour. The information was then interpolated about 4 times the original and printed as Lucida data and mixed Lucida/Selene data.

This experiment raised many questions about noise and information and the true difference between different recording technologies. A series of tests were then carried out using field renderers onto the surface of the relief. While this may seem tautological, when observed the result has the effect of enhancing the detail of the surface, allowing both tone and relief to be seen together.

Other projects carried out by ARCHiOx include: Palm leaf manuscripts; the Gough Map and the Selden Map; the Laud Ragamala Album; the Gene-via Bible; Gnostics in evangelia; Ariama Seals of the Achaemenid Empire; the launch of the Selene Circle and the acquisition of a Selene PPS by Princeton University Library.

The Future of ARCHiVe

ARCHiVe’s Mission and Future Activities

ARCHiVe’s goal in the near future is to provide an answer to this question:

What new forms of knowledge may be produced and shared from the enormous quantity of data gathered?

The keywords to follow the path traced by the answer to this question are:

Content

Digital acquisition from the Fondazione Cini’s special collections of rare books, documents and works of art, with characteristics of uniqueness and rarity, and the creation of open access digital libraries;

Context

Modelling a sense of awareness of and belonging to a culture, to a tradition with a view to making it shareable through the creation of the digital context of reference;

Cooperation

Development of comparison between researchers and cooperation between institutions and national and international projects that share ARCHiVe’s objectives;

Community and Social Development

Creation of new professionals and new knowledge to foster social and cultural growth.

The ARCHiVe Centre will devote its research activity to the valorisation and dissemination of cultural heritage with a view to changing the ways of accessing knowledge and formulating new content. The training of new generations in the use of the skills that may be acquired in the field of digital humanities will see ever closer contamination with other disciplines as a new frontier for the creation of professional figures.

Through research and training, digitisation activities and the creation of new collaborative ‘environments’, ARCHiVe will contribute to cultural access by an ever wider public, free of physical, ideological, social or linguistic borders.

To fulfil this vision and to implement the steps it requires on a daily basis, ARCHiVe will continue its her-

itage digitisation activities in various projects concerning different disciplines and cultures.

The aim is to make it possible for anyone in the world to access this content, so as to enable study and collaboration, and to confront other forms of knowledge in time and space.

Among the future multi-year activities:

1. Training

A key part of ARCHiVe’s activity is and will be devoted to research and to training by specialists in the digital preservation and valorisation of cultural heritage (computer scientists, archivists, cataloguers, conservators, photographers...).

This activity is aimed at young researchers from all branches of knowledge related to digital technologies and the humanities, articulated along various pathways:

- internships;
- collaboration projects;
- scholarships;
- civil service;
- doctoral and/or post-doctoral training linked to specific funding;
- summer and/or fall school;
- training courses, thematic talks, seminars and workshops.

Viewing training as the key basis on which to build the future of research, ARCHiVe and the Fondazione Gior-gio Cini intend to continue to provide training over the 2024–2029 period (and beyond), with both theoretical and practical/professionalising activities.

The Centre provides one- or two-year scholarships (up to a maximum of 24 months) to young researchers deemed to be particularly deserving, as well as providing the opportunity to undertake curricular training placements with a view to deepening, testing and developing their knowledge of digital technologies and the humanities within a dynamic and diversified context. The training in these cases takes place on a daily basis (ongoing education) and in accordance with the principlle of learning by doing, i.e. working in the field.

Over the five-year period 2024–2029, at least another 30 scholarships and 30 internship opportunities will be provided at ARCHiVe. As usual, the main areas of interest will be in the fields of new technologies for the conservation and enhancement of Cultural Heritage:

- the digitisation of archival assets on various media (paper, photographic, magnetic) for the purposes of cataloguing, study and investigation;
- the digitisation of ‘archival borders’, ancient and modern bibliographical materials for conservation and research purposes;
the digitisation of works of art and architectural complexes in 2D and 3D;  
· the automation of image post-production and metadata extraction processes;  
· the development of machine-learning software for cultural heritage;  
· the automation of transcription processes;  
· data representation systems;  
· Link Open Data for Cultural Heritage;  
· online dissemination of content and sources: technologies, methodologies, opportunities and applications;

and the implications of digitisation, facsimile creation and digital dissemination of sources;  
· digital media for enhanced accessibility and inclusiveness in the context of cultural institutions.

Between the training provided on site and that given on an ongoing basis, training for Civil Service volunteers will also continue, starting with the Universal Civil Service, which in 2024 will involve four young people who will be trained at ARCHiVe and the library of the Foundation. The selection and training of at least as many young people involved in Universal or Regional Civil Service is also planned for 2025 and 2026.

