San José State University
Department of Art & Art History
Art 107 ~ Advanced Projects in Digital Media Art

Spring 2018/ Topic: Sensors and data

Instructor:	G. Craig Hobbs
Class Days/Time:	Tuesday/ Thursday 12pm – 2:50pm
Classroom:	Art 241
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Office Hours:	Wednesdays 10am – 12pm
Department Office Location:	Art 116
Department Website/ Email:	http://www.sjsu.edu/art/ art@sjsu.edu
Prerequisite:	ART 75 + ART 101 or permission of instructor

Course Description

Advanced Projects in Digital Media Art explores the intersection of art and technology through the creation of interactive artworks using object-oriented graphical programming. The Spring 2018 topic for Art 107 - *Sensors and data* - will address human computer interaction (HCI) using scientific sensors, computer vision, hardware interfaces and controllers. The course will also address display output in the creation of interactive media including screen-based, projected, electro-mechanical, and immersive (AR/ VR/ MR/ XR) systems for the creation of artworks, installations, games, videos, motion graphic, sound and other contemporary digital media formats.

As an advanced studio workshop, the course curriculum focuses on the development of individual and collaborative artwork(s). Curriculum consists of software workshops, tutorial assignments, and both individual and collaborative final projects. The course is taught in Max 7, a graphical programming environment for audio, video, interactive and hardware interfaces. Using Max 7 students will build dynamic software applications using audio video, data, microprocessors and sensors. Although Max 7 is featured, the course is platform agnostic – you may choose the programming environment(s), software tools, and fabrication methodologies appropriate to projects developed during the course.

The course also addresses critical and creative uses of technology for digital media art through required readings, discussion, presentations and speakers on topics including: interactivity, generative systems, rapid prototyping, networks, telepresence, cybernetics, art/ science and virtuality. Students are required to consider these and other current issues in art, science, and technology through weekly blogs posts and in-class discussions.

Course Learning Outcomes

Art 107 teaches interactive technology with an emphasis on project-based creative research, design, software development and both individual and collaborative projects.

Upon completion of this course, students will be able to:

Student Learning Objectives	
LO1	Design and build interactive software using Max 7
LO2	Generate meaningful human-computer interaction and expressive data
LO3	Employ object-oriented programming in the creation of interactive artworks
LO4	Deploy multimodal forms of HCI to generate compelling interaction data
LO5	Write critically and creatively on contemporary issues in art and technology
LO6	Work collaboratively to build software for individual and group exhibition(s)
LO7	Present functional interactive artworks for individual and group exhibition(s)

Course Texts: Max 7 Tutorials, Documentation and Help

Students are required to study Max documentation and tutorials in class and on their own time as part of the curriculum http://docs.cycling74.com/max7/ Additional readings, links and course resources will be provided in PDF format via the Art 107 Canvas CMS.

Canvas CMS

Copies of course materials - the syllabus, readings and course updates - are available via the SJSU Canvas course management system (CMS) https://sjsu.instructure.com/ https://sjsu.instructure.com All programming assignments must be submitted via Canvas. Canvas will also be used for announcements and any changes to the course schedule. Please make sure your Canvas contact works. Canvas is used extensively for this course.

Classroom Protocol

The course schedule provides dates, topics, and assignments *due on the day they are listed in the schedule, unless otherwise noted.* As a workshop course, attendance and participation is required. You are expected to attend class and will be required to participate in technical tutorials, software practice, and group projects. The coursework is cumulative and requires a commitment to practice to expand upon learned skills. You are expected to work independently, on your own time, and in collaboration with others.

Programming Practice

Your ability to advance in your programming ability is directly linked to the amount of time you commit to learning the software, troubleshooting and experimentation. Given the upper level designation of this class you are expected to produce advanced work of creative and aesthetic significance while tackling the technical aspects of programming.

Collaboration and Groups

Students working together will be graded based upon the success of the group, and should therefore plan accordingly to define roles and assure equal participation amongst collaborators at the beginning of group projects. Please inform the professor if you are having difficulties with the collaborative dynamic in your group before problems arise.

