

# CLIOH

cultural digital library indexing our heritage



## Mission

Develop a multimedia digital library of the world's most threatened cultural treasures.

Facilitate global accessibility of the CLIOH database

Establish a digital librarian-training program using CLIOH as a conduit.



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## Overview



- State of the art technology capturing threatened treasures
- Cutting edge indexing video Segmentation
- Global internet access digital archive
- Original data limitless possibilities

Application-- Education--Library & Museum



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**UNESCO  
WORLD  
HERITAGE  
SITES**

ANGKOR WAT, CAMBODIA  
CHAN CHANG PERU  
TIMBUTKU, MALI  
ABOMEY, BENIN  
BUTRINT, ALBANIA  
JERUSALEM  
ZABID, YEMEM  
BAHLA, OMAN  
SHALIMAR, PAKISTAN  
HAMPI. INDA



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- Chichen Itza
- Uxmal
- Angel mounds

Work in Progress



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## Data Capture

Haptic technology  
3-D scanning  
Digital video  
Voice over  
Digital photography  
GPS



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INTERNET<sup>2</sup>

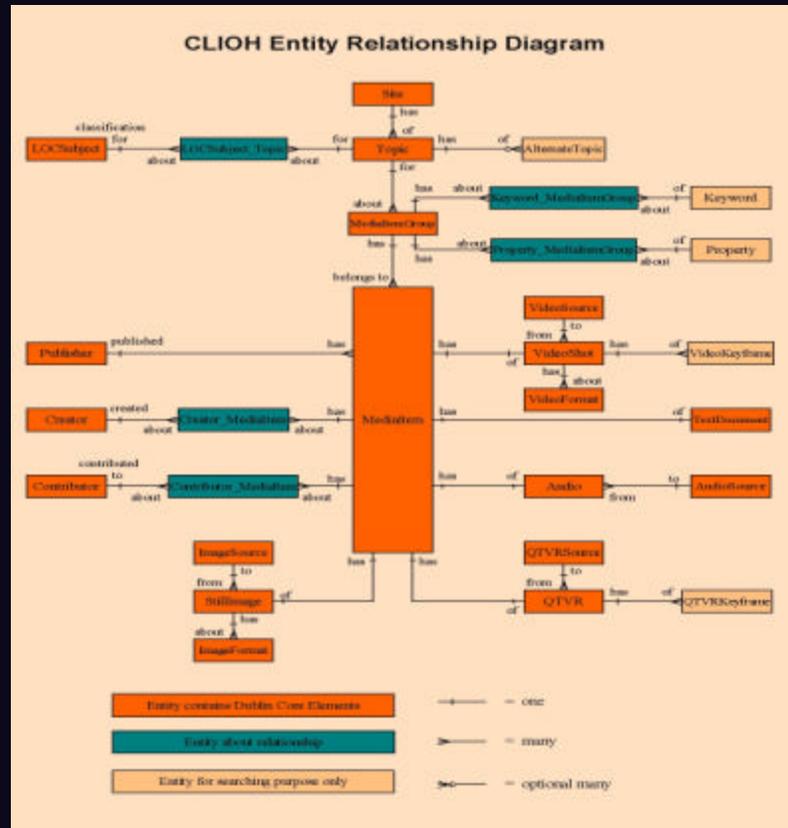
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## Database

- Audio
- Video
- Still images
- Text materials



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## Technological Innovations

- ✍ Automatic, content-based video segmentation
- ✍ Route panorama
- ✍ 3D images with Haptic feedback
- ✍ Audio/video streaming media to support both low & high bandwidth users
- ✍ Content-based video searches



