

MultiMatch - Providing Multilingual/Multimedia Access to Cultural Heritage Content

Paul Clough

Department of Information Studies
University of Sheffield



Overview

Introduction
User requirements
Prototype system
User interface
Evaluation
Summary

The initial idea

Problem (back in 2005!)

The Web contains a wealth of cultural heritage (CH) information

- Web pages (e.g. Wikipedia)

- Digital Libraries managed by cultural institutions

But it's hard to access this information

- dispersed and fragmented

- multiple formats and languages

- not all information publicly-accessible (e.g. archives)

Users are left to discover, interpret, and aggregate it

MultiMatch

MultiMatch project (<http://www.multimatch.org>)

- enable users to explore and interact with online accessible cultural heritage content, across media types and language boundaries

European Union research project (FP6)

- Technology-enhanced Learning and Access to Cultural Heritage
- approx budget of 3.2 million Euros
- 11 European partners
- ran May 2006 – October 2008

Objectives

Develop a (vertical) search engine to provide targeted, enriched access to heterogeneous “cultural objects”

- across all media types and language boundaries
- supporting various user classes
- with aggregate views on complex task scenarios

Assist cultural heritage institutions in raising the visibility of their content (online)

- link from their content to related material online



Visit our **HEALTH** section for news on Men's and Women's Health, Cardiac Care and more.

U.S. News

Mysteries of History

Van Gogh's vanishing act
A high-cost, low-profile canvas

BY CAROLYN KILMER

THE SCENE: A museum gallery in London. The artist: Vincent van Gogh. The work: "Portrait of Dr. Gachet," a painting of a man in a blue coat, holding a skull. The mystery: Why did van Gogh paint this work in London, and why did he paint it in blue?

Museums
Libraries
Archives
Newspapers
News agencies

Museums
Databases

Van Gogh Museum (NL)

Vaste collectie

De sector Collectie is ingedeeld in drie gedeeltes, waarin respectievelijk het werk van Vincent van Gogh, dat van andere kunstenaars van de grote Nederlandse Van de museumcollectie aan bod komen. Het werk van Van Gogh is, net als het museum zelf, chronologisch ingedeeld in vijf perioden die overeenkomen met een bepaalde fase in Van Gogh's leven en werk: Nederland, Parijs, Arles, Saint-Rémy en Auvers-sur-Oise.

Darnaast is het mogelijk de schrijvers op te zoeken via de alfabetische lijst.

Personal Pages
Blogs

VINCENT VAN GOGH

Vincent van Gogh once said, "An artist needs to be a schizophrenic or a characterless, but he certainly must have a warm heart for his fellow man."

Van Gogh might be better known for his bloody ear than his warm heart, but you gotta love the man!

Young Vincent was downed from the start. He was born a year to the day after a million deaths, also coincidentally named "Vincent." In 1870, 150 years ago, people were considerably less creative to such things than they are today, and the art of psychology was only in its infancy. Nevertheless, it's not too hard to see how young Vincent came from his state of affairs.

Certainly, Vincent had no shortage of artists. After a religious education and a brief stint at law school, young van Gogh dropped out of the museum which means admission. Vincent was unable during his brief for a complete absence of interest in art.

When Vincent left school, however, art became a central part of his life. In the same way that Big Macs became a central part of many teenagers' lives today, van Gogh took a job selling art in a Dutch art store.

After a year working near home, van Gogh was transferred to London and never looked back. "These Exhibitions had hardly any imagination or faculty, but their good taste and their sensible knowledge of composition were noticeable," he wrote.

In London, it appears, he had his first romantic engagements, which went poorly. He proposed to a woman who was already engaged to someone else, and she left him to find her way.

Although van Gogh had always developed depressive tendencies, it was only after this incident — and other like — that he began to seem out of control. His lack of success with the ladies depressed him, and may have contributed to some deeper problems that had been there all along.

When van Gogh started painting the corners of the art store, he said:

It is not the language of painters but the language of nature which one should listen to: the feeling for the things themselves, for reality is more important than the feeling for pictures. (Vincent Van Gogh)

Musée d'Orsay

Van Gogh

Vincent Van Gogh
La mer à Saint-Sulpice

La mer à Saint-Sulpice during the storm of Van Gogh en Saint-Sulpice de Trèves cuando estaba internado en un asilo. La composición ha retomado un dibujo de Millet para dar nuestro homenaje de la jornada. Vincent explica este enfoque a su hermano: "Solo he tratado temas de trabajo en otros idiomas, de los colores, las impresiones de claroscuro en blanco y negro". Van Gogh ha copiado en numerosas ocasiones obras de Millet, a quien consideraba "un pintor más moderno que Millet". Aunque del a composición original hasta los detalles de la estructura oscura del primer plano, Van Gogh se apropió completamente de esta escena de descanso que ambienta, para Millet, la Francia rural de la década de 1860. Esta reinterpretación personal es motivo especialmente interesante para la cronología basada en el contraste de los colores complementarios azul-rojo y amarillo-naranja. Para el carácter de simplicidad del tema, se recuerda aquí el monumental lienzo del arte de Van Gogh.

Exhibitions: Touring Exhibitions

The Staff of Life

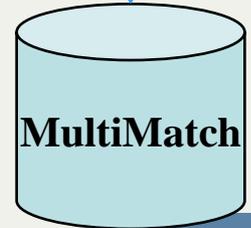
The Staff of Life exhibition under the British Exhibition Partnership

Van Gogh's 'The Staff of Life' is a painting which was painted by Vincent van Gogh in 1890. It is a reproduction of the original painting by Vincent van Gogh, which is now in the collection of the Van Gogh Museum, Amsterdam, the Netherlands.

Van Gogh's 'The Staff of Life'

Van Gogh's 'The Staff of Life' is a painting which was painted by Vincent van Gogh in 1890. It is a reproduction of the original painting by Vincent van Gogh, which is now in the collection of the Van Gogh Museum, Amsterdam, the Netherlands.

crawling



acquisition

National Gallery (UK)



Thought bubble containing a portrait of Vincent van Gogh.

Flags of the United Kingdom, Italy, and Germany.

Illustrations of a woman at a computer, a man at a desk, and a woman at a computer.

OCLC Research Distinguished S

MultiMatch
MultiMatch
Access To Cultural Heritage

SEARCH

search within results

advanced search

1,232,343 results (0.12s)

Related Terms

- van Gogh museum
- Theo van Gogh
- van Gogh painting
- Post impressionist

Related Categories

- Arts & Entertainment (66%)
- Gogh, vincent van
- Shopping (22%)
- Society and Culture (10%)

Document Language

- English (48%)
- Dutch (28%)
- French (18%)
- Spanish (8%)

HOME LOGIN LANGUAGE HELP ABOUT US

Summary Docs Image Video Audio Events Map

RECENT SEARCHES

- Van Gogh
- Di Vinci
- Michelangelo

Vincent van Gogh - Dutch painter (dates)

BIOGRAPHY

Vincent Willem van Gogh [listen \(help info\)](#) (March 30, 1853–July 29, 1890) was a Dutch painter, classified as a Post-impressionist. His work now attracts very high prices at auction, and several of his paintings appear in lists of the most expensive paintings in the world. His work shows the objects, people and places in his life with bold, usually distorted, draughtsmanship and visible dotted or dashed brushmarks, which are intensely yet subtly colorized.

OTHER BIOGRAPHIES

- Wikipedia
- Van Gogh Museum - National Gallery of Art
- Van Gogh's Letters
- Vincent van Gogh Gallery

TIMELINE (PAINTINGS)

The Van Gogh Code - Channel 4

Audio commentary by prominent artist - [Url or recognised name](#)

Radio 4 online - [Investigation - BBC Radio 4 Online](#)

Image gallery, Van Gogh's most underrated works - [Van Gogh Museum](#)

Building a masterpiece - [Url or recognised name](#)

The Van Gogh Code - Channel 4

Iconography and the Dutch art interpreters analysis - [University of Mongolia](#)

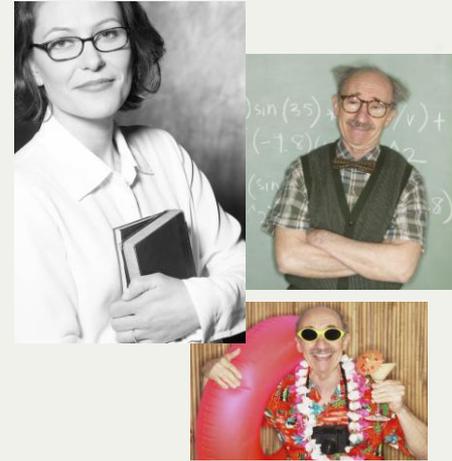
Sunflowers or pansies? - [University of Bath](#)

Painting for beginners - [British Arts Council](#)

Users and intended functionality

Target audience

- cultural heritage professionals (archivists, researchers, etc.)
- educational users (students, professors)
- general users (tourism, etc.)



