

REPORT ON



# Living LAB on Digital Library

Deliverable 4.1



General information	
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#### About DCbox

DCbox “Digital Curator Training & Tool Box” works to create a new generation of European professionals working in the cultural heritage sector, equipped with a recognised, cross-cutting and high-level digital skillset. The project is funded by the Erasmus+ programme of the European Union during the period November 2021 - May 2024.

DCbox is implemented by:

- Università Politecnica delle Marche (Italy) - coordinator
- Sinergia Consulenze Srl (Italy)
- University of Cordoba (Spain)
- The Cyprus Institute (Cyprus)
- Universidade Lusófona/COFAC – Training and Cultural Animation Cooperative (Portugal)
- UNIMED – Mediterranean Universities Union (Italy)
- University of NIS (Serbia)

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## Executive Summary

This document represents a textual synthesis of the Del 4.1, Living LAB on Digital Library.

Prototypes of virtual experiences were collaboratively designed, created, and tested in the Virtual Open TOOLBOX and in presence through specific living LABs, each experimenting with digital tools to access, understand, and share cultural content related to various heritage features. The primary goal is to familiarize students with digital cultural heritage (DCH) tools, providing them with a cross-disciplinary confrontation experience and a DCH toolkit for their future careers. The key outputs of this result are the prototypes, which functioning is explained in the videos that were prepared by the teachers and students by each academic partner. The present document serves to summarize the steps and learning experiences for both students and teachers.

The present document is complemented by a playlist in Youtube DcBox channel, in which is possible to see the Prototypes in action:  
[https://www.youtube.com/watch?v=q--4\\_M7yxqM&list=PLqd6hOCBhPvin4GwserteTLd0wG\\_LAvH-&pp=iAQB](https://www.youtube.com/watch?v=q--4_M7yxqM&list=PLqd6hOCBhPvin4GwserteTLd0wG_LAvH-&pp=iAQB)

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## Result 4 - Virtual experiences Prototypes

The Leader of the PR4 Virtual Prototypes is UNIVPM. According to the application form a minimum of 4 and a maximum of 8 students will have access to each living LAB.

The Living Lab on Digital Library, led by UCO, reached the results of 4 students working actively in the Virtual Lab and producing their prototype, thanks to the involvement as associated partner of the Department of Culture and Tourism of the Municipality of Fuente Obejuna (Córdoba, Spain) that support the implementation of the project work.

The Digital Library is chosen as prototype considering its adaptability to different use cases and kind of heritage. Usually, the Digital Library is based on a collection of 3D artefacts, scientifically digitized: the artefacts become the access point of all information, data and stories that the Digital Curator designs and carries out. Similar approach enables the digital twin paradigm that is currently well recognized.

By the content point of view, the teachers of UCO have adapted the fulfillment of the Living Lab to the poor knowledge regarding the digitization of Cultural Heritage of the participating students, considering their exclusively humanistic field of study. Therefore, as starting point a basic technical training phase on photogrammetry has been offered to the participating students in order to make possible the realization of digital library prototypes. The prototypes have been based on the digitization and creation of thematic digital libraries of the archaeological finds preserved in the local historical-archaeological museum of the town Fuente Obejuna (Córdoba, Spain).

The conclusion of Living Lab was the Multiplier Event by UCO, that was held on 14th May 2024 where the students participating in the Living Lab had the possibility to show the results of their activity to functionaries and managers of various cultural institutions of the Andalusian regional administration.

### The bootcamp

On **9<sup>th</sup> of December 2022**, third day of the Learning Training Activity in Lisbon, a Boot Camp and international conference took place. Participants included DCbox partners, students, cultural heritage professionals, and Portuguese museum representatives. Discussions focused on the DCbox approach, expected outcomes, activities, and the digital skills needed for future professionals in the creative and cultural sectors. Prof. Ramona Quattrini introduced the project, followed by presentations from the Cyprus Institute, Università Politecnica delle Marche, University of Cordoba, and University of Nis, showcasing their work in digital cultural heritage. Stakeholders from Lourinhã, including a local museum and NGO, also presented. The event marked the start of the DCBox Result 4 activities with an online Bootcamp and a design thinking phase for Digital Cultural Heritage experiences. The hybrid workshop had 20 in-person attendees and 31 online participants.

