Developing Library Strategy for 3D and Virtual Reality Collection Development and Reuse (LIB3DVR) Project

Nathan Hall, Ph.D.

Director, Digital Imaging & Preservation Services

Virginia Tech

Project Team

- Virginia Tech Team
  - Nathan Hall, PI, Director Digital Imaging & Preservation Services
  - Julie Griffin, Associate Dean, Research & Informatics
  - Zhiwu Xie, Chief Strategy Officer
  - Andi Ogier, Director of Data Services
- University of Oklahoma Team
  - Matt Cook, Co-PI, Head of Emerging Technologies
  - Zack Lischer-Katz, CLIR Post-Doc Fellow
  - Tara Carlisle, Head of Digital Scholarship Lab
- Indiana University Team
  - Juliet Hardesty, Co-PI Metadata Analyst
  - Robert McDonald, Dean of Libraries, CU Boulder (formerly AD, IU)
  - Jenny Johnson, Dead of Digitization Services, IU-PUI
  - Jamie Wittenberg, Head of Scholarly Communication

Advisory Board

- Carl Grant, University of Oklahoma Libraries
- Patricia Hswe, Mellon Foundation
- Jason Jerald, NextGen Interactions, LLC
- Fred Limp, University of Arkansas Dept of Geosciences
- Clifford Lynch, Coalition for Networked Information
- Jerome McDonough, iSchool, University of Illinois
- Jennifer Moore, Washington University at St. Louis
- Bryan Carter, University of Arizona
- Diane Zorich, Smithsonian Digitization Program
- Margaret Dolinsky, Indiana University

Washington DC*
(Arlington – the White Plains of DC)
3D/VR Content Creation and Publishing

DC Attendees

- Vince Rossi, 3D Imaging Program, Smithsonian Institution
- Jon Blundell, 3D Imaging Program, Smithsonian Institution
- Thomas Rieger, Digitization Services Section, Library of Congress
- Stuart Snydman, Stanford University Libraries
- Chad Hutchens, University of Wyoming Libraries
- Jackson Cothren, Center for Advanced Spatial Technology, University of Arkansas
- Kristy Golubiewski-Davis, UC Santa Cruz University Library
- Jamie Wittenberg, Indiana University Libraries
- Doug Boyer, Evolutionary Anthropology, Duke University
- Edward Triplet, Art, Art History & Visual Studies, Duke University
- Angel Nieves, Africana Studies, Hamilton College
- Adam Summers, Comparative Biomechanics, University of Washington
- Jeffrey Spies, Center for Open Science
- Rami Madbouly, Arc/k Project
- Scott Purdy, Arc/k Project
- Carla Schroer, Cultural Heritage Imaging
- Doug Gann, Archaeology Southwest
- Jarrod Schmidt, Creaform
- Jennifer Moore, Washington University in St. Louis University Libraries
- JD Schaumberg, Online Resources Inc.
- Liz Sundermann-Zinger, Virtual and Media Services, Baltimore County Public Library
- Nicholas Polys, Virginia Tech Advanced Research Computing

DC Forum Categories

- 3D scanning and modeling
- Storage, access, and management
- Integration of 3D data into existing research and scholarly communication services
- Metadata requirements

University of Oklahoma – Norman Tom Love Innovation Hub*

(aka iHub, aka LoveHub)
3D/VR Visualization and Analysis

Oklahoma Attendees

- Anthony Sanchez, Librarian, University of Arizona
- Justin Gatenburg, Head of Engineering, Virtualitics
- Peter Schreiner, Libraries Fellow, North Carolina State University
- Erin Washington, Curriculum Designer, Embodied Labs
- Bill Sherman, Professor of Informatics, Indiana University
- Meredith Thompson, Research Scientist, MIT
- Scott Warren, Professor, College of Information, University of North Texas
- Keita Funakawa, COO, Nanome
- Jennifer Moore, Washington University – St. Louis
- Derek Miller, 3D Project Coordinator. IUPUI
- Kimberly Eke, University of Pennsylvania
- James Hopfenblatt, VR Lab Manager, U of Missouri
- Bimal Balakrishnan, Associate Professor of Architecture, University of Missouri
- Jasmine Clark, Librarian, Temple University
- Dave Frederick, Director, Tesseract, University of Arkansas