Provide functionalities that allow users to

- search across languages (query translation)
- search for web pages, audio, video, and images simultaneously
- explore connections and relationships between creators, creations, time and place

The consortium

Academia

- Istituto di Scienza e Tecnologie dell'Informazione (ISTI-CNR)
- University of Sheffield (USFD)
- Dublin City University (DCU)
- University of Amsterdam (UvA)
- University of Geneva (UniGE)
- Universidad Nacional de Educación a Distancia (UNED)

Industry

- OCLC (Sheffield, UK)
- WIND Telecomunicazioni S.p.A. (WIND)

Cultural heritage providers

- Fratelli Alinari Istituto Edizioni Artistiche SpA (Alinari)
- Netherlands Institute for Sound and Vision (Sound and Vision)
- Biblioteca Virtual Miguel de Cervantes (UA)

Project activities

User-oriented activities

- e.g. requirements gathering, interface design

Component development

- multilingual indexing and retrieval
- multimedia indexing and retrieval
- information extraction and classification
- user interface components

System architecture and component integration

Evaluation and field trials

Dissemination and exploitation

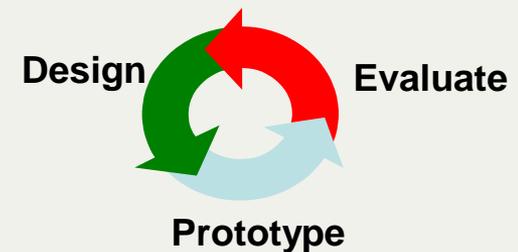
MultiMatch design process

Multi-technique “task-driven” design process

- developed to meet the needs of users carrying out prototypical tasks in the cultural heritage domain (scenarios)

Iterative design involving two main cycles (prototypes) with five stages

- needs assessment and task analysis
- preliminary design using low-fidelity prototypes
- design and development of interactive prototype
- heuristic evaluation and re-design
- user evaluation



Requirements gathering

Important aspect of user-centered design

- identify potential users and their information needs

Sources of input

- literature and past research
- analysis of related sites
- log file analysis
- user studies and interviews
 - » cultural heritage professionals/experts
 - » general users (e.g. tourism)

Minelli, S. H., Marlow, J., Clough, P., Cigarran Recuero, J.M., Gonzalo, J., Oomen, J. and Loschiavo, D. (2007), **Gathering requirements for multilingual search of audiovisual material in cultural heritage**, In Proceedings of Workshop on User Centricity - state of the art (16th IST Mobile and Wireless Communications Summit), Budapest, Hungary, 1-5 July, 2007

Competitor analysis (56 sites)

Functionality	Percent	Example
Free text search	91%	-
Browse by category	71%	www.archinform.net
Advanced search	70%	-
News/Calendar	61%	www.tate.org.uk
Registration/login	45%	-
Multilingual	34%	www.louvre.fr
Geographical search / Map	29%	http://whc.unesco.org/en/map
Shopping	29%	-
Search within results / See "more like this"	29%	www.fotolia.com
Ability to segregate multimedia results by type (if applicable)	29%	www.archive.org
Timeline / Search by time	21%	www.birth-of-tv.org
Change results layout (order by..)	21%	www.artandarchitecture.co.uk
Hierarchical browse	20%	http://www.staffspasttrack.org.uk/
Sitemap	20%	-
Controlled vocabulary	9%	www.tate.org.uk
Colour/layout search	7%	www.hermitagemuseum.org
Query translation	5%	www.fotolia.com
Faceted browsing	3%	http://orange.sims.berkeley.edu/ ¹¹

Log file analysis

Categorisation of top 100 most frequent queries

<u>Category</u>	<u>Site</u>	Named Entities	Subject	Place	Time
Art	Tate Online	63	36	2	1
General CH	WIND	66	24	7	3
Literature	Cervantes	73	24	3	0
Photography	Alinari	33	29	39	1
Photography	St Andrews	10	25	64	0

Example Queries: Van Gogh

Surrealism

Florence

Middle Ages



Useful in design, component testing and user task-based user evaluation

User studies and interviews

100 interviews carried out with 'expert' users

Also carried out more in-depth studies

- focus groups and interviews (15 people)
- with educational users, video professionals and image professionals



Information gained about

- tasks that users perform (typical and challenging)
- multilingual and multimedia requirements
- examples of use and suggestions for improvement

Also carried out studies with 'general' users

Main findings

Reliance on Internet search for everyday work

- depend largely on general-purpose search engines (although often unsatisfied with results)

Work includes

- finding material for presentations/clients, fact-checking details, background research

Multiple sources searched

- internal databases and archives
- external sites on the Web

Search characteristics

Reinforced previous findings in CH domain

- names, places, dates, titles, subjects



“The Man Midwife”



Giotto self-portrait



People on strike

	Text	Images	Video	Audio
Percentage of users Interacting with media type	100%	87%	47%	7%

Example scenarios

User type	Typical task	Media and languages involved
CH professional	Searching for video footage on Pier Paolo Pasolini, needs to gather background information on who he was	Text, Images, Video English, Dutch
CH professional	Looking for images of (non-famous) people drinking coffee –images that capture a certain emotion	Images English, Italian
Academic	Preparing a presentation on Don Quixote and how it has influenced the arts	Text, Images, Video, Audio (?) English only
Cultural tourist/ general user	Planning a visit to Turin, wants to know about museums to visit, what can see whilst there	Text, Images, Audio (podcasts) English, Italian

Design requirements

Classification and aggregation of content

- enrich the associated metadata (for creators and creations)
- enable cross-document and cross-collection linking

Enhanced multilingual support

- query translation (MT and dictionary-based translation)
- document translation (e.g. translated snippets and key terms)

Enhanced multimedia retrieval

- still images based on fusing visual features and text
- audio content based on speech transcripts and metadata
- video content based on text and visual queries and keyframe-based video browsing

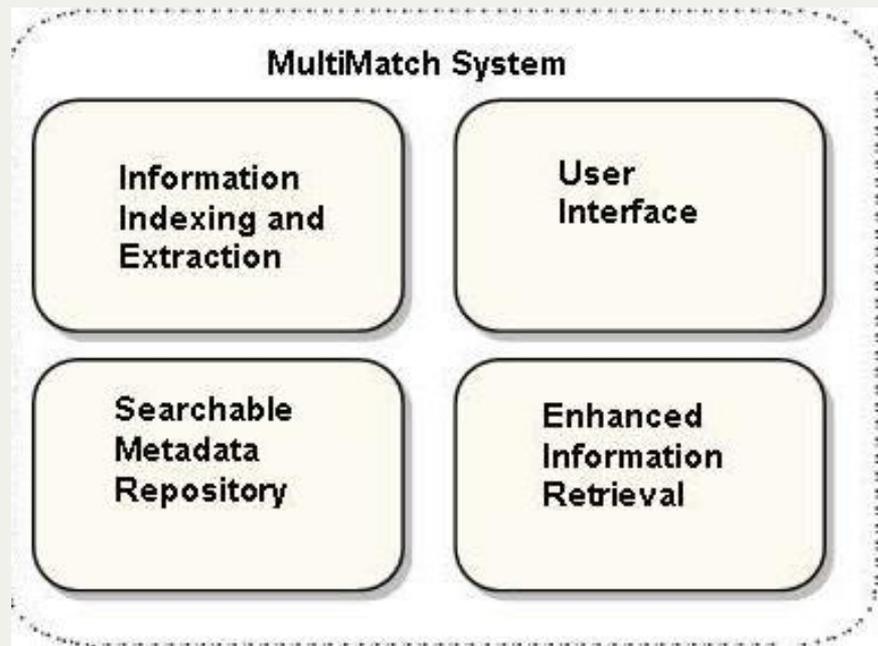
Faceted search/browse (semantic navigation)

- facets related to creators and creations (e.g. date, place)
- presentation of creator/creation in context (e.g. timeline, map)

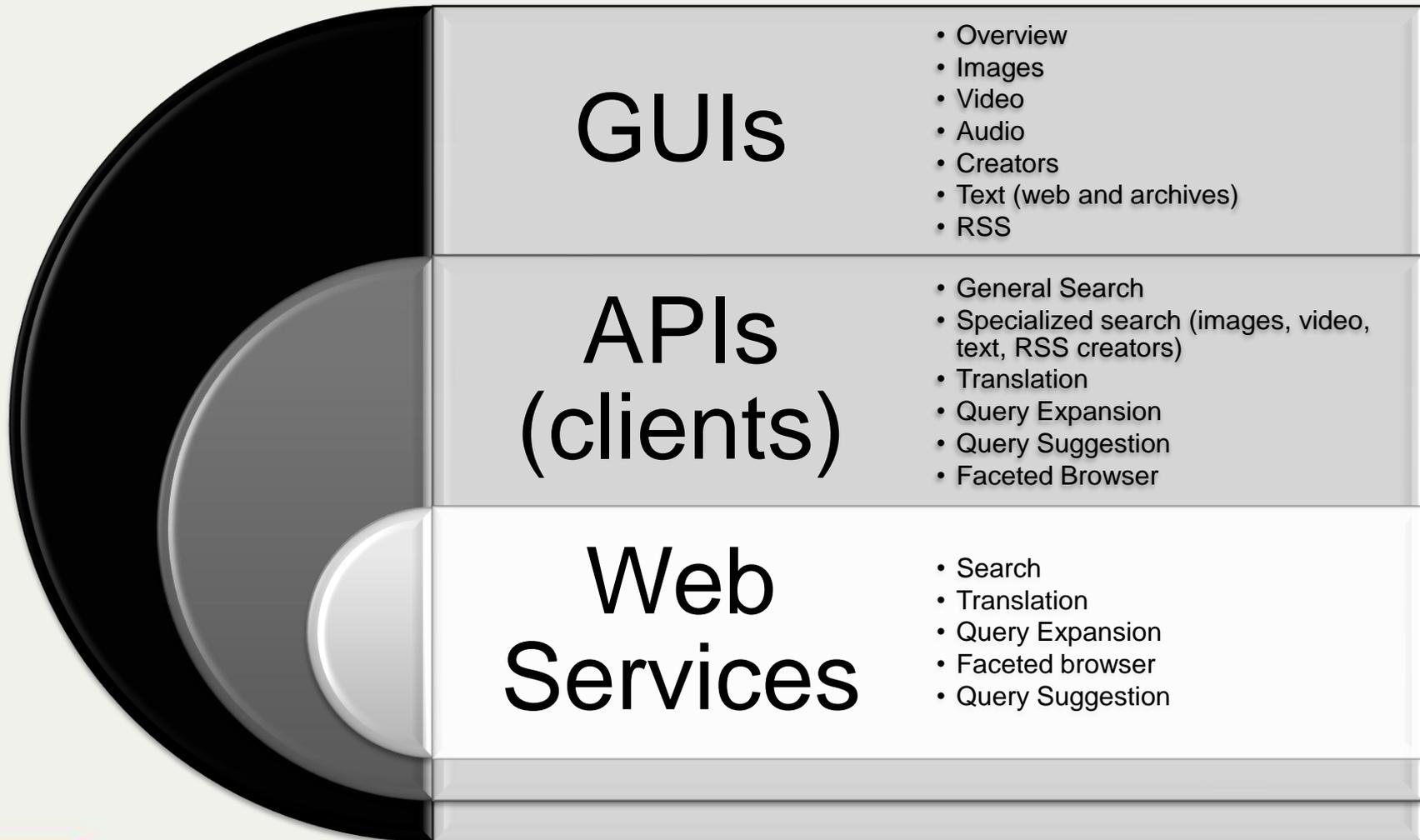
Protoype system

Two prototype systems developed during project

- Service Orientated Architecture (SOA)
- Four independent but co-operating sub-systems