In addition to ongoing training – reserved for ARCHiVe trainees, scholarship holders, volunteers and medium-term collaborateurs – some of the educational activities, such as the 2024-2025 grants award, will be available in collaboration with the universities of the Fondazione Giorgio Cini, and investigates specific themes laid out in the Foundation’s own research guidelines. This is the case, for example, of the grants awarded by the Foundation’s Vittore Branca International Centre for the Study of Italian Civilisation. As of 2022, the Centro Branca, a residential centre for humanities studies, has offered specific scholarships to investigate topics relating to Digital Humanities based in ARCHiVe. At the start of 2023, the Centro Branca awarded a grant dedicated to the in-depth study, ordering and reorganisation of the Fondazione Giorgio Cini’s data on Wikidata, Wiki-media and Wikipedia.

AOA | ARCHiVE ONLINE ACADEMY  
ARCHiVe will also continue to organise courses, intensive workshops, seminars and talks dedicated to students, researchers and professionals in the field who wish to deepen their knowledge of specific topics. Internationally renowned specialists collaborate with the Centre for training activities; when necessary and in the presence of specific activities, activities are carried out in other locations or “in the field”.

Since 2022, students at Ca’ Foscari University and IUAV University of Venice and since 2025 University of Bologna have been able to receive study credits based on the number of meetings attended (talks and/or courses).

The number of universities participating in this scheme is steadily increasing; Below is a list of educational institutions with which collaborations of various kinds have been set up:  
· Ca’ Foscari University Venice  
· IUAV University Venice  
· University of Padua  
· Università della Terza Età di Venezia  
· University of Bologna  
· ISIA Urbino  
· Federico II University of Naples  
· L’Orientale University of Naples  
· National Doctoral School in Heritage Science (Sapienza University Rome)  
· LUISS Guido Carli University of Rome  
· Columbia University (Graduate School of Archi- 
· University of Trento  
· University of Cagliari  
· ETH Zurich  
· EPFL Lausanne Polytechnic  
· University of Innsbruck (REED project)  
· University of Oxford for Bodleian Libraries,  
· Boston University  
· University of Milan  
· Università della Terza Età di Venezia  
· University of Valladolid  
· Nebrija University of Madrid  
· UDEALAR Montevideo  
· Durham University  
· Warwick University (Faculty of Liberal Arts).

Over the five-year period 2021–2029, the plan is to con- 
continue to organise the Academy in a similar way, offering at least four thematic courses per year (about eight hours each, split into four lectures), a five-day workshop per year on digitisation techniques for selected students and an annual newgrant to one seminar and the talks per year, held by researchers and professionals.

The topics to be covered are:  
· new technologies and standards for the digitisation and enhancement of cultural heritage;  
· digital catalogues;  
· linked data;  
· digital archives and collections;  
· tools and standards for the digital dissemination of assets;  
· image copyright legislation;  
· digital art;  
· digital born archives and collections;  
· new technologies for creativity and the arts;  
· digital humanities for digitisation;  
· digitisation of various media and document types;  
· new digital professions in the cultural sphere.

2. COMMUNICATION, ACCESSIBILITY AND PUBLISHING  
“ARCHiPub. On Cultural and Digital Matters” is a new book series bringing together unpublished contributions by researchers on the topic of digitisation as a tool for enhancing cultural heritage, on research topics relat- 
ated to the Foundation’s funds and collections, as well as advances in the projects of the ARCHiVe centre. In line with the principles of the free spread of knowledge, the volumes will be entirely downloadable and openly accessible. The series of publications will be duly registered with a unique ISBN identification code; each contribution will be assigned its own ISBN and DOI (Digital Object Identifier). The first issue has been published 2023, although the series will continue over the years to come.

ARCHiVe website is the result of collaboration between the Fondazione Cini and Multitipo (a creative design studio based in Padua), who are committed to researching and developing infrastructure that may effectively narrate and promote the projects, technologies, research and training opportunities offered by ARCHiVe and its partners to the community.

Removing physical and cognitive barriers to allow broader access and participation in culture, ARCHiVe, within the Venice Sustainability Foundation is playing a huge role and is collaborating in the development of the project winner of the European Union’s NextGenera- 

tionEU funding (2023) for the design and implemen- 

tation of tools and solutions that help and support people with disabilities (physical, motor or cognitive).

3. CULTURAL PROJECTS  
Preservation, protection and cataloguing, especially through digital resources and digitisation (understood as the process of the digital acquisition, post-production and distribution) of cultural heritage of particular interest for historical and historical-artistic reasons, as well as ones of rarity, heterogeneity and completeness for ARCHiVe’s partners or other related entities.