Oklahoma Forum Categories

- 3D/VR tools
- Using VR to Support Other Library Services
- Human-centered issues of 3D/VR technology use
- Modifying/Repurposing 3D Models

Chicago, IL*
(Rosemont – The Reston of Chicago)
3D/VR Repository Practice and Standards

Chicago Attendees

- John Bates, Chicago Field Museum
- JP Brown, Chicago Field Museum
- Margaret Dolinsky, Indiana University
- Heather J. H. Edgar, University of New Mexico
- Darrell Hurt, NIH 3D Print Exchange
- Jamie Kelly, Chicago Field Museum
- Meghan McCarthy, NIH 3D Print Exchange
- Jaime Mears, National Digital Initiatives, Library of Congress
- Jennifer Moore, Washington University - St. Louis
- April Isch Neander, University of Chicago
- Mark Phillips, University of North Texas
- Helen Robbins, Chicago Field Museum
- Stefan Serbicki, Electronic Arts
- Kate Webbink, Chicago Field Museum
- David Wilcox, Duraspace

Chicago Categories

- National Repository and Preservation Efforts
- 3D/VR repository policies and practices
- Implications for different levels of library support
- Implications for existing digital preservation models and practices

Nominal Group Technique
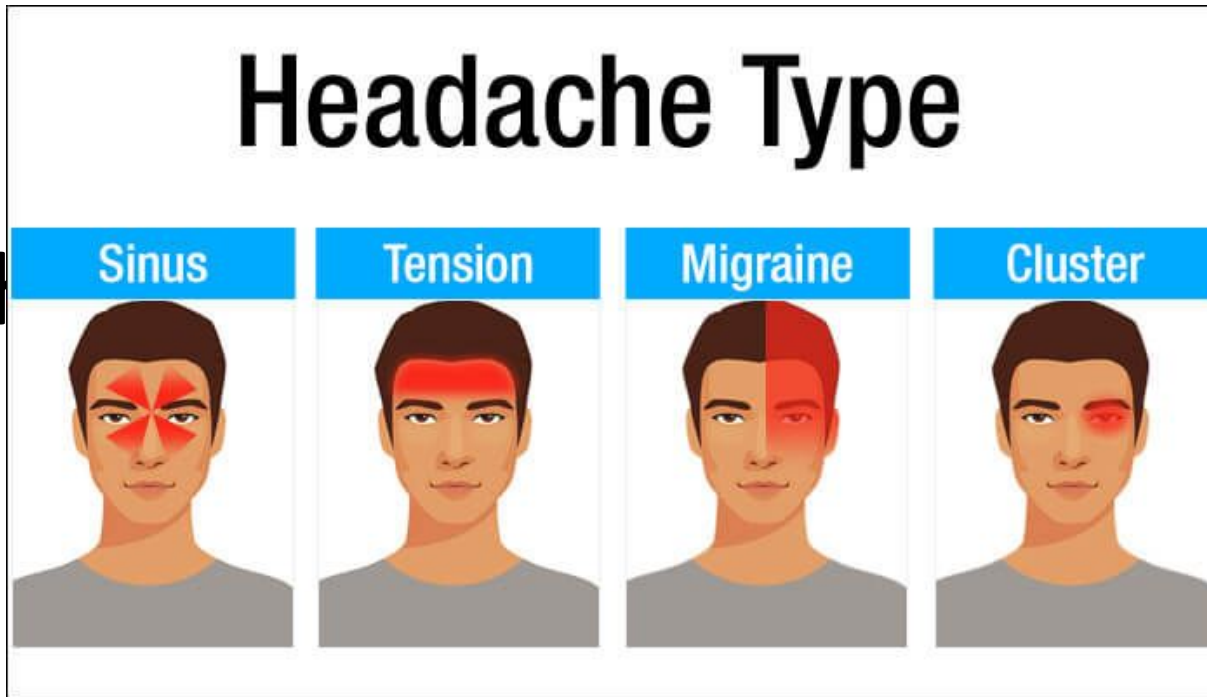
3D Modeling for Reuse

