CHIP Project @ Rijksmuseum Amsterdam

Cultural Heritage Information Personalization

Natalia Stash
The CHIP Project: Bridging the Gap between Virtual and Physical Museum Experience

❖ Cultural partner Rijksmuseum Amsterdam, offers:
~7000 artworks inside museum
~50000 artworks online
The CHIP Project: Bridging the Gap between Virtual and Physical Museum Experience

❖ Research question: Can we use semantic metadata of cultural heritage to improve personalized access through multiple devices (e.g. PC, mobile phone, PDA)?
CHIP Tools

Art Recommender

Tour Wizard

Mobile Museum Guide

Artworks and art concepts recommendations

Managing and visualizing museum tours

Guiding the user inside the museum

Interactive user modeling, tour data
Semantically Enriched CHIP Data
style: Baroque

place: Amsterdam

period: 1625 to 1650

self-portrait

militia

teacher of: Ferdinand Bol

teacher of: Gerrit Dou

teacher of: Nicolaes Maes
CHIP User Model

External classes and properties from FOAF

- foaf:Person
  - foaf:holdsAccount
  - foaf:OnlineAccount

Internal classes and properties in CHIP

- chip:User
  - chip:hasRated

- chip:Rate_Value
  - chip:ratedValue

- chip:Rate_Relation
  - chip:ratedObject

Objects from the CHIP vocabularies

- vra:Work
- ulan:Person
- tgn:Place
- aat:Style
- ic:Concept
Art Recommender

Tour de Rijks

Rate these artworks

Rated topics

All | I like | I dislike
---|---|---
Militia paintings | ★★★★★ | +
Group portraits | ★★★★★ | +
Patrons | ★★★★★ | +
Arquebusiers | ★★★★★ | +
Power | ★★★★★ | +
Militias | ★★★★★ | +
Arquebusiers hall | ★★★★★ | +
Composition | ★★★★★ | +

Recommendations

Include in results: Creators, Creation Sites, Material Medium, Material Support, Styles, Themes

177 Recommended artworks

11 Recommended topics

- Rendering of texture
- Lutes
- Symbolist
- Portraiture
- Domestic scenes
The Company of Frans Banning Cocq and Willem van Ruytenburch, known as the 'Night Watch'

Description
The Night Watch, the most famous painting in the Rijksmuseum, actually has another title: the 'Company of Frans Banning Cocq and Willem van Ruytenburch'. The picture is a militia painting: a group portrait of a division of the civic guard. Rembrandt depicted the group of militia men in an original way. He did not paint them in neat row or sitting at their annual banquet, rather, he recorded a moment: a group of militia men have just moved into action and are about to march off.
Art Recommender: Version 0.1

Build Your Art & History Profile

Give your opinion about artefacts below

We think you have interest in these topics:

- Children (theme) Why?
- Genre pieces (catalogue) Why?
- 1650 - 1675, Haarlem (period & location) Why?
- Lute (encyclopedia) Why?
- Musical instruments (encyclopedia) Why?
- Domestic scenes (catalogue) Why?
- Everyday Life (theme) Why?
- Dogs (encyclopedia) Why?
- Jan Havicksz. Steen (artist) Why?
- Group (catalogue) Why?
- Leisure and Entertainment (theme) Why?
- Animals (encyclopedia) Why?
- Paintings (catalogue) Why?

Un-check topics if you are not interested

Next 9 artefacts  Reload
Art Recommender: Version 0.2

Experience The Rijksmuseum

Find out what you like in the Rijksmuseum collection

Rate one or more art objects

Common terms based on your selection

Artist
- Balthasar van der Ast Why?
- Gerard van Honthorst Why?

Place and Time
- Delft, 1625 to 1675 Why?
- Utrecht, 1600 to 1700 Why?

Theme
- Flowers (encyclopedia) Why?
- Figures (men) (term) Why?
- Copying and borrowing (encyclopedia) Why?
- Underdrawing (encyclopedia) Why?
- Baroque (encyclopedia) Why?
### Art Recommender: Version 0.4

#### CHIP Personalized Access to the Rijkmuseum Amsterdam Collection

**Artwork To Rate**

**Your Profile**

<table>
<thead>
<tr>
<th>Topics I Like</th>
<th>Neutral Topics</th>
<th>Topics I Do Not Like</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creators (1)</td>
<td>Styles (1)</td>
<td>Themes (2)</td>
</tr>
<tr>
<td>Rembrandt van Rijn</td>
<td>Baroque</td>
<td>Material aspects of daily life</td>
</tr>
<tr>
<td>Material Medium (1)</td>
<td>Oil paint</td>
<td>Double portraits</td>
</tr>
<tr>
<td>Themes (3)</td>
<td>Themes (1)</td>
<td>Brush technique</td>
</tr>
<tr>
<td>Oil paint</td>
<td>Themes (1)</td>
<td>Material aspects of daily life</td>
</tr>
<tr>
<td>Fashion</td>
<td>Themes (1)</td>
<td>Brush technique</td>
</tr>
<tr>
<td>Portraiture</td>
<td>Themes (1)</td>
<td>Brush technique</td>
</tr>
</tbody>
</table>

Rate this artwork
- Not interested
- Add to tour(s)

Previous artwork

![Artwork Image]

Next artwork

**Topics We Recommend (29)**

- Unprimed canvas
- Love and Sex
- Expressions, Poses and Gestures
- Marriage and Fidelity
- Man and woman

See all recommended topics...