The virtual recreation of the great library of the Ben- 

dadini Monks of San Giorgio. This project, led by the Fondazione Giorgio Cini Library with the scientific collaboration of Cristina Dondi is one of the next fu- 

ture projects. It will result in both a highly visible online presence for the initiative to increase the visitation and infor- 

tional facsimiles on the island, revitalising the tradition of the process of the digital acquisition, post-production and distribution, particularly of digital facsimiles.

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· linked open data;  
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· digital born archives and collections;  
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DIGITISATION OF THE FONDAZIONE GIORGIO CINI’S ARCHIVES AND COLLECTIONS  
The ARCHiVe centre will be constantly engaged in the collaboration requested annually by the Fondazione Giorgio Cini’s Institutes and Research Centres to follow up their precise programming plans in the digitisation of their specific cultural heritage. In this way, the role of the ARCHiVe Centre is crucial for digitising unique and often elsewhere untraceable collections, as well as for developing new digital consultation tools, making heritage accessible from all over the world and enhancing it within the ARCHiVe’s skills and technologies will therefore be used for the implementation of a number of important projects, considered a priority in order to make known to the world the uniqueness of the collections, the spaces and heritage preserved on the island of San Giorgio Maggiore.

The aim is to ensure the protection and promotion of the archive (comprising some 150 linear metres of documents) through reorganisation, description and digitisation, making it easier for scholars to search for specific contents.

THREE DIMENSIONAL DIGITISATION OF THE MOVABLE AND IMMOBILE PROPERTY OF THE FONDAZIONE GIORGIO CINI  
Over the past few years, the Basilica of San Giorgio Maggiore (interior and exterior), the square in front of the Basilica, part of the monumental spaces of the Fondazione Giorgio Cini (entrance onto the square, cloisters, refectory, Longhena Staircase, Ceiling Room, Presidential Rooms, Manica Lunga Library, Borger’s Labyrinth) have already been digitised with the use of various technologies.

In 2022, the Vatican Chapels and the Teatro Verde in the park on the Island and the tapedrop, L’entrata in Palestina dell’esercito di Vestapiana were also digitised in 3D.
The aim of the project is to enable accessibility to the architectural and artistic heritage also remotely, and to carry out specialist investigations of individual assets for conservation and study purposes.

**BIBLIOGRAPHICAL REPERTORIES VIA LOD**
The Essling repertory (Les livres à figures rédactes de la fin du XVIe siècle et du commencement du XVIIe, six volumes published between 1907 and 1914) is a fundamental bibliographical tool for those interested in Venetian illustrated books of the fifteenth and sixteenth centuries. Thanks to the Venetian nexus in the Essling library, owned by the Fondazione Cini and starting from the same repertory, it has been possible to create an open linked data model for the description of ancient book repertories. In the near future, it is planned to complete the description process in this database and to digitise the books in the Essling collection. The use of Linked Open Data (L0D) is fundamental for the description of the specimens which will create an ongoing relationship between the repertory and the collection of antique books.

The aim is to create a large stock of structured bibliographical data, natively published with open technologies and standards, machine-readable and automatically linkable to other content from other online sources.

**RARE BOOKS OF THE FONDAZZIONE CINI**
Approximately 3,000 books from the fifteenth to the nineteenth centuries make up the Fondazione Cini’s architectural tool for those interested in Venetian illustrative books of the fifteenth and sixteenth centuries. Thanks to the Venetian nexus in the Essling library, owned by the Fondazione Cini and starting from the same repertory, it has been possible to create an open linked data model for the description of ancient book repertories. In the near future, it is planned to complete the description process in this database and to digitise the books in the Essling collection. The use of Linked Open Data (L0D) is fundamental for the description of the specimens which will create an ongoing relationship between the repertory and the collection of antique books.

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**DANIELÒU CATALOGUE PHOTOGRAPHIC CARDS**
(see past reports) is a joint Fondazione Cini and Humboldt Forum Berlin project to digitise approximately 2,000 photographic cards with descriptive and photographic data. Starting in 2021, the entire batch of cards will be digitised, followed by the testing of artificial intelligence algorithms for the extraction of descriptive metadata and the images they contain, in order to set up a database and a search engine providing access to contents.

**TIZIANO TERZANI ARCHIVE**
The aim in the near future is to complete the digitisation of the photographic negatives, continue the description of the assets and publish the results online. Vocational works are also planned, such as an exhibition highlighting the Terzani photography fond, also thanks to the digitisation of high-resolution positives and negatives, including documents of inestimable historical, social and political value.

**SOTTASS ARCHIVE**
The last twenty years of the Professional Dossiers are to be digitised (the rest of the documentation has already been digitised by ARChiVe) and the archival description validated, published online and accessible in LOD via the registration of the Graphics and Design projects, in collaboration with the IUAU University of Venice.

