

Harvard Extension School
7:35-9:35 pm
Mondays & Thursdays
53 Church Street
Room 202



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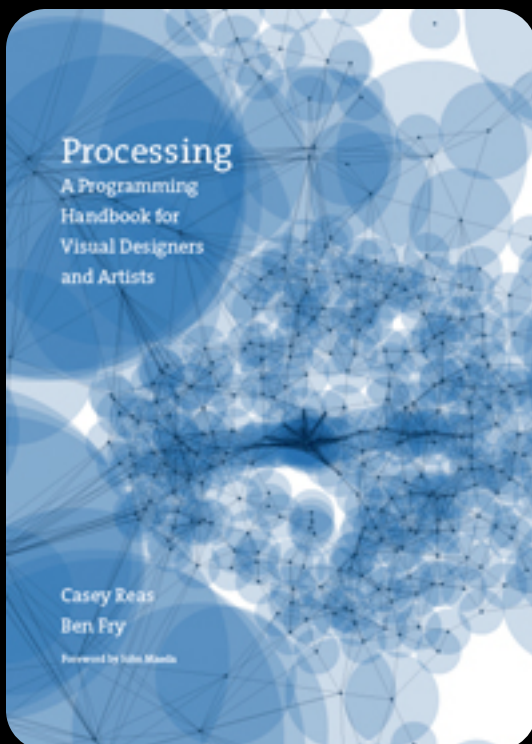


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Computational Art

Explorations in Screen-Based and Physical Computing

Spring 2008



INTERACTIVE DATA VISUALIZATION
in **PROCESSING**



BUILDING AND SCRIPTING
in **SECOND LIFE**

And SOPHISTICATED INTERACTION TECHNIQUES with **PROPELLER CHIP** 

This course is a practical introduction to computational art in a collaborative studio environment. Through creation, exhibition, and critique of a series of **screen-based and physical computing artworks**, students learn the three key elements of computational artwork: **awareness** (input or sensing); **intention** (processing or computation), and **action** (output or display).

PREREQUISITE: General experience with Macintosh or Windows systems.

<http://computationalart.org>

COMPUTATIONAL Art

EXPLORATIONS IN SCREEN-BASED AND PHYSICAL COMPUTING

Course CSCI E-9
Spring 2008
Harvard Extension School

Bakhtiar Mikhak & Andrew Sempere
with **Christopher Rakowski**

COURSE WEB SITE

<http://computationalart.org>

COURSE DESCRIPTION

This course is a practical introduction to computational art in a collaborative studio environment. Through creation, exhibition, and critique of a series of screen-based and physical computing artworks, students learn the three key elements of computational artwork: awareness (input or sensing); intention (processing or computation), and action (output or display).

COURSE PREREQUISITES

General experience with Macintosh or Windows systems

COURSE DATES AND MEETING TIMES

The first meeting will be on Monday, January 28. The last class meeting will be on Monday, May 5. Final project presentations will be on Thursday, May 8. The required meetings for this course are scheduled for 7:35-9:35 pm on Mondays & Thursdays. The lectures and discussions will be generally planned for Mondays so that Thursdays can be dedicated to tutorials and studio times. The first meeting will take place at 53 Church Street in Room 202. We are working on identifying a new location for all our subsequent meetings. Please check the course web site for information about meeting locations if you miss the first meeting.

COURSE STAFF

Instructors, Bakhtiar Mikhak <mikhak@media.mit.edu> and Andrew Sempere <andrew@media.mit.edu>, along with Teaching Fellow, Christopher Rakowski <crak@alum.mit.edu>, will be teaching all sections for this course.

TEXTBOOKS

The course makes use of the following three textbooks, available at the COOP and fine booksellers everywhere. These texts will be treated mostly as reference works. Some reading may be assigned, but for the most part these are included to support your work outside of scheduled class time.

1. [P5] Processing: A Programming Handbook for Visual Designers and Artists (Hardcover)
by Casey Reas (Author), Ben Fry (Author)
2. [VD] Visualizing Data (Paperback)
by Ben Fry (Author)
3. [SL] Creating Your World: The Official Guide to Advanced Content Creation for Second Life (Paperback)
by Aimee Weber (Author), Kimberly Rufer-Bach (Author), Richard Platel (Author)

<http://computationalart.org>

ADDITIONAL READINGS

The following readings will be assigned. Class time will alternate between discussion of these readings and hands-on demonstrations and lectures. It is EXTREMELY IMPORTANT that you keep up with this reading. If you do not, fully half of the class will be unintelligible.

Note: This list may change over the course of the semester, depending on the interests of the class and the direction of the discussion.