## The implementation of the prototypes inside the unit

The UCO teachers and tutors participating in the project have directly disseminated the possibility of actively participating in the framework of the Living Lab on Digital Library to their own students of the Bachelor's Degree in History and History of Art of the Faculty Humanities and to PHD students in Cultural Heritage.

By this dissemination activity, it was possible the involvement of different student profiles participating in the Living Lab: 2 students from the Bachelor's Degree in History and History of Art, a graduate student in History and History of Art and 1 PhD student/worker. The tutoring has been adapted to the limited technical knowledge of these students from humanistic field of study regarding the digitization of Cultural Heritage.

The implementation of the tutoring and review activities has been carried out with a mixed approach and they were organised in the following way:

- Theoretical and practical workshops in the local museum of Fuente Obejuna regarding the data acquisition for the digitization of cultural heritage through photogrammetry.
- Tutoring in the data-processing phase, creation of digital libraries and review of prototypes through periodic online meetings.

For the details on the single students experience in the Living Lab, see the D5.1 Training & report Each university.



## The hackathon

Since the application form, at the end of the VLab activities an Open Hackathon (M21) was foreseen in order to ensure to give visibility to students' activities and also to test the prototypes with final users of DCH experiences. During the implementation of the project the Hackathon has took place in a blended mode. Since it was synchronized with a project meeting held in July 2023 in Ancona, Italian students took part physically to the Hackaton while the other joined virtually the Toolbox and some videoconferences tools (MS Teams) were used. Here follows the agenda.

### Thursday 20th of July 2023 – OPEN HACKATON for STUDENTS' PROTOTYPES

Facoltà di Ingegneria - C-LAB, ROOM C-Class q 155

Hours	Title	Partner	Contents
9.00 - 9.30	Registration of participants and welcome	<b>UNIVPM</b>	
9.30 - 9.40	Opening Remarks	<b>UNIVPM</b>	Francesco Fatone –Delegate for Research Engineering Area and international ranking Enrico Quagliarini - DICEA Director Ramona Quattrini – DCBox LP scientific responsible
9:40	Rita Santos	<b>LUSO</b>	<i>Museum Bordalo Pinheiro</i>
9:50	Edson Lourenço	<b>LUSO</b>	<i>Lourinhã Museum</i>
10:00	Theo Shaheen-McConnell (also on behalf Benjamin Adoba Ayida)	<b>CYI</b>	<i>Historical Forests of Troodos</i>
10:10	Natalie Milanese Branca	<b>CYI</b>	<i>Leventis Gallery</i>
10:20	Nicolette Vollero Levy (also on behalf of Biyang Wang)	<b>CYI</b>	<i>Ottoman balconies of Old Nicosia</i>
10:30	Soodabeh Sajadi	<b>CYI</b>	<i>Cultural landmarks of Nicosia</i>

10:35	<b>Q&amp;A</b>		
10:40	Martina Manfroni	<b>UNIVPM</b>	<i>Civic Gallery - Ascoli Museum system</i>
10:50	Luca Bondi	<b>UNIVPM</b>	<i>Auditorium Pedrotti - Pesaro</i>
11:00	Sofia Diomedi (pres. By Mirco D'Alessio)	<b>UNIVPM</b>	<i>Numana Antiquarium</i>
11:10	Ludovica Leonardi (pres. By Renato Angeloni)	<b>UNIVPM</b>	<i>Civic Gallery Ancona</i>
11:20	<b>Q&amp;A</b>		
11.30 – 12.00	<b>Coffee Break</b>		
12:00	Marina Marín Expósito + Álvaro Arteche (pres. by Massimo Gasparini)	<b>UCO</b>	<i>Sculpture collection of Roman town of Mellaria</i>
12:10	José Manuel Ordoñez Sojo (pres. by Massimo Gasparini)	<b>UCO</b>	<i>Epigraphic collection of Roman town of Mellaria</i>
12:20	Aleksandra Stojkovic	<b>NIS</b>	<i>Museum of Ponisavlje</i>
12.30 – 12.45	VR Tool Presentation and Prototypes Final Delivery definition	<b>UNIVPM</b>	Presentation of the VR Tool integrated in LMS. Final delivery requirements and time scheduling
12.45 – 13.00	<b>Q&amp;A</b>		
13.00 – 13.15	Concluding Remarks	<b>UNIVPM</b>	



As it is clear in the agenda, the hackathon was conceived to engage students in a collaborative and interdisciplinary environment where they design and develop virtual experiences for cultural heritage sites using digital tools. The hackathon aims to foster creativity, problem-solving skills, and practical application of digital cultural heritage (DCH) technologies.

