PHAROS: The International Consortium of Photo Archives

8th International Conference of Art Libraries
October 4, 2018

Dr. Louisa Wood Ruby
Head of Research
The Frick Art Reference Library
PHAROS: An International Consortium of Photo Archives, 2013
Benefits of Forming PHAROS

• Advance the founding missions of the participating Institutions
• Establish an historic record
• Enable the discoverability of dispersed visual materials,
• Broaden the user base of photo archives as a whole
• Re-purpose the data for new research applications
• Make significant components of the corpus of western art openly accessible
Institutions

Bibliotheca Hertziana Max-Planck-Institut für Kunstgeschichte
Courtauld Institute of Art
Deutsches Dokumentationszentrum für Kunstgeschichte – Bildarchiv Foto Marburg
Frick Art Reference Library
Getty Research Institute
Institut National d’Histoire de l’Art
Kunsthistorisches Institut in Florenz
National Gallery of Art
Paul Mellon Centre for Studies in British Art
RKD – Netherlands Institute for Art History
Villa I Tatti – The Harvard University Center for Italian Renaissance Studies
Warburg Institute
Vale Center for British Art
International Image Interoperability Framework™

Enabling Richer Access to the World’s Images

Learn how to get started

Draft IIIF v3.0 Specifications Released

Community Focused
The IIIF is driven by a community of research, national and state libraries, museums, companies and image repositories committed to providing access to high quality image resources.

Defined APIs
The IIIF is anchored by well defined Application Programming Interfaces developed and vetted by an open and rigorous community process.

Plug ‘n’ Play Software
The IIIF community encourages and supports the development of compatible image serving and viewing software that is easy to install and provides a dazzling user experience.
CIDOC Conceptual Reference Model (CRM)

• Ontology or knowledge representation structure for cultural heritage (CH) information. Describes implicit and explicit concepts & relationships in CH documentation.
• Developed by International Committee for Documentation of the International Council of Museums; accepted as ISO standard in 2006
• “Semantic glue” to mediate between CH data sets
• Flexible and extensible framework that harmonizes data to support micro and macro research activities
Resource Description Framework (RDF)

- A graph-based model used to publish linked data, aims to be the *lingua franca* data format of the Web
- Describes resources as a series of triple statements: Subject – Predicate – Object

<table>
<thead>
<tr>
<th>Subject</th>
<th>Predicate</th>
<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andromeda Chained to the Rocks</td>
<td>Created/modified by</td>
<td>Rembrandt</td>
</tr>
<tr>
<td>A Lion Asleep</td>
<td>Influenced by</td>
<td>Rembrandt</td>
</tr>
<tr>
<td>Rosetta Stone</td>
<td>Consists of a material</td>
<td>granodiorite</td>
</tr>
<tr>
<td>Rosetta Stone</td>
<td>Has a name</td>
<td>stela</td>
</tr>
</tbody>
</table>
ResearchSpace is a collaborative Semantic Web environment designed to use and help build knowledge about the world and its history. It is not technology led and its design assumes a new way of thinking about history and cultural heritage which resolve issues and conflicts that exist between qualitative and quantitative research. The mindset that sits behind ResearchSpace is embedded in the design but its potential relies on the approach of human researchers and the application of human knowledge systems.
ResearchSpace

• Funded by the Andrew W. Mellon Foundation since 2010; Renewed commitment by Mellon in 2017.

• Uses the CIDOC CRM and RDF as linked data infrastructure to develop a research environment that harmonizes data and retains local meanings.

• Open and extensible platform; a suite of emerging tools for scholars, including project dashboards and annotation tools
metaphactory
Your End-to-end Knowledge Graph Platform
metaphactory is an end-to-end knowledge graph platform for knowledge graph management, rapid application development, and end-user oriented interaction.

METAPHACTORY

metaphactory supports knowledge graph management, rapid application development, and end-user oriented interaction. metaphactory unifies all of your enterprise, cloud, or managed graph database and offers scalability and flexibility to support the entire lifecycle of a knowledge graph. metaphactory integrates with industry-leading graph databases, such as Neo4j, Amazon Neptune, and Apache Tinkerpop, and provides a rich set of tools for application development and end-user interaction.