Prototype



Content indexed

Selected content used for prototype systems

- cultural heritage sites
- educational sites related to CH
- encyclopaedic sources
- IPR-protected CH material
- OAI compliant resources (e.g. TEL)
- dynamic content (RSS feeds)

Representative cross-section of CH information

- multimodal, multilingual, dynamic and static, multiple sources

Metadata modeling and interoperability

Defined a conceptual reference framework suitable for cultural heritage content

- metadata schema and data model
- thesauri for artists names and descriptions, geospatial information (Getty)
- mapping between CH providers and common data model

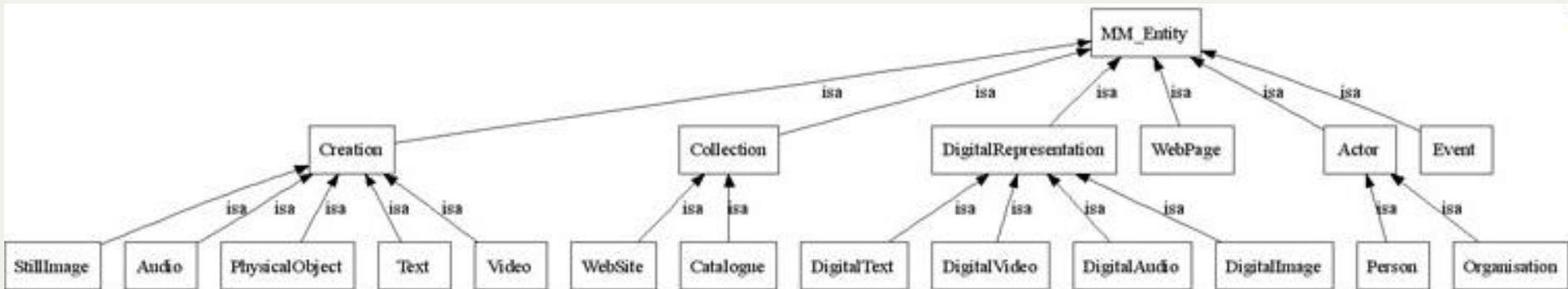
Simple to use (interoperability)

Suitable for automatic population

First Analysis of Metadata in the Cultural Heritage Domain , Deliverable D2.1

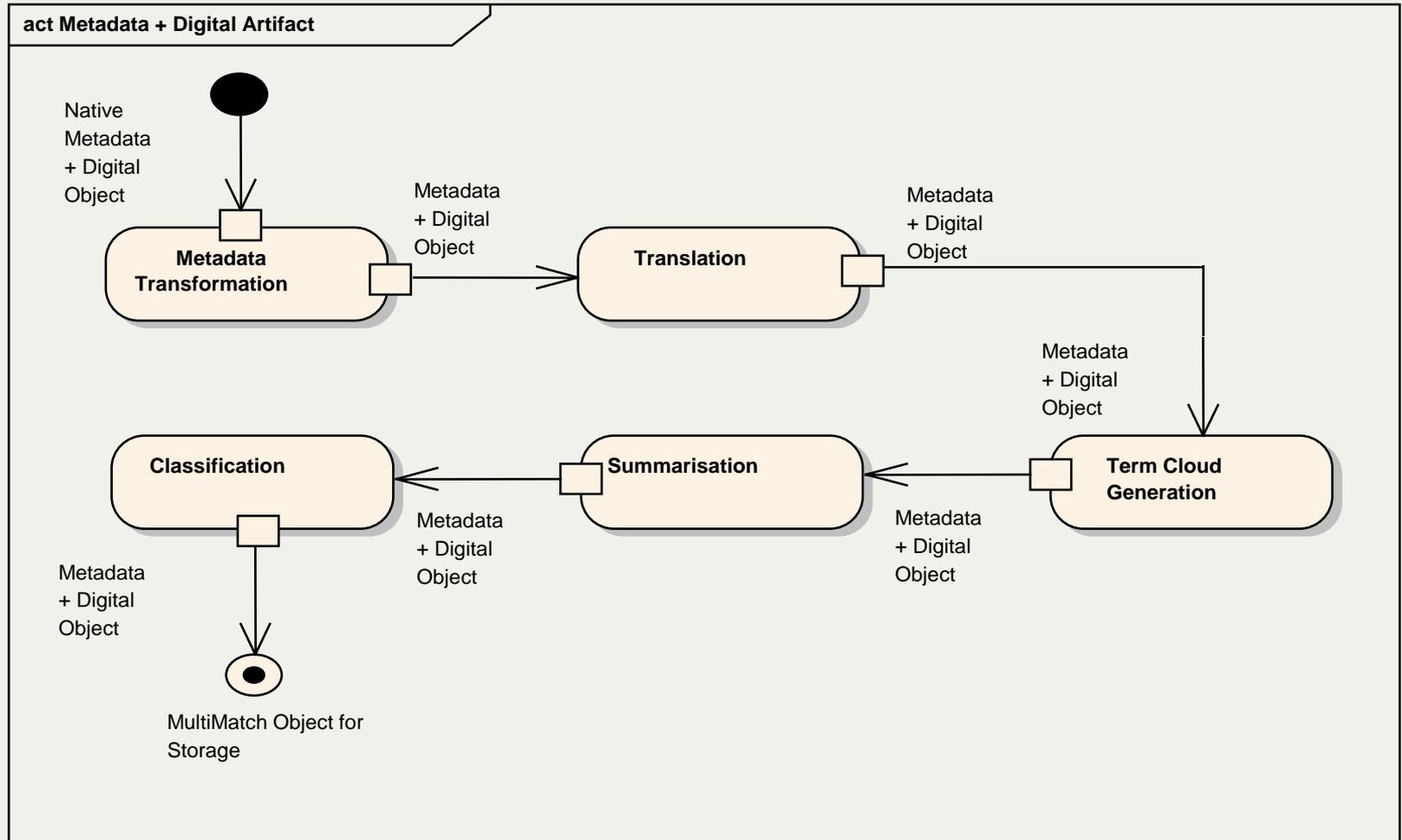
<http://www.multimatch.org/docs/publicdels/D2%201-FINAL-2006-23-10.pdf>

Data model



Metadata Schema and Mapping Evaluation and Revision, Deliverable D2.2.2
<http://www.multimatch.org/docs/publicdels/D2.2.2.pdf>

Ingesting content



Information extraction

Topical Web crawling

- selection of content *within* specific sites (e.g. CH in Wikipedia)
- dynamic data (e.g. RSS feeds)

Automatic extraction of indexing features for all media (text, speech, images, video) and crawled data

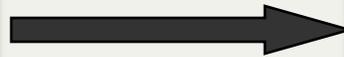
Development of algorithms for classification and information extraction

- creators, type/genre, subject, place/time, art objects/works

Automatic linking of documents

- link related documents by content (inter-doc linking)
- detect terms that should be marked as anchor tags within a text and identifying target pages the terms should be linked to (intra-doc)

Example – B&G videos



Pier Paolo Pasolini – Wikipedia, the free encyclopedia

Back Forward Reload Stop Home http://en.wikipedia.org/wiki/Pier_Pasolini Go Search

Post to CiteULike post to del.icio.us del.icio.us MultiMatch Main Web SpeechRetrievalTeam English-Dutch Online... [Log in/create account](#)

[article](#) [discussion](#) [edit this page](#) [history](#)

Pier Paolo Pasolini

From Wikipedia, the free encyclopedia

Pier Paolo Pasolini (March 5, 1922 – November 2, 1975) was an Italian poet, intellectual, film director, and writer.

Pasolini distinguished himself as a philosopher, linguist, novelist, playwright, filmmaker, newspaper and magazine columnist, actor, painter and political figure. He demonstrated a unique and extraordinary cultural versatility, in the process becoming a highly controversial figure.

