L A   T E M P E S T A

Project Report

3D photogrammetric digitalization of the daguerreotype collection from the "Centre de Recerca i Difusió de la Image" within the Weave Project

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Ajuntament de Girona

https://latempesta.cc/eng.html

La Tempesta is a full-service digital services **company.** We create, design and develop **digital mediation and new media tools** for **cultural heritage**, **knowledge** and **content-based** organisations and its communities.

We are a multidisciplinary team (developers, designers, documentalists, humanists, social scientists…) working all over Europe, with offices in Barcelona downtown.
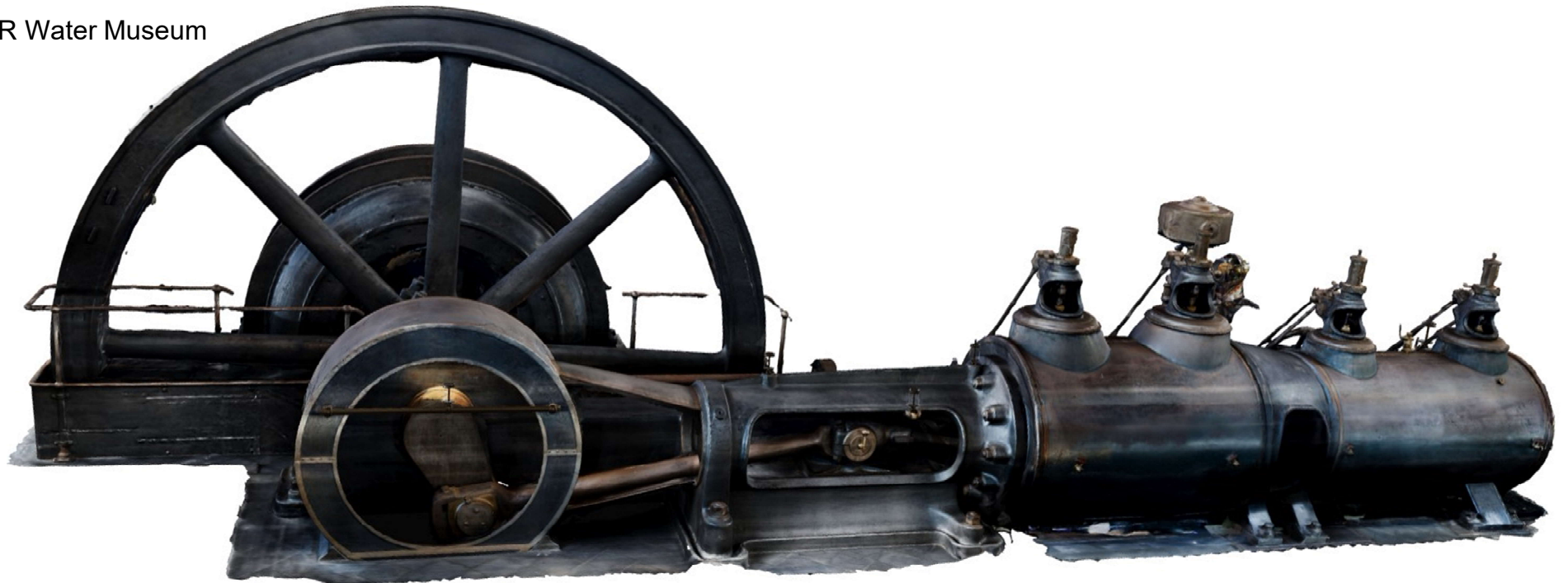
CREATIVE TIMELINE

Winners of a Lovie Award for best cultural web project 2020 in Europe for the [timeline of the Barcelona Zoo](#)

2020 WINNER

THE LOVIE AWARDS

Previous 3D projects

AGBAR Water Museum

https://artsandculture.google.com/asset/generador-sociedad-lionesa-de-mec%C3%A1nica-y-electricidad/twEXf9MNIH87tA?hl=es

Previous 3D projects

METAVERSE; Time-Lapse

Migration, Mediafutures

https://timelapsemigration.art/

The daguerreotype collection of the CRDI

LA TEMPESTA

😫 !!