**HERITAGE LAB ITALGAS**
Over the coming years, ARChiVe will provide training and consulting as well as specific and circumscribed projects (specific projects), photogrammetry, 3D acquisition with subsequent post-processing and metadata extraction of the Italgas Library and the digitisation and valuation of the Italgas library and the digitisation and cataloguing of the institution’s assets of scientific and technical interest.

**VLD**
(See past reports) Venice Long Data is a multidisciplinary research project in partnership with Ca’ Foscari University of Venice. It foresees the following:

- the creation of the VLD research platform for the general public;
- the validation, extraction and summarisation (i.e. creation of outlines) of SM37 to SM45 in the Venice State Archives;
- the digitisation of iconographic sources to SM53C in the Venice State Archives;
- the mapping and preliminary study of the Ambassadors’ Dispatches;
- the conservation and digital reconstruction of genealogies from the Barbaro Genealogy corpus.

**AN EXPANDING NETWORK**
In the next few years ARChiVe is planning to collaborate with the Massacre Change Network, established by Bruce Mau and Bisi Williams. Developing on their Massive Action programmes, ARChiVe will lead a workshop around the core issues of ARChiVe: the sustainable preservation of culture, education and sharing knowledge. The seven themes of Massive Action are: Climate Empowerment, Cities, Health, Demographics, Energy and Education.

- Digital Museology at the École Polytechnique Fédérale de Lausanne (EPFL), Switzerland will represent EPFL. The Laboratory for Experimental Museology at EPFL, run by Sarah Kendorpine, will provide display technologies and computer processing.
- The Analysis and Recording of Cultural Heritage in Oxford (ARCHiOx) – ARChiVe’s sister organisation set up with the Bodleian Library and Oxford University is expanding. As both organisations grow, they will enrich each other, sharing resources, technological innovations, and data.
- Case Western Reserve University and Factum Foundation are running a machine learning project which is using ultra-high resolution 3D recordings of the original paintings. The aim is to identify different hands at work on paintings. Factum proposes to integrate this work into the ongoing research at ARChiVe and develop Machine Learning capabilities in Venice.
- The Middle East Falconry Archive run by Factum Foundation through ARChiVe is growing and expanding into a five-year collaboration with the Sheikh Zayed Falconry Library.
- A collaboration is under discussion with the Arcadian Library, London. A private library focused on Arabic science, history and the Hajj.

**RESEARCH, EXPERIMENTATION AND DEVELOPMENT OF NEW TECHNOLOGIES FOR THE ACQUISITION, ANALYSIS, POST-PRODUCTION, METADATA CONSERVATION AND APPRECIATION OF CULTURAL HERITAGE**
In addition to the constant research and improvement of the photography sets acquired, ARChiVe focuses on the development of digital technologies that exploit, enhance and process the data (i.e. the creation of outlines) of the State Archives and the collections of the Fondazione Cini (Antique Book Fond) was sought, both in terms of standards and accessibility, data re-use and interconnection with electronic catalogues, ARChiVe, having been identified as reference tool for such projects (OCLC, Online Computer Library Centre, Ohio), is therefore working to complete and customise the new
Digital Library based on national and international reference standards and on the IIIF protocol for the diffusion of the Fondazione Giorgio Cini’s bibliographic resources and other sources, defining fields and vocabularies on the basis of the collections.

The aim is the enhancement of the Foundation’s assets through the long-term dissemination of digitised sources and through innovative and functional research tools for scholars and professionals. The entire process is estimated to take at least another five years for the Antique Books collection alone, but the Digital Library will accommodate the bibliographic and other collections of the entire Foundation (first and foremost the collection of Ulderico Rolandi’s opera librettos, housed in the Foundation’s Institute for Theatre and Opera).

ARCHIVE’S SPONSORS AND FUNDERS
MAIN SUPPORTER HELEN HAMLYN TRUST.

Ministero Italiano della Cultura
Banca d’Italia
Regione Veneto
Soprintendenza archivistica e bibliografica del Veneto

EUROPEAN FINANCING PROJECTS
Horizon Europe funding program
Partnership with Ca’ Foscari University