Contents [hide]

- 1 Biography
 - 1.1 Early years
 - 1.2 First poetical works
 - 1.3 Adhesion to the Italian Communist Party
 - 1.4 Success and charges
 - 1.5 Death
- 2 Works

Born March 5, 1922
Bologna, Italy

lach wiki

Project X(tra)

Terva naar het overzicht

u: multimatch2 - p: f64ty1 - XML Source identifier: ACADEMIA_mm_1167.xml | [view XML](#)

DE ONDERSTE STEEN (31-08-1981)

Een overzicht van de carrière van Pier Paolo [pasolini](#) die, oa beïnvloed door zijn [moeder](#) en in tegenstelling tot zijn [vader](#), tegen het regime van Benito Mussolini was en [later](#) lid [werd](#) van de communistische partij. Zijn eerste films heeft hij gemaakt onder invloed van het [italiaan](#) neorealisme en pas [later](#) [werd](#) hij ook als schrijver en dichter erkend. Onder beschuldiging van homoseksualiteit verloor hij zijn baan als onderwijzer en ook de [moord](#) op hem [werd](#) in verband gebracht met zijn seksuele voorkeur. INTERVIEWS over hem met: - Laura Betti, actrice, die oa fragmenten van gedichten uit de verschillende

Videoplayback:

Multilingual support

Provide system with monolingual and multilingual search functionalities

- English, Dutch, Italian, Spanish, German and Polish

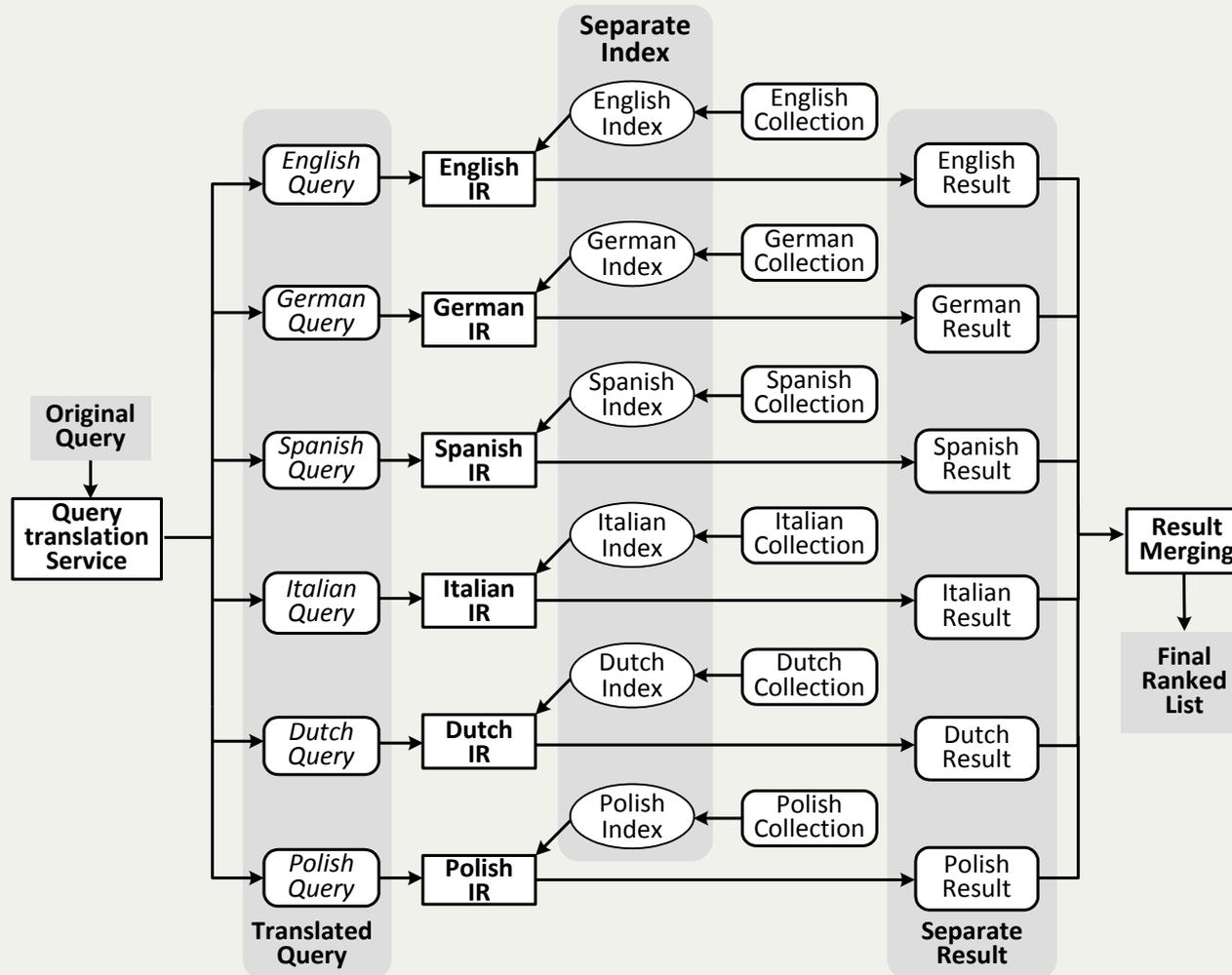
Provide effective translation strategies

- multilingual dictionaries
- machine translation
- combined hybrid translation methods
- translation uses domain-specific dictionaries

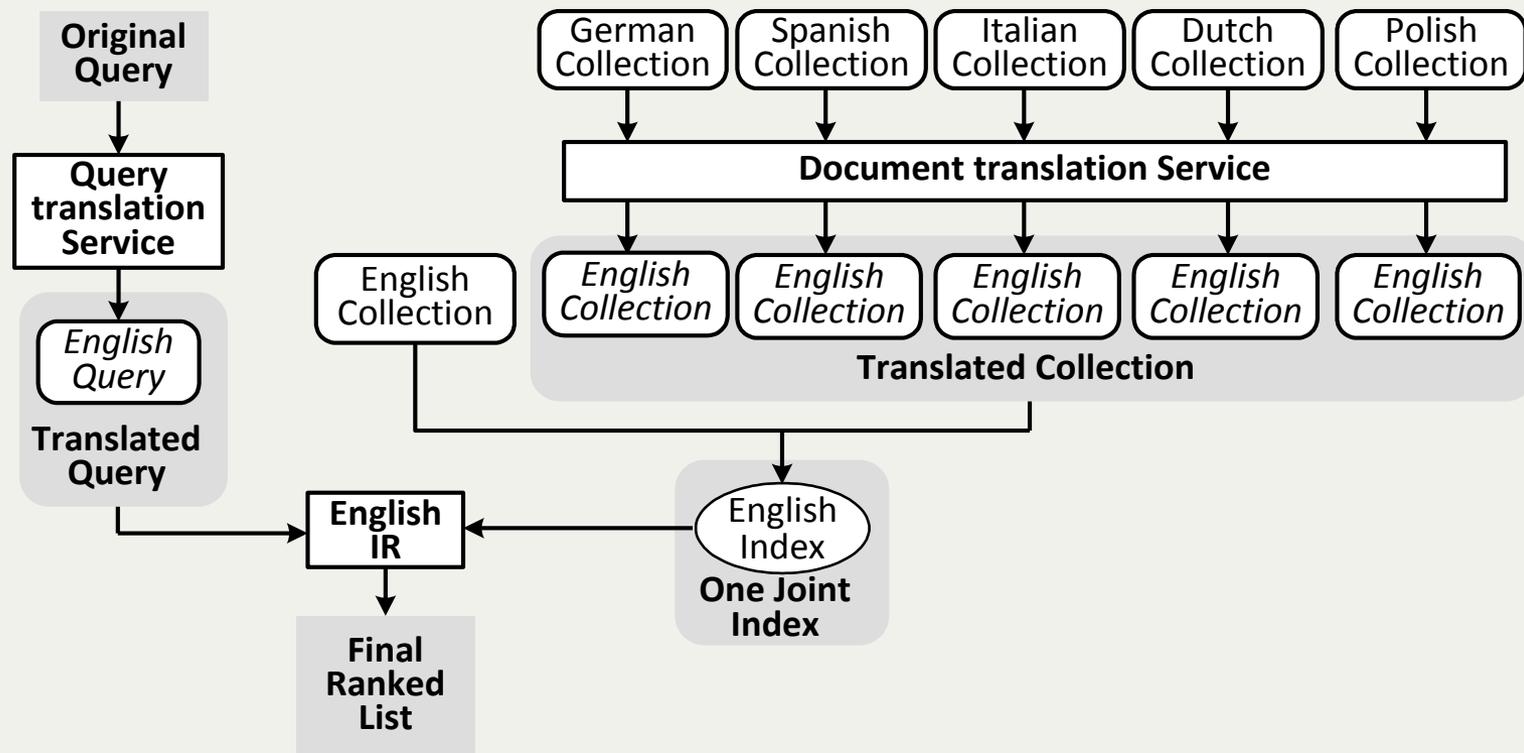
Provide expansion services

- relevance and pseudo relevance feedback

Multilingual IR – query translation



Multilingual IR – document translation



Searchable metadata repository

Data to manage is varied, including different formats
plain text, XML documents, colour histograms, etc.

All content in Multimatch is enriched with metadata
(and unique identifier) and stored in repository
allows these documents to be optimally searched

Supported by MILOS

- Multimedia Content Management System for Digital Library

Applications (<http://milos.isti.cnr.it/>)

Lucene plug-in for full-text searches

fusion plug-in for multi-modal searches

entity disambiguator

MPEG-7 index plug-in

Multimedia support

Audio streams (e.g. podcasts)

- automatic speech recognition to generate transcript (searchable)
- segmented (based on theme not just energy levels)