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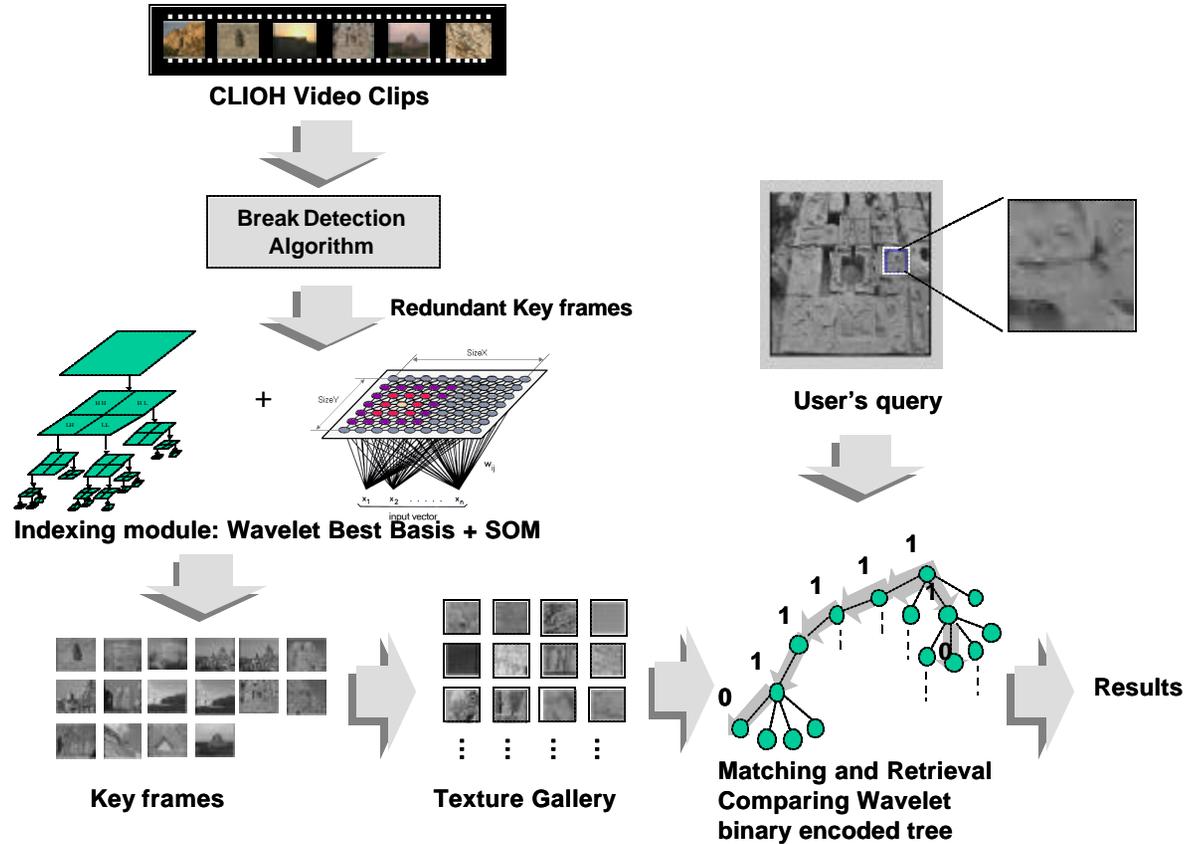


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Automatic  
Video  
Indexing