**Artworks We Recommend (344)**

Not interested in:
- Creators
- Creation Sites
- Material Medium
- Material Support
- Styles
- Themes

See all recommended artworks...
CHIP Studies

• Study I: Effectiveness of recommendations, Novices vs. Experts
• Study II: Representative samples for rating, sparsity and cold-start
• Study III: Accuracy and interestingness of recommendations for art concepts, semantic relations vs. artwork features
Tour Wizard

Tour de Rijks

My Tours
+ Add a new tour

Tour of favorites (7)
- The Company of Frans Banning Coq and Willem van Ruytenburch, known as the 'Night Watch'
- Children Teaching a Cat to Dance, known as 'The Dancing Lesson'
- The Kitchen Maid
- The Love Letter
- View of Houses in Delft, known as 'The Little Street'
- Woman Reading a Letter
- The Prophetess Anna (known as 'Rembrandt's Mother')

Tour of recommended artworks (20)
### Gogh

#### Artworks groupings
- 4 works created by
- 8 works titled
- 1 works with_matching note
- 64 works work_by_colleague
- 19 works work_by_family

#### Creation Sites
- 4 Amsterdam
- 1 Arles
- 2 Den Haag
- 1 Parijs
- 1 Scheveningen
- 1 Unknown

#### Creators
- 7 Anonymous
- 64 Breitner, George Hendrik
- 1 Crone, Werry
- 5 Gogh, Vincent van
- 1 Henneman, Jeroen
- 19 Mauve, Anton

#### Material Medium
- 1 Ink and chalk on paper/Black chalk, brown and black ink
- 1 Oil on cardboard
- 4 Oil paint
- 1 Photo/Gelatin silver print
- 1 Watercolour and bodycolour on

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1. **Title:** Morning Ride on the Beach  
   **Creator:** Mauve, Anton  
   **Creation Site:** Scheveningen  
   **Material Medium:** Oil paint  
   **Material Support:** Unprimed canvas  
   **Styles:** [Realist, Impressionist]  
   **Year of Creation:** 1876

2. **Title:** Self Portrait  
   **Creator:** Gogh, Vincent van  
   **Creation Site:** Parijs  
   **Material Medium:** Oil on cardboard  
   **Material Support:** Unknown  
   **Styles:** [Realist, Impressionist, Expressionist]  
   **Year of Creation:** 1887

3. **Title:** Girl in a White Kimono (Geesje Kwak)  
   **Creator:** Breitner, George Hendrik  
   **Creation Site:** Amsterdam  
   **Material Medium:** Oil paint  
   **Material Support:** Unprimed canvas  
   **Styles:** [Realist, Impressionist]  
   **Year of Creation:** 1894
Tour Wizard: Version 0.1

Your tour on the Rijksmuseum map
Tour Wizard: Version 0.1

CHIP Personalized Interface to the Rijkmuseum Collection

Search
Terborch, Gerard, II
Reset

Artworks by Artist
"Terborch, Gerard, II"
- Girl in Peasant Costume. Probably Gesina, the Painter's Half-Sister
- Woman at a Mirror
- The Ratification of the Treaty of Munster, 15 May 1648
- Gallant conversation; known as 'The Paternal Admonition'
  - Helena van der Schalcke (1646-1671)

Gallant conversation; known as 'The Paternal Admonition'
Add to my selections

Museum eye
My tour selections
- Portrait of Two Figures from the Old Testament, known as 'The Jewish Bride'
- Titus van Rijn in a Monk’s Habit
- Faust
- Self Portrait at an Early Age
- Jeremiah Lamenting the Destruction of Jerusalem
- The Love Letter
- Woman Reading a Letter
- Gallant conversation; known as 'The Paternal Admonition'

Artist: Terborch, Gerard, II
Year: c. 1654
Tour Wizard: Version 0.2

CHIP Personalized Access to the Rijksmuseum Amsterdam Collection

Museum Map   Historical Timeline

Explanations
Current location: room 3
Total artworks: 2
- The Tailor's Workshop
- Dignified Couples Courting

