Computational Representations

Date	24/01, 25/01, 31/01, 01/02	WS18
Room	2044	

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Purpose of the Course

From digital image processing to connected devices and artificial intelligence, we are more and more inclined to witness our environment through the frame of the computer. However, the fundamental distinction between the continuous aspect of our lived, immediate, analog experience and the digital, discreet logic of software and hardware cannot be avoided. This course will be looking at the different ways that computers and computation have affected the way that we represent the world around us.

The seminar will be a combination of lectures, discussion and hands-on programming exercises.

Specific Objectives

- Understand how computation led to a shift in aesthetic representations.
- Be presented with the specificity of computational representation as opposed to other kinds of representation.
- Replace the specific formal tendencies of computer graphics and user interfaces within their historic and social contexts.
- Be able to utilize and question digital systemic representations.

Resources

Few readings will be required during the four-day lectures, and additional optional material will be made available to students.

Schedule of Topics

	Theme	Lecture	Practice
Day 1 Morning 24.01.18	Representation	The concept of representation in art history. The history of media. The differences between semantic, visual and computational representations.	Convey the same message in written form, in visual form and in computational form (describing a system).
Day 1 Afternoon 24.01.18	History of Computing	From Babbage to UNIX and the Apple 2 The shift towards cybernetics The representation of human intelligence	Modify the code of an existing ELIZA bot to give it some personality.
Day 2 Morning 25.01.18	From mathematics to the rest of the world	The historical evolution and the cultural logic of storage. From functional to object-oriented programming languages. The impact of digital storage on the production of art.	Represent of work of art of your choosing using the JSON format, with different data types.

Day 2 Afternoon 25.01.18	Early computational art	Pre-computer art: Fluxus, Surrealism, Dada. The shift in art production and reception with computers (Bell Labs, E.A.T, Stuttgart, G.R.A.V) The first *Software* exhibition.	Write a python program to make a dadaist poem, or implement one of Sol Lewitt's drawing
Day 3 Morning 31.01.18	Visual representations	Computational aesthetics, in the field of art (Generative, glitch, data art), and in the field of commerce (CGI, Image filters). Virtual Realities and Augmented Realities.	Create a piece of glitched visual art, using hex editors and format converters.
Day 3 Afternoon 31.01.18	Interactive representations	Interactive art. Interfaces, Interface Design and User Experience. Digital games.	Group play of Molleindustria.
Day 4 Morning 01.02.18	Networks, Communications and Art	Net Art Telematic Art Online communication and communities	Set up a website as art piece on the dat network.
Day 4 Afternoon 01.02.18	Future questions in computational art	Machine learning and news ways to see the world	pix2pix example and experiments

Method of Instruction

The course will be taught over a four full days of teaching. Each half-day will be dedicated to a specific subset of computational representations. Along with presentations on contemporary new media thinkers and current questions, students will be presented with case studies and practical exercises to grasp the presented concepts further.

Method of Evaluation

The requirements to pass the course are

- Be present at each lecture.
- Participate in class discussions.
- Complete a short paper to be submitted by the end of the semester about a the analysis of a specific new media artwork.