KEY ADVANTAGES OF METAPHACTORY

KNOWLEDGE GRAPH MANAGEMENT

- Provides a powerful and intuitive tool for managing knowledge graphs
- Integrates with popular graph databases such as Neo4j, Amazon Neptune, and Apache Tinkerpop
- Supports real-time data processing and updates
- Facilitates efficient query and graph analytics
- Enhances collaboration and knowledge sharing across teams

RAPID APPLICATION DEVELOPMENT

- Enables rapid development of knowledge graph applications
- Provides built-in support for popular programming languages and frameworks
- Supports integration with various data sources and APIs
- Facilitates the deployment of applications in cloud environments
- Enhances scalability and performance of applications

END-USER ORIENTED INTERACTION

- Supports intuitive and interactive knowledge graph interfaces
- Enables users to explore and query knowledge graphs
- Provides real-time data visualization and interaction
- Enhances collaboration and knowledge sharing across teams
- Facilitates the creation of custom user interfaces

Try metaphactory
Metaphacts

• Uses the CIDOC CRM and RDF as linked data infrastructure to develop a research environment that harmonizes data and retains local meanings

• Open and extensible platform

• Forms the basis of ResearchSpace

• Working successfully with Oxford on their CLAROS project, which is quite similar in intent to PHAROS
Built on the art of ancient Greece and Rome, CLAROS is an international research collaboration, using the latest Information and Communication Technologies to enable simultaneous searching of major collections in university research institutes and museums.

EXPLORE

IMAGE SEARCHING

PARTICIPATE

OPEN DATA

Podcast of CLAROS launch event, May 2011, Wolfson College, Oxford

Podcast from Humanities Research Showcase at Oxford (2011/11/07): Humanities in Partnership with the Science: The World of Art on the Web

Hosted by the University of Oxford's e-research centre, OeRC
What is Arches?

Arches is an open source software platform freely available for cultural heritage organizations to independently deploy to help manage their cultural heritage data.
• A free web-based platform designed by the Getty Conservation Institute and the World Monuments Fund
• Designed for the international cultural heritage community
• Incorporates internationally adopted standards for heritage inventory, semantic modeling and information technology
• Allows for adapters to share resources.
• Extendable modules
• Can support interfaces with multiple languages
Linked Art Data Model

The desired target model for Linked Open Data in the Art domain is one with the following properties:

- Captures as much of the information that we know about the resources as possible
- Can be productively used via easy to implement services
- Provides interoperability with other related data sets
- Solves actual challenges, which are documented as use cases

Successful models are developed:

- Iteratively (we will not get it right the first time)
- Responsively (we will change the model in response to feedback and concerns)
- Responsibly (we will consider changes and features carefully with respect to complexity and value)
- Collaboratively (we will engage with the community, projects and individuals early and often)

Model Fundamentals

Following the existing norms of the community, our starting point consists of:

- CIDOC CRM as the core ontology, giving an event-based paradigm
  - We use a streamlined profile of CIDOC-CRM to ensure consistency and comprehensiveness.
- The Getty Vocabularies as core sources of identity
  - Please see the vocabularies best practice discussion.
- JSON-LD as the primary target serialization
  - We use a specific context designed to be as easy to implement as possible.

These are then expanded from if necessary in order to fulfill shared use cases and common requirements.

Model Components
<table>
<thead>
<tr>
<th>Field Description</th>
<th>YCBA metadata</th>
<th>YCBA data samples</th>
<th>GETTY metadata</th>
<th>GETTY data samples</th>
<th>Zeri metadata</th>
<th>Zeri data samples</th>
<th>Taliti samples</th>
<th>KII metadata</th>
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</tbody>
</table>
John Resig, Creator of JQuery; Front End Architect, Kahn Academy
Japanese Woodblock Print Search

Ukiyo-e Search provides an incredible resource: the ability to both search for Japanese woodblock prints by simply taking a picture of an existing print AND the ability to see similar prints across multiple collections of prints. Below is an example print, click to see it in action.

Search 223,128 prints:

Search

Search by Image:
Upload a picture of a print to find similar prints across multiple collections.

Upload an Image  Paste image URL

Better data, hundreds of thousands of additional images, and better search capabilities are forthcoming. Sign-up to be notified when additional features are ready.

Subscribe for Updates

Email Address  Subscribe

Early Ukiyo-e (Early-Mid 1700s)

[Images of early ukiyo-e prints]

https://ukiyo-e.org
Artist: Ichirakutei Eisui
Title: Tsukasa of the Ōgiya, kamuro Akeba and Kochō, from the series Beauties for the Five Festivals (Bijin gosōkku)
Date: 1795-97
Details: More Information...
Source: Museum of Fine Arts
Browse all 37,142 prints...