The students were invited to highlight in their speech open Points and challenges: each student or team documented ongoing challenges, such as technical limitations, user experience design, and content accuracy.

A Demo Session for testing and feedback the more robust and advanced prototypes was held, in which some teams presented their mock-up to peers, mentors, and a panel of judges, some live demonstrations to showcase functionality and user interaction.

A feedback loop with constructive critique from judges focusing on usability, innovation, and cultural relevance was also provided.

The Q& A session was intended as a discussion and wrap-up, it included summary of key takeaways from the hackathon and networking session to foster future collaborations and a discussion on the possible exploitation of the VR module in the LMS.

Not all the students participating in the Living Labs were able to connect or be present in the hackathon, especially because some students were involved later than the initial schedule. However, the leader of R4, UNIVPM, decided to keep the conduct of the living labs open, so as to ensure as many participants as possible and to retrieve some prototypes that, for individual students' career reasons, had not been completed before the hackathon. Summarizing the number of the students enrolled in the DCbox learning path, as reported in the D 5.1 Training & report Each university, is higher than the students participating in the hackathon.

## Appendix - The prototypes presentation



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on  
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**Showcase**

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**DIGITAL LIBRARY OF ROMAN SCULPTURES  
FROM THE ROMAN *MUNICIPIUM* OF  
MELLARIA (FUENTE OBEJUNA. CÓRDOBA)**

Álvaro Castillo Arteche

Universidad de Córdoba



# DIGITAL LIBRARY OF ROMAN SCULPTURES FROM THE ROMAN *MUNICIPIUM* OF *MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of  
Fuente Obejuna

Roman Municipium  
of Mellaria

Digitization of  
fragments of roman  
sculpture

Digital collection on  
Sketchfab



# DIGITAL LIBRARY OF ROMAN SCULPTURES FROM THE ROMAN *MUNICIPIUM* OF *MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of  
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Sketchfab



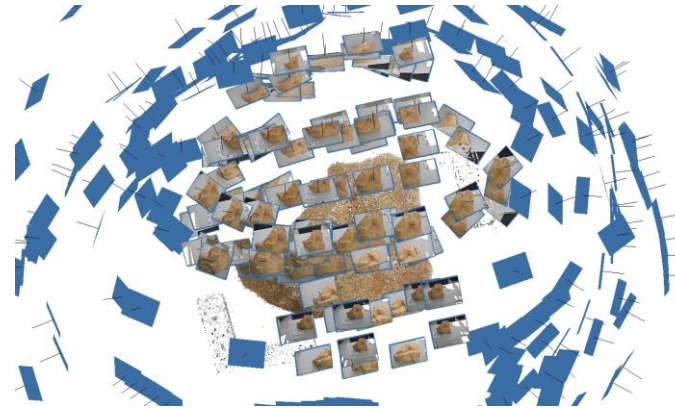
# DIGITAL LIBRARY OF ROMAN SCULPTURES FROM THE ROMAN *MUNICIPIUM* OF *MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of Fuente Obejuna