ACCURACY

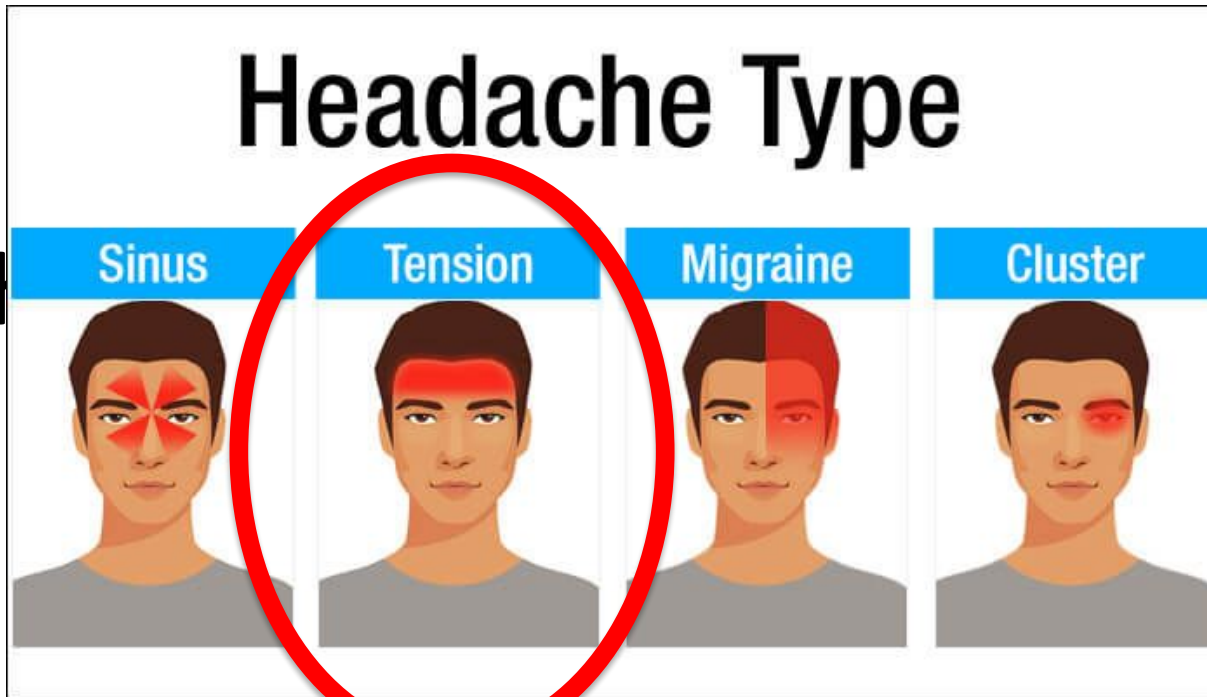Aesthetics   Preservation

ACCURACY

Aesth   rvation
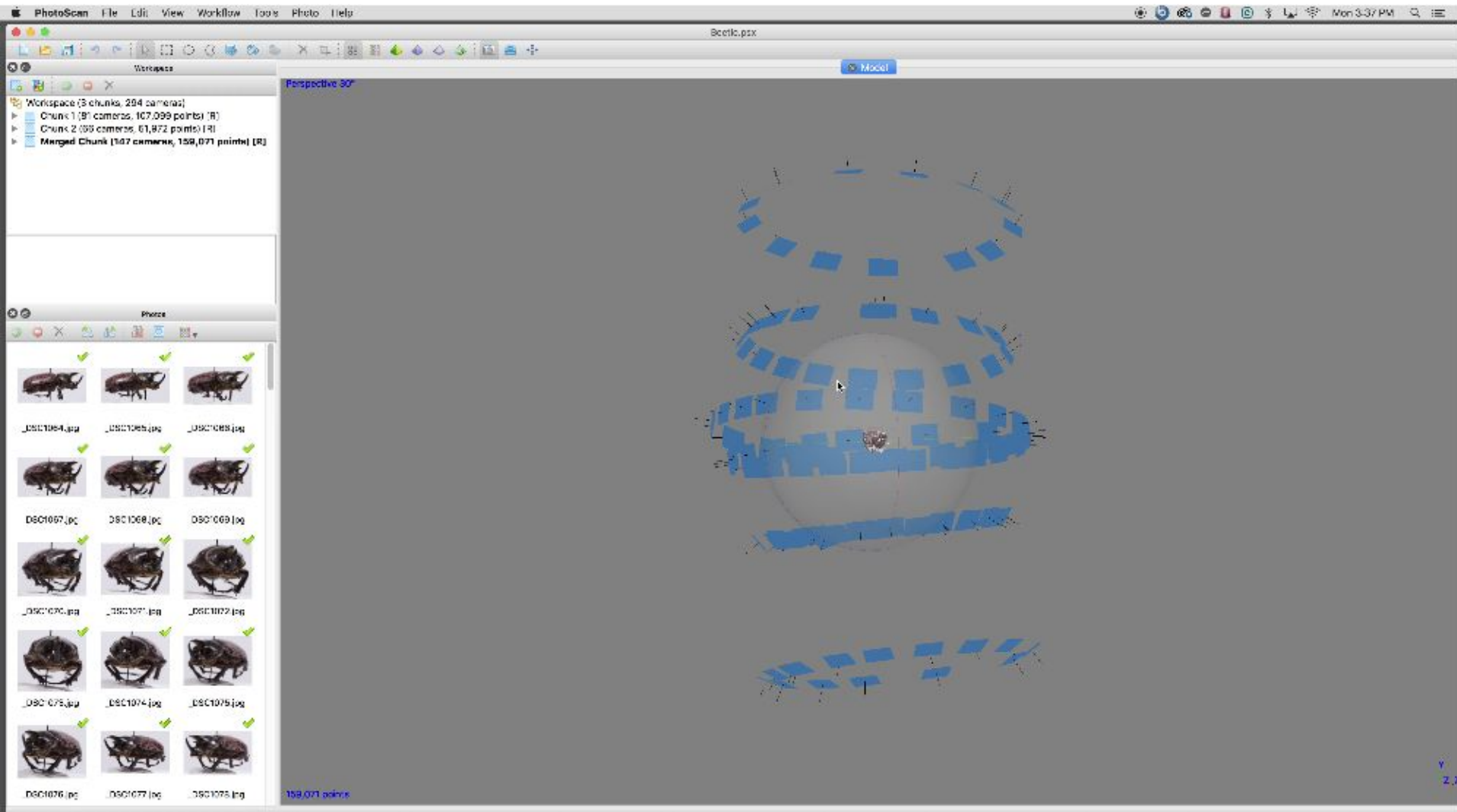
ACCURACY

Aesthetic observation

Aligning 3D Program with needs of user groups…

AND
IT Management /Fiduciary Responsibility

Processing and Storage

Vivianite sample – not uniformly in focus

Archival Considerations

Which parts to retain?

How much to retain?

…in order to rebuild and
verify the accuracy
of 3D models.

FOR SCIENCE!

Transparency for research integrity and reproducibility

Integration into Research and Scholarly Environment

- Photogrammetry seems to offer better transparency than scanning
- More expensive in labor (can't do as many)

Technical Metadata

- Internet Media (MIME) Type – "Model" for X3D

- DCMITYPE vocabulary - "Image" and "Interactive Resource"

- W3C – temporal media fragments (for AV)

