

VM464 :: PROGRAMMING FOR ARTISTS 3 (PROCE55ING)

Title: PROGRAMMING DIGITAL MEDIA

Instructor: GOODWIN, DOUGLAS

Day/Time: T 6:00-9:45

DESCRIPTION

Processing is an open source programming language and environment for people who want to program images, animation, and interactions. Processing is used by students, artists, designers, researchers, and hobbyists for learning, prototyping, and production. It was created to teach fundamentals of computer programming within a visual context and to serve as a software sketchbook and professional production tool. Most interesting, Processing was developed by artists and designers as an alternative to proprietary software tools.

Students will be encouraged to think critically about technology. We will develop a vocabulary for discussing art made in technical media by through a survey of existing work.

Students will learn how to develop their own software for the processing, manipulation, and synthesis of audio and video. The result will be the useable projects for composition, installations, and performance. Other programming languages will be introduced as extensions to the processing environment.

MATERIALS

You will want a portable drive to hold the media you develop in this course. This may be a USB drive, a stack of writable optical disks (CD or DVD-R) a Firewire drive or USB 2.0 drive.

PLAGIARISM

It is the responsibility of all Emerson students to know and adhere to the College's policy on plagiarism which is available on the Emerson web site at the following URL:

http://www.emerson.edu/student_life/index.cfm?doc_id=1006

[http://www.emerson.edu/student_life/index.cfm?doc_id=1006] .If you have any question concerning the Emerson plagiarism policy or about documentation of sources in work you produce in this course, you should speak to your instructor.

DISABILITIES

If you believe you have a disability that may warrant accommodations in this class, I urge you to register with the Disability Services Coordinator, Dr. Anthony Bashir at 216 Tremont Street, 5th Floor (617-824-8415), so that, together, you can work to develop methods of addressing needed accommodations in this class.

SYLLABUS

WEEK 01 [1/22] HELLO CLASS, HELLO PROGRAMMING, HELLO PROCES5ING

[[HTTP://PROCES5ING.NET](http://proces5ing.net)]

1. what some other people are doing (video medley)
2. developing your own texture
3. code: what is it, where did it come from?
4. bits: images, spreadsheets
5. vectors: roads, maps, topography
6. charts: thinking with images

exercise vm464_01:

- register for the wiki, introduce yourself.
- read: hackers & painters by paul graham [<http://www.paulgraham.com/hp.html>]

WEEK 02 [1/29] PARTICLES: QUANTA, BITS, AND GRANULARITY

1. variables: scope and data types
2. testing: conditionals
3. sequence, linearity and flow
4. indirection: making something greater than a sum of parts

exercises: processing book

1. Structure 3: Functions (p. 181-193)
2. Shape 3: Parameters, Recursion (p. 197-204)

reading/presentation:

- umbrellas and taxis [<http://www.openp2p.com/lpt/a/556>],
- tacoma narrows bridge

exercise vm464_02:

- build a function to clone your kitty
- make 1000 kitties

WEEK 03 [2/5] FUNCTIONS FOLLOW THE ALGORITHM

1. rule-oriented art: the Oulipo
2. nouns: procedures & functions
3. increasing complexity with arguments (by value, by reference)

reading/presentation:

- overview of The Oulipo,
- intro to Fluxus

exercise vm464_03:

- work on your proposals

WEEK 04 [2/12] NOUNS: STORAGE AND DATA ARRAYS

final project proposals due!

1. brain = computer ?
2. memory & forgetting
3. storage: bits, buckets, bytes
4. higher level storage: tables, arrays
5. maintaining state
6. databases and xml

reading/presentation:

1. Stephen Johnson,
2. John Searle: The Chinese Room Experiment

exercise vm464_03:

- Draw a model of kitty's brain (in processing)
- EXTRA CREDIT: make kitty's brain dynamic, i.e. make kitty respond to stimuli

WEEK 05 [2/19] ITERATION AND LOGIC

1. logical operators: George Boole
2. testing for conditions

reading/presentation:

- the sorcerer's apprentice

exercise vm464_05:

- a program that can count to 2001

WEEK 06 [2/26] OBJECT-ORIENTED OBJECTS

1. procedural vs. object-oriented coding
2. personal verbs: making 'go home' execute something different for everyone
3. data and functionality
4. arrays (of objects)
5. object + vector = animation

reading/presentation:

- christopher alexander,
- demo or die [<http://www.nettime.org/Lists-Archives/nettime-l-9807/msg00085.html>]

exercise vm464_06:

- redraw the kitty with a function,
- make the kitty an object,

- make a littler of kitties with the array

WEEK 07 [3/4] MAKING SOFTWARE

1. modularity = reuseability
2. what is a code library and how are they used?
3. working together: xtreme programming
4. source code control
5. creating libraries of code: what's available, what do you need? [begin the negotiation]

reading/presentation:

- Linked [<http://www.nd.edu/~networks/Linked/photo.html>],
- xtreme programming

exercise vm464_07:

- sketches for students of English
- vm464_transliterations

WEEK 08 [3/11] SPRING BREAK, NO CLASS!

WEEK 09 [3/18]

visit from Alex François Interactivity

1. peripherals and events
2. listening to hardware
3. talking to hardware

reading/presentation:

- David Rokeby,
- Paul Demarinis

exercise vm464_09:

- continue group work on the libraries,
- distribute to other groups

WEEK 10 [3/25] HARDWARE: WHAT IS IT, WHERE DID IT COME FROM?

1. making custom hardware what computers know
2. psychophysics

reading/presentation:

- DIY culture,
- Cathedral & the Bazaar

WEEK 11 [4/1] HUMAN VS. COMPUTER VISION

1. what computers see

2. PImage, pixels, live video (cameras) 3. VR calculates the bandwidth of experience 4. image processing *

exercise vm464_11:

- make your computer recognize you

WEEK 12 [4/8] STRINGS AND NETWORKING

reading/presentation:

- Ted Nelson

exercise vm464_12:

- do a search,
- preen and format the results

WEEK 13 [4/15] SOUND: WAVE OR PARTICLE?

1. signal and noise
2. types of noise

reading/presentation:

- Michel Chion,

exercise vm464_13:

- make some signal!
- make some noise!

WEEK 14 [4/22] MAPPING: WHAT IS IT? WHY DO YOU WANT TO DO IT?

reading/presentation:

- Lev Manovich on Transcoding

exercise vm464_14:

- Transcode an image into sound and vice versa

WEEK 15 [4/29] VM464_FINALS

WEEK 15 [5/6] VM464_FINALS RECAP