EPFL

DH-405

Foundations of digital humanities

Kaplan Frédéric

Cursus	Sem.	Type
Digital Humanities	MA1, MA3	Obl.

Language of teaching	English
Credits	6
Session	Winter
Semester	Fall
Exam	During the semester
Workload	180h
Weeks	14
Hours	**6 weekly**
Courses	4 weekly
TP	2 weekly
Number of positions	

Summary

This course gives an introduction to the fundamental concepts and methods of the Digital Humanities, both from a theoretical and applied point of view. The course introduces the Digital Humanities circle of processing and interpretation, from data acquisition to new understandings.

Content

This course gives an introduction to the fundamental concepts and methods of the Digital Humanities, both from a theoretical and applied point of view. The course introduces the Digital Humanities circle of processing and interpretation, from data acquisition to new understandings. The first part of the course presents the technical pipelines for digitising, analysing and modelling written documents (printed and handwritten), maps, photographs and 3d objects and environments. The second part of the course details the principles of the most important algorithms for document processing (layout analysis, deep learning methods), knowledge modelling (semantic web, ontologies, graph databases) generative models and simulation (rule-based inference, deep learning based generation). The third part of the course focuses on platform management from the points of view of data, users and bots. Students will practise the skills they learn directly analysing and interpreting Cultural Datasets from ongoing large-scale research projects (Venice Time Machine, Swiss newspaper archives).

Week 1
Introduction to the course and Digital Humanities, structure of the course
Week 2
Introduction to the DH circle of processing and interpretation (acquisition, processing, analysis, visualisation, UX, interpretation). From data acquisition to new understandings.
Part I : Pipelines
Week 3
Pipeline for Written documents (Printed and Handwritten). Transcription, Named Entities, Semantic modelling,Topic and Document modelling.
Week 4
Pipeline for Maps. Vectorization. Alignment. Homologs Points.
Week 5
Pipeline for Artworks photographs. Segmentation. Features detection. Detail search.
Week 6
Pipeline for 3D spaces. Photogrammety. Diachronic realignment.
Part II : Algorithms
Week 7
Algorithms for Document processing : Document analysis and Deep learning methods
Week 8
Algorithms for Knowledge modelling : Semantic web, ontologies, graph database, homologous points, disambiguation.
Week 9
Algorithms for Generative models and simulation : Rule-based inference, Deep learning based generation
Part III : Platform management
Week 10

Data Management : Computing infrastructure, Data Management models, Sustainability. Apps. Example of Wikipedia and Europeana.
Week 11
User Management : Representation, Rights, Traceability, Vandalism, Motivation, Negotiation spaces
Week 12
Bot Management : Versioning. Open source repositories.

Learning Prerequisites

Required courses
Basic math
One programming course

Learning Outcomes
By the end of the course, the student must be able to:
- Explain the great transformations of Human and Social sciences
- Synthesize the contents of several articles
- Compare different types of research
- Identify the main trends of the domain

Transversal skills

- Take account of the social and human dimensions of the engineering profession.
- Summarize an article or a technical report.
- Demonstrate the capacity for critical thinking

Teaching methods
Lectures, exercises