

Eureka3D-XR Demonstration Event

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Software Engineering Italia - Swing:It

Tool #3 AI 3D BUILDER
Tool #4 3D XR STUDIO

<https://youtu.be/rBh0Ln1DuZc>



Tool #3

AI 3D BUILDER

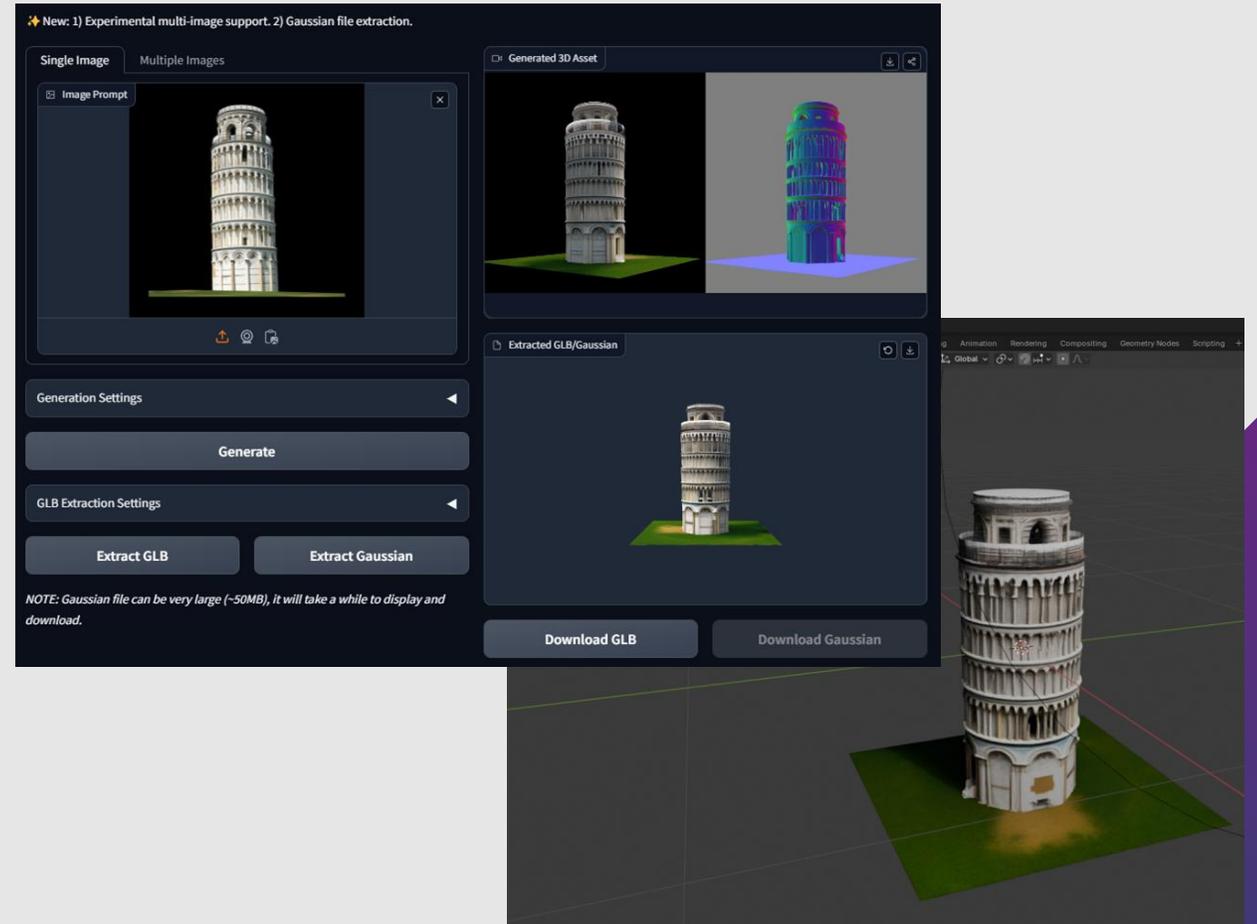
Development of an AI-powered software pipeline
generating 3D models of objects