Roman Municipium of Mellaria

Digitization of fragments of roman sculpture

Digital collection on Sketchfab



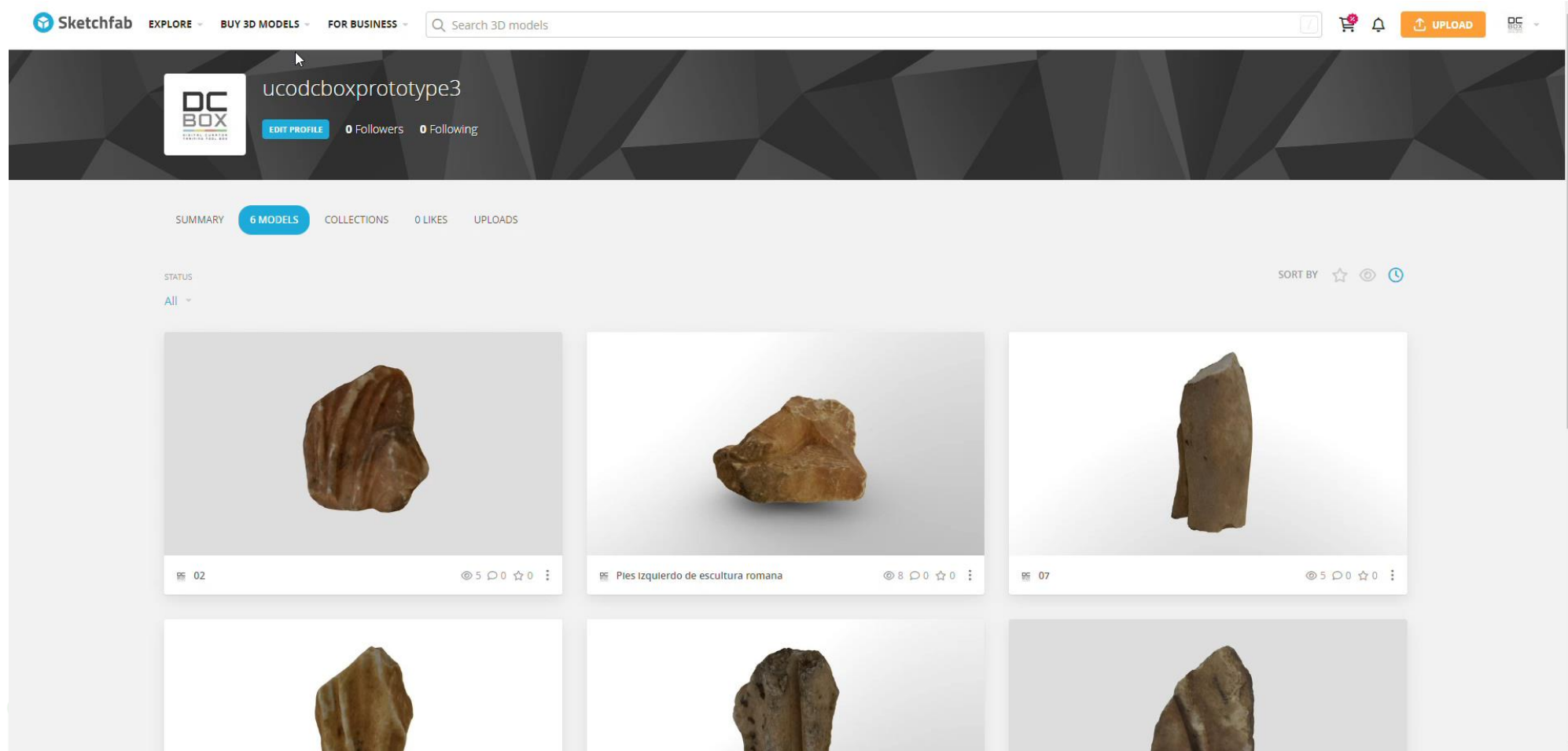
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Local Museum of Fuente Obejuna

Roman Municipium of Mellaria

Digitization of fragments of roman sculpture

Digital collection on Sketchfab





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on  
**Digital Library**

**DC**  
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**Showcase**

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**DIGITAL LIBRARY OF BRONZE  
ARCHAEOLOGICAL FINDS PRESERVED IN  
THE LOCAL MUSEUM OF FUENTE OBEJUNA  
(CÓRDOBA)**

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**José Manuel Ordoñez Sojo**