Daguerreotype complexity

- Brightness, light refraction, negative effect

- Multiple moving parts (case lids, hook-shaped closures, chains, rings, hinges)

- Dust and scratches on the glass generate false distortions on the 3D model

Light box

- Photo set light box ($12m^3$)

- Black backdrop to avoid multiple reflections

- Rotating platform (90cm ⌀)

- Black Plastic and EPS supports
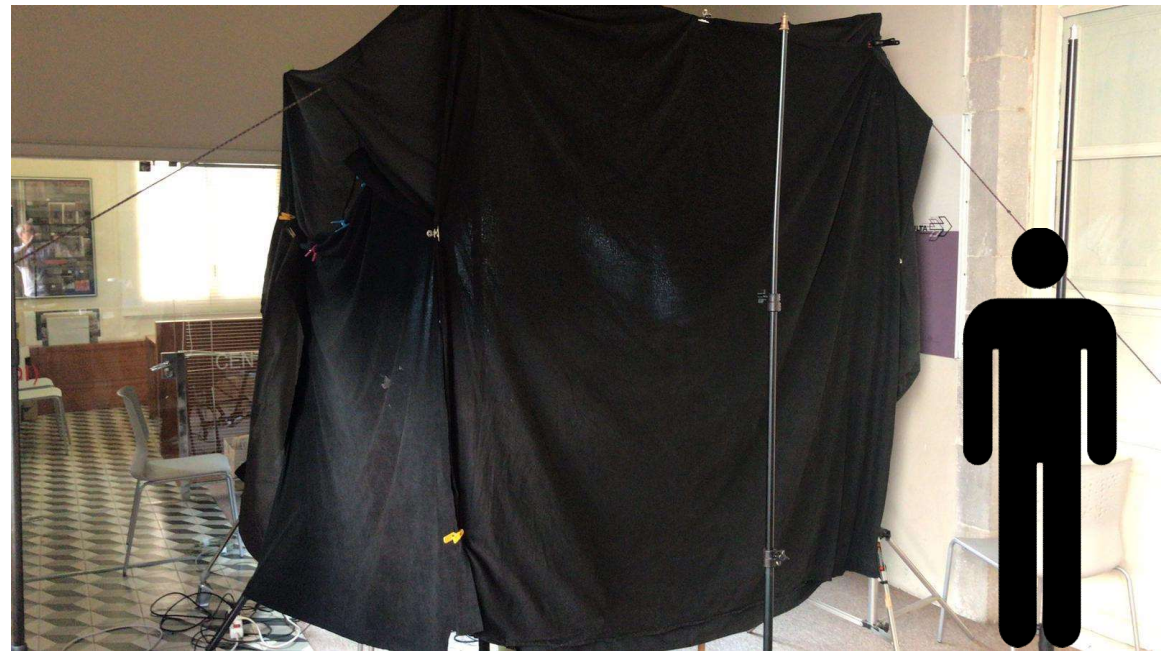
- Focus light and diffuse screen

Photo taking

- Three pro cameras at different heights

- 144+ photos per daguerreotype (24*6)

- Hyperfocal length to achieve high depth of field

- Same focal length for all cameras

- Adaptation (mounting base, orientation…) depending on the daguerreotype's requirements

Photo taking

Model 0044182

of the CRDI

daguerreotype

collection

3D Model Creation

- Software Agisoft Metashape

- Photo alignment and mesh generation for every position (upright and upside down)

- Mask building over the pictures to delete the background and the base

- Realignment of all pictures together, definitive mesh generation, manual masking and final texture building

- Mesh decimation (50K polygons) and export in obj. format
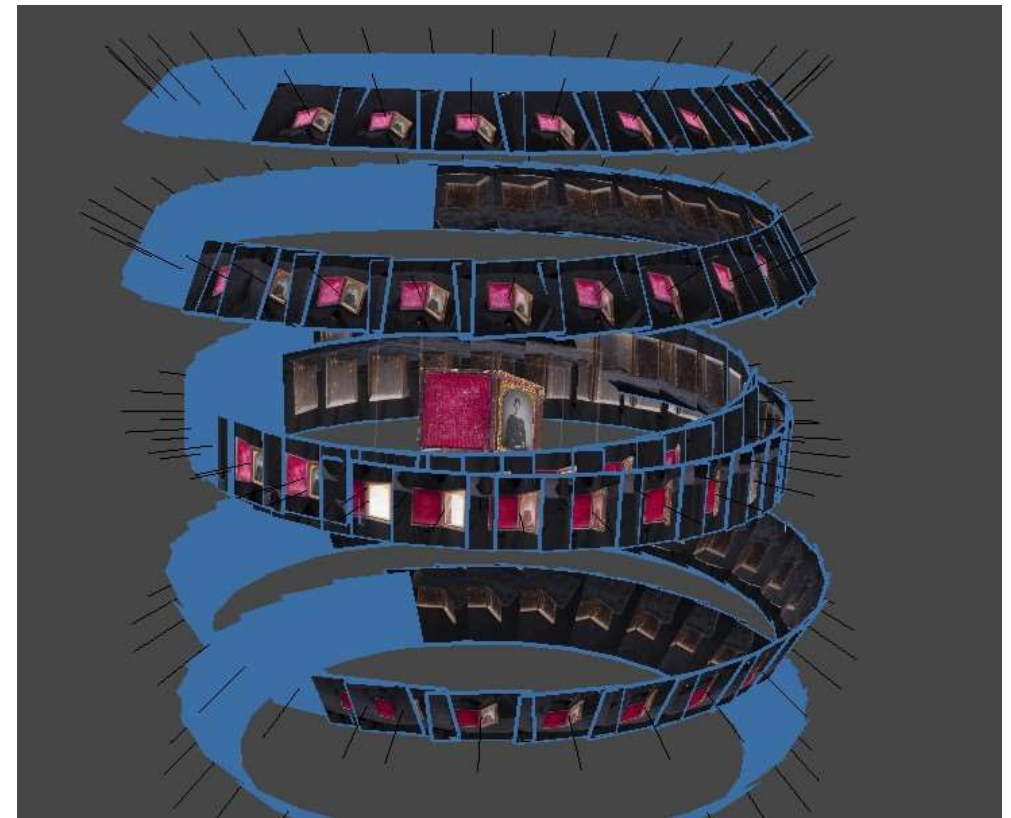
Strengths of photogrammetry

