Cultural Heritage as a Vehicle for Basic Research in Computing Science:
Pasteurs Quadrant and a Use-inspired Basic Research Agenda
David Arnold (Brighton University)

Figure 3: The public entrance at Karnak.

Figure 4: Carved Wall apparently showing a "spreadsheet".

Figure 5: Part of an extended decorated wall.

Photorealistic Real-time Visualization of Cultural Heritage:
A Case Study of Friedrichsburg Castle in Germany
Timo Schairer, Robert Kuchar, Wolfgang Straßer (University of Tübingen)

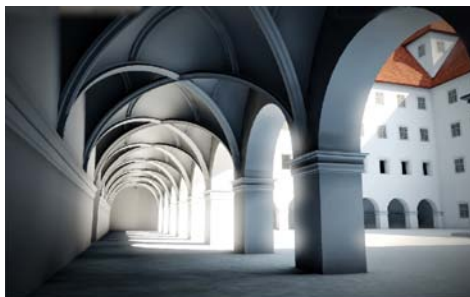**Figure 1**: Real-time rendering of the virtual reconstruction of the Friedrichsburg Castle.

Figure 8: Comparison and results of the presented techniques applied to our virtual reconstruction of the "Friedrichsburg".

An Interactive Exploration of the Virtual Stronghold Dillenburg

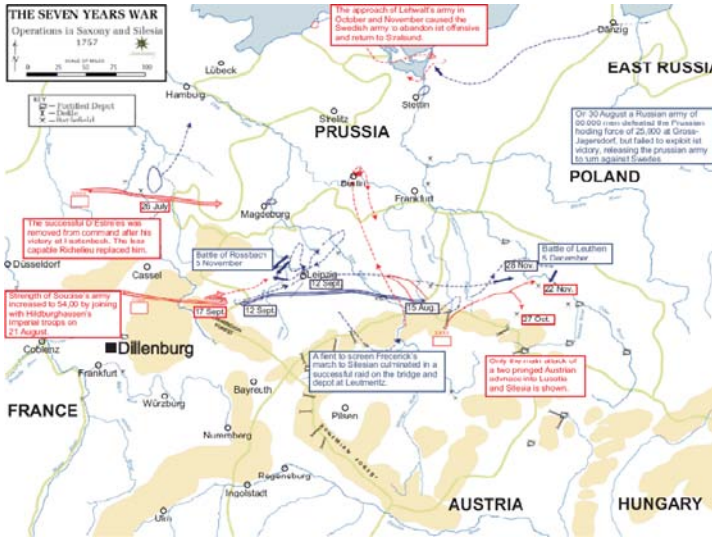Severin Todt, Christof Rezk-Salama, T. Horz, A. Pritzkau, A. Kolb (University of Siegen)

Figure 2: Seven YearsWar - Operations in Saxony and Silesia, 1757. Dillenburg is marked with a black square.

Figure 8: Interactive rendering of the scene as displayed on the touch screen. The GUI elements are used to control camera translation and rotation.

The Arnolfini Portrait in 3D - Creating Virtual World of a Painting with Inconsistent Perspective

Philip Jansen, Zsofia Ruttkay (University of Twente)

Figure 3a: The Arnolfini Portrait, as painted by Van Eyck.

Figure 3b: The virtual reconstruction of the painted interior.

Figure 3c: Projection of the painting's contours onto the virtual reconstruction.

Figure 4a: The original convex mirror in The Arnolfini Portrait.

Figure 4b: The convex mirror in the three-dimensional reconstruction.

Flatland: A Tool for Transforming Historical Sites into Archival Drawings

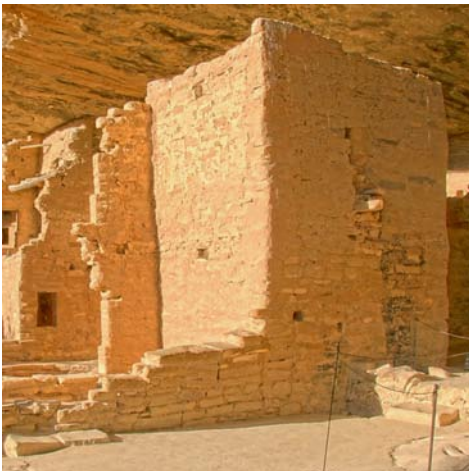Eric Sinzinger, Rattasak Srisinroongruang, Glenn Hill (Texas Tech University)

Figure 1a: Mesa Verde housing structure.

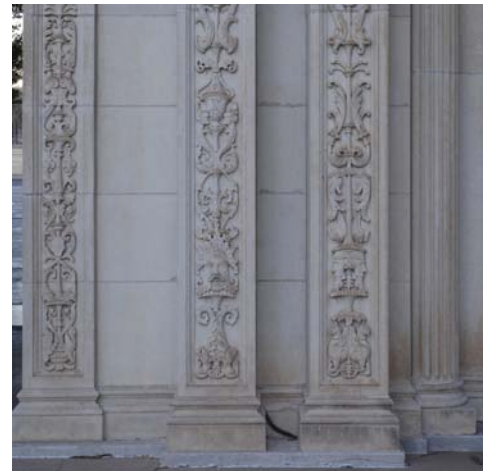

Figure 1b: Mesa Verde kiva.

Figure 1c: University building.

⟵ **Figure 3**: The result of texture mapping the adobe housing structure. Registration against the rocky, uneven surface of the building is done well. The floor region of the scan is not registered well against the photograph because of the lack of dominant correspondences to select from in the image.