Video streams

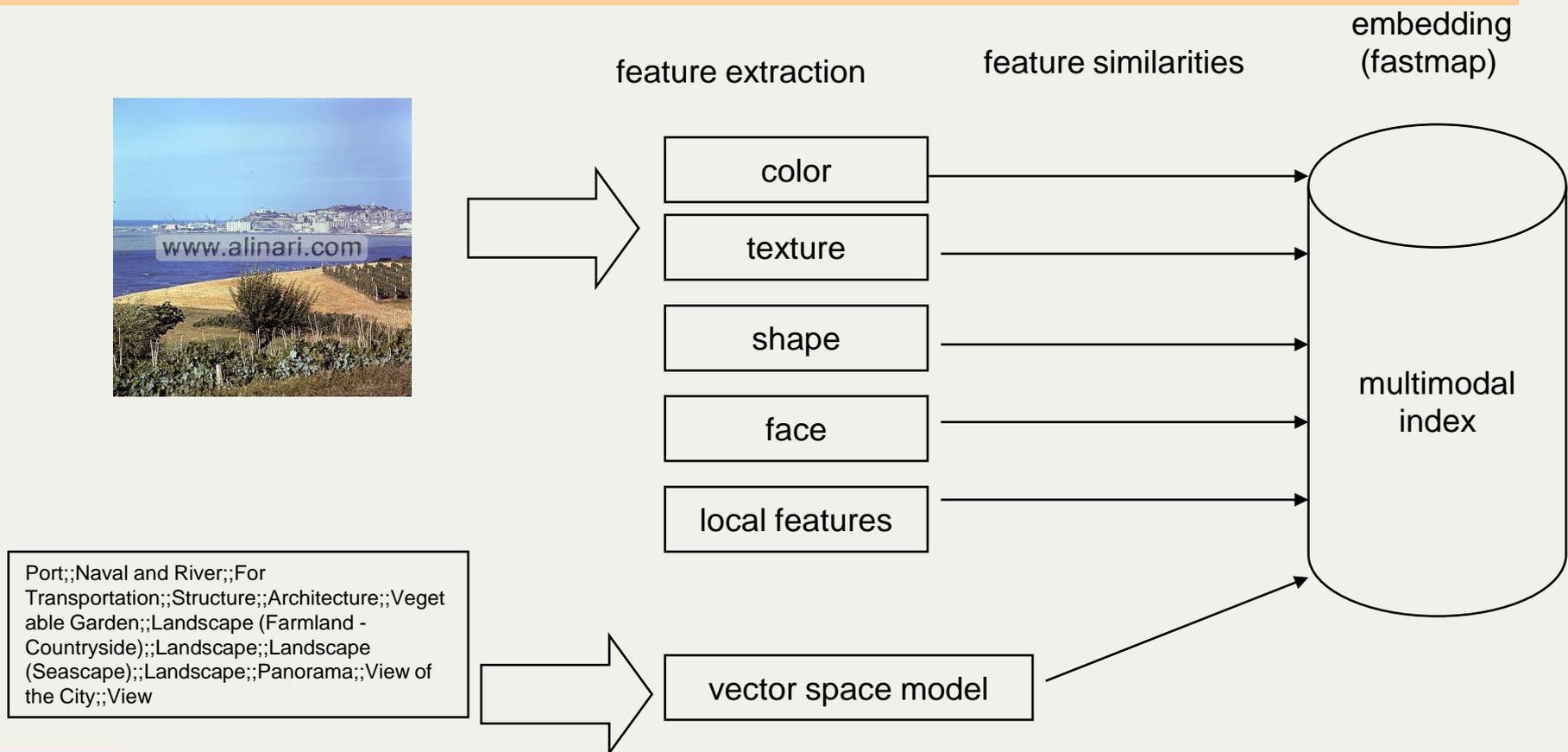
- metadata is translated and searchable
- videos are segmented (shot boundary detection)
- keyframes extracted from segments
- used Real Helix streaming video server for playback

Still images

- low-level visual features extracted and indexed
- accompanying text also indexed allowing multimodal search and browse

Cross Modal Search Engine

Eric Bruno, Jana Kludas, and Stéphane Marchand-Maillet (2007) Combining multimodal preferences for multimedia information retrieval. *MIR 2007*, Augsburg, Germany.



User interface (UI)

Default/overview search

- no assumptions made about user and their query
- access to general interactive features

Set of specialised search interfaces

- allow users to query specific search services
- provide access to advanced features

Search levels

- default and advanced modes

Allow users to customise interface

- e.g. specify interface language

Architecture

Interface implemented using the GWT (UNED)

- common protocol developed (based on URL messaging) to communicate between GUIs
- provided a library of core components (widgets)
- templates provided for writing new applications

Additional work involved in creating the interface

- creating APIs (client services) which interact with MultiMatch web services and the GUI
- dynamic parsing of metadata structures to extract required information for individual interfaces

Interfaces developed as standalone applications (GUIs)

Overview UI

Common entry point for (mainly) general users

- starting point for specialised interfaces
- results aggregated across sources and media types

Users can add/remove results windows

- Web, Archives, Video, Image, Audio, Creators, RSS
- use of “infinite” scrolling bar
- links to metadata, term clouds, snippets and related terms

Users can filter language of results

New functionality for cross-language support

- use of combined MT and dictionary service
- ability to select/de-select alternative translations
- search all languages (English interlingua)
- localisation (Dutch, Spanish and German)

Example Overview UI

Overview [Browser](#) [Web](#) [Archives](#) [Video](#) [Image](#) [Audio](#) [Creators](#) [Feeds](#) [login](#) [register](#) Interface language ▾

MultiMatch [Search all languages](#)
[Translate my query](#)
[Show advanced search](#)

I write in:
[English](#) [Spanish](#) [Italian](#) [Dutch](#) [German](#) [Polish](#)

All languages [English](#) [Spanish](#) [Italian](#) [Dutch](#) [German](#) [Polish](#)

[Web \(100\)](#) [Archives \(1\)](#) [Video \(1\)](#) [Image \(11\)](#) [Audio \(0\)](#) [Creators \(2\)](#) [Feeds \(17\)](#) Results for **picasso**

Feeds 1-10 of 17 (1.1 secs)

1 - [Picasso, Matisse, Richardson, and 1931-32](#)
of all things Matisse from his Picasso books is a bit grating. While the Norton Simon over... eng
[http://www.artsjournal.com/man/2008/06/picasso_matisse_richards...](http://www.artsjournal.com/man/2008/06/picasso_matisse_richards)
 2008-07-09 Picasso... is a bit grating. While wandering the Norton S the weekend (and in between seeing Adam in... Back
www.artsjournal.com/man/2008/06/picasso_matisse...
[metadata](#) - [term cloud](#) - [hide related terms](#) - [hide snippet](#)
[hungara](#) [1964-1990](#) [1912-1925](#) [amsterdam.html](#) [memory.html](#)

2 - [Notes and news](#)
www.artsjournal.com/man/2008/10/news_and_notes...
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

3 - [Picasso and his collection](#)
library.rijksmuseum.nl/nl/rii/search.pl?item=10115423
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

[open specialized view](#)

Web 1-10 of 100 (2.7 secs)

1 - [Contact - Fundaci n Picasso](#)
www.fundacionpicasso.es/ri/contacto/webmaster.php
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

2 - [Contact Info - Picasso Foundation](#)
www.fundacionpicasso.es/en/contacto/webmaster.php
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

3 - [Collection of Prints and Drawings of ETH - Picasso's Applied Graphics, The Margadant Collection](#)
www.gs.ethz.ch/ausstellung/archiv/Picasso_e.html
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

4 - [Pablo Picasso | Artist](#)
www.lucidcafe.com/library/95oct/ppicasso.html
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

5 - [Contact - Fundaci n Picasso](#)

[open specialized view](#)

Creators 1-2 of 2 (0.3 secs)

1 - [Picasso, Pablo](#)
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

2 - [Guttuso, Renato](#)
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

[open specialized view](#)

Video 1 of 1 (0.6 secs)

1 - [Picture STORM](#)
multimatch01.isti.cnr.it/Video/BG_370...
[zoom](#) - [metadata](#) - [show related terms](#) - [show snippet](#)

[open specialized view](#)

Archives 1 of 1 (0.4 secs)

1 - [Cecil Higgins Art Gallery: Online catalogue of the Print Collection](#)
www.michael-culture.org.uk/mpf/pub-uk/doc?base=...
[metadata](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)

[open specialized view](#)

Image 1-10 of 11 (0.6 secs)

1 - [Painting by Pablo Picasso entitled 'Lady with Fan' in the Pushkin Museum \(Puskin\) in Moscow](#)
virgil.multimatch.hostedbyfdi.net/cac...
[zoom](#) - [term cloud](#) - [show related terms](#) - [show snippet](#)



Image UI

Simple functionality to access visual material

- assume that users begin with verbalised query

Results include

- image (thumbnail), title and URN

Users can also view

- metadata, term cloud, snippet, related terms, similar images

Find similar images (“more like this”) function

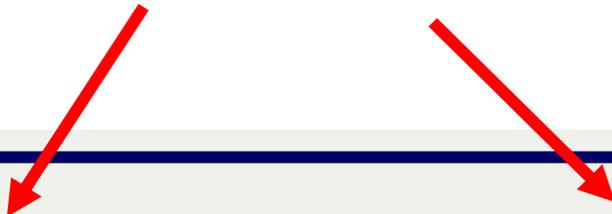
- images with similar visual content
- images with similar visual content and semantic content matching the query (uses fusion service)



[2 - Painting by Pablo Picasso of the Italian Harlequin. The painting by the famous artist is in the Pompidou Museum in Paris](#)

[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpegdea554667f40d7...](#) -

[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)



All languages English Spanish Italian Dutch German Polish

 [1 - Painting by Pablo Picasso of the Italian Harlequin. The painting by the famous artist is in the Pompidou Museum in Paris](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpegdea554667f40d7...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [2 - A hippopotamus threateningly showing its tusks](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg4943f814744c295...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [3 - Rumanian peasants and gypsies](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg561af08b3c5fa6...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [4 - fascism](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg83e12d3bfd6f373...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [5 - Detail of the fresco depicting The Last Judgement, by Giotto, inside the Scrovegni Chapel, in Padua. The detail shows two demons seizing a partially clothed man](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg2593cef918eac62...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [6 - The Archangel Raphael and Tobias, detail, attributed to Giovanni di Piemonte, located in the Museum of the Basilica of Santa Maria delle Grazie in San Giovanni Valdarno](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpegca905a5e6d4055f...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [7 - A plum-tree branch with fruits](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeged3666d94760828...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

All languages English Spanish Italian Dutch German Polish

Related terms: [RELATED:URN:MULTIMATCH:CACHED:IMAGE_JPEG:DEA554667FF40D7A7EFB42A91C4EF87](#) [PICASSO](#)