Rights
Digital Colonization
Digital Repatriation

Buddhas of Bamiyan

Google Maps

Buddhas of Bamiyan

Buddhas of Bamiyan

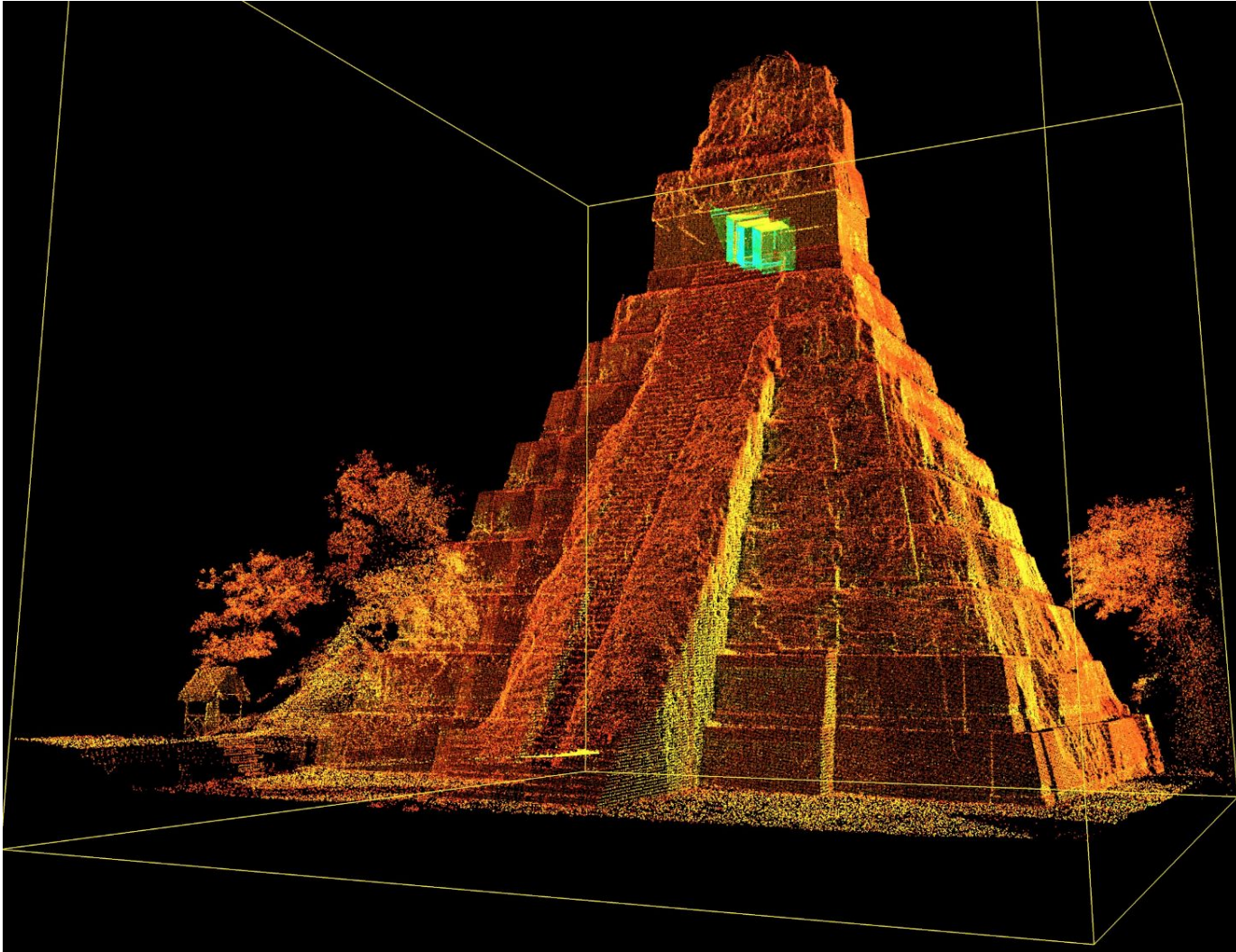https://www.youtube.com/watch?v=Jl4ozg4iEEw

Palmyra, Syria

Palmyra, Syria

Microsoft Labs PhotoSynth Demo, 2006

Google Arts and Culture:
Ananda Ok Kyaung Temple in Bagan, Myanmar

Who Owns It?

Digital Colonialism

"Quasi-imperial power over a vast number of people, without their explicit consent, manifested in rules, designs, languages, cultures and belief systems by a vastly dominant power."

Renata Avila

Senior Digital Rights Advisor

WWW Foundation

Digital repatriation is the return of items of cultural heritage in a digital format to the communities from which they originated.

Next Steps

- Continuing to synthesize findings
- Expanding network to include more partners
  - Interest parties may contact me
- Identifying future problems to address.

Summary

Tensions between

    Managing cost

    Aesthetic and pedagogical utility

    Archival considerations

    Representation

    Rights (for whom?)

Acknowledgments

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