Interacting with specific artifacts: the vault rib stones

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Institute of Science and Technologies of Information (ISTI)

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vcg.isti.cnr.it
The task

Interactive, web-based visualization of the stones from the fallen vault rib

Detailed visualization/inspection, possibly with measurement and annotation tools.
The stones were digitized using a custom photogrammetric rig

Eloi Gattet, Mercurio
Data source

MeshLab, our open-source tool for mesh editing and visualization, was used in the data processing.

The result is a set of almost 70 3D models.

Models are between 4 and 6 millions of triangles, with per-vertex color mapping, all with a coherent orientation.
To view them online

3DHOP is a framework for creating web-based 3D visualization, focused on cultural heritage

Open-source; JavaScript + HTML5 + WebGL; supported in all browsers and platforms.

Thanks to multiresolution it can work with high-res geometry 10->100+ millions of triangles.
No problem in showing the stones in full resolution (even more than one element at a time, should it be needed).
To view them online

3DHOP can be customized to create specialized interfaces

Easy to define a custom interaction scheme and add new functionalities
Navigation

- Simplified navigation (turntable: 2axis+zoom+pan)
- Two poses: flat (like the object is normally stored), upright (vertical pose, akin to original placement)
- Snap-to-faces interface
- Orientation/pose reference gizmo
Tools

- Realtime cut-through sectioning
- Point-to-point measurement
- Angle measurement
- Reference metric grids
- Screenshot tool
Rendering

- Perspective/orthographic camera
- Light direction
- Light on/off
- Transparency
- Color on/off
- Lambertian / Phong
Annotations

Users can enrich the viewer by annotating the stones

• notes about the whole object
• annotated “views” (viewpoints + rendering state) that act like bookmarks
• spot notes placed on the surface

Notes, Views, and Spots may be saved, loaded and shared among colleagues
Todo

• More complex annotations: points, polylines, areas
• Adding a dimensioning interface
• More advanced shading, to enhance readability of chisel marks

• Multi-element viewer?
Thanks for your attention