Figure 6: The result of texture mapping the kiva scan with the photograph in Figure 1b. The mapping aligned well with the extruded pillar like structures on the kiva wall as well as the border between the kiva wall and the floor. ⟶
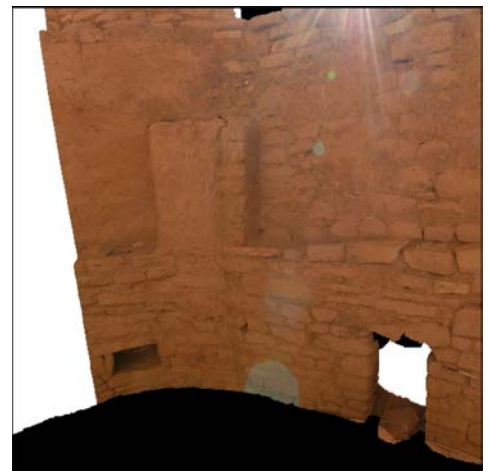
Mapping Highly Detailed Color Information on Extremely Dense 3D models: The Case of David's Restoration

Matteo Dellepiane[1], Marco Callieri[1], Federico Ponchio[2], Roberto Scopigno[1]
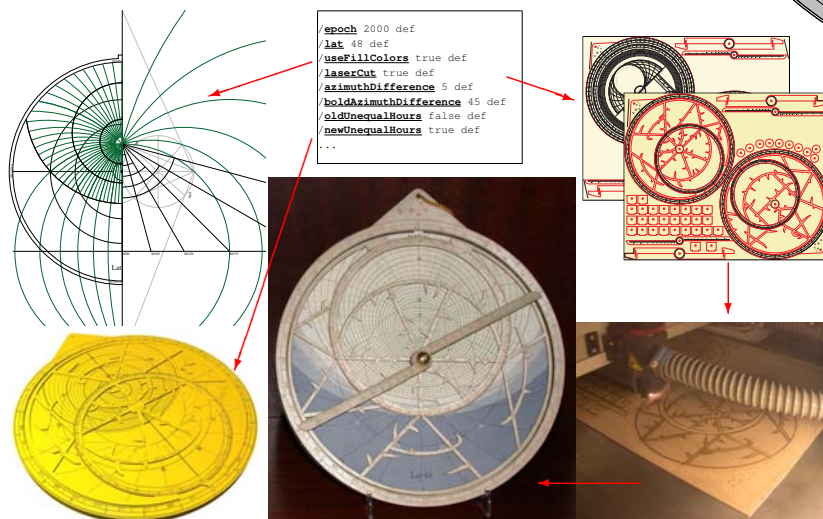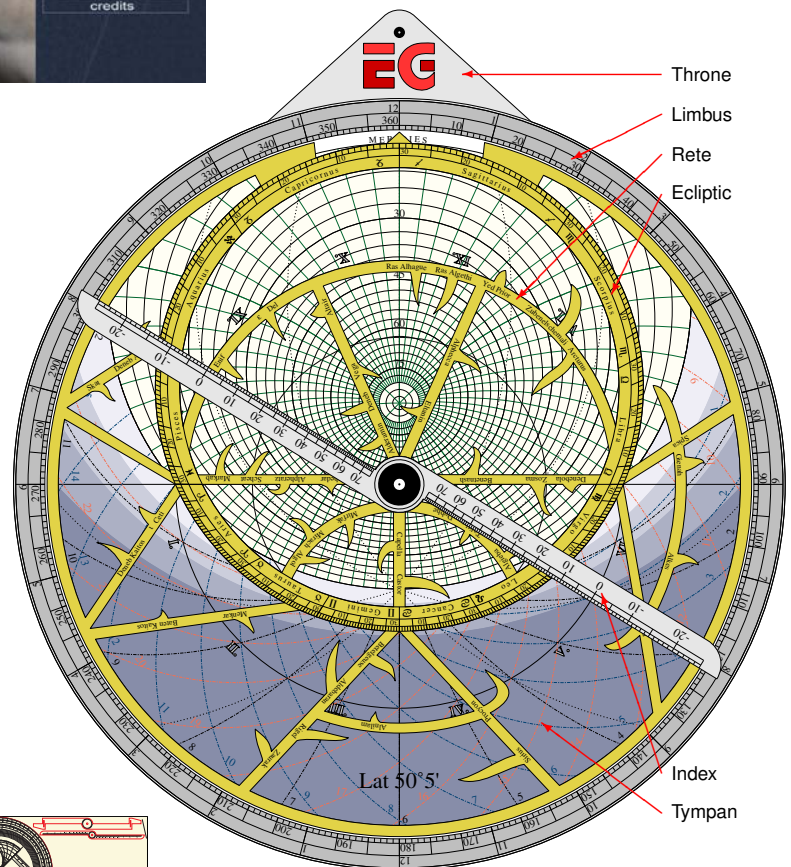([1]ISTI-CNR, [2]Clausthal University of Technology)

⟵ **Figure 9**: Screenshot of the Virtual Inspector visualization tool.

Tangible Heritage: Production of Astrolabes on a Laser Engraver

Georg Zotti
(Institute of Computer Graphics and Algorithms, TU Wien)

Figure 1: Front of a Planispheric Astrolabe, the medieval computing device for astronomers. The yellow fretwork is the star map, or *rete*, that rotates above the horizon plate. The rule (*index*) helps in reading time from the border. ⟶

Throne
Limbus
Rete
Ecliptic

Lat 50°5'

Index
Tympan

```
/epoch 2000 def
/lat 48 def
/useFillColors true def
/laserCut true def
/azimuthDifference 5 def
/boldAzimuthDifference 45 def
/oldUnequalHours false def
/newUnequalHours true def
...
```


⟵ **Figure 9**: The procedural astrolabe implementation can be used for a multitude of purposes, from technical illustrations to 3D models and even to control a laser engraver/cutter for the production of working instruments.