Similar Prints

Related Books

Editor's Pick: The Hotel Encyclopedia of Japanese Woodblock Prints
Alternate Images

Color vs. Black-and-White
Conservation

Repairs and possibly removal of later additions.
Conservation

Analysis even spots dramatic conservation work.
15thC Frick-Zeri Artwork Matches

- 17,929 Artworks
- 2,256 Artworks
  - 578 Artworks (26%)
  - 655 Artworks (4%)
Comparison of text and images found in 3 photoarchives

Florentine school, Tobias and the archangel Raphael with three donors, 15th c., present location unknown

Source of information: Frick Art Reference Library, Zeri Foundation, Biblioteca Berenson, Fototeca

In black: information recorded in two or three dB

Subject (Work of Art/Photographs)
Tobias e l'arcangelo Raffaele con tre donatori, Dìo Padre Benedicente

Attribution (Work of Art)
Anonymous (Florentine sec. XV) (Attr. Offner, Classificazione Frick)
Neri di Bicci (Asta Palazzo Darsena, 1934, Asta Christie’s, 1967)
Bicci di Lorenzo (Classificazione Biblioteca Berenson)
Apolonio di Giovanni (Classificazione Fondazione Zeri)

Previous locations (Work of Art), in chronological order
Firenze, Collezione Volpi
New York, Asta American Art Association, 1916
G. E. Stein
Firenze, Asta Palazzo Darsena, 1934
Firenze, Galleria Beini
New York, French & Co.
New Windsor (N.Y), Collezione Thomas S. Hyland
Greenwich (CT), Collezione Thomas S. Hyland
Londra, Asta Christie’s, 23 giugno 1967
New York, Asta Sotheby’s, 17 gennaio 1983

Date (Work of Art)
1400-1469
1435-1465
1400-1462

Photographs
Zeri (1964 ca.), American Art Association, 1916
Anonymous, 1959 ca.
A. C. Cooper, 1967
Overview

Using a group of 97,091 images of Italian works of art represented in 6 of the PHAROS photoarchives, this tool examines the potential of visual searching in the pursuit of research.

Search 61,051 Artworks and 97,091 Images:

Search by Image:

Upload an image to find other similar images.

Browse by Collection:

Frick Library Photoarchive
14,986 artworks, 18,818 images

Fondazione Zei
15,967 artworks, 31,035 images

Villa I Tatti
11,402 artworks, 10,514 images

Bildarchiv Foto Marburg
3,653 artworks, 7,367 images
Painting: Madonna con Bambino tra san Giovannino e un angelo

Artist: Antonio da Massaro

Date: 1450-1516

Type: Painting

Medium: tavola

Location: S. Jacopo

Fiesole

Details: More information...

Source: Fondazione Zeri
Search 61,051 Artworks and 97,091 Images:

Search by Image:
Upload an image

Paste Image URL
http://

Browse by Collection:
- Frick Library Photoarchive
  - 14,985 Artworks, 18,615 Images
- Fondazione Zeri
  - 18,087 Artworks, 31,096 Images
- Villa I Tatti
  - 11,460 Artworks, 16,514 Images
- Bildarchiv Foto Marburg
  - 3,863 Artworks, 7,387 Images
- National Gallery of Art Library
  - 3,035 Artworks, 5,601 Images
- RKD: Netherlands Institute for Art History
  - 4,023 Artworks, 5,676 Images
- Bibliotheca Hertziana
  - 3,503 Artworks, 7,604 Images
- Kunsthistorischen Instituts in Florenz
  - 185 Artworks, 329 Images
Searching Through Seeing: Optimizing Computer Vision Technology for the Arts

Select Channel

- Searching Through Seeing: Optimizing Computer Vision Technology for the Arts
- Emily L. Spratt, Keynote Address: “Searching Through Seeing: Optimizing Computer Vision Technology for the Arts”
- David G. Stork: “Rigorous Technical Image Analysis of Fine Art: Toward a Computer Connoisseurship”
- Douglas Eck, Live Video Presentation: “The Role of AI and Machine Learning in Creativity”
- Michael Weinberg: “Optimizing Computer Vision Technology for Autonomous Learning Investment Strategies (ALIS)”
- Jennifer Deason: “Personalizing the Art World: Taste Fingerprints and Computer Vision”
- Christoph Meinel: “Machine Learning: The Reality Behind Artificial Intelligence”
- John R. Smith: “Creativity: The Next Horizon for Artificial Intelligence”