TRELLIS 3D AI

Microsoft Trellis as IMG-to-3D conversion AI model

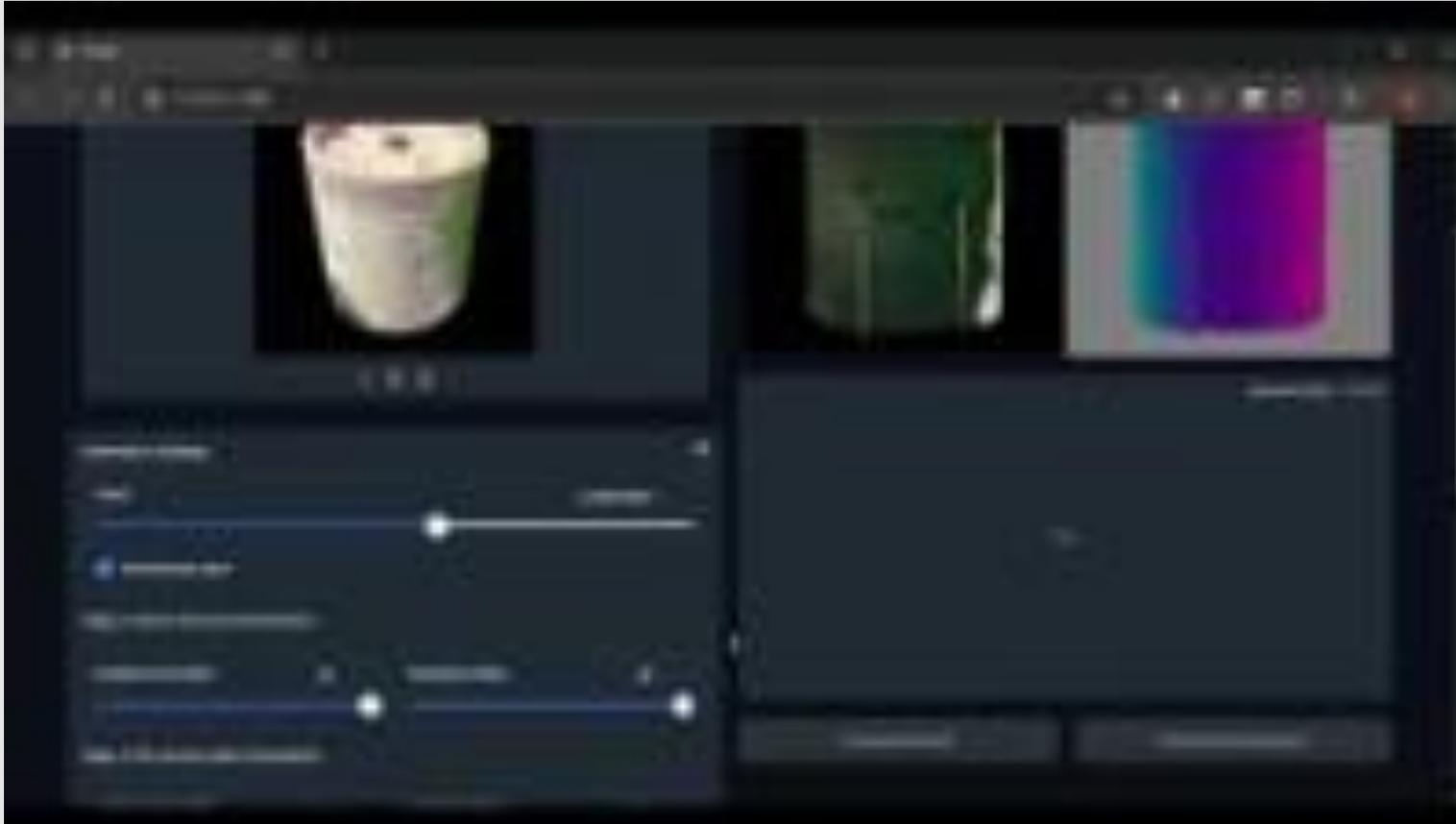
Reasons:

- Free commercial MIT license
- Local deployment by using the API
- Tests showed encouraging quality
- Upload of multiple images