Universidad de Córdoba



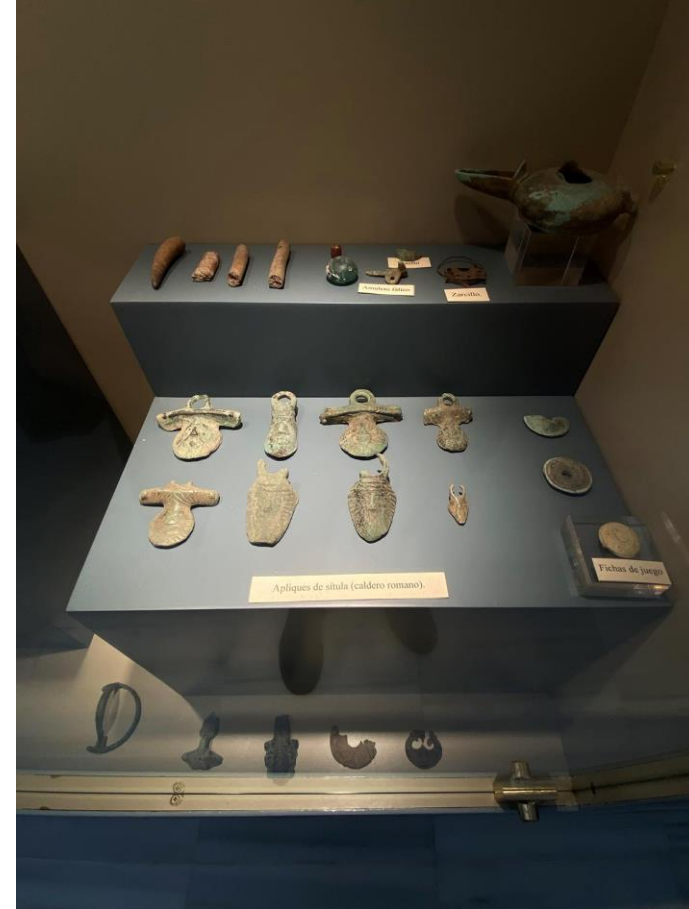


# DIGITAL LIBRARY OF BRONZE ARCHAEOLOGICAL FINDS PRESERVED IN THE LOCAL MUSEUM OF FUENTE OBEJUNA (CÓRDOBA)

Local Museum of  
Fuente Obejuna

Digitization of bronze  
archaeological finds

Digital collection on  
Sketchfab

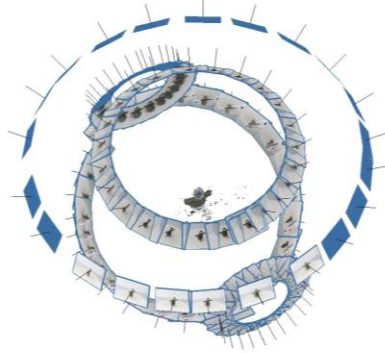


# DIGITAL LIBRARY OF BRONZE ARCHAEOLOGICAL FINDS PRESERVED IN THE LOCAL MUSEUM OF FUENTE OBEJUNA (CÓRDOBA)

Local Museum of Fuente Obejuna

Digitization of bronze archaeological finds

Digital collection on Sketchfab

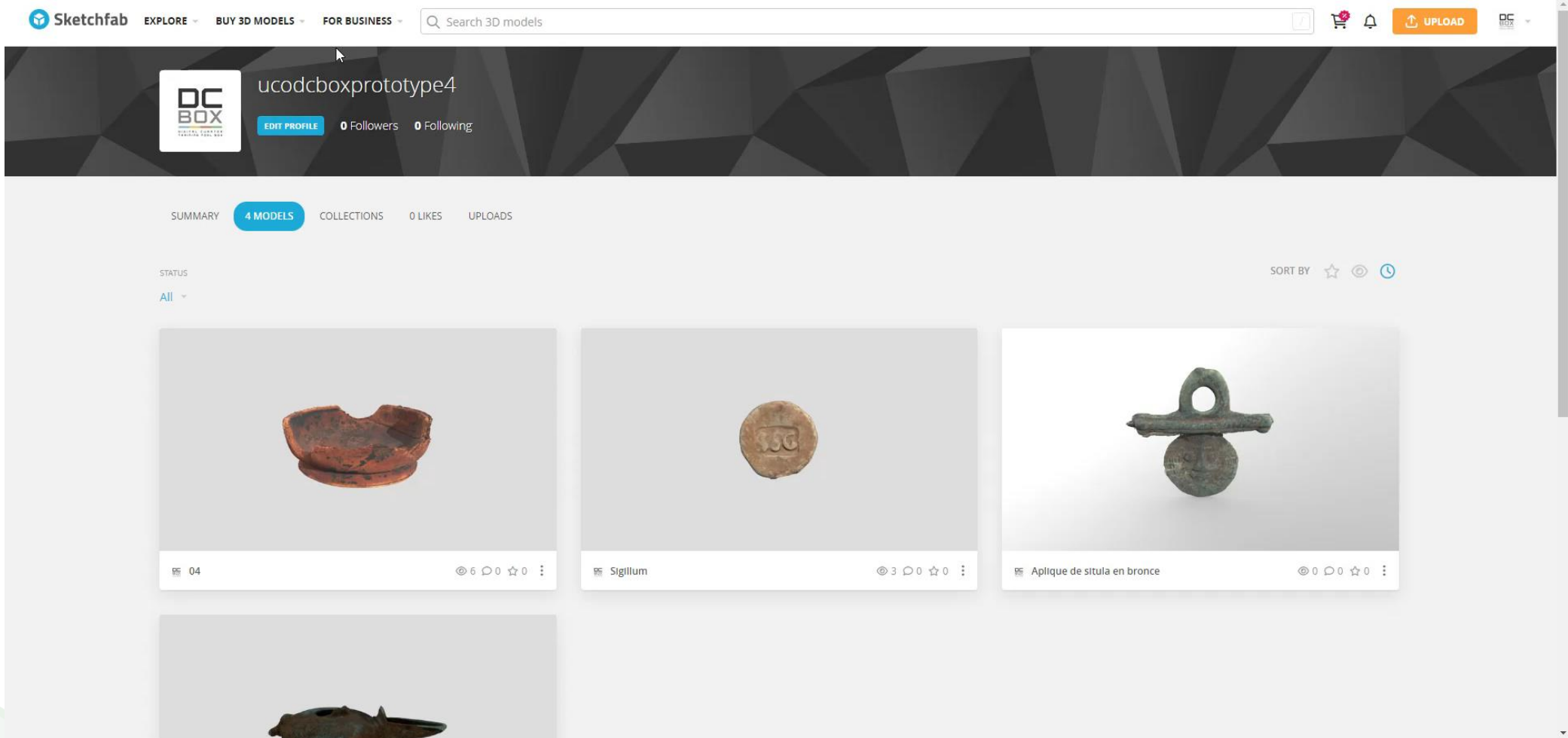


# DIGITAL LIBRARY OF BRONZE ARCHAEOLOGICAL FINDS PRESERVED IN THE LOCAL MUSEUM OF FUENTE OBEJUNA (CÓRDOBA)

Local Museum of Fuente Obejuna

Digitization of bronze archaeological finds

Digital collection on Sketchfab





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DIGITAL LIBRARY OF LITHIC ARCHAEOLOGICAL  
ELEMENTS FROM THE CHALCOLITHIC SITE OF  