- Selection from "Vehicles: Experiments in Synthetic Psychology"
- Selection from "The Practice of Everyday Life"
- Selection from "Design Noir: The Secret Life of Electronic Objects"
- Selection from "Visual Explanations: Images and Quantities, Evidence and Narrative"
- Selection from "39 Microlectures in Proximity of Performance"
- Burroughs on Cut-up Technique
- Wikipedia: Pareidolia
- InMotion Magazine transcript of talk by Brian Eno
- Random.org (read first two sections, "background" and "true random numbers")
- Optional additional readings and some examples to look at:
 - <http://www.ubu.com/film/burroughs.html>
 - http://en.wikipedia.org/wiki/Action_painting
 - http://en.wikipedia.org/wiki/Applications_of_randomness
 - http://en.wikipedia.org/wiki/John_Cage
 - http://en.wikipedia.org/wiki/Aleatoric_music
 - <http://www.lcdf.org/indeterminacy/s.cgi>
 - <http://www.synesthesia.fi/>
- Selection from "A New Kind of Science"
 - The entire text is available online at <http://www.wolframscience.com/nksonline/>
- Excerpt from "The Condition of Virtuality" published in "The Digital Dialectic: New Essays on New Media"
- Rediscovering the Mind: Harold J. Morowitz (With reflections by Douglas Hofstadter)
- NYTimes Magazine The Brain on the Stand: Neuroscience Law and Responsibility
- NPR podcast on Neurophilosophy. Not a reading, but a "listen"... It's about 45min.
- The Soul of the Mark II Beast
- James Carse: Why a Philosopher Needs a Cat
- Stelarc: Prosthetics, Robotics and Remote Existence: Postevolutionary Strategies
- Alan Turing: Computing Machinery and Intelligence
- William Mitchell: Replacing Place
- Newsweek Cover Story on Anshe Chung: My Virtual Life
- Henry Jenkins: Interactive Audiences? The "Collective Intelligence" of Media Fans

OVERVIEW

INTRODUCTION AND FIRST ASSIGNMENT

Art with technology, aesthetics and computation, technology with art, art and technology studies, interactive art, physical computing, telepresence, net art... all these words and more have been thrown at the problem of defining what we mean when we talk about making art with contemporary technology.

Part of the problem here is exactly what makes this field so exciting as an artist or an observer – despite many efforts to the contrary, no one yet owns this field. The history has not been written, and attempts to codify a language are premature.

We chose “computational art” as the title of this class, not to establish a new “paradigm” but in an effort to describe something more specific about the work we are looking at and engaging in.

While the meaning of “art” will remain a topic of discussion (in this class and hopefully in our lives), it is worth creating a working definition of computation, if for no other reason than to establish an understanding of computation as something other than “computer.”

A computer is a box on your desk, a physical object that is a manifestation of one (important and major) attempt to give humans faster and easier access to computational ideas. While we will use and discuss computer technology in this class, we are decidedly not interested in the computer as an object. Rather, we are interested in the ideas that the computer gives us access to: recursion, visualization, data manipulation to name a few.

The question will not be what can I make the computer do, but rather what are computational ideas doing to my concepts of space, information and communication? How does access to this kind of processing allow me to embody (or disembody) ideas?

In particular we would like to focus on three concepts that have strong meanings in both the traditional art and computational fields:

AWARENESS: INPUT OR SENSING

INTENTION: PROCESSING OR COMPUTATION

ACTION: OUTPUT OR DISPLAY

NOTE REGARDING READING MATERIALS

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SCHEDULE

January

28	M	Intro and overview
31	Th	
	A	Processing: setup
	B	Processing: introduction < p 1-132 in [P5] >

February

04	M	
	A	Reading discussion
	B	QA processing Processing: animation, abstraction, and recursion < p 133-204 in [P5] >
07	Th	Processing work day

11	M	
	A	Reading discussion
	B	QA processing Processing: input and response < p 205-314 in [P5] >

14	Th	Processing work day
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18	M	BREAK
21	Th	
	A	Processing: working with text and images < p 315-394 in [P5] >
	B	Present project IDEAS /processing work day

25	M	
	A	Reading discussion
	B	Visualization

28	Th	Studio time: work on projects
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March

03	M	PROJECT DUE present projects Discuss Wrap reading
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06	Th	Physical Computing: setup & intro
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10	M	
	A	Reading discussion
	B	Physical Computing QA Physical Computing: displays & actuators

13	Th	Physical Computing work day
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Computational Art: Spring 2008

March

17	M	
	A	Reading discussion
	B	Physical Computing QA Physical Computing: sensing & communication
20	Th	Physical Computing work day

24	M	BREAK (reading period/develop project ideas)
27	Th	BREAK

31	M	
	A	BE PREPARED TO PRESENT PROPOSAL for Physical Computing project
	B	Discuss readings

April

03	Th	Studio time: work on projects

07	M	Reading discussion
10	Th	PRESENT PHYSICAL COMPUTING PROJECT

14	M	
	A	Reading discussion
	B	Second Life: setup and intro < reference will be provided in [SL] >
17	Th	Second Life work day

21	M	
	A	Reading discussion
	B	Second Life: building and scripting < reference will be provided in [SL] >
24	Th	Second Life work day

28	M	
	A	Reading discussion
	B	BE PREPARED TO PRESENT PROPOSAL for final project

May

01	Th	Studio time: work on final project

05	M	Studio time: work on final project
08	Th	FINAL PRESENTATIONS