Methods for search and retrieval of large multimedia collections

ECDL2004 Tutorial A
Matthew Addis
IT Innovation Centre
Themes of Sculpteur

- Create new 3D digital content
- Search and navigate collections by concepts, metadata and content
- Cluster and classify content
- Find missing or extra information
- Access, repurpose and use digital content
Traditional search and retrieval

- Simple keyword or ‘google’ type searching
- Logical operators (AND, OR, NOT)
- Controlled vocabularies
- Works well if you are familiar with the terminology and structure of a collection
- Problems come from inconsistent use of terms, incomplete information, multiple sources, unfamiliar user interfaces
- Not easy to expand, refine or do similar searches
The Wilton Diptych

Full title: Richard II presented to the Virgin and Child by His Patron Saint John the Baptist and Saints Edward and Edmund ('The Wilton Diptych')

about 1395-9

ENGLISH or FRENCH (?)

NG4451. Bought with a special grant and contributions from Samuel Courtauld, Viscount Rothschild, C.J. Stoop, and the National Art Collections Fund, 1929.

The Wilton Diptych was painted as a portable altarpiece for the private devotion of King Richard II, who ruled England from 1377 to 1399.
EYCK, Jan van

worked: 1422 died: 1441

Jan van Eyck is credited with originating a style of painting characterised by minutely realistic depictions of surface effects and natural light. This was made possible by using an oil medium which allowed the building up of paint in translucent layers, or glazes.

Little is known of van Eyck's origins, but he probably came from Maaseik, near Maastricht, and was of the gentry class. He is first heard of in 1422 working in The Hague for John of Bavaria, ruler of Holland. From 1425 he was at Bruges and Lille as painter to Philip the Good, Duke of Burgundy. In 1429 van Eyck was sent to Portugal to paint Philip the Good's future wife, Isabella of Portugal.

Van Eyck appears to have produced many religious commissions and portraits of Burgundian courtiers, local nobles, churchmen and merchants. A small group of his paintings survive with dates from 1430 onwards. One of his most famous works is the 'Arnolfini Portrait', signed and dated 1434. It is thought that his 'Portrait of a Man' may be a self portrait.
Enter any combination of the criteria listed below, using View Index to see full list of choices available, and using words of three letters or more.

Artist
or view index
E.g. Monet or Claude or Monet, Claude

Nationality
or view index

Title
or view index

Century
or view index

Location
or view index

Keywords
or view index

Image ID
or view index

E.g. 3179 not GIR 3179

Prefix
or view index

Category
or view index / voir classification alphabetique / Themenverzeichnis

Medium

Search  Clear
Contact our Picture Research team for access to thousands of additional images available offline. All images on this site are copyright protected and displayed for reference only. Images may be printed out for reference using Lightboxes. Please visit How to Use for further instructions.

**Image Search Results**

<table>
<thead>
<tr>
<th>Image ID</th>
<th>Title</th>
<th>Artist</th>
<th>Lightbox contains 0 images. Add Search to Lightbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGS 62600</td>
<td>'Tu Kaitate, the Plain of Te Whero Whero', from the 'New Zealand Illustrated', c.1845, (litho) Angas, George French (1822-86)</td>
<td><img src="image.png" alt="Image" /></td>
<td></td>
</tr>
</tbody>
</table>
### Enter search criteria

**Select a category:**
- Photos and Illustrations

**Match all words**

Search using keywords, concepts, image numbers, etc:
- Girl

### Optional filters

#### Rights-managed images (RM)
- All rights-managed (RM)
- 3DClinic
- Allsport Concepts
- Altrendo
- Beatworks
- Botanica
- FoodPix
- Hulton Archive
- Illustration Works
- Lonely Planet Images
- National Geographic
- Photographer's Choice
- Reportage
- Robert Harding World Imagery
- Stone

#### Royalty-free images (RF)
- All royalty-free (RF)
- Brand X Pictures
- Comstock Images
- Dex Image
- Digital Vision
- Photodisc Blue
- Photodisc Green
- Photodisc Red
- Queerstock
- Rubberball Productions
- Thinkstock