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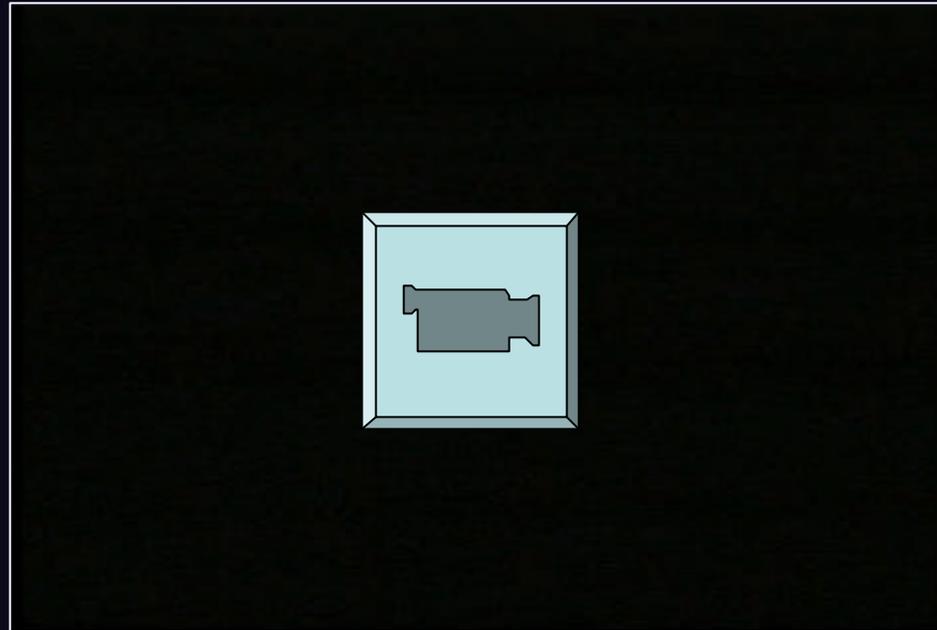


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Sample  
Video  
Uxmal



Key Frames



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Indexed  
Key frames

## Sample Key Frames



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Produces a continuous view of route with significant data reduction from video sequence. Dynamic projection images along routes are combined with panoramic view to give a virtual tour of areas.

## Generalized Panoramic Route View



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## Route Panorama



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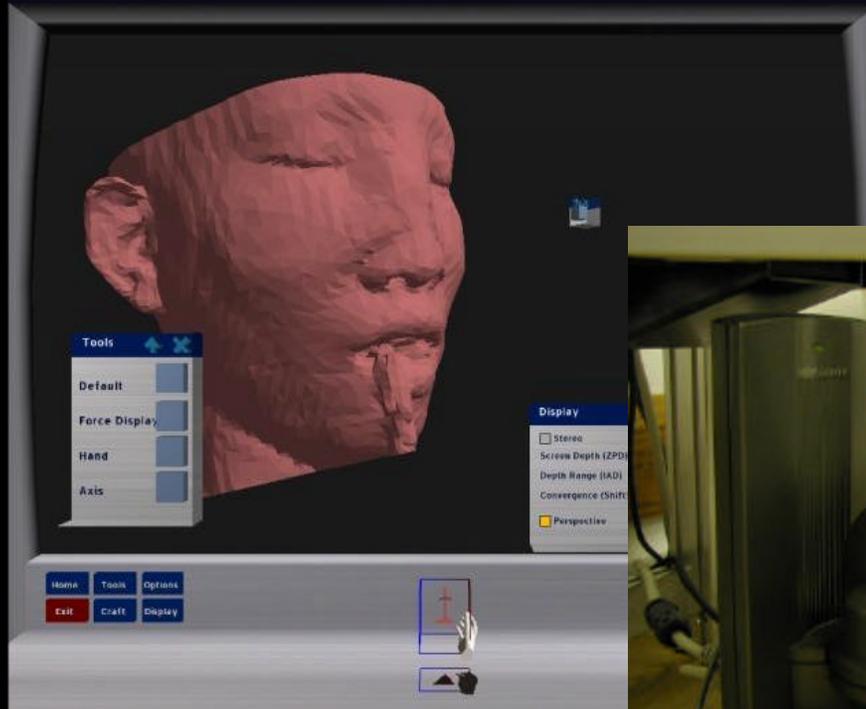


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Haptic  
Feedback  
Interface