Art and Art History Librarian

The Art and Art History library liaison is **Aliza Elkin**, an excellent resource for academic and creative research. You can contact Aliza via email at http://aliza.elkin@sjsu.edu or 408-808-2043 for further assistance. The New Media LibGuides library page is located here ~ http://libguides.sjsu.edu/NewMedia

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs Syllabus Information web page located here ~ http://www.sjsu.edu/gup/syllabusinfo/

Department Advising

For information about majors and minors in Art & Art History, for change of major/minor forms and a list of advisors: http://www.sjsu.edu/art/ Visit the Art & Art History department office in ART 116, 408-924-4320, or via email art@sjsu.edu

Assignments and Grading Policy

Assignment prompts will be provided via the Canvas CMS. All submission requirements are defined in the assignment prompt. See course schedule for complete topics and dates. The course schedule provides dates, topics, and assignments *due on the day they are listed in the schedule, unless otherwise noted.*

Date	Assignment	% pts
01/30	Assignment #1/ Interactive artwork link + 1-page paper	5%
02/15	Assignment #2/ Max hack patch	10%
03/01	Assignment #3/ MSP patch	10%
03/13	Assignment #4/ Jitter patch	10%
03/20	Assignment #5/ CV.jit + OpenGL patch	10%
04/03	Assignment #6/ Individual project proposal	10%
04/17	Assignment #7/ Blog entries on weekly course topics complete	15%
04/26	Assignment #8/ Individual projects proof of concept patch	5%
05/08	Assignment #9/ Individual final projects	15%
05/17	Assignment #10/ 3-page final paper	10%
TOTAL		**100%**
* All assignments must be submitted via Canvas on the due date above. Assignment due dates are also listed in the course schedule with a weekly breakdown of topics.		

Late Work Policy

Work is considered late if posted after the due date/time. The default time for submission of work is the beginning of class, unless specified otherwise in the schedule. For each day the work is late (marked each 24 hours by the day and time of original deadline), the work decreases by half a grade (a B+ goes to B-, a B- to a C+, etc.)

Grading Policy/ Rubric

A = 100 - 90% ~ Excellent = Student exhibits exemplary effort at comprehension and application of the required materials. All creative and programming work is engaging.

B = 89 - 80% ~ Average = Student completes assignments, and demonstrates a grasp of key programming and creative concepts. Student participates actively in the classroom.

C = 79 - 70% ~ Below Average = Student completes the assignment but may lack enthusiasm or drive to push the work into a detailed creative or critical space. The work lacks creative and aesthetic effort. The work is underdeveloped, incomplete or broken.

D = 69 - 60% ~ Unsatisfactory = Student does not complete the work as assigned. Substantial problems exist in student's work.

F = < 60% ~ Fail = Student does not submit work, or work is below unsatisfactory level.

Art 107 Course Schedule/ Spring 2018

The course schedule provides dates, topics, and assignments due on the day they are listed in the schedule. If it's in blue, it's due!

Week	Date	Topics, Assignments, Deadlines
1	01/25	**Course intro, syllabus overview, software, course blog**
2	01/30	**Introduction: Interactivity as art** Introduction(s) to creativity technique, aesthetics, and example **Discussion topic:** Interactivity **Reading assignment and blog post due:** *Transforming Mirrors: Subjectivity and Control in Interactive Media* by David Rokeby + *Toward a Third Culture*: *Being in Between* by Victoria Vesna **Assignment #1 due** = 1 page single-spaced paper and link(s) describing an interactive artwork which you consider creatively and technically exceptional, and explain why
	02/01	**Intro to Max 7 ~ Software as art** Introduction to software, tutorials, resources and demos Continue viewing Assignment #1 projects in class
3	02/06	**Max 7 ~ Max patches and objects** Patches, objects, numbers, floats, ints and more documentation **Discussion topic:** Human computer interaction **Reading assignment and blog post due:** *The Encyclopedia of Human-Computer Interaction, 2nd Ed***.** By John M. Carroll

