Human Computer Interaction
@ the Department of Informatics and Telecommunications
Prof. Yannis Ioannidis
Dr. Maria Roussou
• Gesture-based interaction
• Games
• Augmented reality
• User-centred design methods, personalisation, interactive storytelling
• Information visualisation
Gesture-based interaction in immersive VR

Ms. Anthi Dimara

Supervisors:
Prof. Yannis Ioannidis
Dr. Maria Roussou
Dr. George Drettakis
Tasks in the VE requiring:
  o Push
  o Pull
  o Pick up
  o Put down
  o Rotate
  o Grab
  o Release

...using gesture and finger tracking

• An experiment to compare with wand:
Balance, Multi-Tasking, Speed, Accuracy
Magnetic Poetry: a full-body interactive game

Ms. Marianne Grizioti

Supervisors:
Prof. Yannis Ioannidis
Dr. Maria Roussou
Magnetic poetry full body interaction

- A one or two-player game using the Kinect
- Players can solve arithmetic equations or co-create a sentence
ARcropolis: Augmented Reality game for two players

Mr. Manolis Giannisakis, Mr. Panagis Papadatos

Supervisors:
Prof Yannis Ioannidis
Dr Maria Roussou
• A two-player serious game for primary school students
• Remotely located players use their webcam and 24 printed cards with patterns to co-construct a story about the Greek goddess Athena & the birth of Athens
CHESS: Cultural Heritage Experiences through Socio-personal interactions and Storytelling

Prof. Yannis Ioannidis
Vivi Katifori, Vassilis Kourtis, Marialena Kyriakidi, Natalia Manola, Maria Roussou, Manolis Synodinos, Manolis Tsangaris, Maria Vayanou
Project acronym: CHESS
Contract n°: 270198
Project type: STREP
Start date: 01.02.2011
Duration: 36 months
www.chessexperience.eu
The experience starts prior to the visit.
The Acropolis Museum
Cité de l’espace
Two pillars of visitor experience

personalisation

storytelling
Personalisation challenge

Provide a

Rich information space

Wide variety of visitors

Tailor to

Individual preferences

& characteristics
Storytelling challenge

authenticity
- credibility
- institutional authority (knowledge)

engagement
- interactivity
- dramaturgy
An iterative design approach, which makes use of interaction design processes, such as participatory design, to keep the user at the center.

A continuous design, test with users, measure, and re-design cyclical process.

Closely linked to evaluation, especially formative evaluation.
Understanding our users
Data collection: quantitative & qualitative (ethnography)

Personas
Visitors & authors, individuals & groups

Scenarios
UX scenarios & stories

Requirements – Functional Specifications
On-site/in-museum, Off-site/on-line Visitor experience, Author reqs.
Before - during – after, off-site/on-site

Explicit & implicit profiling

Match with Personas

Suggest stories

Before

Experience through adaptive storytelling

Create “souvenirs”

During

Revisit

After
Explicit elicitation of visitor profile: CVS

- Capture the visitor’s profile through a very brief and engaging questionnaire, before the experience commences.
- An iterative and complex process, raising many design issues and challenges at different levels. E.g.,:

  - the need for recording as much information as possible about the user to support personalisation
  - the need to avoid a time-consuming and complex questionnaire process

- Subset of persona variables considered important for the CITE, in the context of the CHESS personalisation objectives for the Beta version

Lucas → “Training to become an astronaut”
Céline → “A travel in space”

1-on-1 mapping
A decision to create two “versions” of the CVS, one for visitors under 12 years old (age Group A) and one for teenagers and adults (age Group B)
• Personas are a set of representative profiles ("archetypes") for a visitor base
• how a particular profile uses a particular application in a given context
• Effective personas are driven by data

As a **design** tool: a powerful way to communicate behaviors, goals, wants, needs, and frustrations

As an **implementation** tool: for approaching the "cold start" problem by creating profiles (i.e., as a basis for personalisation)
<table>
<thead>
<tr>
<th></th>
<th>Persona variables</th>
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<tbody>
<tr>
<td>1</td>
<td>Age</td>
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<tr>
<td>2</td>
<td>Gender</td>
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<tr>
<td>3</td>
<td>Educational level</td>
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<td>Educational background</td>
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<td>5</td>
<td>General interests</td>
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<td>6</td>
<td>Occupation</td>
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<td>7</td>
<td>Country of origin</td>
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<td>8</td>
<td>Language</td>
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<td>9</td>
<td>Experience with the use of digital devices</td>
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<tr>
<td>10</td>
<td>Disabilities / Health issues</td>
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<tr>
<td>11</td>
<td>Visiting style</td>
</tr>
<tr>
<td>12</td>
<td>Visiting duration</td>
</tr>
<tr>
<td>13</td>
<td>Part of the collections to visit</td>
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<tr>
<td>14</td>
<td>Objective related to the museum collections</td>
</tr>
<tr>
<td>15</td>
<td>Visiting order preferences</td>
</tr>
<tr>
<td>16</td>
<td>Returning visit</td>
</tr>
<tr>
<td>17</td>
<td>Level of interest in the museum topics</td>
</tr>
<tr>
<td>18</td>
<td>Interests related to the museum topics</td>
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<tr>
<td>29</td>
<td>Purpose of visit</td>
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<tr>
<td>20</td>
<td>Social visiting habits</td>
</tr>
<tr>
<td>21</td>
<td>Social interaction style during the visit</td>
</tr>
<tr>
<td>22</td>
<td>Preferred way to obtain information before the visit</td>
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<tr>
<td>23</td>
<td>Preferred way to obtain information during the visit</td>
</tr>
<tr>
<td>24</td>
<td>Preferred way to use the CHESS system during the visit</td>
</tr>
<tr>
<td>25</td>
<td>Preferred narration style</td>
</tr>
<tr>
<td>26</td>
<td>Level of interactivity</td>
</tr>
</tbody>
</table>
Acropolis Museum visitor personas

Nikos Athanasiou

10 years old

“The museum is boring”

Georgia Athanasiou

71 years old

“The museum makes me feel young”

Jack Harris

24 years old

“The museum would be much more interesting if the exhibits could tell me their stories…”

Natalie Schmidt

35 years old

“The museum is an excellent way to relax between meetings!”

