IIIF and the Yale Center for British Art
Presented by Melissa Gold Fournier
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as part of the panel “IIIF: The International Image Interoperability Framework” (http://sched.co/3rhm)
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In the next few minutes, I will give an overview of the Yale Center for British Art’s involvement with the International Image Interoperability Framework, including:
  how IIIF and IIIF compatible technologies fit into the Center’s digital strategy
  How the Center has implemented IIIF to date
  And a use case for Mirador, a IIIF compatible open-source image viewer, in a project at the Center where two of our colleagues are building on IIIF to facilitate in-depth, cross repository study of 16th century panel paintings.

At the outset, I’d like to give credit to the following colleagues on whose behalf I also present today:
  Michael Appleby, Associate Director, Academic Software Development, ITS
  Emmanuelle Delmas-Glass, Collections Data Manager, Yale Center for British Art
  Edward Town, Postdoctoral Research Associate, Yale Center for British Art
  Jessica David, Associate Conservator of Paintings, Yale Center for British Art
As this talk draws heavily from their own work and presentations on IIIF.
Presented to the University by Paul Mellon, the Yale Center for British Art houses the largest and most comprehensive collection of British art outside the United Kingdom. The collection of paintings, sculpture, drawings, prints, rare books, and manuscripts reflects the development of British art, life, and thought from the Elizabethan period onward.

In the digital realm, the Center’s goal is to share its open digital resources in formats that allow for easy creative and scholarly reuse in order to contribute to the study of British Art worldwide.
The Center, along with the other two major museums at the University, the Yale University Art Gallery and the Yale Peabody Museum of Natural History, was at the forefront of the development and implementation of Yale’s Open Access policy for digital images of works in the public domain, making thousands of high resolution images of its collection freely available online beginning in 2011.

Today, with Open Access policies in place in more and more museums worldwide, we ask ourselves – how can we build on this openness? What additional functionality do we want to provide? What do users and researchers want to be able to do with our images?
Here are a few of the things we know that our audiences would like to do with our images:

Zoom in and see works at the highest level of detail
Compare Images, not only within the Center’s collection, but compare images of works that may be held by different institutions and made available through different systems.

At top, busts of Pope by two different sculptors in the Center’s own collection.

Below, two views of Hadleigh Castle...at the right, a study belonging to the Tate Gallery, at at left, the Center’s finished version of the painting.
We also know that students and researchers would like to create their own online galleries or online spaces for research or exhibition.
And, finally, we know our colleagues would like to have the ability to annotate images in the course of their research.
So why IIIF?

As the other presentations have demonstrated, the IIIF framework and its goals enable these uses, and more.

IIIF has the following goals:

- To give scholars an unprecedented level of uniform and rich access to image-based resources hosted around the world.
- To define a set of common application programming interfaces that support interoperability between image repositories.
- To develop, cultivate and document shared technologies that provide a world-class user experience in viewing, comparing, manipulating and annotating images.
With these uses and goals in mind, I’d like to turn to the Center’s digital strategy and our work online to date.

The Yale Center for British is committed to using technology to make its collections as widely accessible as possible and this digital strategy is supported by 4 critical elements:

- Open Access policy
- Data exchange standards and protocols (support machine readable as well as human readable data)
- Open source tools
- Linked Open Data
The Centers’ collections data is exposed via the web in human readable format through our online collections catalog, where users may search and view records and images.

However, the Center also disseminates its digital resources in a programmatic fashion, which is more efficient when dealing with large data aggregators, such as Google and Artstor or even Yale’s own Cross-Collections Discovery service.
How do we do that? We contribute our dataset via the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) data exchange protocol called following an international XML metadata harvesting schema called the Lightweight Information Describing Works of Art, or LIDO.

Both LIDO and OAI-PMH are community developed standards and our use of them is possible through open source software, COBOAT, that was designed by CogApp for OCLC Online Computer Library Center and reconfigured by the Center’s data systems manager, David Parsell, to work with LIDO (since COBOAT was originally configured to work with CDWA Lite.)

