New Approaches to Documenting Cultural Heritage
Experimentation and Collaboration at the Minneapolis Institute of Art
Dan Dennehy, Head of Visual Resources
Powerful 3D Viewer
Tools for enhancing models
Frequent platform development
World-wide user base
Free for Cultural Heritage
Can embed viewer in other platforms

SketchFab
https://sketchfab.com/artsmia

- Powerful 3D Viewer
- Tools for enhancing models
- Frequent platform development
- World-wide user base
- Free for Cultural Heritage
- Can embed viewer in other platforms
Photogrammetry

A method of obtaining a virtual 3D model of a physical object by measuring and interpreting photographic images and patterns of recorded light.

Why Photogrammetry?

- Photography tools and image workflows already in place
- Better color and surface appearance than other 3D scanning
- Data can be preserved and reprocessed as algorithms improve
- Methods and training available via Cultural Heritage Imaging.org

Photogrammetry Process Steps

Camera Positions

The various look angles are analyzed along with data from the camera’s optical system and light passing thru the lens.
Polygon Mesh
A dense point cloud is triangulated to form millions of surface facets describing the geometry of the object.

Solid Geometric Form
The mesh is filled to create a solid object in virtual 3D space.

Texture Map
Software maps RGB values from original photos and wraps a simulated texture onto the surface of the model.

Photograph

3D Model

Tetzlaff and Meyer
University of Minnesota

Using Flash Photography and Image-Based Rendering to Document Cultural Heritage Artifacts

IBRelight
Challenges Ahead in 3D Imaging

- Color Accuracy
- Reflectivity and Surface Appearance
- Verification of Geometric Data
- Standardized Viewers
- Interoperability across platform
- Digital Rights Management
- Long-Term Preservation

Computational

The Work of Art in the Age of Mechanical Reproduction

Walter Benjamin

Thank you!