Takis Karathanasis

53 years old

“The museum is really great but sometimes it is too much for me.”
The Moreau family
- They live in Toulouse
- High level of education
- 2nd visit
- Period: weekend

• They are interested in space and astronomy
• Parents organise the programme themselves, seeking for the most interesting activities for their children
• They demand high pedagogical quality from the exhibitions and pay attention to the content

father
Nicolas, 43
engineer

mother
Céline, 40
teacher

children
Julie, 10
Théo 7
Léopold 5

The Durand family
- From Saint-Nazaire
- Middle level education
- 1st visit
- Period: Summer holidays

• They need help to decide their programme.
• They have already visited Futuroscope in Poitiers and Eurodisney near Paris, and they are interested in experiencing exciting exhibits

father
Julien, 38
technician

mother
Caroline, 36
admin. employee

children
Emma, 12
Lucas 10
Lucas Durand

10 years old

“The museum is boring”

Céline Moreau

40 years old

“I want to discover space and astronomy with my children”
Author personas

Ellie Petrou
51 years old

“New technologies are challenging for me but they’re worth the effort”

Laurent Boulay
30 years old

“All new tools are exciting and useful for my work”
Validating personas

Studies with (real) visitors
- Full day workshop in June 2011 @ Acropolis Museum
- Next week in Toulouse, at the Cite de l’espace (Ecsite conference)
Content and scenario design

Plot sketching
- Choose the story concept(s)
- Choose and arrange the main story pieces (i.e., create the storyboard)

Staging
- Place the story into the physical world
- Link story to spaces and exhibits

Casting & Shooting
- Unfold the story with all the details
- Choose and arrange the digital content

Experiencing
- Make a production out of a story given user actions, profile and context
Main story concept / message to convey (specifically for the Archaic gallery)

- The statues of Korai and how they give expression to the ideals of beauty, grace and youthfulness in particular for women of the nobility.
- Social differences and classes: aristocracy and poorer citizens.
- Monsters and Daemons as a sign of primitive civilizations seen through mythology.
- The status of men in the nobility expressed via the significance of the ‘horse’ and the ideal of hunting.
- Social image of a person/family expressed from the various votives.
- Art: the study of the body form and how this is seen through the ages.
- Democracy and the ascendancy of the ‘citizen’.
- End of the era: statue destruction from the Persians, archaeological excavations in the Acropolis.
- The values and ideals of Athenian society of the 6th century BC expressed in the votives of the archaic gallery in different ways over time, for different social classes.
- The ‘agon’: athletics, sport, battle and their role in society especially in the nobility.
Main story concept/message to convey

**Everyday life** of an astronaut. Practical, physical, emotional aspects.

**Training** to be an astronaut – learning from simple physics phenomena and concepts to handling complicated electronic equipment.

**Engineering skills** – the beginning. Characteristics of an engineer and educational knowledge.

**Astronomy** and Solar system – educational important knowledge gained through space traveling.

**Teamwork:** from the engineering work and the preparation/training phase. Space is the result of European or international team work.

**Life of an astronaut** - What is an astronaut supposed to know?
Interactive stories and AR prototypes
Prototyping sessions
Examples of “souvenirs” for Cité de l’espace
Eating in a station is not easy because of weightlessness. Food should not be separable. Therefore, it may be scattered everywhere in the station. Liquid turns into the form of balls, which is not very convenient as well.
e.nventory: the European eInfrastructures Observatory, www.enventory.eu

Prof. Yannis Ioannidis

Katerina ElRaheb, Dr. Vivi Katifori, Dimitra Keramida, Antonis Lempesis, Dimitris Nastos, Dr. Maria Roussou
Fact sheet

- Project acronym: **e•nventory**
- Contract n°: **RI-261554**
- Project type: **CSA-SA**
- Start date: **01.09.2010**
- Duration: **24 months**
- Project partners: **JNP, NKUA**

**www.enventory.eu**
Indicators on Maps service

Adult literacy rate: No data
GDP (current US$): 264,939.0 million US$
Surface area: 549.2 sq. km
Gross enrolment ratio

Source: World Bank, World Development Indicators

France
Population, total: 62.6 million people
GDP (current US$): 264,939.0 million US$

GDP (current US$) (millions USD)
2000: 132,796.8
2001: 145,733.0
2002: 200,141.0
2003: 226,614.0

Source: World Bank, World Development Indicators

France
Belgium
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg

GDP (current US$) (millions USD)
2000: 265,600.0
2001: 214,200.0
2002: 142,800.0
2003: 71,400.0

Source: World Bank, World Development Indicators

France
Belgium
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg

GDP (current US$) (millions USD)
2000: 265,600.0
2001: 214,200.0
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Source: World Bank, World Development Indicators
customisation possibilities
Treemaps service
Pan-European network connectivity

Geodesic line

Multiple similar lines

Multiple lines of different capacity
Thank you

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Dr. Maria Roussou