- High definition

- Precise measurements

- 8k textures

- Slightly visible real details can be seen zooming in

- Affordable equipment and software

- Different processing strategies can be used to improve the final result

Limits of photogrammetry

Results can't be seen until the end of the process

The object must have homogenic light

Bright, transparent or metallic objects create distortions. Have to be manually masked to mitigate

Can take a long time to render

Great complexity of postprocess to correct distortions (masking, mesh smoothing, hole closing…)
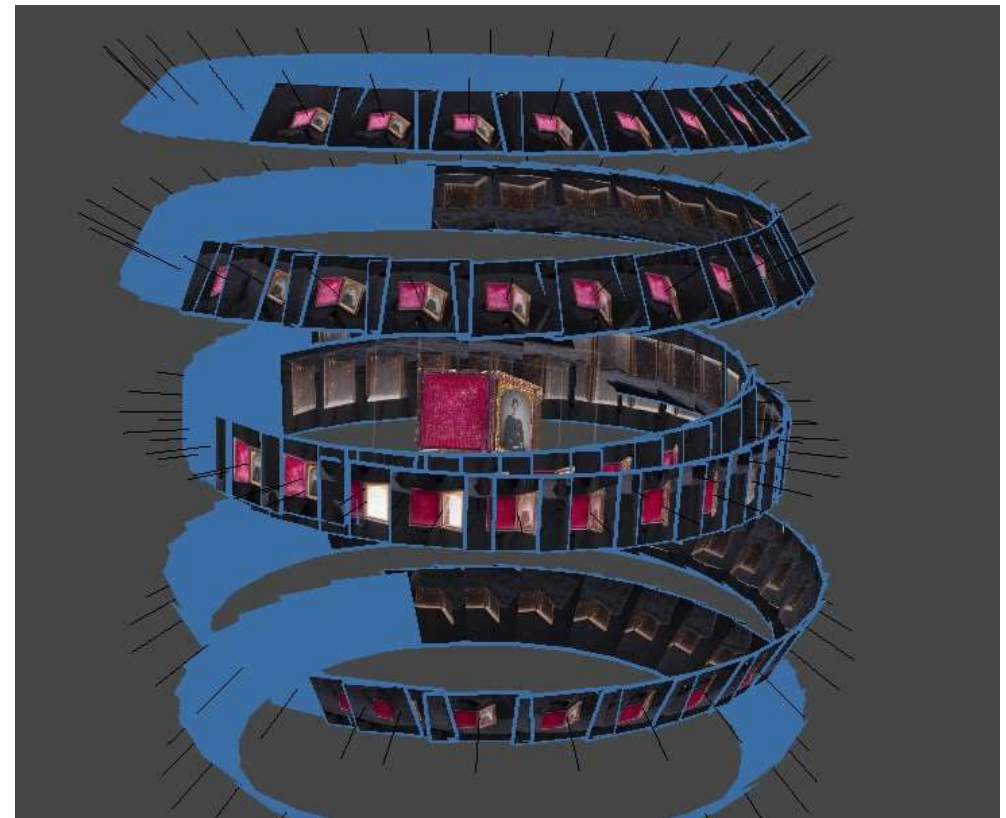
The 2D picture vs the 3D model

Model 0044182 of the CRDI daguerreotype collection

Thanks for your attention!

LA TEMPESTA

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