Add new tour
Tour of recommended artworks
- Portrait of Maria Trip (1619-1683)
- Dr Ephraim Buene, Jewish Physician and Writer
- Titus van Rijn in a Monk's Habit
- Company of Captain Reinier Reael, known as the 'Meagie Company'
- The Haarlem printer Abraham Casteleyen and his wife Margarieta van Bandsen
- Portrait of Constantijn Huygens
- Self Portrait
- Portrait of Haesije van Cleyburg
- The Tailor's Workshop
- Landscape with Two Oaks
- Girl in Peasant Costume. Probably Geesina, the Painter's Half-Sister
- Jeremiah Lamenting the Destruction of Jerusalem
- The Sampling Officials
- Factory of the Dutch East India Company at Houty in Bengal
- River Valley
- Elisabeth Jacobsdr. Bas (1571-1646), widow of Jochem Hendriksz. Swartenhont
- Dignified Couples Courting
- Portrait of Johannes Wittenbogaert (1557-1644), Remonstrant Minister
- Interior of the Church of St Odulphus at Assendelft, seen from the Choir to the West
- Bentheim Castle
- Tour of favorites (3)
Mobile Museum Guide

4/5 works
Mobile Museum Guide: Version 0.1

PMTMD
Welcome to the Personalized Museum Tour Application.

Log in
This section requires user authentication. Please log in with the same username and password used on the website.

Username:
Password:

Import tours
Select tour
Resume tour
Synchronize UM
Exit

Connected on ActiveSync(USB)

PMTMD
Welcome to the Personalized Museum Tour Application.

Import tours
Select tour
Resume tour
Synchronize UM
Log out
Exit

Connected on ActiveSync(USB)
Masterpieces tour
Name: The Mill at Wijk-bij-Duurstede
Artist: Ruisdael, Jacob van
Location (Room): World Power

Next Room: Dutch Republic

The Mill at Wijk-bij-Duurstede
Dark clouds are gathering above this river landscape. The sunlight occasionally penetrates the clouds, casting a dramatic light upon the mill towering above all else. The buildings in the background are the castle and St. Maarten’s Church of Wijk-bij-Duurstede. The river in the foreground is the river Lek. Jacob van Ruisdael was one of the most famous painters of wind and water mills in the

Rate: ✪✪✪✪✪

Connected on ActiveSync(USB)
Mobile Museum Guide: Version 0.1

Masterpieces tour
Name: The Prophetess Anna (known as)
Artist: Rembrandt van Rijn
Location (Room): Dutch Republic

Previous Room: World Power
Next Room: Delilah

Back Menu
Connected on ActiveSync(USB)

Museum overview
Current position
Destination

Back Menu
Connected on ActiveSync(USB)
SPACE-CHIP Demonstrator

- Extending CHIP Mobile Museum Guide with a routing mechanism based on SWI-Prolog Space Package
  - to consider boundaries & constraints (i.e. walls, doors, stairs) of the physical indoor space

- Resulting in an **Adaptive Mobile Museum Guide** for providing personalized tours tailored to:
  - user current interests
  - user position inside the museum
  - seen artworks
Marriage Portrait of Isaac Massa en Beatrix van der Laen

Creator: Hals, Frans
Creation site: Haarlem
Year of creation: c. 1622
Material Medium: Oil paint
Material Support: Unprimed canvas
Style: Baroque
Dimensions: 140 x 166.5 cm
Exposition place: PH-007

Description:
An informal portrait of an extremely rich merchant, Isaac Massa, and a pretty burgomaster’s daughter, Beatrix van der Laen. They commissioned their fellow townsman, Frans Hals, to portray them on the occasion of their marriage. Beatrix proudly displays the rings on her right forefinger: the bottom one is an engagement ring and the top one her wedding ring. Isaac holds his right hand over his heart - a sign of love and fidelity.

View related artworks
Show namespace prefix
SPACE-CHIP Demonstrator: Re-routed Tour Based on Changing User Interest & Position

Tour de Rijks

Rijksmuseum map Historical Timeline

Tour of recommended artworks (13)
- Company of Captain Reinier Reael, known as the 'Meagre Company'
- Self Portrait
- Children Teaching a Cat to Dance, known as 'The Dancing Lesson'
- Prince's Day
- The Sick Woman
- The Merry Drinker
- Woman Reading a Letter
- View of Houses in Delft, known as 'The Little Street'
- Marriage Portrait of Isaac Massa en Beatrix van der Laen
- The Feast of St Nicholas
- The Love Letter
- The Merry Family
- The Kitchen Maid

Tour of favorites (0)
CHIP-ICITY Demo: A Way of Solving Cold Start Problem
Future Work

• Considering social aspect for:
  – generating recommendations
  – communication inside museum

• Implementing the demonstrator for the use in realistic situation (inside museum)
  – real-time user localization
  – re-routing tour based on time issues:
    • viewing artworks
    • moving between artworks
    • remaining time in the museum
  – interface for guiding user locally
    • turn right/left
• CHIP Project
http://www.chip-project.org
• Official CHIP Demonstrator
http://www.chip-project.org/demo
• SPACE-CHIP Demonstrator
http://www.chip-project.org/spacechip