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Michelangelo Foundation (CH)
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Banca Intesa (IT)
Italgas Heritage Lab (IT)
Allemandi Editore S.r.L. (IT)
Community Jameel (UK)
Venezia Capitale Mondiale della Sostenibilità (IT)
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<th>Date</th>
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<th>Position/Institution</th>
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<td>27.06.2018</td>
<td>Giancarlo Chimento</td>
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<td>05.07.2018</td>
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<td>07.02.2019</td>
<td>Francesca Sfoggia</td>
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<td>11.03.2019</td>
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<td>05.04.2019</td>
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<td>05.04.2019</td>
<td>Simone Tarasiti</td>
<td>Durham University (United Kingdom)</td>
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<td>02.04.2019</td>
<td>Anna Carlgren</td>
<td>Vrij Glas Foundation (Netherlands)</td>
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<td>10.04.2019</td>
<td>Bill Sherman</td>
<td>Director of The Warburg Institute, London</td>
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<td>Denis Pernet</td>
<td>Associate Art Curator, Audemars Piguet, Le Brassus (Switzerland)</td>
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<td>29.05.2019</td>
<td>Sabina Magrini</td>
<td>Director of ICBSA Istituto Centrale per i Beni Sonori ed Audiovisivi, Ministero dei Beni Culturali, Roma</td>
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<td>31.05.2019</td>
<td>Sarah Thomas</td>
<td>Former Vice president of Harvard Library, Cambridge</td>
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<td>Lady Helen Hamlyn</td>
<td>Helen Hamlyn Trust</td>
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<td>Shobita Punja</td>
<td>Ashoka University, Sonipat, Haryana (India)</td>
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<td>01.07.2019</td>
<td>Arianna Travaglia</td>
<td>Coordinator of Centre for Cultural Heritage Technology Ca’ Foscari University, Venezia</td>
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<tr>
<td>12.07.2019</td>
<td>Bruno Latour</td>
<td>Sociologist, anthropologist and philosopher</td>
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<td>30.07.2019</td>
<td>Damiano Airoldi</td>
<td>Founder and CEO of Magnetic Media Network, Milano</td>
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<td>30.08.2019</td>
<td>MindAware</td>
<td>MindAware Srl, Treviso</td>
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<td>Mario Menichetti</td>
<td>CO Owner CIPS Informatica, Perugia</td>
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<td>16.09.2019</td>
<td>Jonathan Foote</td>
<td>Aarhus School of Architecture, Aarhus (Denmark)</td>
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<td>24.09.2019</td>
<td>Patrick Aebischer</td>
<td>Chairman of the Board of ArtTech Foundation</td>
</tr>
<tr>
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</table>
| 10.10.2019 | Hartmut Dorgerloh  
General Director at Humboldt Forum, Berlin  
Lars Christian Koch  
Director of the collections at Humboldt Forum, Berlin |
| 15.10.2019 | Claire Delabarre-Debay  
Digital Humanities, Université Bourgogne  
Rudy Chaulet  
Digital Humanities, Université Bourgogne, Franche-Comté |
| 28.10.2019 | Maarten Delbeke  
Chair of the History and Theory of Architecture dept.  
Emma Letizia Jones  
ETH Zürich |
| 04.11.2019 | Francesca Pozzi  
Pozzi Studio, Gentilino (Switzerland) |
| 05.11.2019 | Francesca Meneghetti  
Soprintendenza Archeologia, Belle Arti e Paesaggio per le province di Ravenna, Forlì-Cesena e Rimini |
| 25.11.2019 | Martina Pizzul  
Chiggiato Development and Membership  
Peggy Guggenheim Collection, Venezia |
| 17.12.2019 | Stefania Ingoglia  
Amuse, Padova  
Laura Bello  
Amuse, Padova |
| 17.01.2020 | Stefania Fiore  
Studio Giugiaro, Torino  
Stefano Cristofori  
Studio Giugiaro, Torino  
Giuseppe Carzaniga  
Italgas, Milano |
Sam Kiley  
Senior International Correspondent CNN

Patrick Wintour  
Diplomatic Editor, Guardian

Ewen MacAskill  
Defence and security correspondent, Guardian

Christopher Lockwood  
Europe Editor, Economist

John Peet  
Political Editor, Economist

Matt Frei  
Presenter and Europe Editor, Channel 4 News

Jon Snow  
Presenter, Channel 4 News

Catherine Newman  
Presenter, Channel 4 News

Ferdinando Giugliano  
Economic Commentator, Bloomberg and La Repubblica

John Follain  
Italy Correspondent, Bloomberg

Crispian Balmer  
Chief correspondent for Italy, Thomson Reuters

William Keegan  
Senior Economics Commentator, The Observer

Kim Sengupta  
Defence Correspondent, The Independent

Robert Fox  
Defence correspondent, Evening Standard

Silvia Sciorilli Borrelli  
Reporter, London, Politico Europe

Angela Antetomaso  
Correspondent, CNBC (Milano finanza)