 [1 - Painting by Pablo Picasso of the Italian Harlequin. The painting by the famous artist is in the Pompidou Museum in Paris](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpegdea554667f40d7...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [2 - 'House in Rue de Boir', painting by Pablo Picasso in the Pushkin Museum in Moscow. The picture shows a house surrounded by a low wall. In the foreground a tree is lifting its bare branches upwards](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg059959b589b83c2...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [3 - Painting by Pablo Picasso entitled 'Lady with Fan' in the Pushkin Museum \(Pushkin\) in Moscow](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg881a24a233e9023...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

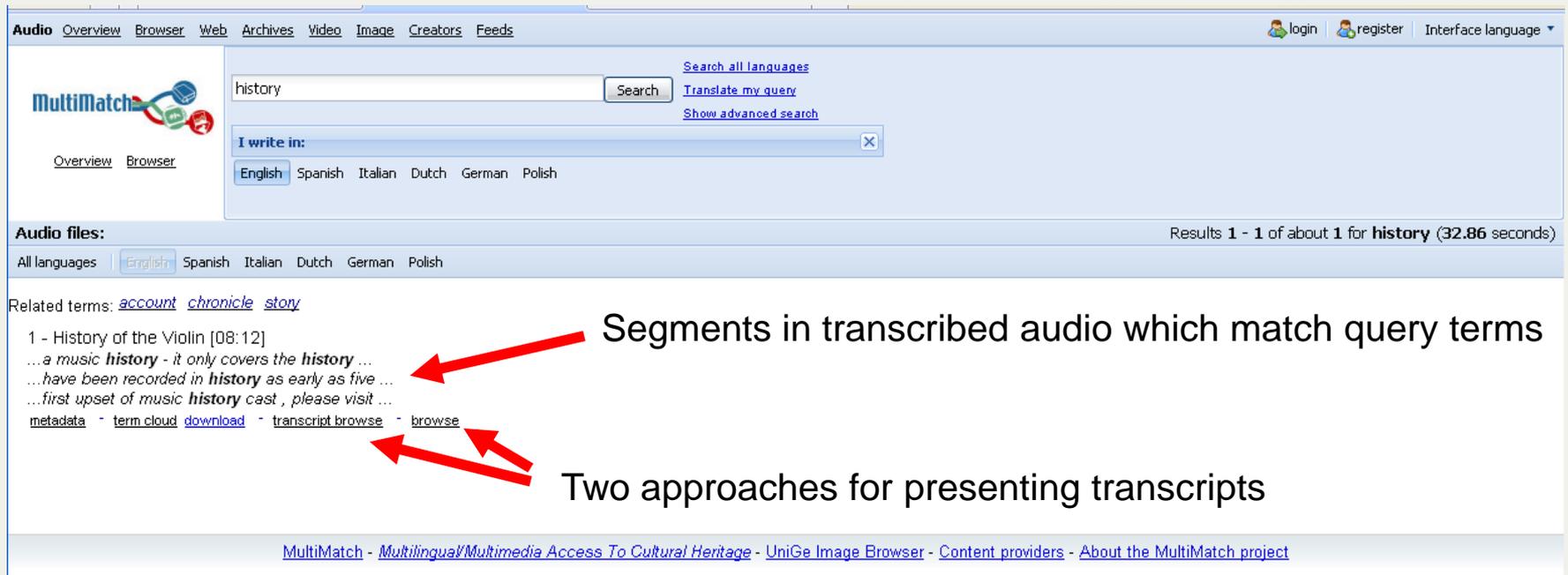
 [4 - Painting by Pablo Picasso entitled 'Harlequin and companion' in the Pushkin Museum \(Pushkin\) in Moscow](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpeg142ca144904d661...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

 [5 - Painting by Pablo Picasso entitled 'Girl on the Ball', in the Pushkin Museum in Moscow. A man with powerful limbs is seated before a young acrobat shown balancing on a ball. In the background a woman with an infant in her arms and a child at her side can be](#)
[virgil.multimatch.hostedbyfdi.net/cached/image_jpeg/image_jpegfe3bd7008a641f5...](#) -
[metadata](#) - [zoom](#) - [term cloud](#) - [more like this image](#) - [more like this image and query](#) - [show related terms](#) - [show snippet](#)

Audio UI

Generic playback for any web browser

- JavaScript-based wrapper provided playback controls independent of audio file type



Audio Overview Browser Web Archives Video Image Creators Feeds login register Interface language

MultiMatch

Search all languages
Translate my query
Show advanced search

history

I write in:

Audio files: Results 1 - 1 of about 1 for history (32.86 seconds)

All languages

Related terms: [account](#) [chronicle](#) [story](#)

1 - History of the Violin [08:12]
*...a music **history** - it only covers the **history** ...*
*...have been recorded in **history** as early as five ...*
*...first upset of music **history** cast , please visit ...*

[metadata](#) - [term cloud](#) [download](#) - [transcript.browse](#) - [browse](#)

MultiMatch - [Multilingual/Multimedia Access To Cultural Heritage](#) - [UniGe Image Browser](#) - [Content providers](#) - [About the MultiMatch project](#)

Transcript presentation

J.R.R Tolkien Part II

04:29 / 18:17

Frodo was originally called bingo and Strider was Trotter by mid-summer nineteen thirty eight is next story he gained considerable momentum and the true power of columns during his becoming more and more central to the story . it was for us to the Lord of the rings was born Tolkien 's writing habits would plague the work done in the Lord of the rings to link to that continuity of language in geography with his other writings on middle Earth and interruptions everyone had to deal with Journal World War II , and his tendency to write and rewrite all work together to slow down and work on the new epic . progress was so slow at some points , the

Close

Transcript browse

- Clickable audio segments
- Transcript viewable

Term cloud browse

- Clickable audio segments
- Term cloud items can be arranged alphabetically or by time

J.R.R Tolkien Part II

Term Cloud Order:

book completed firm hobbit

nineteen people publishing read

story thirties tolkien

Term cloud items

Close

Results of audio evaluation

General users (12) asked to perform 4 search tasks to evaluate presentation techniques

Main findings

- slight preference for transcript browse (terms sometimes deemed as not relevant in term clouds)
- no preference given to how terms ordered in term cloud browse (alphabetically or temporally)
- many users interacted directly with the progress bar

User's comments

- could only jump to first occurrence of term in term cloud browser
- ideal speech data presentation technique would be combination of verbatim transcript display together with query-sensitive term clouds

Video UI

Similar look-and-feel to audio UI

- view metadata, term clouds, snippets and related terms

Initial search queries video metadata

- also provided a search within results (inter-video search) function based on transcripts (requested by video experts)

For selected video users can

- playback video from various starting points
- view keyframes and associated transcript text
- search for (and playback) specific keyframe segments containing keywords

Carmichael, J., Larson, M., Marlow, J., Newman, E., Clough, P., Oomen, O., and Sav, S. (2008), Multimodal Indexing of Electronic Audio-visual Documents: A Case Study for Cultural Heritage Data, to appear in the Proceedings of the Sixth International Workshop on Content-Based Multimedia Indexing (CBMI2008), London, UK, 18-20th June.

Inter-video search

Inter-Document text search for the 10 videos on this page

Type query in text box below, then press ENTER key.

Schilderen

Select video from drop-down list to display its transcript.

Document 4: Picture STORM

Select any of the 10 documents from this drop-down list

Document 1: Picture STORM
 Document 2: IN FORMER DAYS & THIS WAY
 Document 3: CLOSE - UP
Document 4: Picture STORM
 Document 5: WHY DO I HAVE READ THIS?
 Document 6: WIM QUIST, ARCHITECT
 Document 7: Picture STORM
 Document 8: Picture STORM
 Document 9: SKY CONCERNING THE NETHERLANDS
 Document 10: ZEMBLA

Frequency of occurrence for the query item: "schilderen"

Document 1: Picture STORM" 1 times
 Document 2: IN FORMER DAYS & THIS WAY" 1 times
 Document 3: CLOSE - UP" 1 times
 Document 4: Picture STORM" 0 times
 Document 5: WHY DO I HAVE READ THIS?" 0 times
 Document 6: WIM QUIST, ARCHITECT" 0 times
 Document 7: Picture STORM" 2 times

bouwden anderen daar juist graag bij een bij hebben en dat lukte ook en zo kwam een schilderij met bollenvelden Monet in Nederland terecht bij in de collectie er van dat Van Gogh in permanente bruikleen is en nu die zitten twee gebeurtenissen uit negentien eenennegentig af die daar nog runnen als de dag van gisteren die geven aanleiding om eens na te denken maar o waren er zijn er eigenlijk verder nog bewoners in Nederland het zat de vrouw van tas is in de rode grote schulden af van het Frans impressionisme en en zijn inwoners in Nederland en zo ja waar en dan blijkt dat je niet geringe verbazing dat er dus eigenlijk een

realPlayer

Close

Video playback and transcript search

Picture STORM

Schilder

The query term: "schilder "occurs in keyframe segments: 4, 6, 7, 9, 10, 12, 17, 17, 17, 18,

Segment number:

Segment #:15
Segment Start: T00:03:52:639F1000

Segment Transcript:
achttien

Click on any key frame to play video from that point. If playback stalls, note the timestamp information provided (text box above). Stop playback via manual controls and then jump to selected point by pressing "Play" button and then adjusting slider on progress bar

Key frame #: 15
Timestamp: T00:03:52:639F1000
Speech transcript for SEGMENT 15, :
achttien

Results of Video Evaluation

User study at B&G in May 2008 (10 users)

- examine usability and efficiency of video UI with professional users
- reported in D7.3 (Evaluation of second prototype)

Overall positive quantitative results and qualitative feedback

- task of selecting relevant clips from video document aided by shot-aligned speech and keyframes

Highlighted problems with ASR accuracy and multilingual speech

Creators UI

Utilisation of MultiMatch metadata schema and annotation

- provides biographical information and cross-referencing

Provides users with access to biographical information related to particular artist

- birth/death places/dates, nationality, alternative names, description
- query suggestions (names of artists)
- list of creations by selected artist

Link to page for selected artist displaying

- related creations (images and videos)
- related web pages
- “More like this” for images (derived from image UI)