<https://youtu.be/af0i0vnjcz4>

Pipeline demo - Girona walls



Tool #4

3D XR STUDIO

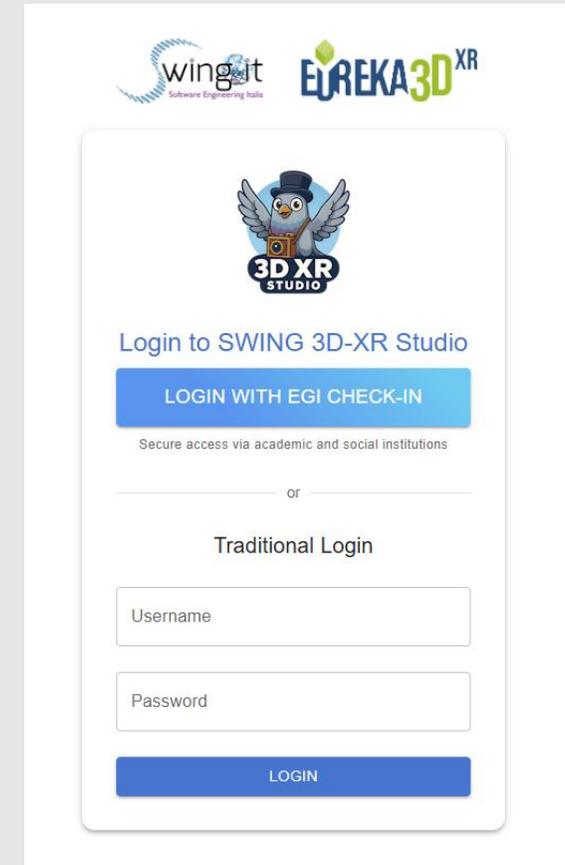
Creation of XR scenarios with 3D models, paths and interest points within a reference archaeological site.

3D XR Studio - Overview

- The Swing:It 3D XR Studio is a dual-component system comprising
 - a web component
 - a mobile component.
- Web Component
 - Allows users to define XR experience areas by inputting coordinates
 - Provides a 3D map to visualize existing structures.
 - Enables import of 3D models
 - Facilitates precise positioning of 3D models within the virtual environment by defining coordinates, orientation, and scale.
- Mobile Component
 - Used for on-site refinement of the virtual area and 3D model placement.
 - Allows users to view virtual objects in extended reality by positioning their mobile device at a known reference point.
 - Provides tools for precise selection, rotation, scaling, and repositioning of 3D models.

3D XR Studio – WebComponent

- Goal:
 - Creating and editing 3D environments directly from the browser.
- Key Functionality:
 - Select areas and place 3D models on the map.
 - Draw routes and Points of Interest (Pols).
 - Export objects and scene to the 3D Studio XR mobile component for an immersive experience.



The screenshot shows the login interface for SWING 3D-XR Studio. At the top, there are logos for wing.it and EUREKA3D XR. Below them is a cartoon penguin character wearing a hat and holding a camera, with the text '3D XR STUDIO' underneath. The main heading is 'Login to SWING 3D-XR Studio'. There is a prominent blue button labeled 'LOGIN WITH EGI CHECK-IN'. Below this button, it says 'Secure access via academic and social institutions'. A horizontal line with 'or' in the center separates this from the 'Traditional Login' section. The traditional login section includes two input fields: 'Username' and 'Password'. At the bottom of this section is a blue button labeled 'LOGIN'.

3D XR Studio – Frontend

- Intuitive and modern User Interface.
- Import and place 3D models on a map with just a few clicks.
- Define guided routes for tourists, instantly viewable on a map.
- Add Poles enriched with multimedia (audio, video, images, links) contents.



AR/XR app approach: Placement Without Anchors

This technique links 3D models positions on a real-world reference point established by the editor of the XR/AR experience.

It can also be possible to add special objects to manually create an occlusion effect.

Pros

- No dependency on external packages or APIs, completely free and customizable
- No need of environmental scans
- No need for constant Internet connection/GPS
- High accuracy in positioning
- Objects visible from long distances, no relying on recognition patterns

Cons

- The visitor must perfectly align the device with the initial position chosen by the editor

AR mobile component - Main features



Thank You!

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