Deborah Bonetti  
Director, London Correspondent, QN, Foreign Press Association

Anatole Kaletsky  
Commentator, Project Syndicate

Antonello Guerrera  
UK and Ireland correspondent, La Repubblica

Federico Gatti  
UK chief correspondent, Mediaset

Liliana Facceidoli Pintozzi  
Correspondent, SKY TG24

Luigi Ippolito  
London Correspondent, Corriere Della Sera

Marco Varvello  
UK News Correspondent, Rai

Alessandro Logroscino  
UK Correspondent, ANSA

Simone Filippetti  
UK correspondent, Il Sole 24 Ore

Nicol degli Innocenti  
UK correspondent, Il Sole 24 Ore

13.02.2020  Maurice Mengel  
Director Ethnological Museum, Humboldt Forum, Berlin
Viola Rosenau  
Digital collections, Humboldt Forum, Berlin

06.04.2021  Guido Caldarelli  
Full Professor of Physics, Ca' Foscari University, Venice

20.05.2021  Cristina Dondi  
Professor of Early European Book Heritage, University of Oxford

25.06.2021  Ennio Bianco  
Giovanni Comisso Prize President, digital art writer and curator

11.06.2021  Ralph Dum  
Senior expert at the European Commission, H2020 S+T+ARTS Research, Programme Director, Bruxelles

07.07.2021  Caterina Serra  
Author and Writer, Venice
Andrea Nicolai  
Innovation strategies consultant, project manager, Ceo of T6, Rome