1 - Picasso, Pablo

(1881--1973)

Birth Place: Málaga (Málaga province, Andalusia, Spain) ()

Death Place: Mougins (Alpes-Maritimes, Provence-Alpes-Côte d'Azur, France) ()

Nationality: Spanish;

Brief Description: Creator decorative artist ceramicist painter artist writer sculptor draftsman printmaker

Alternative names: Picasso, Pablo;Ruiz Picasso, Pablo;Picasso, Pablo Ruiz;Ruiz, Pablo;Ruiz y Picasso, Pablo;Ruys, Pablo;Picasso, Pablo Diego José Francisco de Paula Juan Nepomuceno Crispín Crispiniano de la Santísima Trinidad Ruiz Blasco;Ruys Picasso, Pablo;Pablo Picasso;Picasso, Pablo Ruiz y;

Source: Alinari;

Related Creations: 8

Related Webpages:

[urn:multimatch:non](#)

[show description](#) - [e](#)



New MultiMatch object which is indexed

Image Overview Browser Web Archives Video Audio Creators RSS

login register Interface language ▾

picasso Search

Overview Browser

Creators Results 1 - 9 of about 1 for [urn:multimatch:nonCached:text_xml:455cf1bf48a9984a1372532e1e7f8786](#) (1.8 seconds)

1 - Picasso, Pablo
(1881--1973)
Birth Place: Málaga (Málaga province, Andalusia, Spain) ()
Death Place: Mougins (Alpes-Maritimes, Provence-Alpes-Côte d'Azur, France) ()
Nationality: Spanish;
Brief Description: Creator decorative artist ceramicist painter artist writer sculptor draftsman printmaker
Alternative names: Picasso, Pablo;Ruiz Picasso, Pablo;Picasso, Pablo Ruiz;Ruiz, Pablo;Ruiz y Picasso, Pablo;Ruys, Pablo;Picasso, Pablo Diego José Francisco de Paula Juan Nepomuceno Crispín Crispiniano de la Santísima Trinidad Ruiz Blasco;Ruys Picasso, Pablo;Pablo Picasso;Picasso, Pablo Ruiz y;
Source: Alinari;
Related Creations: 8
Related Webpages: 10
[urn:multimatch:nonCached:text_xml:455cf1bf48a9984a1372532e1e7f8786](#) - 0
x
0
[show description](#)

Related Webpages
<http://www.artchive.com/artchive/P/picasso.html>
<http://www.abcgallery.com/P/picasso/picasso.html>
<http://www.abcgallery.com/P/picasso/picassobio.html>
<http://www.lucidcafe.com/library/95oct/picasso.html>
http://www.artyclopedia.com/artists/picasso_pablo.html
http://www.metmuseum.org/toah/nd/pica/nd_pica.htm
<http://www.mcs.csuhaward.edu/~maleki/ArtFolder/Pablo.html>
http://www.artelino.com/articles/pablo_picasso.asp
http://www.quotationspage.com/quotes/Pablo_Picasso/
<http://www.time.com/time/time100/artists/profile/picasso.html>

 [Painting by Pablo Picasso entitled 'Girl on the Ball', in the Pushkin Museum in Moscow. A man with powerful limbs is seated before a young acrobat shown balancing on a ball. In the background a woman with an infant in her arms and a child at her side can b](#)
Brief Description: Païting by Pablo Picasso entitled 'Girl on the Ball', in the Pushkin Museum in Moscow. A man with powerful limbs is seated before a young acrobat shown balancing on a ball. In the background a woman with an infant in her arms and a child at her side can b Dieses Gemälde von Pablo Picasso mit dem Titel "Mädchen auf dem Ball" ist im Puschkin-Museum in Moskau aufbewahrt. Ein muskulöser Mann sitzt vor einer jungen Akrobatin, die auf einem Ball balanciert. Im Hintergrund steht eine Frauenfigur mit einem Neugeborenen im Arm und einem kleinen Kind an der Seite. In einiger Entfernung graest ein Pferd Ragazza sulla Palla - Museo Pushkin, Mosca Païting przez Pablo Picasso zażytulowany 'Dziewczyna na Pilce', w Puskin Muzeum w Moskwie. Człowiek z potężnymi kończynami siedzi przed młodą akrobatką pokazane bilansowanie na pilce. W tle kobieta z niemowlęciem w jej broni i dziecku przy jej stronie może by pintura de Pablo Picasso titulada "Muchacha sobre el balón", conservada en el Museo Pusckhin en Moscú. Un hombre de músculos potentes se encuentra sentido delante de una joven acróbata retratada en equilibrio encima de un balón. En el fondo se vislumbra u
Source: Alinari;
Subject: Styles and Movements before 1945 International Art of the XX Century Painting Work Painting Painting Movable Modern Work
[urn:multimatch:nonCached:text_xml:4cede8cc37261158576a50504657b7f9](#) - 30
x
28
[show description](#) - [zoom](#) - [more like this image](#) - [more like this image and query](#)

 [Painting by Pablo Picasso entitled 'The Encounter', in the Pushkin Museum in Moscow. At the center of the picture a man and a woman are passionately embracing and kissing. Behind them a bed and a chair](#)
Brief Description: Painting by Pablo Picasso entitled 'The Encounter', in the Pushkin Museum in Moscow. At the center of the picture a man and a woman are passionately embracing and kissing. Behind them a bed and a chair Das Gemälde von Pablo Picasso mit dem Titel "Das Rendevous" ist im Puschkin-Museum in Moskau aufbewahrt. In der Bildmitte sind ein Mann und eine Frau in einer leidenschaftlichen Umarmung dargestellt, hinter ihnen ein Bett und ein Stuhl L'Incontro - Museo Pushkin, Mosca Obraz Pablo Picasso zażytulowany 'Spotkanie', w Puskin Muzeum w Moskwie. Przy centrum obrazu mezczyzna i kobieta goraco obejmują i całują. Za nimi łózko i krzesło Pintura de Pablo Picasso titulada "El encuentro", conservada en el Museo Pusckhin de Moscú. En el centro de la imagen un hombre y una mujer se abrazan y se besan con pasión. Detrás de ellos una cama y una silla
Source: Alinari;

Evaluation

Internal testing carried out during development

- held a number of “evaluation days”

Some components evaluated individually

- audio UI and video UI
- faceted browsing and focused browsing

Overall prototype tested in user evaluation and field trials

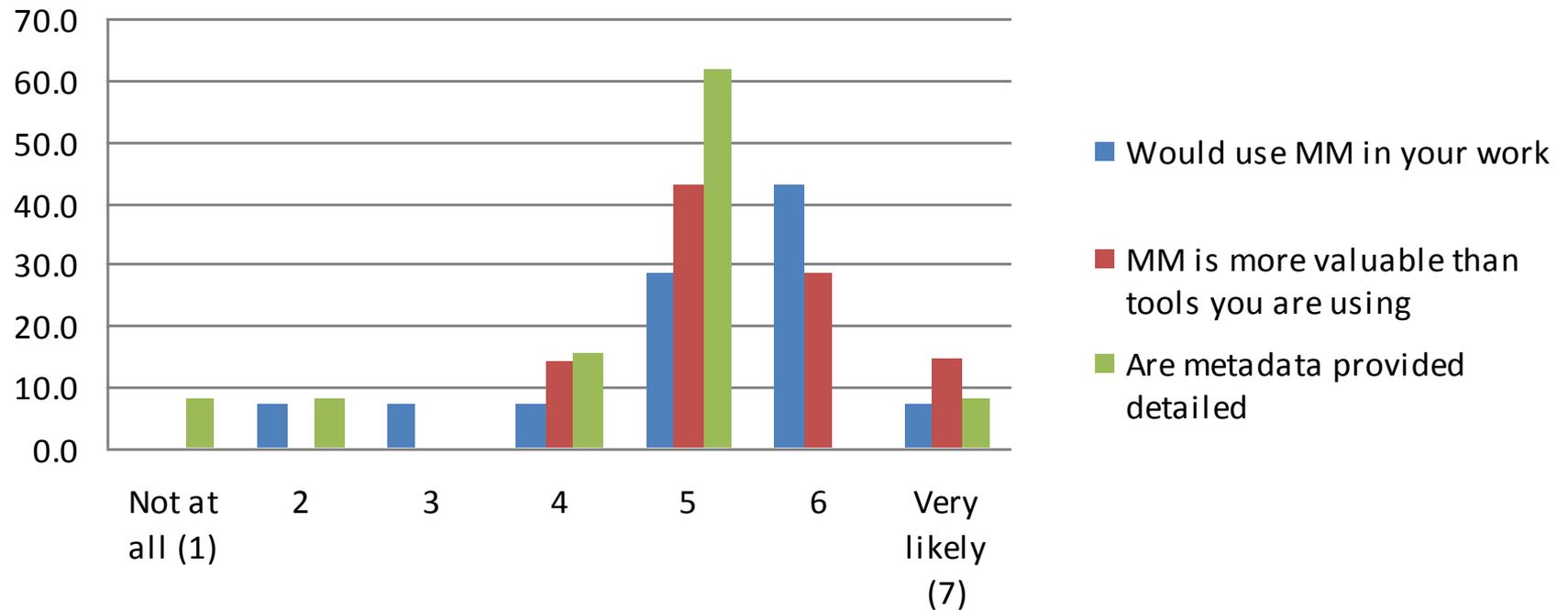
- task-based evaluation with 55 users (3 user groups)
- low satisfaction with video interface
high satisfaction for multilingual functionalities

