DH-404

Cultural data sculpting

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Cursus	Sem.	Type
Digital Humanities	MA2, MA4	Obl.
Digital Humanities		Opt.
UNIL - Autres facultés	E	Opt.

Language of teaching	English
Credits	5
Session	Summer
Semester	Spring
Exam	During the semester
Workload	150h
Weeks	14
Hours	**5 weekly**
Lecture	2 weekly
Project	3 weekly
Number of positions	

Summary

This course will engage novel approaches for visualizing and interacting with cultural heritage archives in immersive virtual environments.

Content

Today we mine data: tomorrow we will sculpt it *
Cultural Data Sculpting is at the intersection of two dynamic phenomena, the ever-expanding heterogeneous digital archives, in conjunction with their visualization in immersive, interactive display systems. This course will engage novel approaches (with computational challenges) to creating innovative applications for visualizing and interacting with these cultural heritage archives.
This course is located at a new laboratory researching the forefront of experimentation in galleries, libraries, archives and museums (The Laboratory for Experimental Museology eM +). This lab contains large scale immersive, interactive virtual reality and augmented reality systems including a 360-degree 3D panoramic projection screen and a 4K fulldome. Students will have access to these state-of-the-art systems to design and build their applications. Emphasis is on the development of a new approach to digital cultural archives in these omnidirectional and hemispheric systems.
Students will have access to already existing digital cultural archives including structured and unstructured data. These include the CERN archives, a database of photogrammetric Buddhist sculptures (some of the most important in the world) and a subset of the Montreaux Jazz Festival archive. Downloaded datasets also welcome (eg API's for METs collections or Cleveland's collections). Students will work together in small teams to focus on specific aspects of the application design and programming, culminating in an interactive installation for 360-degree 3D or fulldome. **It is important that students attend the theoretical lectures in the early weeks of the course to gain full benefit.**
Course outline:
1. Introduction to cultural data sculpting / Introduction to eM+
2. History of new media art & theorization of digital cultural heritage
3. Introduction to visualization frameworks at eM + with case studies
4. Introduction to datasets / Introduction to Unity engine
5. Project design I
6. Project design II
7. Project design presentations
8. Project team / data structuring / HCI / software requirements
9. Project development I
10. Project development II
11. Project development III
12. Project development III
13. Project integration
14. Evaluative frameworks for immersive systems (muse) / Final presentation
* O'Neill, G. 2010. Data Sculpting. Turbulence Ahead. http://www.turbulenceahead.com/2010/06/data-sculpting.html.

Learning Prerequisites

Required courses

No mandatory prerequisites

Recommended courses

Applied Data Analysis
Machine Learning for Digital Humanities
Introduction to Digital Humanities

Important concepts to start the course

Working knowledge of Unity 3D
Interactive Computer Graphics
Interaction Design

Learning Outcomes

By the end of the course, the student must be able to:

- Assess / Evaluate key methodological concepts for displaying and interacting with cultural archives in museum settings.
- Decide the potential of different digital archives for immersive and interactive visualization
- Explain the design of omnidirectional or hemispheric real time interaction with cultural archives
- Create omnidirectional or hemispheric real time applications for cultural archives
- Apply practical programming knowledge to omnidirectional visualization in immersive virtual reality

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Demonstrate a capacity for creativity.
- Manage priorities.
- Communicate effectively with professionals from other disciplines.
- Evaluate one's own performance in the team, receive and respond appropriately to feedback.
- Make an oral presentation.
- Write a literature review which assesses the state of the art.
- Write a scientific or technical report.

Teaching methods

Theoretical lectures
Exhibitions and installation experiences and critiques
Applied project design, development and delivery

Expected student activities

Two short essays
Design concept (as part of a group of 3-4 - written)
Final project (as part of a group of 3-4 - practical)
Group work
Design critiques
Evaluation

Assessment methods

Short essay 1 (written) - 10%
Short essay 2 (written) - 10%
Design concept (written / group work) - 50%

Final project (practical / group work) - 30%

Supervision

Office hours	Yes
Assistants	Yes
Forum	Yes
Others	Lab