12.07.2021  Multiplo  
Studio for content strategies and direction, Padua

14.07.2021  Elisabetta Trincherini  
Manager of Centro Studi Poltronova's archive, Florence
Donatello D'Angelo  
Art director of Poltronova, Florence
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Role and Notes</th>
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<tr>
<td>23.07.2021</td>
<td>Clément Dirié</td>
<td>Art critic and curator, Paris</td>
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<td>30.09.2021</td>
<td>Paul Guhennec</td>
<td>DHLab de EPFL</td>
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<td>George Richards</td>
<td>Community Jameel</td>
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<td>08.10.2021</td>
<td>Gaia Petrella</td>
<td>Restorer, Biblioteca Estense</td>
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<td>11.10.2021</td>
<td>Jorge Cano</td>
<td>Factum Foundation</td>
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<td>14.10.2021</td>
<td>Alessandro Russo</td>
<td>CSC Università degli Studi di Padova</td>
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<td>15.11.2021</td>
<td>Nicole Pecoitz</td>
<td>Un Indovino mi diase project proposal</td>
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<td>23.11.2021</td>
<td>Fiorella Bulegato</td>
<td>IUAV University of Venice</td>
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<td>09.12.2021</td>
<td>Shubig Rao</td>
<td>Artist (Singapore Pavilion Biennale 2022)</td>
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<td>10.12.2021</td>
<td>Chinese delegation</td>
<td>Terzani, Rare Books e Art collections</td>
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<td>12.01.2022</td>
<td>Alessandro Codello</td>
<td>Venice Long Data project</td>
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<td>20.01.2022</td>
<td>Mattia Casalegno</td>
<td>Artist, The Mask of Time project</td>
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<td>20.01.2022</td>
<td>Maurizio Martusciello</td>
<td>Sound Artist, The Mask of Time project</td>
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<td>31.01.2022</td>
<td>Andrea Piovesan</td>
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<td>05.02.2022</td>
<td>Jennifer Murray</td>
<td>VEdPH, Ca’ Foscari University, Visiting Scholar</td>
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<td>23.02.2022</td>
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<td>03.03.2022</td>
<td>Francesco Dal Co</td>
<td>Historian of architecture Curator of the Vatican Chapels Pavilion</td>
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<td>05.03.2022</td>
<td>Joan Porcel Pascual</td>
<td>Photographer, Venice</td>
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<td>09.03.2022</td>
<td>Eurosia Zuccolo</td>
<td>Soprintendenza Bibliografica e Archivistica del Veneto</td>
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<td>09.03.2022</td>
<td>Nadia Piazza</td>
<td>Archivist</td>
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<td>Francesco Maraldo</td>
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<td>23.03.2022</td>
<td>Byan Brazeau</td>
<td>Warwick University</td>
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<td>25.03.2022</td>
<td>Giacomo Golinelli</td>
<td>Promemoria Group, Archivio Magazine</td>
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<td>28.04 – 01.04.22</td>
<td>Jorge Canol</td>
<td>Factum Foundation</td>
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<td>05.04.2022</td>
<td>Jean Blaschert</td>
<td>Curator of the Best of Europe for Homo Faber 2022</td>
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<td>19.04.2022</td>
<td>Marco Scotti</td>
<td>Art Curator, Researcher IUAV University in Venice</td>
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<td>20.04.2022</td>
<td>Guido Caldarelli</td>
<td>Full Professor Theoretical Physics, Ca’ Foscari, Venice</td>
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<td>21.04.2022</td>
<td>Marco Delogu</td>
<td>Photographer</td>
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<td>22.04.2022</td>
<td>Sneska Quaedicvlieg Mihailovic</td>
<td>Secretary General of Europa Nostra</td>
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<td>30.04.2022</td>
<td>Cristina Dondi’s Class History of Book</td>
<td>Global Humanities Course, Università La Sapienza, Roma</td>
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<td>05.05.2022</td>
<td>Micaela Scarpa</td>
<td>Ca’ Foscari University of Venice</td>
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<tr>
<td>Date</td>
<td>Name</td>
<td>Title and Institution</td>
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<td>Julian Zhara</td>
<td>Poet, NFT artist</td>
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<td>23.05.22</td>
<td>Cleo Malca Nisse</td>
<td>Predoctoral Fellow, Centre for Advanced Study in Visual Arts, National Gallery of Art, Washington D.C</td>
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<td>06.06.22</td>
<td>Günter Mühleberger</td>
<td>Transkribus, Innsbruck</td>
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<td>Lars Christian Koch</td>
<td>Ethnologisches Museum and Museum für Asiatische Kunst Humboldt Forum, Berlin</td>
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<td>Raffaele Torella</td>
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<td>Eurosia Zuccolo</td>
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<td>24.06.22</td>
<td>Chiara Lorenzetti</td>
<td>Associazione Archivio Nuvolo, Città di Castello, Perugia</td>
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<td>Walter Ruffatto</td>
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<td>05.07.22</td>
<td>Nicolas Berggruen</td>
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<td>Mario Codognato</td>
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<td>19.07.22</td>
<td>Francesco Rucco</td>
<td>Major of Vicenza</td>
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<td>Simona Siotto</td>
<td>Culture Department of Vicenza Municipity</td>
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<td>Laura Dalla Vecchia</td>
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<td>16.08.22</td>
<td>Raffaella Burioni</td>
<td>Professor Theoretical Physics at Università di Parma</td>
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<td>Antonio Pippolini</td>
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<td>Carla Granieri</td>
<td>Brand Heritage Department at Bulgari</td>
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<td>Lucia Boscaim</td>
<td>Global Brand Marketing Senior Director at Bulgari</td>
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<td>Massimo Bollati</td>
<td>Digital Transformation Director at Agenzia del Demanio</td>
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<td>Andrea Mattiello</td>
<td>Byzantine Art and Contemporary Art historian and curator</td>
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<td>Mikko Fritze</td>
<td>Director of the Finnish Institute in Germany</td>
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<td>Viviana Casilini</td>
<td>Art &amp; Culture Director at Cartier</td>
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<td>05.10 - 07.10.22</td>
<td>Summer School Columbia University with Jorge Otero-Pailos: Wenjing Xue</td>
<td>Summer School Columbia University with Jorge Otero-Pailos: Wenjing Xue</td>
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<td>Riccardo Olocco Type designer, Boston University</td>
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<td>David Freedberg Columbia University</td>
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<td>Alessandra Del Verme Agenzia del Demanio</td>
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<td>Annalisa Rossi Soprintendente Archivistica e Bibliografica del Veneto e del Trentino Alto Adige</td>
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<td>Giulio Pojana Ca’ Foscari University of Venice</td>
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<td>Bruce Mau Massive Change Network</td>
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<td>Bisi Williams Massive Change Network</td>
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<td>Rashmi Gajare Columbia University PhD fellow</td>
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<td>Giacomo Carlesso Ca’ Foscari University of Venice</td>
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<td>&quot;Experimental Preservation&quot; with Jorge Otero-Pallos:</td>
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<td>Simona Della Rocca</td>
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<td>Ziad Jameleddine, GSAPP</td>
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<td>Léa Cathrine Szacka, Manchester Univ</td>
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<td>Hanna Peterson, Head of Institute AHO</td>
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<td>Stina Högkvist, Norw. National Museum</td>
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<td>Tiziana Baldenebro, Spaces Gallery - Cleveland</td>
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<td>26.05.2023</td>
<td>Celia Guimares RAI - Radio Televisione Italiana</td>
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<td>Mark Rakatansky Stuttgar University</td>
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<td>Frank Gotthardt Entrepreneur</td>
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<td>Alberto Torsello Architect</td>
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<td>07.09.2023</td>
<td>Niclas Ahlström Aalto Silo, Oulu Finland</td>
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<td>Jagiellonian University, Kraków</td>
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1. Seguso Vetri d'arte Archive
   https://archivi.cini.it/centrostudi Vetetro

2. Atlas of Renaissance Italian Woodcuts
   https://archivi.cini.it/storiaarte/archive/IT SDA-GUI001-000038/a_lante xilografie italiane del rinscimento.html