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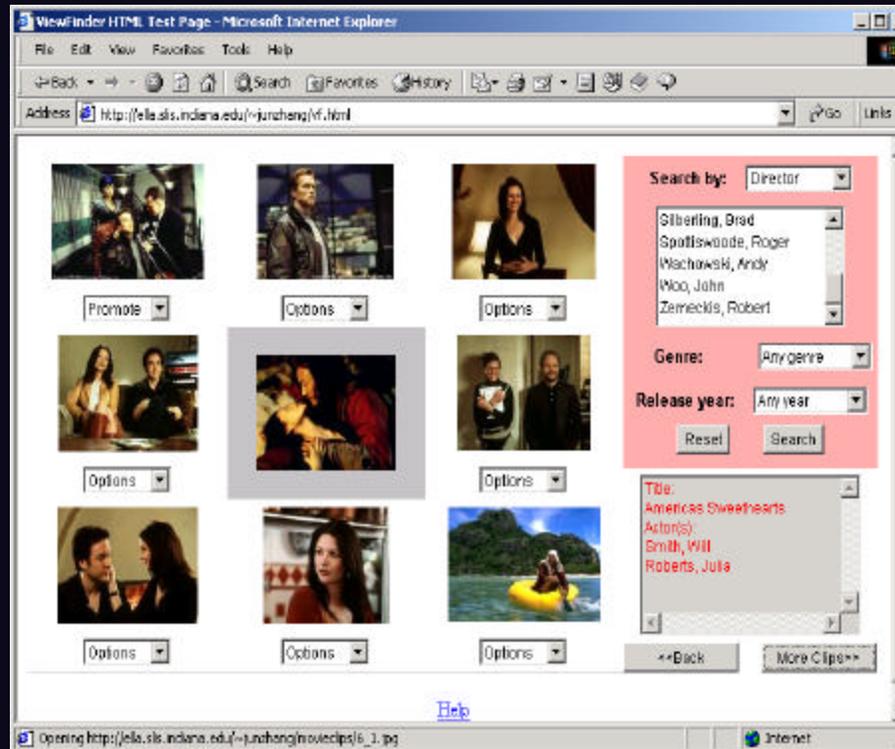


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## Content-Based Video Searches



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## Standards



Dublin Core Metadata Initiative

*Making it easier to find information.*

**CLIOH data adheres to Dublin Core Metadata standards.**

**The Dublin Core Metadata Initiative is an open forum engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models.**



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## Dissemination Overview



CLIOH  
Collection

- Applications
- Education
- Library
- Museum



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## Dissemination Applications



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**Dissemination**

Applications

Graphical

recreations



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**Dissemination**  
**Education**

Digital library program

Washington Township  
public schools

IRI academy



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**Dissemination**

**Virtual Gallery**

**Internet 2**

**ISM**

**Mathers Museum**



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## Dissemination

Educating  
Digital  
Librarian (EDL)

- An inner layer focusing on Multimedia data capture, storage, and delivery; metadata, indexing, and database design; information architecture and user interface design; networking, communication protocols, and interoperability.
- A theoretical layer dealing with user needs and behaviors, human-computer interaction, information retrieval, knowledge organization, and documentation.
- An outer layer dealing with issues such as scholarly communication, costs and budgeting, copyright and intellectual property, roles and responsibilities of digital librarians, and management of DLs.



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**Dissemination**  
Museums



**Indiana State Museum  
and Historic Sites**

**MATHERS MUSEUM** *of World Cultures*



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## Evaluation

The framework for evaluating CLIOH involves:

- (1) how the resources are allocated and
- (2) how the output activities and services are of benefit to the audience served.
- (3) provides feedback on program quality through measurable outcomes. Measurement will be in terms of: *Inputs, Activities and Services and Outputs.*



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## CLIOH Team

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Computer Science • Department of Anthropology  
School of Library and Information Science  
IUPUI Museum Studies  
School of Music • Herron School of Art  
School of Journalism • Department of English  
Indiana State Museum • Mathers Museum  
University Libraries  
Washington Township Public Schools

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**CLIOH Demo:** <http://clioh.informatics.iupui.edu/>



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