

Max/MSP/Jitter

Kinetic Imaging 291

Fall 2014, TR 6:00-8:20pm, Franklin Terrace 105

INSTRUCTOR

Name: Zach Duer
E-mail: duerzr@vcu.edu
Office Hours: By appointment

COURSE DESCRIPTION

This course trains students to use the visual programming environment software Max/MSP/Jitter as an art-creation tool. We will create interactive installations, multimedia performances, and fixed-media videos and sound works. The class is open to all skill-levels, with no experience required.

COURSE OBJECTIVES

Throughout the semester, we will consider the following questions (among others):

- What is the difference between programming and using software?
- How does interactivity affect the authorship of an artwork?
- How can Max/MSP/Jitter fit into my existing artistic practice?
- When is a piece complete? When is a program complete? When is an instrument complete?
- What is an instrument? Can that word extend to multimedia?
- Where is the line between engineering and art, if there is one?

By the end of the semester, students will be able to:

- Generate digital video
- Program effects to filter generated or sampled video
- Create interactive video art using, at a minimum, keyboard, camera, and microphone input
- Translate digital data across mediums (sound -> video, 3D -> video, astrology charts -> sound, etc)
- Perform by manipulating video in real time
- Articulate the basic concepts of programming
- Logically and methodically debug a program
- Utilize Max objects to manipulate data into useful forms
- Explain how digital video data is represented in Jitter

CLASS SCHEDULE

H 21 August - What is Max, who uses it, and why should we learn it?

Homework: Max Tutorials 1, 2, 3, 4, 5

T 26 August - Max interface, objects, patching, message order

Homework: Jitter Tutorials 1, 2, 3, 4

H 28 August - What is a matrix? Jitter object attributes. Quicktime movie playback and matrix math

Homework: Max Tutorials 6, 7, 8, 9

T 2 September - Max math, UI objects, user input, LCD and drawing - **Assignment 1 given**
Homework: Jitter Tutorials 5, 6, 7, 8, 9, 10

H 4 September - Color and mixing
Homework: Max Tutorials 10, 11, 13

T 9 September - Random numbers, and procedural operations - **Assignment 1 DUE**
Homework: Jitter Tutorials 11, 12, 14, 15

H 11 September - Matrix data as lists. Video positioning and rotation
Homework: Max Tutorials 14, 15, 16

T 16 September - Encapsulation, abstraction, and messaging - **Assignment 2 given**
Homework: Jitter Tutorials 16, 17, 18, 19, 21

H 18 September - Names matrices and feedback. Recording movies. Real-time camera and audio
Homework: Max Tutorials 17, 18, 21, Data Tutorial 5

T 23 September - Handling data, routing information, and lists in Max - **Assignment 2 DUE**
Homework: Jitter Tutorials 30, 31, 32, 33, 34, 35, 36

H 25 September - OpenGL, GPU parallelization, 3D objects, textures and materials
Homework: Jitter Tutorials 41, 42

T 30 September - Using shaders and alphaglow

H 2 October - Review and buffer day - **Midterm Project given**

T 7 October - Midterm project workday

H 9 October - Midterm project workday

T 14 October - Midterm project workday

H 16 October - READING DAYS - NO CLASSES

T 21 October - **MIDTERM PROJECT DUE - CRITIQUES**

H 23 October - **MIDTERM CRITIQUES (CONT)**

T 28 October - MSP and digital audio
Homework: Examine my audio sample performance patch

H 30 October - Media data conversions: audio to video, video to 3D, etc - **Assignment 3 given**
Homework: Examine my "Audiolines" patch, Jitter Tutorials 27, 28

T 4 November - Computer vision
Homework: Examine my face tracking -> audio patch

H 6 November - Render to texture, jit.gl.sketch
Homework: Examine my mask drawing patch

T 11 November - Projection mapping - **Assignment 3 DUE**
Homework: Examine my projection mapping patch

H 13 November - Final project workday - **Final Project given**

T 18 November - Final project workday

H 20 November - Final project workday

T 25 November - Final project workday

H 27 November - THANKSGIVING - NO CLASSES

T 2 December - **FINAL PROJECT DUE - CRITIQUES**

H 4 December - **FINAL PROJECT CRITIQUES (CONT)**

ASSIGNMENTS

ASSIGNMENT ONE - DUE TUESDAY SEPTEMBER 9

15% of class grade

Create a patch using two LCDs, one of which can be drawn on, the other of which cannot. When the user draws on the usable LCD, the same line is recreated on the other LCD but offset by m amount in the X axis and n amount in the Y axis, where m and n are values that can be set by the user.

Keep the second LCD from drawing a line directly from the ending point of each line to the beginning point of the next! This is tricky.

The user should be able to hit the escape key to clear the LCD screens.

Use comments to document and explain how each part of the patch works.

You are allowed to work together with classmates, but I strongly discourage copying someone else's patch without understanding how it works. There will be projects later that will require individual creative work, and if you don't understand concepts from this point in the class

ASSIGNMENT TWO - DUE TUESDAY SEPTEMBER 23

15% of class grade

Make a patch that lets the user act as a VJ (video-jockey). The patch should let the VJ select between a number of different videos, and / or choose their own videos. It should allow multiple options for mixing videos and transitioning between videos.