Week	Date	Topics, Assignments, Deadlines
	02/08	**Max messages and debugging** Hello & Bang! Message order and debugging
4	02/13	**More Max objects** Recursive patching and hacking, encapsulation **Discussion topic: Generative Systems** **Reading assignment and blog post due:** *Jelly Lovers* by Michael Joaquin Grey
	02/15	**Max math** Numbers, expressions and lists **Assignment #2 due** = Hack 3 Max tutorials into one working patch
5	02/20	**Max data objects** Data input types and storage **Discussion topic:** Art/ Science **Reading assignment and blog post due:** Donna Haraway interviewed by Thyrza Nichols Goodeve in The Brooklyn Rail **Visiting Scientist Dr. Elizabeth Skovran from College of Science**
	02/22	**Max data collection object** Data collection using the coll object. Coll and preset object workshop
6	02/27	**MSP/ Max data flow** Controlling data flow for sound generation in MSP **Discussion topic:** Rapid Prototyping **Reading assignment and blog post due:** *Rapid Prototyping and Art* by Michael Rees
	03/01	**MSP Audio Synthesis** Signal generators and sound in Max **Assignment #3 due** = MSP patch using the coll object to parse data
7	03/06	**Jitter Workshop I** QuickTime movies and matrices (video as data) **Discussion topic:** Telepresence **Reading assignment and blog post due:** *Telepresence Art* by Eduardo Kac

Week	Date	Topics, Assignments, Deadlines
	03/08	**Jitter Workshop II** OpenGL in Max (render contexts, gridshapes and videoplanes)
8	03/13	**Jitter Workshop III/ CV.jit** Introduction to computer vision Live video input using video tracking algorithms (CV.Jit) **Discussion topic:** Cybernetics **Reading assignment and blog post due:** *The Body is Obsolete* by Stelarc **Assignment #4 due** = Jitter patch using matrix and preset objects
	03/15	**Jitter IV** Functional programming - input and interaction for video and audio installations, games and immersive systems
9	03/20	**Max/ MSP/ Jitter** **Final Project Proposal Assignment Given** **Discussion topic:** Virtuality **Reading assignment and blog post due:** *Embodied Virtuality: Or How to Put Bodies Back Into the Picture* by N. Katherine Hayles **Assignment #5 due** = Jitter tracker patch using live input to trigger and modulate Jitter matrices and/ or Jit.GL shaders
	03/22	**Max/ MSP/ Jitter Workshop** Project development and programming for interaction
SPRING BREAK/ 03.26 through 03.30 (No class, enjoy your spring break!)		
10	04/03	**Max/ MSP/ Jitter Workshop** Project development and programming for interaction and data analysis **Discussion topic:** Artificial Life **Viewing assignment and blog post due:** Conway's *Game of Life* **Assignment #6 due = Proposals for individual projects**
	04/05	**Max/ MSP/ Jitter Workshop** Programming for interaction and data analysis
11	04/10	**Individual Project workshop intensive #1** Content development, programming and fabrication for final project(s)

Week	Date	Topics, Assignments, Deadlines
		Discussion topic: Cyberfeminism **Reading assignment and blog post due:** Donna Harawy reading TBA + *Tactical Cyberfeminism: An Art and Technology of Social Relations* by subRosa
	04/12	**ATC/ Individual Project workshop intensive #2** Content development, programming and fabrication for final project(s)
12	04/17	**Individual Project workshop intensive #3** Content development, programming and fabrication for final project(s) **Assignment #7 due = Blog entries on weekly course topics complete**
	04/19	**Individual Project workshop intensive #4** Content development, programming and fabrication for final project(s)
13	04/24	**Proof of concept patch demos I presented in class**
	04/26	**Proof of concept patch demos II presented in class** **Assignment #8 due = Individual projects proof of concept patch**
14	05/01	**Maker Faire Exhibition/ Group Project Workshop #1** Workshop intensive for final group projects
	05/03	**Maker Faire Exhibition/ Group Project Workshop #2** Workshop intensive for final group projects
15	05/08	**Final project presentations I/ II** Final project presentations and critiques **Assignment #9 due = Individual final projects**
	05/10	**Final project presentations II/ II** Final project presentations and critiques
		Exhibition setup for Maker Faire 2018 Preparation for Maker Faire exhibition/ May 18th – 20th Final projects setup and tested on DMA computers *http://makerfaire.com/bay-area/call-for-makers/*
Final Exam	05/17	**Thursday, May 17th 9:45am – Noon** **Assignment #10 due = 3-page final paper**
Note: This schedule is subject to change. You will be notified of any changes in a timely manner. Any changes will not affect your ability to complete the assigned coursework.		