Further user evaluations are planned

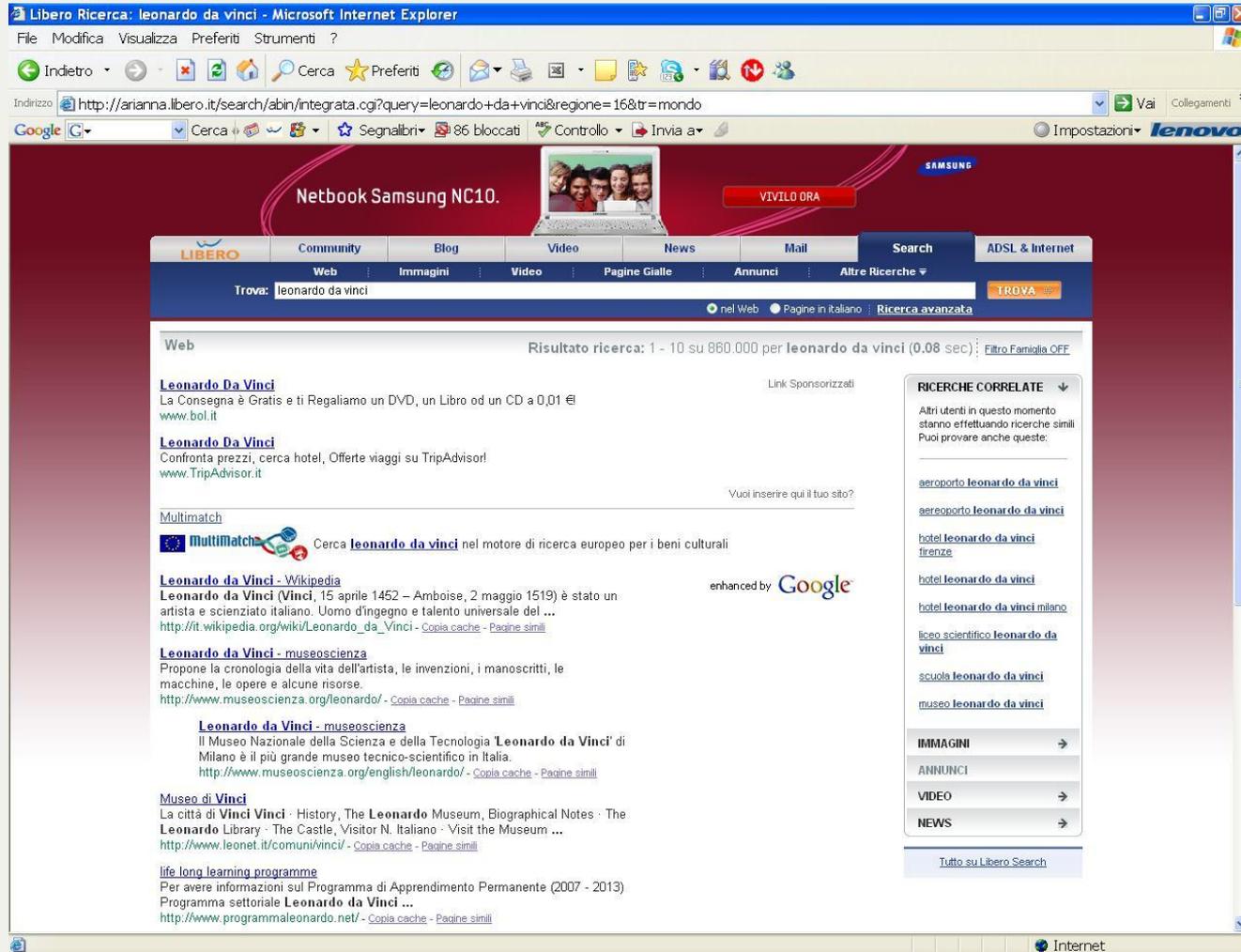
User evaluation

Comparison with other tools

Cultural Heritage Users



Field trials



Libero Ricerca: leonardo da vinci - Microsoft Internet Explorer

Indirizzo <http://arianna.libero.it/search/abin/integrata.cgi?query=leonardo+da+vinci®ione=16&tr=mondo>

Libero Community Blog Video News Mail Search ADSL & Internet

Web Immagini Video Pagine Gialle Annunci Altre Ricerche

Trova: leonardo da vinci

Risultato ricerca: 1 - 10 su 860.000 per leonardo da vinci (0,08 sec) Filtro Famiglia OFF

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Leonardo Da Vinci
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Multimatch enhanced by Google
 Cerca **leonardo da vinci** nel motore di ricerca europeo per i beni culturali

Leonardo da Vinci - Wikipedia
Leonardo da Vinci (Vinci), 15 aprile 1452 – Amboise, 2 maggio 1519) è stato un artista e scienziato italiano. Uomo d'ingegno e talento universale del ...
http://it.wikipedia.org/wiki/Leonardo_da_Vinci - Copia cache - Pagine simili

Leonardo da Vinci - museoscienza
 Propone la cronologia della vita dell'artista, le invenzioni, i manoscritti, le macchine, le opere e alcune risorse.
<http://www.museoscienza.org/leonardo/> - Copia cache - Pagine simili

Leonardo da Vinci - museoscienza
 Il Museo Nazionale della Scienza e della Tecnologia **Leonardo da Vinci** di Milano è il più grande museo tecnico-scientifico in Italia.
<http://www.museoscienza.org/english/leonardo/> - Copia cache - Pagine simili

Museo di Vinci
 La città di **Vinci Vinci** - History, The **Leonardo** Museum, Biographical Notes - The **Leonardo** Library - The Castle, Visitor N. Italiano - Visit the Museum ...
<http://www.leonet.it/comuni/vinci/> - Copia cache - Pagine simili

life long learning programme
 Per avere informazioni sul Programma di Apprendimento Permanente (2007 - 2013) Programma settoriale **Leonardo da Vinci** ...
<http://www.programmaleonardo.net/> - Copia cache - Pagine simili

RICERCHE CORRELATE
 Altri utenti in questo momento stanno effettuando ricerche simili. Puoi provare anche queste:

- [aeroporto leonardo da vinci](#)
- [aeroporto leonardo da vinci](#)
- [hotel leonardo da vinci firenze](#)
- [hotel leonardo da vinci](#)
- [hotel leonardo da vinci milano](#)
- [liceo scientifico leonardo da vinci](#)
- [scuola leonardo da vinci](#)
- [museo leonardo da vinci](#)

IMMAGINI →

ANNUNCI

VIDEO →

NEWS →

Tutto su Libero Search

Example research

Artist & their Artworks [Select British in facet Nationality »] - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.dcs.shef.ac.uk/~nsi/example-fb.html

Customize Links Free Hotmail RealPlayer Windows Marketplace Windows Media Windows

Artist & their Artworks:

ARTISTS • TIMELINE • BIRTH MAP • ARTWORKS

41 Artists filtered from 101 originally ([Reset All Filters](#))

[16 results](#) out of 41 cannot be plotted.

Map Satellite Hybrid

Map data ©2008 Europa Technologies - [Terms of Use](#)

Artist Facets

Name Search

Name »

Role »

Birth Date » 1

2 1600 - 1700

18 1700 - 1800

16 1800 - 1900

41 1900 - 2000

Death Date »

Nationality » 2

13 American

1 Australian

1 Austrian

1 Belgian

28 British

Sex »

Relationship »

Artwork Facets

Clough, P., Marlow, J. and Ireson, N. (2008) Enabling Semantic Access to Cultural Heritage: A Case Study of Tate Online, Larson, M., K. Fernie, J. Oomen and J. Cigarran (eds.) Proceedings of the ECDL 2008 Workshop on Information Access to Cultural Heritage, Aarhus, Denmark, September 18, 2008. ISBN 978-90-813489-1-1

Summary

Specialised search engine focused on cultural heritage domain

- higher quality (and authoritativeness) of results compared to general Web search engine
- include content from cultural heritage institutions

Reduces time and effort spent searching

- users don't have to perform same search on multiple sites (i.e. like metasearch)

Ability to broaden search

- search across languages, sources and media types

You want to find out more

- **Marlow, J., Clough, P., Ireson, N., Cigarrán Recuero, J., Artiles, J. and Debole, F. (2008), The MultiMatch Project: Multilingual/Multimedia Access to Cultural Heritage on the Web, In Museums on the Web Conference (MW2008): Proceedings, J. Trant and D. Bearman (eds). Toronto: Archives & Museum Informatics. 2008.**
<http://www.archimuse.com/mw2008/papers/marlow/marlow.html>
- **Clough, P., Marlow, J., Carmichael, J., Cigarran Recuero, J.M., Artiles, Gareth Jones, Stéphane Marchand-Maillet, Neil Ireson (2008) Interface for Second Prototype, Deliverable number: D6.2.2, Multilingual/Multimedia Access To Cultural Heritage (MultiMatch) project.**
http://ir.shef.ac.uk/cloughie/papers/D6.2.2%20_Final.pdf
- **Marlow, J., Clough, P., and Dance, K. (2007), Multilingual needs of cultural heritage website visitors: A case study of Tate Online, In International Cultural Heritage Informatics Meeting (ICHIM07): Proceedings, J. Trant and D. Bearman (eds). Toronto: Archives & Museum Informatics. 2007. Published September 30, 2007 at**
<http://www.archimuse.com/ichim07/papers/marlow/marlow.html>
- **Clough, P., Marlow, J. and Ireson, N. (2008) Enabling Semantic Access to Cultural Heritage: A Case Study of Tate Online, Larson, M., K. Fernie, J. Oomen and J. Cigarran (eds.) Proceedings of the ECDL 2008 Workshop on Information Access to Cultural Heritage, Aarhus, Denmark, September 18, 2008. ISBN 978-90-813489-1-1**
- **Minelli, S. H., Marlow, J., Clough, P., Cigarran Recuero, J.M., Gonzalo, J., Oomen, J. and Loschiavo, D. (2007), Gathering requirements for multilingual search of audiovisual material in cultural heritage, In Proceedings of Workshop on User Centricity - state of the art (16th IST Mobile and Wireless Communications Summit), Budapest, Hungary, 1-5 July, 2007**