3. Tiziano Terzani Archive
   https://archivi.cini.it/civiltacompare/archive/IT-CSC GUI001-000002/fondo-tiziano-terzani.html?lang=en

4. Heritage Lab

5. Ulderico Rolandi Collection
   http://dl.cini.it/collections/show/1360

6. Research Project on Alain Daniélou
   http://dl.cini.it/collections/show/1356

7. Project “Fonti 4.0”
   https://www.youtube.com/watch?v=tfLVrXYLD-Kk&t=30s

8. The Mask of Time
   https://www.youtube.com/watch?v=o6crOPutG1w

9. MEFA: Middle East Falconry Archive
   https://cdm21080.contentdm.oclc.org/digital/collection/mefa/search

10. Facsimile of Banksy’s ‘Migrant Child’

11. Large Scale Digitisation Recording the Collection: Tapestries

DIGITISATION OF GALLERIA DI PALAZZO CINI


13. Fra Filippo Lippi, ‘Madonna con il Bambino, sei angeli, dieci santi…’, 1432
    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Filippo_Lippi_Madonna_con_il_Bambino/shared/viewer.html

14. Fra Giovanni detto Beato Angelico, ‘San Tommaso d’Aquino’, 1458-1440

15. Piero della Francesca / Luca Signorelli, ‘Madonna con il Bambino’, 1470-1475
    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Piero_della_Francesca_Madonna_con_il_Bambino/shared/viewer.html

16. Domenico Bigordi detto il Ghirlan daio e bottega, ‘Madonna che adora il Bambino…’, 1490-1495

17. Piero di Lorenzo Ubaldini detto Piero di Cosimo, ‘Madonna con il Bambino e due angeli’, 1505-1510
    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Piero_di Lorenzo_Madonna_Bambino/shared/viewer.html

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    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Maestro del_Crociﬁso_Argento/shared/viewer.html

21. Stefano di Giovanni detto il Sassetti, ‘Madonna dell’Umilità’, 1450


24. Matteo di Giovanni e bottega, ‘Madonna con il Bambino e i santi…’, 1470-1485 circa
    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Matteo_di Giovanni_Madonna_con_il_Bambino/shared/viewer.html

25. Cosmè Tura, ‘San Giorgio’, 1475-1480

26. Michele Pannonio, ‘Madonna con il Bambino e i santi Nicola, Girolamo, Agostino (?)…’, 1445-1450
    https://highres.factumfoundation.xyz/Galleria_Palazzo_Cini/Michele_Pannonio_Madonna_con_il_Bambino/shared/viewer.html

27. Giovanni Battista Cavalletto, ‘Madonna con il Bambino’, 1490 circa

28. Marco Zoppo, ‘San Giovanni Battista nel deserto’, 1472

30. Lorenzo Costa, ‘Madonna con il Bambino’, 1505

31. Dosso Dossi, ‘La zuffa’, 1521-1522 circa

32. Battista Dossi, ‘Riposo durante la fuga in Egitto con san Giovanni’, 1510

33. Ludovico Mazzolino, ‘Presentazione di Gesù al Tempio’, 1521-1526

34. Ludovico Mazzolino, ‘Circoncisione’, 1522


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37. Giottino di Bondone, detto Giotto / Taddeo Gaddi, ‘Due anti apostoli’, 1520


39. Maestro di Badia a Isola, ‘Madonna con il Bambino e quattro angeli’, 1315

40. Niccolò di Segna, ‘Madonna con il Bambino’, 1335

41. Taddeo Gaddi, ‘San Giovanni Evangelista che beve dalla coppa avvelenata’, 1355

42. Taddeo Gaddi, ‘Ascensione di san Giovanni’, 1515

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44. Maestro della Croce di Trevi, ‘Dittico con Storie della Passione di Cristo’, 1530-1535

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48. Maestro ferrarese, ‘Cristo uomo dei dolori’, fifteenth century

49. Francesco Prata da Caravaggio, ‘Ritratto di gentiluomo’, 1520

50. Stefano di Giovanni detto il Sassetti, ‘San Matteo’, 1457-1444

51. Maestro del Bigallo, ‘Madonna con il Bambino in trono’, 1210-1250

52. Maestro di Santa Maria di Piazza, ‘Christus Triumphans; Christus Patiens’, 1250-60


54. Bartolomeo di Frusino, ‘Cristo crocifisso’, 1410-1415

55. Ercole de’ Roberti, ‘Santa Caterina d'Alessandria’, 1470-1473

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58. Maestro del Polittico della Cappella Medici, ‘Madonna con il Bambino..’, 1315-1320


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