Vision for Digital Cultural Heritage

• Wouldn’t it be great if…

• Cultural heritage material and sites all over the planet had digital imaging records that were:
  – High quality – capturing all relevant information
  – Organized to be searchable and accessible to everyone everywhere
Need

The need for access to cultural heritage is acute and global in scope

– Cultural Heritage material, even from the same site or culture, is dispersed throughout the world
– Distance and cost create obstacles to scholarship
– Physical access is limited: material is in storerooms, institutional basements, etc.
Requirements

Effective online access to cultural heritage material requires a robust user experience

- Most current documentation and presentation methods are outdated, incomplete, and insufficient to provide useful online access to many categories of cultural material
- The digital representation must be able to communicate the material’s relevant information
- The representation must enable an intuitive user control of the examination process
Examples

• Panoramas
• Object Movies
• 3D Models
• Polynomial Texture Maps (PTMs)
• 3D Models With PTMs
Panoramas

Grotto of Saint Bernard
Early 11th century CE
Grand Saint Bernard Pass
Switzerland
Object Movies

Bronze Sculpture of Jupiter
Roman - Height 29 cm

Carnelian Engraving
Roman – Height 1.75 cm
3D Models

Silver Athenian Tetradrachma Coin
Greek – 444 BCE
Diameter – 2.2 cm
Polynomial Texture Maps (PTM)

Silver Denarius Coin
Roman 116-115 BCE
Diameter 2 cm

Danish Stone Axe
3500-2500 BCE
Length 14 CM
3D Models With PTMs

Cuneiform Tablet
Neo-Sumerian 2200 BCE
Length 5 cm
3D Models with PTMs

Experimental documentary method under development by CHI in collaboration with HP labs’ Tom Malzbender and Dan Gelb with the assistance of Marc Proesmans of Eyetronics NV
Evidential Reliability

Key to the value and acceptance of online cultural heritage records

- A researcher must know whether a feature on a digital record is on the original object and vice versa
- An explicit account of the 'evidentiary chain of custody' of empirical data employed in the creation of digital imagery is needed
- Evidential reliability will drive the selection of imaging processes towards the most accountable methods
‘Empirical Provenance’

When included with cultural heritage digital representations:

– Permits the qualitative evaluation of digital information
– Allows digital information accuracy to be tested through confirmatory replication
– Promotes collaborative, distributed scholarship
– Increases the acceptance of online information by educators and the public
What is Cultural Heritage Imaging?

• CHI provides documentation services, consulting, and training in digital documentation techniques to cultural heritage professionals, and others who record and preserve our collective past.

• CHI is a California based 501(c)(3) non-profit corporation.