"CERRO DE LOS CASTILLEJOS" (FUENTE OBEJUNA.  
CÓRDOBA)

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Francisco Rafael Bueno Lozano

Universidad de Córdoba



DIGITAL LIBRARY OF LITHIC ARCHAEOLOGICAL ELEMENTS FROM THE CHALCOLITHIC SITE OF "CERRO DE LOS CASTILLEJOS" (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of Fuente Obejuna

Chalcolithic site of Cerro de Los Castillejos

Digitization of lithic industry

Digital collection on Sketchfab



DIGITAL LIBRARY OF LITHIC ARCHAEOLOGICAL ELEMENTS FROM THE CHALCOLITHIC SITE OF "CERRO DE LOS CASTILLEJOS" (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of Fuente Obejuna

Chalcolithic site of Cerro de Los Castillejos

Digitization of lithic industry

Digital collection on Sketchfab



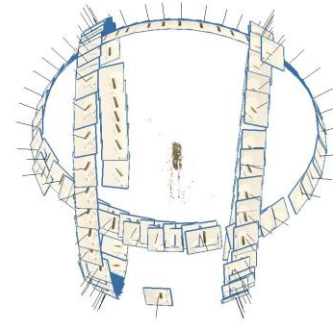
DIGITAL LIBRARY OF LITHIC ARCHAEOLOGICAL ELEMENTS FROM THE CHALCOLITHIC SITE OF "CERRO DE LOS CASTILLEJOS" (FUENTE OBEJUNA. CÓRDOBA)

