DH-404

Cultural data sculpting

Kenderdine Sarah Irene Brutton

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 create innovative applications for visualizing and interacting with these cultural heritage archives. This course is located at a 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, a 4K fulldome and a 12m long linear navigation system.
Students will have access to already existing digital cultural archives including structured and unstructured data, 3D and 2D multimedia materials. Students will work together in small teams to analyze and gain a deep understanding of the archive. They will then design an interactive and immersive installation on one of eM+ systems to navigate their chosen archive, and implement small prototypes presenting specific aspects of their project.
It is important that students attend the theoretical lectures to gain full benefit, and actively participate in the hands-on sessions to properly advance on their projects.

• O'Neill, G. 2010. Data Sculpting. Turbulence Ahead. http://www.turbulenceahead.com/2010/06/data-sculpting.html.

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 and Introduction to datasets
4. Introduction to datasets by custodians and initial project concept
5. Introduction to datasets by custodians and initial project concept
6. Feedback on initial Ideas and choice on final project concept
7. Theory lecture and project work
8. Theory lecture and project work
9. Theory lecture and Feedback on project advancement
10. Theory lecture and project work
11. Theory lecture and project work
12. Presentation of the final project to the eM+ team
13. Presentation of the final project to the content providers

Keywords

Cultural Heritage Data
Visualization
HCI
Immersive and Interactive Virtual Systems
Computational Museology

Learning Prerequisites

Required courses

No mandatory prerequisites

Recommended courses

Applied Data Analysis
Machine Learning for Digital Humanities
Design Research for Digital Innovation
Introduction to Digital Humanities

Important concepts to start the course

Interaction Design
3D game engines (Unity / Unreal Engine)
3D Modelling

Learning Outcomes

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

- Assess / Evaluate : Evaluate key methodological concepts for displaying and interacting with cultural archives in museum settings.
- Decide : Decide the potential of different digital archives for immersive and interactive visualization
- Explain : Analyze and gain a deep understanding of a cultural archive
- Create : Conceptualize and design immersive and interactive real time applications for cultural archives
- Apply : Implement an aspect of their real time application

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, hands on sessions

Expected student activities

- One short essay

- Applied learning activities in data modelling / data science
- Group work
- Design critiques
- Evaluation
- Participation to the hands-on sessions
- Main project (in groups of 3-4)
- Written and oral presentation of the main project

Assessment methods

Short essay (10%)
Main project (90%) comprised of:

- Analysis of the dataset (20%)
- Implementation of an aspect of the project (20%)
- Design and conceptual work (50%)

Supervision

Office hours	Yes
Assistants	Yes
Forum	Yes

Resources

Virtual desktop infrastructure (VDI)

No

Bibliography

Extensive readings given during class in visualzation and new museology.

Websites

- https://www.epfl.ch/labs/emplus/
- https://epfl-pavilions.ch/