### Orientation:
- Horizontal
- Panoramic
- Square
- Vertical
image search results

Please clarify your search

Which 'Girl' do you mean?
- [x] "Girls (Females)"
- [ ] "One Girl Only (Only Girls)"
- [ ] "Girl Ray"

Or try another keyword:
Search using keywords, concepts, image numbers, etc:

Girl

Search

Turn this clarification feature:
- [ ] On
- [ ] Off
image search results

[Images and links]

Calculate price
Add to Lightbox
Download comp
200137490-001
Stone+
(Rights-managed)

Calculate price
Add to Lightbox
Download comp
bd5872-001
Stone
(Rights-managed)

Calculate price
Add to Lightbox
Download comp
200137933-001
Taxi
(Rights-managed)
Challenges: dealing with museum systems

Object Name: Combined music-stand and writing-table
Subject Depicted Concepts: pastoral
Artist/Maker: Carlin, Martin; Pafrat, Jean-Jacq
Attribution Date Text: ca. 1777-1785
Dimensions Dimension: Height: Width: Depth
Dimension Value: 78; 41; 34
Associated place: Paris, France
Associated people: Martin Carlin (1730-85); Jean-Jacques Pafrat (master 1785-93)

Short caption: TABLE & STAND
Keywords: table; tulipwood; musical instrument; feminine; portable
Sculpteur Architecture

Gallery and museum systems

World Wide Web

Metadata

Images and 3D models

2D and 3D Content Description

Reference Information

3D capture and modelling

V&A Access to Images

Public systems and Web sites

eLearning

Browsing and searching tools

www.sculpteurweb.org
Searching by content

- Find **objects** that have a **pattern / colour** similar to this image
- Find **vases** that are a similar **shape** to this one
- Find **paintings** with **cracks** like this
- Which **mould** was used to make this **figurine**?
2-D Content-Based Retrieval

• Developed during ARTISTE
• Colour, Texture and Shape based descriptors
• Sub-Image matching also possible

Sub-image matching

Query

Best Match

CONCEPT

CONTENT

Find

Please select

Please select

Like

Similar colour images
Similar colour sub-images
Similar black and white images
Similar black and white sub-images
Similar images with texture
Similar 3D models (CordHist)
Similar 3D models (ShapeD2)

www.sculpteurweb.org
3-D Content-Based Retrieval

Shape Distribution

“Cord” Histogram
Concepts

• People (who)
  – Artist, curator, owner, restorer

• Art objects and representations (what)
  – Painting, sculpture, paving stones, coins, Polynesian artefacts, films, digital representations

• Events and activities (when)
  – Creation, acquisition, restoration, loan, birth, death, period

• Places (where)
  – Gallery, archive, conservation centre, private collection, country, city, town, studio

• Methods and techniques (how)
  – Oil, watercolour, carving, x-ray, restoration technique
Searching by concept

- Which **artists** lived, worked, born or died in England?
- For which **countries** do I have 18thC paintings?

- Find **images** of painting backs with a **wooden panel** support
CIDOC Conceptual Reference Model

- Ontology for artefacts within the museum/gallery domain
- 81 classes and 139 properties, draft ISO standard
Each museum maps their information to the CRM.
<table>
<thead>
<tr>
<th>E84 Information Carrier</th>
<th>P108B was produced by</th>
<th>E12 Production Event</th>
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</thead>
<tbody>
<tr>
<td>E12 Production Event</td>
<td>P14 carried out by</td>
<td>E21 Person</td>
</tr>
<tr>
<td>E21 Person</td>
<td>P107B is current or former member of</td>
<td>E74 Group</td>
</tr>
<tr>
<td>E74 Group</td>
<td>P2 has type</td>
<td>E55 Type (value = &quot;school&quot;)</td>
</tr>
<tr>
<td>E74 Group</td>
<td>P131 is identified by</td>
<td>E82 Actor Appellation</td>
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</tbody>
</table>