Local Museum of Fuente Obejuna

Chalcolithic site of Cerro de Los Castillejos

Digitization of lithic industry

Digital collection on Sketchfab



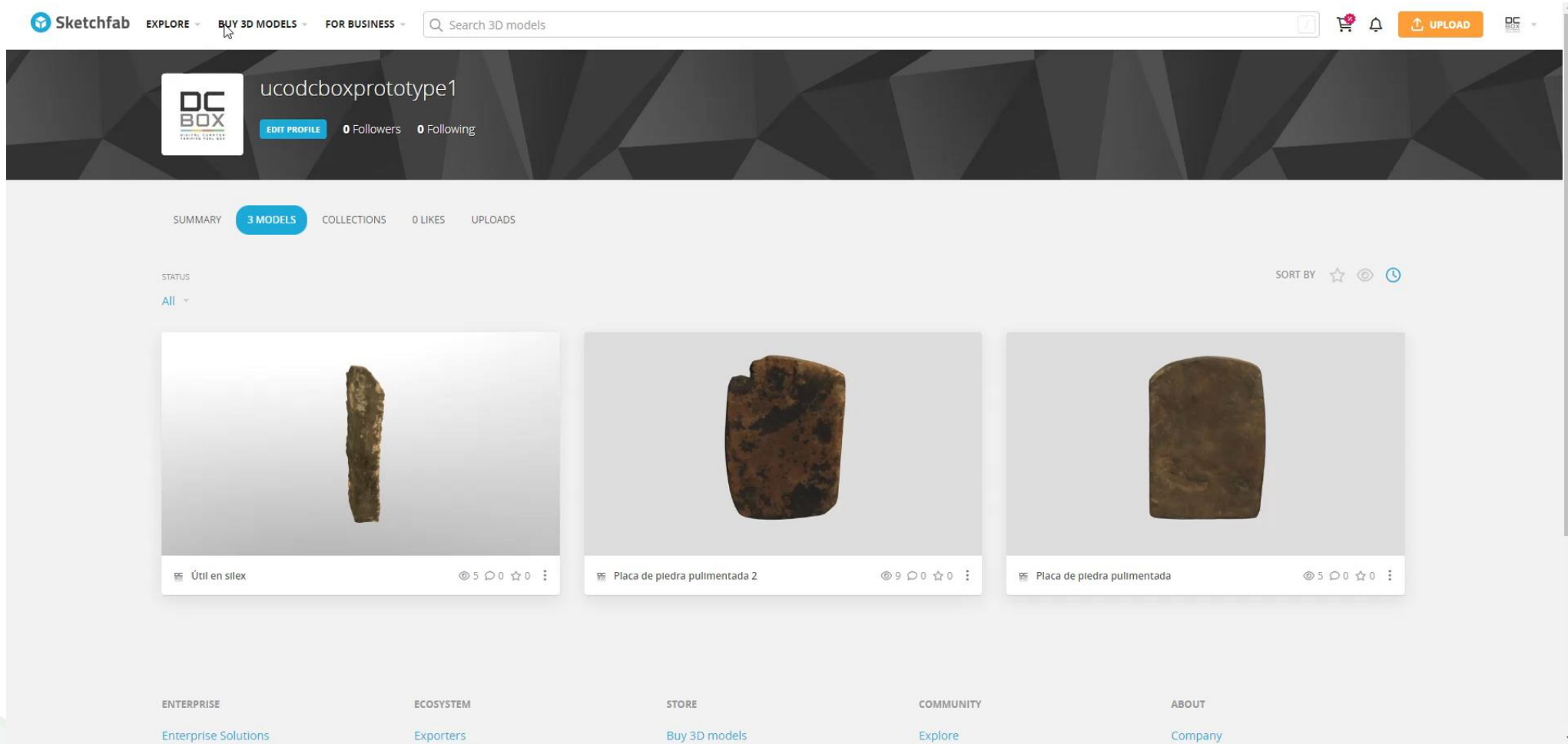
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Local Museum of Fuente Obejuna

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Living LAB  
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**DC**  
**BOX** **PROTOTYPES**  
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**DIGITAL LIBRARY OF ROMAN EPIGRAPHS  
FROM THE ROMAN *MUNICIPIUM* OF  
*MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)**

Paola Osuna Lozano

Universidad de Córdoba



# DIGITAL LIBRARY OF ROMAN EPIGRAPHS FROM THE ROMAN *MUNICIPIUM* OF *MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)

Local Museum and Church of «Nuestra Señora del Castillo»

Roman Municipium of Mellaria

Digitization of roman epigraphies

Digital collection on Sketchfab



# DIGITAL LIBRARY OF ROMAN EPIGRAPHS FROM THE ROMAN *MUNICIPIUM* OF *MELLARIA* (FUENTE OBEJUNA. CÓRDOBA)

Local Museum and Church of «Nuestra Señora del Castillo»

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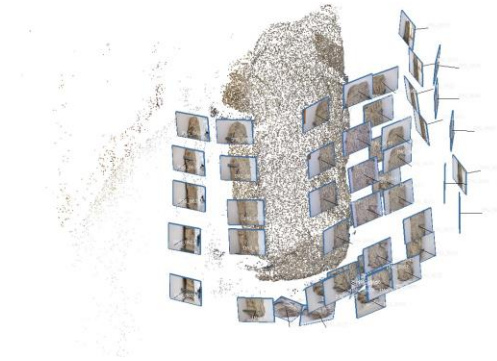
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