Machine readable data can also be queried through the Center’s Linked Open Data semantic endpoint, with the data organized according to the CIDOC-Conceptual Reference Model, or CRM, ontology. [The CRM is developed by a community of active cultural heritage institutions practitioners, and supported by the International Council of Museums’ Committee of Documentation (ICOM CIDOC).]
So as you can see, the IIIF framework is an extraordinarily good fit for the Center’s digital strategy.

- In terms of open access policy, IIIF supports interoperability between image repositories and breaks down the barriers between image databases/silos and leverages our open access resources.
- It is an international standard actively developed by an active community
- It works with a variety of open source image viewers – the Center actively uses IIP and is working in the development of Mirador.
- And finally, IIIF uses the principles of Linked open data and the architecture of the Web in order to provide a distributed and interoperable system.

With all these things in mind, what use has the Center made of IIIF so far?
The Yale Digital Collections Center, now part of Yale Information Technology Services, established a IIIF compliant image server, and, in 2013, modified one of the primary services connected to our Digital Asset Management System, the Content Delivery Service, to allow us to encode and deliver JPEG2000 images.
The YCBA subsequently implemented the open source IIPMooViewer image viewer for use in our online collection, and enabled hi-res zoom on a group of nearly 17,000 images in our online collection in May 2013.

In 2015, the number of IIIF compliant images freely available from our online collection is over 47,000 images.
In addition to the current use in our online collection, there is an active cataloguing project at the Center where, in the words of the researchers Edward Town, our Postdoctoral Research Associate, and Jessica David, our Associate Paintings Conservator, we can see the potential for image sharing software playing a decisive role in helping us solve key research questions.

This in-depth cataloguing project comes off the back of Making Art in Tudor Britain project at the National Portrait Gallery in London, a seven-year project that involved the systematic examination and cataloguing of over 120 paintings. Although the focus of their technical examination was on their own pictures, they occasionally travelled outside of the collection to look at other comparable works to help form judgements on attribution and dating. The Yale Center for British Art’s Reformation to Restoration project follows in a similar vein.

Attempts to attribute works from this period are often frustrated by the fact that artists of this period rarely signed their work, and there is very little documentary evidence relating to either the production or the ownership of portable paintings. This means that the objects themselves take on an even greater significance and this is part of the reason why Jessica and Ed work together on this project, combining their expertise as a conservator and an art historian in the close examination of these works.
A great deal of what Jessica and Ed do involves the collection, organisation and comparison of visual material: everything from overall images of a painting, whether new, high resolution images or older black and white photographic records, to x-rays, infrared reflectograms, and photomicrographs of paint samples.

Since Ed and Jessica rarely have the opportunity to see the particular portraits being studied side-by-side, the storage, sharing and annotation of the visual documentation is vital to the research process.

The process becomes complicated when they want to share all of this data with colleagues at other institutions who also may not have easy access to the painting being compared.
The YCBA’s *Portrait of Unknown Woman* from 1567, by an unknown artist, is a typical example from this project.

In order to establish the Center’s portrait among a group of similar works that could potentially be associated to a specific painter or workshop, Jessica and Ed are studying how other similar portraits are constructed.
It is Ed and Jessica’s conjecture that the Center’s portrait and the two other portraits shown here originate from the same artist’s workshop, but this argument requires extensive illustration and careful description.

Ideally, they envision being able to place their visual research and annotations into a shared workspace where colleagues could review and comment on their work as well as have access to the original image files.

Functions like ‘transparency’ and ‘overlying’ of image would be optional and editable. The images would be constrained proportionally so that scale comparisons remain reliable. Their colleagues could add additional images as they become available.
The Center is excited about the possibility of real-time workspace shared between colleagues who can comment or build upon observations as they are developed, and we anticipate that working with images and data in an environment like Mirador, as it becomes more fully developed, will facilitate the discovery of links between paintings that might not otherwise be associated with one another.
If you have any questions about the Center’s use of IIIF and Mirador, please feel free to contact my colleagues or me. Thanks for your time.