The VJ should also be able to use simple effects of your choosing on the video to alter the way it looks. The settings for directly changing the video should be available to the VJ, but there should also be buttons or toggles the VJ can activate to initiate a change to the video over time. These would be changes that you have predesigned in terms of how they work, but allow the VJ to activate when s/he chooses. Presets would be a great feature, as well.

There could be a single final output screen or multiple output screens, depending on what you deem appropriate.

You are welcome to add more features if you'd like.

Make a presentation view for the patch that is easy to use and understand at a glance. There should be comments to explain how interacting with the patch will work.

In the editing view, there should also be comments to the developer explaining how the patch functions.

Make the patch visually clean and neat.

MIDTERM - DUE TUESDAY OCTOBER 21

20% of course grade

Create an artwork that uses Max/MSP/Jitter at some stage in the production process. This may take the form of installation (interactive or non-interactive), performance, or fixed media sound and / or video. If the work is not fixed-media, it **must** be documented, meeting high-quality standards.

We will hold a critique in an installation space. You are responsible for appropriating the necessary technology to produce your piece. You are responsible for installing your work, deinstalling your work, and returning the space to its original state. I will bring cameras to record documentation, and organize the installation process.

Documentation:

Installation: Acceptable documentation of an installation will have 3-5 minutes of video that demonstrates the as wide a range as possible of the installation's characteristics, as well as a series of still-images. If the installation is interactive, the documentation must include both the installation by itself as well as in use by members of the audience. If a screen is used to display something in the installation, recording a screen capture in addition to 3rd-person camera documentation would be highly recommended. The documentation video and images should be high definition with well-balanced lighting

Performance: Acceptable documentation of a performance will include a video of the entire performance, an edited video (3-5 minutes in duration if the piece is longer than that, 1-2 minutes if the piece is itself 3-5 minutes), and still images. The documentation video and images should be high definition with well-balanced lighting.

ASSIGNMENT THREE- DUE TUESDAY NOVEMBER 11

15% of class grade

Create a maxpatch to work with sound. You may use synthesis or sound files as the audio source. If you use sound files, you must use some additional sort of audio editing or filtering (which you are welcome to do with synthesis, as well). You are also invited to use the audio data to affect video, or use video data to affect the audio, but it is not required.

The final product can be just sound, or sound + video. I want both the maxpatch as well as the final product (sound file, or video file).

FINAL - DUE TUESDAY DECEMBER 2

25% of course grade

Same as midterm.

ATTENDANCE POLICY

Out of respect for your peers and to foster the most professional working environment, a rigid attendance policy is to be observed at all times. Punctuality, preparedness, and ability to meet deadlines are considered in the assessment of your progress.

The policy is:

- 2 absences allowed per semester
- 2 tardies equals one absence
- Critiques are mandatory

Two absences per semester are allowed due to the inevitable car problem, illness, or family emergency. Reserve these two absences for emergencies. Any absence over two will result in a lowered final grade for the course. If there are *unavoidable* emergencies please communicate these *in writing* to your instructor. *Do not* put the instructor into the position of having to determine if an absence is “excused” or not. There are no “excused” absences other than those noted in the university guidelines (military or university service).

If you miss a class, please get the information you have missed from a classmate and **be prepared** for the next class.

Coming to class late or leaving earlier is disruptive. Be aware that two tardies becomes one absence. A tardy is being over ten minutes late for class OR leaving class ten minutes before it is dismissed. These add up quickly so be diligent.

GRADING

Participation - 10%

Assignment 1 - 15%

Assignment 2 - 15%

Assignment 3 - 15%

Midterm - 20%

Final - 25%

For each absence above your two allowed absences, 8% will be deducted from your final grade. For each tardy above your two allowed absences, 4% will be deducted from your final grade.

DEADLINES / ASSIGNMENT TURN-IN

Because of the collective aspect of the critique, it is mandatory that your project be presented on time, so that the critique covers the widest possible breadth of work. Failure to present a project at the start of class on the day it is due will result in the automatic lowering of your grade for that project.

All projects should be named “LastName_FirstName_ProjectName.maxpat/mov/whatever”. This is imperative for grading and organization purposes. Failure to name projects correctly will result in a lowering of your grade for that project.

CRITIQUE

An important part of this course is practicing the art of the critique and other class discussion. The capacity to make articulate presentations and offer explanations for your choices is a fundamental skill. Equally important is your ability to give constructive responses to your peers’ work. It is a requirement of this course that you participate fully in these group conversations. As a member of the art community, you have an obligation to speak candidly, honestly, and without unnecessary “prompting” so that your unique ideas can enrich the class. Because of the collective aspect of the critique, it is mandatory that you are present, with your finished project at the start of class.

REQUIRED TEXT

There is no required textbook for this class.

COMMUNICATION

VCU’s e-mail system will be used for correspondence outside of class meetings. Students are required to obtain and use an official Virginia Commonwealth University email address and be familiar with basic use of Blackboard.